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Ranvir S. Rai

Innovating in Practice: A Practice-Theoretical Exploration of Discontinuous Service Innovations

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Paper 1

Facilitating transformative change with continued SST use in medication adherence practices

Ranvir S. Rai

Paper 2

Redefining adoption context: Understanding technology acceptance in practice

Ranvir S. Rai and Fred Selnes

Paper 3

Locating the origins of disruption: A practice-theoretical discussion of disruptive innovation within service ecosystems

Ranvir S. Rai

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Innovating in Practice

A Practice-Theoretical Exploration of Discontinuous Service
Innovations

by

Ranvir S. Rai

A dissertation submitted to BI Norwegian Business School
for the degree of PhD

PhD specialization: Innovation and Entrepreneurship

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Ranvir S. Rai
Innovating in Practice: A Practice-Theoretical Exploration of Discontinuous Service Innovations

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Ranvir Singh Rai

1. Summary

“The real voyage of discovery consists not in seeking new landscapes,
but in having new eyes.”
— Marcel Proust

The purpose of this study is to contribute to the understanding of technology-based service innovations. The overarching research question has been: How can we understand service innovation from a practice-theoretical perspective, and in particular, how do social practices increase our understanding of adoption processes and expand knowledge for technological design purposes?

With my engineering background and experience from management consulting, the quest of translating customer insight into functional properties has been a challenge that I have wanted to investigate closer from a theoretical point of view. While addressing this challenge, I have examined the literature of new service development and looked into how customer needs are analyzed when developing new services. After a wide-ranging literature review, I chose to employ a practice-theoretical perspective, where the term “customer practice” is set as the unit of analysis. The term was used as basis for interpreting how service offerings are adopted in multiple use contexts.

My ambition for doing this research was to understand, discuss, and contribute to the literature of service innovation by focusing on technology adoption from a sociological perspective. The application of a practice-theoretical perspective has resulted in the theorization of “innovating in practice”, which emphasizes how value is co-created in new ways. Empirically, I have employed data from two longitudinal case studies from educational and health care contexts to study the interaction between practices and new technology.

This research has consisted of three papers – two empirical and one conceptual paper. The first paper investigates medication practices in a Norwegian municipality. In this case study, the adoption and the subsequent development of new medication practices is examined through a practice-theoretical lens. The second paper explores the adoption of a new service technology within an educational site of multiple study practices. By conceptualizing technological adoption as resource integration, the paper contributes by expanding our understanding of how new technology is integrated within specific study practices at a Norwegian business college. The third paper is conceptual, and discusses the peculiarities of disrupting practices. Although the empirical papers are different in empirical focus, all three examine service technologies and are interpreted through a common theoretical perspective.

The main contribution of this study pertains to the application of the practice-theoretical framework that is introduced in later chapters. The framework proposed serves as an analytical device for discussing innovation by reflecting on the perplexing link between use and development. The proposed framework portrays the interaction between use and development as a reciprocal cyclical relationship, as they stimulate each other and co-evolve over time. This approach may solve a number of problems facing researchers working in new service development studies. First, it helps researchers regard innovation as a situated, local accomplishment involving diverse and multiple actors who engage in various practices. Second, it acknowledges the roles of value propositions in constituting practices. Third, it proposes an alternative contextual interpretation of needs and their application in terms of service development.

2. Introduction

In the past decade, the field of service innovation has undergone radical shifts that have changed how scholars interpret and view the nature and process of service innovation and the role of information technology (IT) as a critical enabler. In particular, the emerging service-dominant (S-D) logic framework (Vargo and Lusch, 2004, 2008) has represented a move towards network-centric (Chesbrough, 2003), information-centric (Glazer, 1991), and experience-centric (Prahalad and Ramaswamy, 2004) foci in theorizing the creation and delivery of innovative service offerings.

Meanwhile, we have witnessed a proliferation of service innovations across a broad spectrum of society. With new technologies advancing in unprecedented pace and facilitating new forms of value creation, they have the potential to transform entire markets. Breakthrough innovations such as Facebook, Google, Netflix, Twitter, and Second Life represent such radical market transformations enabled by new technologies. However, the potential adoption of technologies is far from predictable even if the proposed technology embodies the most promising features. As such, the role of information communication technology (ICT) as platform for service innovation has earned significant attention from scholars in both information system (IS) and service research domains. More specifically, the process of technology acceptance among consumers has been studied intensively through a variety of technology acceptance models – such as the technology acceptance model (TAM) introduced by Davis (1989), and subsequent successors such as TAM2 (Venkatesh and Davis, 2000).

However, the TAM models have been widely criticized because of their limited explanatory and predictive power, questionable heuristic value, and lack of practical application (Chuttur, 2009). Moreover, previous components of innovation characteristics and individual differences in TAM models have generated largely inconsistent findings (Meuter *et al.*, 2005). Given the lack of critical attention towards the contextual aspects of adoption, Turner *et al.* (2010) have, in a systemic literature review on TAM models, concluded that findings from such studies should be generalized very carefully outside the context in which they have been validated.

The present study addresses these issues by considering how technology adoption and use take place in specific contexts that are often interrelated. In doing so, various interdependent factors have been taken into consideration in order to comprehend adoption of ICTs. Hence, this dissertation pays explicit attention to how people and communities employ different tools and possibilities to accomplish various tasks in specific contexts that ultimately generate lasting change in routines and habits. In examining such changes, this research employs an alternative ontological perspective in order to examine technology acceptance and service innovation in various empirical settings. The research has drawn from practice theory as interpreted by Schatzki (2001) and Reckwitz (2002) and has applied *practice* as the unit of analysis.

2.1 Purpose of the study

It is in this dissertation asserted that social practices increase our understanding of why and how new value propositions are integrated in practice(s). Since value is not created in a vacuum, adjacent practices that also influence technology acceptance are addressed. In that way, this study attempts to capture the systemic dynamics of everyday consumption by exploring multi-contextual characteristics related to adoption of new technologies.

In exploring the overarching research question of how service innovation can be understood from a practice-theoretical perspective, I specifically investigate the adoption of technology-

based services in various empirical settings, through two longitudinal case studies in healthcare and education. In doing so, I define three research questions that form the basis for each of the three research papers of this dissertation:

- *RQ₁: How do customer entities adopt self-service technology over time as part of their everyday lives?*
- *RQ₂: How do multiple use contexts influence adoption of new technology?*
- *RQ₃: What are the origins of disruptive innovations within service ecosystems?*

The first two research questions in this dissertation concern service innovations in specific practices – and interdependent factors that come into play in the adoption of ICTs. Hence, these studies address a major topic in service literature related to both initial and long-term adoption of ICTs. The third research question focuses on disruptive innovation by extracting insights from the first two studies. In doing so, it directs attention to a particular phenomenon in innovation literature that is arguably poorly understood from a socio-material perspective.

The theoretical lens applied herein implies that customer behavior is regarded as a socially determined process that consists of recurring human activities and material arrangements organized in social practices. Regarding practices as units of value creation recognizes both consumers and producers as engaging in the innovation of practice, which is considered as new ways of performing activities. In managerial terms, such a discussion may benefit developers in constructing attractive value propositions towards relevant units of adoption. Hence, it is argued herein that an examination of consumers' everyday practices provides a promising understanding of the dynamics of consumption and adoption activities in evolving markets. In this regard, recent contributions from Warde (2005), Korkman (2006) and Pantzar and Shove (2010) have established an important basis and provided a key starting point for my research.

By investigating the mechanisms of technology acceptance within multiple practices, my objective is to elicit insights about the perplexing link between using and designing. In this study, firm practices are regarded as extensions of customer practices (Korkman *et al.*, 2010). Consequently, I focus mainly on how value co-creation takes place as firms participate in customer practices. Yet, I also intend to extract knowledge from this intersection to inform the design and development of provider practices.

The thesis is organized as follows: First, critical themes that have emerged in the field of service innovation in recent years are described. Next, the practice theoretical stance is presented as an alternative ontological starting point for interpreting service innovation. In the second chapter, I describe the methods that have been employed during the study. Later, I present the three research papers that constitute the core of this dissertation. Finally, in the conclusion chapter I summarize the findings, synthesize and discuss implications for research and practice, and conclude.

2.2 Theorizing service innovation: Point of departure

There are currently numerous different definitions of service innovation in the literature. In addition, there are various attempts at defining the boundaries of innovation as a concept in

general. By following the criteria of Schumpeter¹, Toivonen and Tuominen (2009, p. 14) have defined service innovation and a service innovation process as the following:

“A service innovation is a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organization that has developed it; the benefit usually derives from the added value that the renewal provides the customers. In addition, to be an innovation the renewal must be new not only to its developer, but in a broader context, and it must involve some element that can be repeated in new situations, i.e. it must show some generalizable feature(s). A service innovation process is the process through which the renewals described are achieved.”

By employing this definition, I will discuss some of the main aspects emphasized above in the coming chapters: How is a new service put into practice, how does it benefit the customer and provider, and how is the service reproducible in new situations? These questions relate to very specific challenges in the innovation literature. Below, I review four emerging themes in the literature of service innovation and corresponding challenges that have motivated the undertaking of this research project. Some of these themes are primarily to be seen as theoretical background rather than theories that are directly applied in the study. As will be clarified in the following sections; I employ practice theory as interpreted by Schatzki (2001) and Reckwitz (2002) and service-dominant logic (Vargo and Lusch, 2004, 2008) as the main theoretical foundation for theorizing service innovation in this study. In doing so, I intend to contribute towards the reconciling of practice theory with the contemporary perspectives of S-D logic and value co-creation.

2.3 Customer integration in new service development²

Due to the specific characteristics of services³ as opposed to products, it has been claimed that a customer oriented focus plays a more important role for service organizations (Alam, 2002). Hence, in this literature it is advocated that developers should discover known and unknown needs (latent needs) of the customer when developing new services so that customer value is enhanced. As such, delivering increased customer value has often been described as a fundamental issue for enterprises seeking to gain competitive advantages in a market (Huber *et al.*, 2001). However, defining customer value is often viewed as a complex undertaking with few clear-cut definitions, and therefore lacks consensus both in innovation and marketing literature (Ravald and Grönroos, 1996; Graf and Maas, 2008). Without a clear definition of the concept, the task of actually enhancing customer value from a provider perspective could be considered quite perplexing. Consequently, the literature of new service development and innovation stresses the importance of understanding customer needs and customer value drivers in order to develop successful services (Alam, 2002; Trott, 2001; Magnusson, 2009).

¹ Schumpeter considered three criteria to distinguish innovation from continuous improvement in organizations: i) Innovation is something that is carried into practice (Schumpeter, 1934, 88); ii) innovation is something that provides benefit to its developer (Schumpeter, 1912/2002, 111) ; and iii) innovation is something that is reproducible; in other words, the product/service can be applied in other cases (Schumpeter, 1934, 228).

² The terms “new service development” and “service innovation” have been used interchangeably in this thesis. The current study understands both terms as representing the same kind of organizational process.

³ In a review of 46 publications by 33 authors from 1975–83, Zeithaml, Parasuraman, and Berry (1985) determined the most frequently cited characteristics were intangibility, heterogeneity, inseparability, and perishability.

Moreover, in order to remain competitive within a landscape of increasing rivalry and new technologies, service organizations must innovate. It might be argued that effective service innovation requires the integration of firm capabilities with customers' needs (Dougherty, 2004). Such ambition involves understanding how the complex social processes of introducing new services interact with the complex social processes of actually using the service from a customer perspective (Leonard-Barton, 1998). However, the knowledge of designing and using (or intended value versus perceived value in use) could be quite ambiguous, since engineers often cannot know how solutions will work out before trying them out, while customers often cannot predict what they need before trying out the solution (Dougherty, 2004).

The challenge is therefore to understand how to involve customers and users as drivers and resources in the innovation process in order to develop value propositions that enhance value. According to some authors, the user-driven innovation approach has potential to meet these challenges and has gained a lot of attention in recent years (Kaasinen *et al.*, 2010). Moreover, many companies are starting to realize that innovation can prevail not only from the research and development department but also from the interaction with partners, suppliers, and end-users. Consequently, numerous firms in various industries are now engaging users to play an active part in the development of new or improved products or services. Empirical knowledge about how users might contribute to service innovation processes and results is also prominent in recent studies (Kaasinen *et al.*, 2010; Kuusisto and Päällysaho, 2008; Magnusson, 2003; Matthing *et al.*, 2006).

Gaining customer insight and exploring customer and user roles have therefore become important subjects within the literature of service innovation and new service development. This is especially true when considering that most new product and service developments are considered commercial failures (Balachandra and Friar, 1997), forcing many businesses to search for alternative ways to organize innovation initiatives. Consequently, user orientation has become a major trend across many industries, where three key approaches to customers' and users' roles in new service development are referred to in the literature (Kuusisto and Kuusisto, 2010).

These three key approaches are: (1) involving customers as participants in new service development activities; (2) making use of user-generated content and innovations; and (3) building deep customer understanding through observation. First, involving customers as participants one seeks to reveal the "voice of the customer" through focus groups and market research (varying from surveys to idea generation workshops), which helps to fine-tune concepts, but does not often function well as an instrument for innovation (Atuahene-Gima, 1996; Prahalad and Hamel, 1994). It is argued that in some cases the voice of the customer can actually hinder innovation, due to the sometimes conservative disposition of customers (Trott, 2001; Von Hippel *et al.*, 1999). Second, user-generated innovation processes assume that there are highly competent users whom may innovate services or products themselves – often referred to as "lead users" (Von Hippel, 1986). However, even though this research stream confirms that users do innovate, these findings put less emphasis on how companies that attempt to innovate may proceed to capture the important competences that reside within a user (Kristensson *et al.*, 2008). Third, firms might observe customer practices as a source of insight of naturalistic behavior (Gustafsson *et al.*, 1999; Slater, 2001). The last approach is claimed to bring a deeper understanding of customers' needs in their own setting of use, which is difficult to obtain through other forms of customer insight (Kristensson, 2006).

In summary, existing literature of customer integration in regards to service innovation provides important insights, yet the literature is scattered and there are few attempts to present an overarching understanding of how knowledge is created and learning is achieved with real (or potential) customers and then transferred within the organization. According to Matthing, Sandén, and Edvardsson (2004), customer involvement especially devoted to service research is preached but not practiced. In addition, many of the present research methods are primarily based on the opinions (voice) of the customer (Griffin and Hauser, 1993), which are characterized as needs, wants, perceived quality and perceived value, etc. This is naturally criticized by scholars (Atuahene-Gima, 1996; Slater, 2001; Gustafsson *et al.*, 1999), as at least 80% of the launches of new products and services fail, although customer input has been solicited in many cases (Zaltman, 2003).

In addition, a number of scholars (e.g. Hackley, 2003; Skålén *et al.*, 2008) have noted that academic marketing research is dominated by a normative approach – where developers *should* understand customer needs, and this understanding might eventually contribute positively to the development process. The majority of contributions within service development literature have focused on prescribing practices for marketing practitioners (e.g. Biemans, 2003; Workman Jr., 1993). Accordingly, there have been few attempts at describing service development as it is actually practiced (von Koskull and Fougère, 2010).

2.4 Applying the service-dominant logic framework

The user orientation approaches mentioned above echo well with the shift within marketing, which is transitioning from a company-centric to a customer-centric viewpoint. When the customer is the source of innovation, value is no longer determined by the producer; rather, it is “perceived and determined by the consumer on the basis of value-in-use” during interaction with a product or service (Vargo and Lusch, 2004, p. 7). Accordingly, the service-dominant (S-D) logic framework emphasizes the processes of serving rather on the output in the form of a product offering that is exchanged (Lusch and Nambisan, 2015). This view is contrasted with a goods-dominant (G-D) logic that focuses on the separation and control of actors to optimize tangible outcomes of economic processes (Vargo and Lusch, 2004, 2008).

S-D logic has received much attention in the service marketing and service innovation literature, and has increasingly been used as a foundation for understanding innovation in general (Barrett *et al.*, 2015). By advocating an alternative, transcending, service-centered logic, Vargo and Lusch (2004; 2008) have combined the work of various scholars from diverse disciplines and argued that all economic activity is primarily concerned with service. In doing so, they argue that the application of competences (such as knowledge and skills) is provided to benefit another party, in which service is exchanged for service. Value is therefore always uniquely and phenomenologically determined by the beneficiaries (for example, customers) who are involved in its value co-creation, through the integration of resources “gained through service, with other available market-facing, public, and private resources, in the context of their own lives” (Vargo, 2010, p. 234). By such means, that value is always heterogeneous and represents a measure of benefit. Consequently, the view above represents a shift from a G-D logic focusing on static, tangible resources (operand resources) to dynamic resources, such as knowledge and skills (operant resources) that are capable of co-creating value (Vargo, 2010).

The shift above implies that a service or product has no value in itself but is a platform for realizing value for the customer. As such, one of the core messages from this perspective relates to how the role of firms is to apply “one’s resources for the benefit of and in conjunction with

another party” (Vargo and Lusch, 2008, p. 7). Thus, the S-D logic addresses both firm value creation and customer value creation, offering an avenue for combining both sides. Consequently, companies do not create value for customers in S-D logic but *with* customers, since the customer utilization is imperative to the perceived value. Since the customer is always a co-creator in S-D logic, the properties of the customer and the customer's interaction is a critical component of the value created. Furthermore, the S-D logic perspective postulates that a company does not deliver value to customers, only a value proposition (Maglio *et al.*, 2009) as an invitation to engage with the firm (and other actors) for the co-creation of value (Vargo and Lusch, 2004).

In following S-D logic arguments, Lusch and Nambisan (2015, p. 161) have defined service innovation as the “re-bundling of diverse resources that create novel resources that are beneficial (i.e., value experiencing) to some actors in a given context; this almost always involves a network of actors, including the beneficiary (e.g., the customer).” Moreover, in broadening the conceptualization of service innovation, they have elaborated on a framework consisting of three elements: service ecosystem, service platforms and value co-creation (see Table 1). Their conceptualization is inherently network-centric and emphasizes how value co-creation is enacted within and enabled by *service ecosystems*. Moreover, they proposed that service ecosystems provide shared institutional logics and structures for resource integration, in which both structural flexibility and structural integrity are required⁴. The authors have suggested that such integration also necessitates digitally enabled *service platforms* that provide modular structures of rules, protocols, and tangible and intangible resources that facilitate interaction between actors and resources.

Central theme	Definition
Service ecosystem	A relatively self-contained, self-adjusting system of mostly loosely coupled social and economic (resource-integrating) actors connected by shared institutional logics and mutual value creation through service exchange.
Service platform	A modular structure that consists of tangible and intangible components (resources) and facilitates the interaction of actors and resources (or resource bundles).
Value co-creation	The processes and activities that underlie resource integration and incorporate different actor roles in the service ecosystem.

Table 1: Central themes in a broadened view of service innovation grounded in a S-D logic framework, adapted from Lusch and Nambisan (2015, p. 162)

The framework above provides a multifaceted understanding of service innovation founded on S-D logic and brings attention to actor-to-actor networks and resource integration. It also emphasizes the central role of information technology (IT) in the formation and functioning of service ecosystems. As such, it is argued that IT makes possible the establishment of value networks, in which sharing and integrating resources and knowledge may foster service innovation (Lusch and Nambisan, 2015).

⁴ Lusch and Nambisan (2015, p. 164) contend that “while structural flexibility allows actors to have agency, structural integrity facilitates the structures that are created to impinge on the actors so they become more engaged and glued to one another.”

The next section highlights the importance of digital technologies as platforms for service innovation and discusses the challenges of understanding technology acceptance.

2.5 Digital technologies and artifacts as platforms for service innovation

In embracing service as an engine of growth, many companies are leveraging the rapid development and widespread deployment of information and communication technologies (ICT). The importance of ICT in regards to service innovation has long been recognized; for instance, by Barras (1986). In his highly influential “reverse product cycle” model, Barras emphasized how companies in an initial phase use ICT for service improvement to increase the efficiency and quality of existing services. In subsequent phases, such changes over time may result in the emergence of entirely new markets or categories of services (Barras 1986, 1990). Hence, Barras’ theory of the reverse product life cycle model acknowledges that the innovation dynamic in services follows a specific pattern and describes the cycle of innovation in services as the reverse of a traditional product innovation cycle.

This view is supported by other scholars (i.e. Damanpour *et al.*, 2009; Gallouj, 2002; Miles, 2008) who have also focused on how service innovation is distinguished from product innovation. In contrast, other researchers have asserted that it may not be meaningful to differentiate between products and services, as products require service (as in self-service), while services involve some form of product or physical object (Bryson *et al.*, 2004; Johnson and Gustafsson, 2003; Von Nordenflycht, 2010). As such, the mix of service and products represents a growing trend towards servitization (Vandermerwe and Rada, 1989) as these two elements are sold as an integrated offering. Servitization strategies have become particularly evident in the field of information technology, as firms are increasingly selling *computing* instead of computers. The view above is consistent with the contemporary perspective of S-D logic, which advocates an alternative, transcendent, service-centered logic in which ICTs play a fundamental role in the formation of service ecosystems and therefore service innovation (Lusch and Vargo, 2014).

Although the literature highlights different approaches in theorizing service innovation, there is a consistent message that emphasizes the importance of ICT as an essential resource. Nonetheless, it is important to recognize the inherent complexity in diffusing ICT as a resource in a service ecosystem consisting of heterogeneous actors, institutions, and other resources. For example, Kallinikos *et al.* (2013) noted that digital artifacts may have an ambivalent ontology, as they might appear to be intentionally incomplete and perpetually growing (Garud *et al.*, 2008; Zittrain, 2008). Moreover, digital artifacts may become editable, interactive, reprogrammable, and distributed as they are embedded in wider and constantly shifting ecosystems (Kallinikos *et al.*, 2013).

2.5.1 Technology acceptance and diffusion challenges

As emphasized above, the role of ICT as a platform for service innovation is far from predictable, and has attracted significant attention from scholars in both information system (IS) and service research domains. More specifically, the process of technology acceptance among consumers, or actors in a service ecosystem, has been studied intensively through a variety of technology acceptance models – such as the technology acceptance model (TAM) introduced by Davis (1989), and subsequent successors such as TAM2 (Venkatesh and Davis, 2000).

However, the TAM models have been widely criticized because of their limited explanatory and predictive power, questionable heuristic value, and lack of any practical value (Chuttur, 2009). Furthermore, the underlying perspective utilized in prior technology acceptance research has been criticized for viewing consumers as “information processing computers” (Baron *et al.*, 2006) who attempt to “maximize the relations between attitudes, beliefs and attributes with little acknowledgement of the social and cultural context of the process” (*ibid.*, 112). Without differentiating between individuals, usage environment, and other socio-cultural variables the relationship between users and technology has been studied mainly from an instrumental point of view (Lu *et al.*, 2005; Homburg *et al.*, 2010). Another issue is the contention that acceptance is merely the first step toward constant use (Karahanna and Straub, 1999). Therefore, a number of variables may come into play when considering the use and acceptance of technology at an acquisition phase compared to continuous use of the same technology. Given the lack of critical attention towards these aspects, Turner *et al.* (2010) have, in a systemic literature review on TAM models, concluded that findings from such studies should be generalized very carefully outside the context in which they have been validated.

The present study addresses these issues by contemplating on how technology acceptance and use take place in materialized contexts within a service ecosystem. In doing so, various interdependent factors must be taken into consideration in order to understand adoption of ICTs. Hence, this dissertation pays explicit attention to how people and communities employ different tools and possibilities to accomplish various tasks in specific contexts that ultimately generate lasting change in routines and habits. In examining such changes, this research employs an alternative ontological perspective in order to examine technology acceptance and service innovation. The next section describes how a shift in ontology may facilitate such an investigation.

2.6 Bringing a practice-theoretical perspective to service innovation research

Recognizing the challenges within the cognitivist approach, where needs and wants belong to the mind of end-customers, this section reflects on how a shift in ontology may be beneficial when understanding and theorizing innovation. According to Reckwitz (2002), such a perspective may be ascribed to *mentalism* – a version of social theory which is based on “the idea that mind is a substance, place, or realm that houses a particular range of activities and attributes” (Schatzki, 1996, p. 22). Incidentally, Reckwitz (2002) has contended that this is only one of four versions of cultural theory – the other versions are *textualism* (symbolic structures appearing in chains of signs, in symbols, discourse, communication or “texts”), *intersubjectivism* (social interaction founded upon the use of language and symbolic interactions between agents) and finally *practice theory* (a routinized way of doing things that interconnects actions, tools, knowledge, and images).

2.6.1 Customer needs investigated through an alternative lens

I have chosen to employ practice theory as a socio-cultural lens as it provides a more nuanced and enriched version of reality when compared to the mentalist approach – particularly in reconciling how people adopt certain technologies as part of routines where goals and meanings are shared in social structures. In addition, the image of the customer as a human being is considered as better explained in practice theory, where perspectives discussed by psychologists, sociologists, anthropologists, and consumption researchers are taken into consideration. These assertions will be further elaborated and discussed in later chapters.

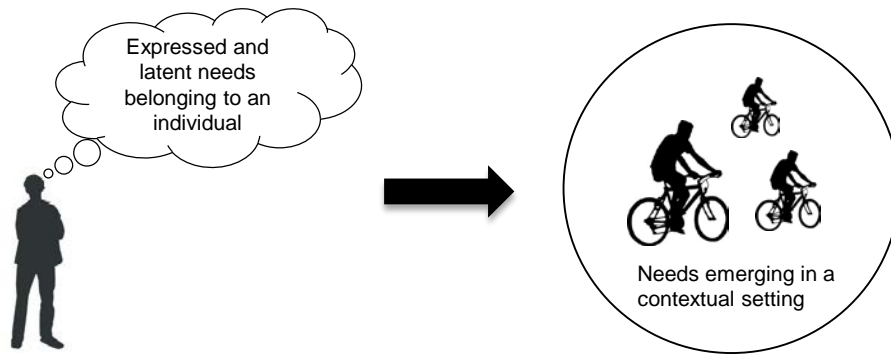


Figure 1: Transitioning from a cognitivist approach to a practice-theoretical understanding of needs

Figure 1 illustrates how the choice of ontology influences our interpretation of needs. The practice-theoretical approach (on the right side) emphasizes that needs are situated in a contextual setting where the individual's mind is only a part of the unit of analysis. Hence, needs emerge and are acted upon as numerous actors engage in a shared practice. Several scholars in the service development literature (e.g. Baron *et al.*, 2006; Korkman, 2006; von Koskull, 2009) have now adopted the same perspective when discussing service innovation. Following the assertions of researchers such as, for instance, Brownlie and Saren (1997), this research examines practices rather than prescribing practices through fieldwork to benefit the field of new service development. The next chapter provides a brief literature review of practice theory.

2.6.2 The practice-theoretical stance: A brief literature review

"The world is all that is the case"
— Ludwig Wittgenstein

The Austrian-British philosopher, Ludwig Wittgenstein, stated these cryptic words in his renowned work *Tractatus Logico – Philosophicus*, published in 1921. Wittgenstein has been one of the key influencers of concurrent practice theory and has inspired the work of key practice theorists⁵ such as Bourdieu (1990), De Certeau (1984), Giddens (1976), and Ortner (1984). Although these authors do not have a common interpretation of what practice theory is, they all place practice at the center of social understanding, whereas others have emphasized system, language, action, or structure in their definition of the social.

As discussed earlier, S-D logic postulates that value is not embedded in offerings, but is created in use (Vargo and Lusch, 2004). Equally important, the S-D logic framework acknowledges that value is not created in vacuum; however, it has not thus far theorized the value creation *context* and its influence on consumers. In this regard, Wittgenstein and his followers may offer their helping hand. Theodore Schatzki⁶, a “Wittgensteinian” practice theorist and philosopher, has provided one of the most coherent and developed contributions to practice theory. One of Schatzki’s (1996) central claims is that human actions and their thoughts cannot be understood independently of the social practices in which they are situated. According to Schatzki (2001)

⁵ Incidentally, these theorists have also been influenced by the ideas of other notable philosophers such as Heidegger (1962), Schutz (1967), and Garfinkel (1967).

⁶ Other notable contemporary practice theorists include Latour (1986), Lave (1988), Engeström (1999), and Reckwitz (2002).

, practices, such as bathing, weightlifting, or traveling, are contexts in which actions are carried out. These actions are solely determined neither by an individual nor by context, but in the integration of resource elements (Schatzki, 2002). In engaging in any practice, Schatzki (1996) asserts that consumers are directed by rules and teleoaffective structures that “govern action by shaping what is signified to an actor to do.” Moreover, the teleological dimension relates to the goal-oriented reasons for acting (in other words, task, project and purpose), whereas the affective dimension addresses moods, emotions, and feelings (Schatzki, 1996, p. 123). In the introduction of *The Practice Turn in Contemporary Theory* (Schatzki *et al.*, 2001), it is contended that mind, rationality, and knowledge are all constituted in practice, in which social life is organized, reproduced, and transformed. However, in articulating his interpretation of practice, Schatzki employed a strong humanist orientation, in which things are only regarded as mediators between primary social relations. In more recent work, leaning towards a post-human orientation, various practice theorists (Callon, 1986; Latour, 1987; Knorr Cetina, 1997; Pickering, 1995; Pinch, 2008; Suchman, 2007) have articulated the consequential role played by nonhumans, such as objects and technological artifacts, in producing social life. As such, these practice scholars have advanced the practice field by acknowledging the importance of materiality in the production of social life.

In developing Schatzki’s ideas further, Reckwitz (2002) called upon a practice understanding, which emphasizes a more clarified description of technologies and things as a necessary and irreplaceable part of creating and holding practices together. As I am interested in the relation of technology and its influence on how practices emerge and develop, I employ his definition of practice in this thesis. Reckwitz (2002, p. 249) defines practice as:

...a routinized type of behavior which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, “*things and their use*,” a background knowledge in the form of understanding, knowhow, states of emotion and motivational knowledge (emphasis added).

There are numerous ways of defining practice in the literature, originating from social science, philosophy, cultural theory, and science and technology studies (STS). Table 2 highlights a selection of various practice definitions.

Schatzki (2001, p. 2)	Practices as embodied materially mediated array of human activity centrally organized around shared understanding
Reckwitz (2002, p. 249)	A routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, “things” and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge
Nicolini <i>et al.</i> , (2003, p. 7)	Practice is a system of activities in which knowing is not separable from doing and learning is a social and not merely cognitive activity
Korkman (2006, p. 27)	Practices can be defined as “more or less routinized actions, which are orchestrated by tools, know-how, images, physical space and a subject who is carrying out the practice”
Araujo <i>et al.</i> , (2008, p. 7)	A focus on practice involves consideration of the links between material devices, embodied skills and mental representation and the configurations in which they come together
Kimbell (2009, p. 7)	Practices involve bodies, minds, things, knowledge, discourse, structure/process and agency and, importantly, cannot be considered by taking one of these elements in isolation
Schau <i>et al.</i> , (2009, p. 31)	Practices as linked and implicit ways of understanding, saying and doing things – that include practical activities, performances and representations or talk

Table 2: Various definitions of practice

As indicated in the table above, there are numerous ways of defining a practice. Yet, I employ Reckwitz’ definition, as it is one of the most elaborate formulations of the concept of social practices. By recognizing the importance of “things and their use,” Reckwitz has complemented Schatzki’s work with ideas from actor network theory (ANT), as developed by Bruno Latour (2005) in particular. In challenging notions of agency, Latour introduced the concept of symmetrical anthropology, in which objects and things “act” in ways similar to that of humans. In that regard, Reckwitz has contributed to the incorporation of a material dimension within social practices by emphasizing the important role of technology as being “constitutive” for social practices (2002, p. 212). However, Reckwitz has not embraced the anthropomorphic notions from ANT and has advocated that artifacts only have an effect insofar as they are handled by human agents. Therefore, as argued by Reckwitz (2002), “things handled” are as important for theories of social practice as “minds/bodies performing.” In that way, Reckwitz has incorporated the important role of objects and technology while simultaneously emphasizing the crucial role of knowledgeable and capable agents in shaping social life.

Moreover, applying the practice approach as key methodological unit of research is suggested as a way of avoiding the pitfalls of the individualist and systemic paradigms (Spaargaren, 2011). In the bottom-up perspective of the individualist paradigm, arguably too much responsibility for change is put on the plate of individual consumers, even though their thinking and actions “are shaped by fellow citizens and by the objects and situational factors which form an integral part of the contexts of their behaviors” (Spaargaren, 2011, p. 814). Meanwhile, the top-down perspective of the structuralist approach is criticized for underestimating the crucial role of human agents in participating and co-shaping processes of change.

Practice theory makes possible a more balanced approach that combines both bottom-up and top-down dynamics – recognizing the mutual influencing and co-shaping of human actors on the one hand and objects and technological infrastructures on the other (Shove, 2003; Spaargaren, 2003; Southerton *et al.*, 2004). By rejecting the agency-structure dualism, authors such as Bourdieu and Giddens have attempted to contribute to the synthesis between structuralist and interpretive schools of thinking within the social sciences. In order to separate micro- and macro-oriented approaches, Bourdieu introduced the concept of “habitus”, which aims to transcend “determinism and freedom, conditioning and creativity, consciousness and the unconscious, or the individual and society” (Bourdieu, 1990, p. 55). In a similar vein, Giddens proposed that “the constitution of agents and structures are not two independently given sets of phenomena, a dualism, but represent a duality” (Giddens, 1984, p. 25). In that way, practices, instead of individuals, “produce” and co-constitute individuals and their values, knowledge, and capabilities, and not vice versa (Collins, 2004). Thus, practice theories go beyond individuals but emphasize the fact that human subjectivity is at the heart of processes of structuration, reproduction, and change without reverting to the systemic, structuralist perspective that tends to overlook agency and subjectivity (Spaargaren and Oosterveer, 2010).

Practices also have a contextual component, which means that they are not synonymous with action, but expand the unit of analysis to the system that fosters action (Dourish, 2004). Moreover, many scholars distinguish between activity and practice. According to Jarzabkowski (2007), for example, activity refers to the actions of and interactions between actors as they perform their daily duties and roles, while practice refers to activity patterns among actors that are infused with a broader meaning and provide tools for ordering social life and activity.

There are numerous examples of the application of practice-theory in studies of technology use in an organization (Barley and Kunda, 2001; Orlikowski, 2000), strategizing (Jarzabkowski *et al.*, 2007; Whittington, 1996, 2006), organizational knowledge (Brown and Duguid, 2001; Ewenstein and Whyte, 2007), product development (Carlile, 2002), service innovation (Dougherty 2004; von Koskull 2009), and service management (Kjellberg and Helgesson, 2007; Araujo, 2007; Skålén and Hackley, 2011). Practice theory has in recent years also gained a foothold within the service marketing discipline, where it is acknowledged that repeated activities of practitioners create social structures in what has increasingly been referred to as “market practices” (Araujo *et al.*, 2008; Kjellberg and Helgesson, 2006).

The “practice turn” that is emerging in service marketing has focused on how markets constitute practices performed by market actors through cognitions, technologies, and actions (Araujo *et al.*, 2008). In this regard, Kjellberg and Helgesson (2006) have identified three distinct and interconnected *market practices* that shape the exchange market: exchange practices (activities that are involved in consummating individual economic exchanges of goods or services); normalizing practices (norms and rules guiding the actions of market actors); and representational practices (activities that represent economic exchanges as markets and support the way they work through shared images). The market practice view is based on a combination of the actors-network theory (Callon, 1998), the markets-as-networks approach (Mattsson, 1997), and practice theory (Reckwitz, 2002; Schatzki, 2001).

2.6.3 Service innovation as practice

Many service innovations are more or less adaptations, or minor modifications (Gallouj and Savona, 2009), to existing everyday practices that are, due to their embeddedness in our life, difficult to question and reinvent (Korkman, 2006). For instance, internet telephony (voice over

IP) services are not new from a customer-practice point of view, but rather an extension and advancement of ways to practice communication. Some authors have even claimed that the embeddedness of new products and services in current customer practices may be a prerequisite for successful product or service launches (Holtzblatt and Beyer, 1998).

Accordingly, it is worthwhile to consider how services are materialized in the natural evolution of practices. By drawing on practice theory and the emerging socio-material lens (Barad, 2014; Orlikowski, 2007; Suchman, 2007), Orlikowski and Scott (2014) outlined their perspective on service, in which they make several important assumptions:

- Service is constituted in peoples' everyday practices, which they define as recurrent, situated activities informed by shared meaning, as dynamic and ongoing, and involving a range of activities, bodies, and artifacts (*ibid.*, p. 203)
- Services are material, and are materialized in practice through the coordination of activities, bodies, and artifacts (*ibid.*, p. 204)
- The materialization of services (and goods) is performative, in which the specific material enactments of service (or of a good) are consequential for the outcomes produced (*ibid.*, p. 204).

Given this orientation, Orlikowski and Scott (2014) suggest that services and service innovations are contextually situated and performative, in which services are materialized in particular times and places through particular practices (*ibid.*, p. 205). In this respect, it is important to pay attention to how the material world affects human action (Warde, 2005). As noted by Miller (2005), the performance of most actions requires objects, and many actions are directed towards objects. In addition, people often develop intimate relations with certain things or objects that may be as intimate as the relations they develop with each other (Alakärppä and Valtonen, 2011).

Consequently, in emphasizing how services are materialized in practice, it is possible to view service innovation as bundles of practices and material arrangements that overlap and connect with “practical arrangements” of other organizations (Schatzki, 2005). Schatzki (2006, p. 1864) refers to material arrangements as “assemblages of material objects – persons, artifacts, organisms, and things.” In that way, we might regard service innovation as material arrangements consisting of multiple participants such as designers, managers, clients, end-users, and even material objects such as computers, sketches, and prototypes (Kimbell, 2012). In other words, practices that are relevant to service innovation and technology introduction may relate to management practices, design practices, administrative practices, and purchasing practices, as well as the (bundles of) practices of other organizations and actors such as industry organizations, NGOs, governmental agencies, and private citizens. Such a view de-emphasizes designers as the “sole creators” of new services (Barrett *et al.*, 2015), and directs attention to the characteristics of multiple practices that have their own history and trajectory of development that relate to each other in a multitude of ways.

Although it is possible to regard service innovation as material arrangements and bundles of practices, it is also important to emphasize the processual aspects involved. Earlier studies have showed how innovation processes may consist of different phases (e. g. Booz *et al.*, 1982; Cooper, 1988). In this regard, Russo-Spena and Mele (2012) drew on practice theory and S-D logic as they proposed that the act of *innovating* consists of five “co-s” including: co-ideation, co-valuation, co-design, co-test, and co-launch. By moving the focus from the outcome of innovation to the process, they explain innovating as ongoing co-creation practices performed by various actors who merge knowledge, actions, tools, languages, and artifacts in order to

create something new and better. As such, Russo-Spena and Mele regarded innovators as carriers of practices who are interrelated via a dense network. Moreover, the authors proposed that these phases are not necessarily performed in a sequential manner, as each phase “configures a share of the network’s elements through which the potential of co-creation can be exploited” (*ibid.*, p. 543). This interpretation is consistent with recent findings employing the S-D logic perspective (Gummeson, 2008; Russo-Spena and Colurcio, 2010). Even though such a perspective provides interesting insights that resonate well with the discussion above, it does not elaborate on how improved or new practices are reproduced by carriers that ultimately “do” the innovating, as discussed below.

2.6.4 Service production as practice

In contemplating on the output of a service innovation endeavor, a central question that comes to mind is: What makes carriers of a practice resist or adopt a new service or technology? And what turns such use into repeatable behavior? Barnes (2001, p. 24) asserted that these questions can be answered by viewing human beings as “interdependent social agents, linked by a profound mutual susceptibility, who constantly modify their habituated individual responses as they interact with others, in order to sustain a shared practice.” Thus, as participants in a social practice converse with each other; they mutually construe the “correct” ways of undertaking new artifacts, and modify their routines to either conform to, or deviate from, this new understanding. However, this only provides part of the picture.

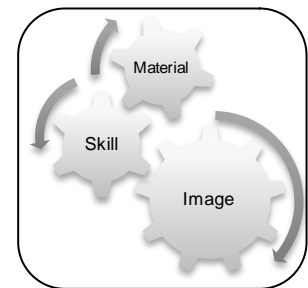


Figure 2: Constituent elements of practice as interpreted by Pantzar and Shove (2010)

Shove and Pantzar (2005, p. 58) offered a more elaborated perspective, arguing that “the emergence and demise of practices has to do with forging and failing links between materials, images and skills (i.e. the ingredients of any one practice).” Hence, different combinations of practice components or constellations of practices lead to change. These practices are then translated into performances, or what people actually do, with what, with whom, when, and how. Novel combinations of these three elements result in new performances activated by new activities and routines. Consequently, innovation continues in practice, where practitioners make the integration of practice elements happen as co-innovators and co-producers of service (Shove *et al.*, 2007).

Moreover, those authors’ discussions of Nordic walking conceptualized how material, skill, and image interconnect, as well as the processes involved in making a new practice. In the pre-formation stage before a new practice (such as Nordic walking) is established, the three elements are not connected. Through the formation stage and subsequent reformation stages, the three elements become linked and sustained by “a circuit of reproduction” (*ibid.*, 450). Finally, through the deformation of practices, the links between skill, material, and image are no longer being made. Yet, as Shove and Pantzar conclude in their analysis of Nordic walking, practice change is always set “against the backdrop of previous, related and associated ways of ‘doing’” (Shove and Pantzar 2005, p. 62). As such, history is important. Moreover, what may have worked in one context may not work in another: “new links have to be made and old ones broken” (*ibid.*, p. 60). As demonstrated in the case of Nordic walking, this involved, among other things, successfully associating walking sticks to images of well-being and health, instead of images of frailty and weakness.

In contemplating adoption in practice, it is important to reflect upon how multiple practices mutually influence each other in “bundles of practices” (Schatzki, 2001) or in evolving “systems of practices” (Pantzar and Shove, 2010). Although such theorizations surely complicate the understanding of technology acceptance as a phenomenon, they are important to consider in portraying the complexity of consumption and adoption activities. In this regard, Shove *et al.* (2012, p. 87) discussed how single practices may become dependent on other practices in terms of “sequence, synchronization, proximity or necessary co-existence”. Therefore, by co-depending on other practices, the probability of recruiting carriers increases and the new practice might evolve into a complex of several practices. By constituting complexes, such systems of practice might be regarded as loose systems of action where activities are maintained and repeated by individual agents. Shove, *et al.* (2012) exemplified the survival and demise of practice through the practice of hula hooping. A total of 25 million hula-hoops were sold within two months in the late 1950s, but the craze largely faded away two years later. In describing the decline of this play form, the authors discussed whether it sufficiently induced internal rewards in order to generate lasting interest or entailed symbolic associations with either good or bad behavior. A third explanation related to whether hula hooping was dependent on any other practice and enmeshed in a wider network. Of course, all of these explanations may be valid, but as argued later in this thesis, co-dependency on other practices is crucial if any practice is to become self-sustaining.

2.6.5 Technology as artifact and technology-in-practice

This research focuses specifically on how one of the above-mentioned foundational elements – material in the form of technology – can merge into existing practices and potentially enable increased value co-creation. As discussed later, certain technologies can be considered a vital element in the formation of new practices. However, it is only when technology integrates with meaning and competence as “a circuit of reproduction” (Pantzar and Shove 2010) that it can be regarded as an enabler of new behavior. In this regard, Orlikowski (2000) distinguished between “technologies as artifacts” and “technologies-in-practice” when discussing why technologies are often not applied as originally designed or intended (Bijker, 1997; Von Hippel, 1988). Technology as artifacts might refer to a bundle of materials such as hardware, software, and techniques (Orlikowski 2000, p. 408), whereas technology-in-practice refers to “the specific structure routinely enacted as we use the specific machine, technique, appliance, device, or gadget in recurrent ways in our everyday situated activities” (*ibid.*, p. 408).

Again, such an understanding emphasizes the dual nature of technology, as it can be both a product of human action and a medium of human action (Orlikowski, 1992), which allows a deeper and more dialectical understanding of the interaction between technology and organizations. As such, technology may assume structural properties in being both physically and socially constructed through different meanings that are attached to it by various actors (*ibid.*, p. 406). Through the social construction of a given technology, it may become institutionalized and become part of the structural properties of an organization. Hence, Orlikowski has emphasized how institutions are a critical resource for value co-creation.

2.6.6 Integrating practice theory and S-D logic

Interestingly, as the increasing significance and importance of social practices has been recognized in the service innovation literature, there have been attempts at reconciling practice theory with the contemporary perspectives of S-D logic and value co-creation. In this regard, Korkman *et al.* (2010) have made one of the first explicit connections between practice theory

and S-D logic. They suggest that S-D logic should incorporate the following practice-based viewpoints:

- Practices are fundamental units of value creation – value is created as actors engage in practices
- Practices are resource integrators – value is created as customers integrate sociocultural resources
- Firms are extensions of customer practices – customers are not extensions of firm’s production processes; value co-creation happens as firms participate in customer practices
- Value propositions are resource integration opportunities – firms enhance value creation by providing resources that “fit” into customers’ practice constellations

In making the connection between practice theory and value co-creation, Korkman *et al.* (2010) asserted that a central aspect of practice is the integration of resources, as value is created through the enactment of various resources in a given practice. Since firms are regarded as extensions of customer practices, it is asserted that the role of the firm then becomes to provide resource integration opportunities through value propositions, later assisting them if the value proposition is accepted. As such, the authors assert that the practice approach enriches S-D logic by understanding “*practices as markets*” and by “promoting a socio-cultural view to value co-creation” (*ibid.*, p. 245). Therefore, in order to assess the value of market, one must analyze the “use value of practices that are carried out in a market viewed as a network of interdependent actors (a value creating system)” (*ibid.*, p. 239). This could facilitate the assessment of future consumption possibilities and enable the understanding of *emerging* economic exchange. Conversely, as the authors argued, an analysis of economic exchange would provide a “rear-view mirror” perspective to the market.

Nonetheless, in merging these two perspectives, it is important to recognize the subtle differences between practice theory and S-D logic. In the tenth foundational premise of S-D logic, it is postulated that “value is always uniquely and phenomenologically determined by the beneficiary” (Vargo and Lusch, 2008, p. 9). The term “phenomenological” is intended to capture the experiential nature of value that is always unique to a single actor. On the other hand, in practice theory it is asserted that value cannot be studied as “experiential and idiosyncratic” as depicted by (Vargo and Lusch, 2008), but must be regarded as practical changes that take place in the natural evolution of practices where people and things are the “carriers” of routinized ways of “doings” (Korkman *et al.*, 2010). Hence, practice theory necessitates an alternative ontological vantage point that differs from traditional marketing and management literature. In later chapters, I further describe how this view may benefit the theorization of innovation.

2.6.7 Implications for empirical research

The practice theoretical approach induces numerous consequences when translated to empirical research. As proposed by Schatzki (2002), things or objects of practices do not operate in isolation, but “hang together” in specific ways. This implies that existing technologies and infrastructures and their corresponding lock-in mechanisms must be analyzed in terms of both inter- and intradependencies between human agents and physical, material objects. In that regard, Schatzki described a particular type of relationship termed “prefigurational relationships” (2002, p. 210–233) that refer to future forms that are possible and feasible given the existing state of affairs. Such relationships are particularly interesting when studying changes in practice, or adoption of new technologies.

For instance, when new technologies or artifacts are introduced they may or may not fit the existing order of things within a practice. From a practice-theoretical view, the successful adoption of new product or service come to depend not just on “mental appropriation” by the actors involved, but also on the tightness of fit the new object displays with regard to existing portfolios of objects, bodies, and meanings already entailed in the practice (Spaargaren, 2011). Thus, new objects and technologies are enabled or constrained by existing portfolios of the human agents involved in the reproduction of the practice through specific forms of appropriation, normalization, cultivation, and naturalization (Schot and de la Bruhèze, 2003; Wilk, 2009). As mentioned above, the embeddedness of new products and services in current practices may therefore function as a prerequisite for successful product or service launches (Holtzblatt and Beyler, 1998).

This view is supported by Korkman *et al.* (2010), who proposed that practices are contextually embedded “doings” determined by the integration of resource elements. They also argued that practices are path-dependent, suggesting that resource integration might be studied historically by observing “the integration of objective elements to certain practices, and the value and meaning emerging from this process” (*ibid.*, p. 237). Therefore, practices become fundamental units of value creation, as they integrate resources for which value in use is depicted as how well resources “fit” into customers’ everyday practices. Therefore, by conceptualizing new technology as a resource, adoption of a new technology becomes a question of how this new resource fits into customers’ practices, leading to an improved practice or potentially to the emergence of a new practice. Hence, value from a new technology is not “created,” but *formed* as part of a dynamic resource integration that is arranged into a practice (Korkman, 2006).

These assertions coincide with the arguments of Warde (2005). He argued that it is practices that create wants, rather than individual desires in line with practice-theoretical underpinnings. Thus, wants are emerging as the consequence of engagement in a practice of a particular activity: “it is the fact of engagement in the practices, rather than any personal decision about a course of conduct, that explains the nature and process of consumption” (Warde, 2005, p. 138). Moreover, in line with Korkman *et al.* (2010), this thesis focuses on practices as the unit of value creation. Hence, engaging in practice is considered as an act of value creation (Schau *et al.*, 2009).

The approach in this study follows the emergent perspectives described above and explores how an understanding of practices might explain the way in which new technologies and their corresponding value propositions are adopted and integrated in existing or new practices. By employing the above-mentioned perspectives, practice is regarded both as unit of analysis and as a fundamental unit of value creation. In moving forward, my ambition is to further expand the practice-theoretical approach to service innovation and elaborate upon the peculiarities of practices as resource integrators.

2.7 Explaining the need for more theory building

It has been argued that the practice literature is incomplete (Kimbell and Street, 2009), since it is based on a somewhat narrow view of practice that does not connect it to managerial issues of innovation and competitive advantage. So, if practice theory is to address how to organize practice for strategic ends, more theory building is needed, which might also enrich the field of service innovation.

In my opinion, there are few analytical conceptualizations or frameworks that directly address the complex interactions between designing a technology and using it in practice, where a technology transitions from being an artifact to becoming a technology-in-practice (Orlikowski, 2000). Hence, further research is needed to operationalize different elements and mechanisms within a practice in order to increase our understanding of how practices emerge, evolve, and change when new technologies are introduced to inform both the theoretical and managerial aspects of innovation. Most models of service innovation processes (e.g. Gustafsson *et al.*, 1999; Alam, 2002) within the literature of new service development end where consumption begins. Furthermore, studies mapping interactive value creation processes between companies and customers have been attempted (see Payne *et al.*, 2008) in a dyadic context but have also been based upon a mechanistic linear approach.

Incidentally, a few authors have addressed the gap between designing and using. For instance, Ingram *et al.* (2007) have discussed a cyclical model of designing and consuming (see Figure 3 below) and elaborated on the possibilities of cross-fertilization between fields of social theory and design research. Yet few scholars have explored such assertions further. According to Margolin (2002, p. 52), “We have no theory of social action that incorporates a relation to products, nor do we have many studies of how people acquire and organize the aggregates of products with which they live their lives.”

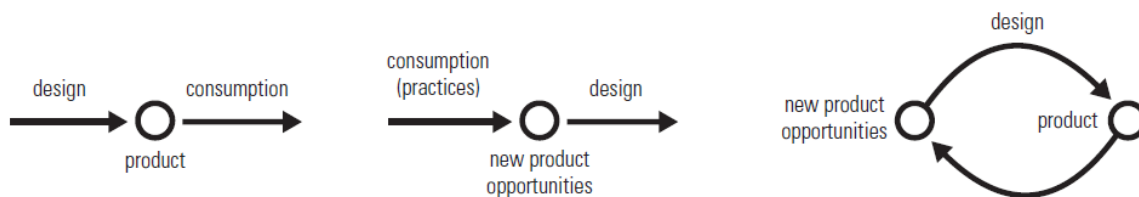


Figure 3: Various models of design and consumption processes; adapted from Ingram, Shove, and Watson (2007)

This research elaborates further on such a cyclical model of designing and consuming (as indicated in the third illustration in Figure 3), where practices stimulate design of new value propositions (consisting of service and/or products) which again influence the emergence of improved or new practice. In moving forward, I aim to further conceptualize such a cyclical model through practice-theoretical premises. This is further examined in the concluding discussion towards the end of this dissertation.

2.8 Research questions

In the literature review, I have discussed various themes in the service innovation literature and argued how a practice approach may benefit the further theorization of service innovation. In my exposition of practice theory, I have paid explicit attention to how service is constituted within practice, both in its development and reproduction, as carriers of practice continually exploit various resources, and integrate them in different practices. By discussing how the contemporary perspectives of S-D logic and practice theory have merged in recent years, I aim to expand this theoretical repositioning further by explaining how technology integrates into practice constellations.

The present study addresses these issues by examining how technology acceptance and use take place in materialized contexts within a service ecosystem. In doing so, various

interdependent factors have been taken into consideration in order to understand adoption of ICTs. Accordingly, this dissertation pays explicit attention to how people and communities employ different tools and possibilities to accomplish various tasks in specific contexts, a process that ultimately generates lasting change in routines and habits. By investigating the mechanisms of technology acceptance within multiple practices, my objective is to elicit insights about the perplexing link between using and designing. Nonetheless, since firms are regarded as extensions of customer practices, I focus mainly on how value co-creation takes place as firms participate in customer practices. Hence, I also intend to extract knowledge from this intersection to inform the design and development of provider practices.

In exploring the overarching research question of how service innovation can be understood from a practice-theoretical perspective, I specifically investigate the adoption of technology-based services in various empirical settings, through two longitudinal case studies in healthcare and education. In doing so, I define three research questions that form the basis for each of the three research papers of this dissertation. In the following section, I briefly introduce and put forth these research questions.

2.8.1 Continued self-service technology use

As discussed previously, service most often involves some form of product or physical object as part of a service offering. As such, the material enactment of a technology could be significant for the outcomes produced (Orlikowski and Scott, 2014). However, the integration of a new artifact into any existing practice may introduce a number of challenges. More specifically, the potential adoption of a self-service technology may interfere with existing habits, institutions, and former ways of doing for both service providers and service consumers. The first paper explores such challenges and investigates long-term adoption of a self-service technology, in which both service innovation and service production induce various forms of resource integration challenges. Hence, my first research question is:

RQ₁. How do customer entities adopt self-service technology over time as part of their everyday lives?

2.8.2 Technology acceptance in multiple practices

As noted by Vargo and Akaka (2012), resource integration can be conceptualized as a central practice in value co-creation. However, in order to comprehend how such material changes take place, it is critical to focus on how existing practices form co-dependencies that influence the acceptance or rejection of new value propositions. The second paper addresses such issues by investigating technology acceptance as a phenomenon. By examining technology acceptance models such as the task-fit technology model (Goodhue and Thompson, 1995), a “task environment” is conceptualized as a dynamic and ongoing set of evolving practices. In doing so, the study examines various interdependent practices and their corresponding “circuits of reproduction” (Pantzar and Shove, 2010). The second research question is:

RQ₂: How do multiple use contexts influence adoption of new technology?

2.8.3 Disruptive innovation in practices

The aforementioned case studies both represent resource integration challenges, and arguably concern how new practices have to compete for new carriers from existing practices. In this

respect, these service innovation studies entail instances of extension, in which old ways of doing are abandoned as new ones are adopted (Gronow, 2009). From a consumer perspective, some of these new ways, albeit initially being inferior, introduce new benefits of convenience and simplicity, and therefore are regarded as having disruptive properties (Christensen, 1995). The study explores such structural alterations by discussing the mechanisms of disruptive innovation through the lens of practice theory combined with the service-dominant logic perspective. Hence, the third research question is defined as follows:

RQ₃: What are the origins of disruptive innovations within service ecosystems?

2.9 Summary and concluding comments

In this dissertation, I investigate different aspects of resource integration processes as consumers employ new technologies to accomplish various tasks in specific contexts that to a certain extent generate lasting change in routines and habits. Since value is not created in a vacuum, adjacent practices that also influence technology acceptance are addressed. In that way, this study attempts to capture the systemic dynamics of everyday consumption. The first two research questions concern such changes in specific practices – and interdependent factors that come into play in the adoption of ICTs. Thus, these questions address a major topic in service literature related to both initial and long-term adoption of ICTs. The third question focuses on disruptive innovation by extracting insights from the first two studies. In doing so, it directs attention to a particular phenomenon in innovation literature, which is arguably poorly understood from a socio-technical perspective.

In sum, the research questions cover these key analytical facets in technology-based service innovation literature: 1) long-term adoption – resource integration variants, contextual factors, and outcomes related to well-being; 2) analytical understanding of adoption contexts and interdependencies; and 3) disruptive service technologies – discontinuous innovation and structural alterations. All of the above-mentioned research questions are addressed in three research papers that constitute the core of this dissertation. The table below summarizes the various theoretical streams and approaches that have been applied in the papers.

	Technology adoption	Practice theory	S-D logic	Service ecosystems	Disruptive innovation theory
Paper 1	X	X	X		
Paper 2	X	X	X		
Paper 3	X	X	X	X	X

Table 3: Theoretical streams and approaches that have been applied in the papers

By taking a practice-theoretical approach combined with the S-D logic framework, this research aims to provide a socio-material understanding of technology-based service innovations. In doing so, I emphasize how service and service innovation is contextually situated and performative, and therefore materialized in particular practices through the coordination of activities, bodies, and artifacts (Orlikowski and Scott, 2014). In regarding everyday practice as recurrent situated activities informed by shared meaning, they are dynamic, ongoing, and continually reproduced by their carriers. Thus, practices are established as fundamental units of value creation and function as resource integrators (Korkman *et al.*, 2010).

Understanding the endeavor of innovating in practice or practice constellations therefore requires a careful analysis of bundles of practices that are often interdependent and stabilized through history and various trajectories of former developments. Hence, taking a practice approach necessitates the comprehension of complex and sometimes ambiguous relationships, which requires the collection and analysis of rich field data. The next chapter provides a description of the methods that were employed during the research, followed by research articles and a concluding discussion.

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3. Methodology⁷

In this chapter, I clarify the methodological choices that have been made during this dissertation project. In investigating practices in real-time, I have employed case study as a central research strategy, as it provides unique opportunities of developing theory by utilizing in-depth insights of empirical phenomena and their contexts (Dubois and Gadde, 2002). As such, the case study approach could potentially facilitate the uncovering of complex patterns and relationships by utilizing rich, processual, longitudinal, and contextual data (George and Bennett, 2005; Van de Ven and Poole, 2005; Pettigrew, 1990). Such empirical descriptions are particularly relevant for my study, as I have investigated technology acceptance in multiple practices in which numerous interdependent factors come into play in complex socio-material settings of everyday life. In doing so, I have conducted two longitudinal single-case studies with embedded case study designs (Yin, 1994) that complemented each other. Single-case studies may arguably provide a more thorough understanding of complex research problems as opposed to many “surface case studies” (Dyer and Wilkins, 1991). According to Yin (1994), the single-case design is chosen because cases are critical, unique, typical, or longitudinal. In my study, the choice was to delve deeper into specific cases that were unique in terms of revealing the complexity of technology acceptance by providing a full and rich account of the processes involved. These choices are elaborated further later in this section.

Moreover, I have employed a process of building theory from case study research as suggested by Eisenhardt (1989), in which rich, empirical case data was collected. More specifically, my research process has to a large degree followed the characteristics of “systematic combining,” as advocated by Dubois and Gadde (2002, 2014). They argued that a research process consisting of planned sequential phases does not always reflect the potential uses and advantages of conducting case research. Besides, such sequential phases may not represent how case studies are conducted in “messy” empirical contexts consisting of complex social structures and ambiguous relationships. Instead, Dubois and Gadde (2002) describe a process of “going ‘back and forth’ from one type of research activity to another and between empirical observations and theory” (*ibid.*, p. 555), which may simultaneously facilitate the understanding of both theory and empirical phenomena. As such, the choice between induction and deduction becomes irrelevant when applying an integrated, abductive research process. Yet the authors asserted that a systematic combining approach is closer to an inductive than a deductive approach as it bears many resemblances to “grounded theory” (Glaser and Strauss, 1967), where theory is systematically generated from data.

The systematic combining approach reflects how my dissertation project was carried out, as I started my empirical work with several preconceptions that were further developed according to discoveries made through empirical fieldwork, analysis, and interpretation. By conducting the research in a non-linear and path dependent manner, the empirical fieldwork was done in parallel with the alignment of adequate theory, data sources, and analysis. Consequently, theory was uncovered and informed (Berg, 2009, p. 320) as a consequence of the empirical fieldwork that was conducted. In addition to the recommendations by the authors mentioned, I have also followed the methodological path taken by other practice theorists. In the sections that follow, I will provide a more detailed description of the research process.

⁷ This chapter provides a detailed account of the methodological choices that were made during this study. Due to the limited amount of space in the research papers, I outline various considerations regarding research design and methods, case selections, and theory development in this chapter.

3.1 Case selection

This dissertation project was part of a larger research program, “Value driven service innovation⁸” (VDSI), in which the main objective was to focus on service concepts by investigating innovation aspects that increase customers’ value-in-use (Vargo and Lusch, 2004). Among the different research areas that were defined in the project, one of them pertained to the adoption and use of self-service technology. As such, the decision of investigating technology acceptance and adoption was made at an early stage of the dissertation project, even though I did not know as the research process commenced which theoretical lenses I would employ. Still, it was important for me to identify cases that could enable the exploration of rich and contextual data for the purpose of explicating and refining emerging theory in the service literature.

In following the systematic combining approach, sampling is equalized with what is defined as “theoretical sampling” in grounded theory (Dubois and Gadde, 2002; Glaser and Strauss, 1967). Glaser and Strauss (1967, p. 45) define theoretical sampling as “the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges.” As such, sampling becomes a continuous process rather than a separate stage in the research process in order to arrive at an appropriate matching between the empirical world and theory (Dubois and Gadde, 2002). Given this orientation, a researcher who employs theoretical sampling “cannot know in advance precisely what to sample for and where it will lead” (Glaser, 1978, p. 37). Hence, in going forward, I intentionally selected technology-based service development case studies that could induce interesting research questions where my will to learn was more important than having a predefined research design. Moreover, as I was particularly interested in technological adoption challenges, I reviewed extant literature on the topic to have a rough working frame in place before commencing fieldwork (Miles, 1979). In having these research issues in mind, the research process evolved through a “tight and emerging” framework (Dubois and Gadde, 2002, p. 558), which was later modified as a result of empirical findings and theoretical insights that were gained. Below, I provide a brief description of each case selection.

3.1.1 Case study 1: Medication adherence

Through the collaboration network in the VDSI research program, I was given access to an exciting pilot project⁹, concerning the use of an electronic pill dispenser among private citizens at a Norwegian municipality in Sarpsborg, Østfold. Many elderly people living in their own homes are potentially at greater risk for medication error, often due to cognitive impairments (Barber *et al.*, 2009). Home care personnel and nurses provided by state municipalities are therefore required frequently, in order to help elderly users take their daily medications correctly. In addition, electronic pill dispensers (see Figure 4) are currently being tested in several Norwegian municipalities. Such dispensers may relieve users, caretakers, and next of kin by reminding



Figure 4: Electronic pill dispenser

⁸ The ‘Value Driven Service Innovation’ (VDSI) research program was conducted by BI Norwegian Business School in collaboration with Saïd Business School, University of Oxford, and University of California, Berkeley. The project was funded by The Research Council of Norway, Borg Innovasjon, and Accenture.

⁹ Case studies 1 and 2 were “found” during the course of research, and not specified beforehand – as suggested by Ragin (1992).

the user that it is time to take pills, providing correct dosage of pills, or notifying a designated caregiver if a dosage is missed, for instance. However, various devices need to be tested and adopted in the existing practice of medication, involving many user groups. In some cases, the technologies need further adjustments, while in other cases they might be rejected due to certain design flaws.

The project represented a unique case (Yin, 1994) because of two reasons. First, the pilot project was among the first of its kind in Norway, in which so-called welfare technology¹⁰ was tested with numerous users in order facilitate self-management of medication while potentially increasing the resource efficiency of municipal home care services. Second, the citizens who were selected by the municipalities and volunteered to join the pilot project consisted mainly of elderly individuals with limited technological knowledge. It could be argued that this was an extreme case (Yin, 1994), since technological devices may be particularly challenging for elderly consumers to adopt (Czaja and Schulz, 2006).

This study took place in the mid-sized city of Østfold, Norway (population of 52,000), where close to 10,000 individuals living in private homes receive assistance from municipal home care services. Nearly 30% of these services relate to assistance in terms of procuring, administrating, and handling medications. Through a qualitative interpretive approach, I attempted to contextualize the collaborating actors in the medication order-delivery practices on their own terms (Myers, 1999).

In order to comprehend the multifaceted challenges of introducing new technology and how new practices stabilize, Hanseth *et al.* (1996) suggested that the complex web of already existing networks of technologies and practices is best conceptualized as an information infrastructure. From an information infrastructure perspective, “the technology cannot be separated from social and other non-technical elements” (Hanseth and Lundberg, 2001, p. 349). Accordingly, I conducted fieldwork in two phases: in 2010, when the electronic pill dispenser was introduced; and again in 2012, when new “semi-electronic” medication practices had been stabilized in parallel with traditional medication practices. In the first phase, I focused on existing practices and initial adoption hurdles, while in the second phase I investigated continued adoption and related contextual interdependencies that ultimately resulted in the emergence of new medication practice.

Incidentally, unintentional medication error is one of the more serious challenges facing the health sector (Buajordet *et al.*, 2001). In 1999, the U.S. Institute of Medicine issued a report (“To Err is Human: Building a Safer Health System”) that estimated that medication error was the eighth-leading cause of death in the United States (Kohn *et al.*, 2000). Additionally, previous studies have indicated that a frequent source of medication errors is due to the difficulty in obtaining and sharing up-to-date, timely medication information (Leape *et al.*, 1995). Meanwhile, expectations are high when it comes to the transformational potential of various welfare technologies in improving safety among patients and efficiency among healthcare personnel. However, ethnographically inspired studies have seriously challenged such expectations, arguing that realizing this potential is challenging; the socio-technical rigidity introduced with ICTs does not adequately support collaboration and transparency as

¹⁰ Welfare technology is defined as “technical assistance that contributes to increased safety, security, social participation, mobility and physical and cultural activity, and that increases the ability of individuals to lead an independent and autonomous life, in spite of illnesses or social, mental or physical disabilities” (NOU, 2011).

contingencies arise (Hamre, 2013). This study explores such issues, and particularly focuses on the long-term adoption challenges of technology from a user perspective.

3.1.2 Case study 2: Interactive learning

One of my colleagues¹¹ at BI Norwegian Business School informed me of an interesting research opportunity¹² concerning a longitudinal service development project involving numerous students. Many publishing companies are facing tough competition and are increasingly seeking new technological opportunities to keep their competitive edge in the market. To address these challenges, a Norwegian publishing company initiated the development of an interactive, web-based software application that could support and possibly replace physical textbooks. By taking advantage of digitization benefits such as increased interaction and dynamic feedback, the platform was developed in close interaction with end-customers (students), teachers, software developers, and the publishing company.

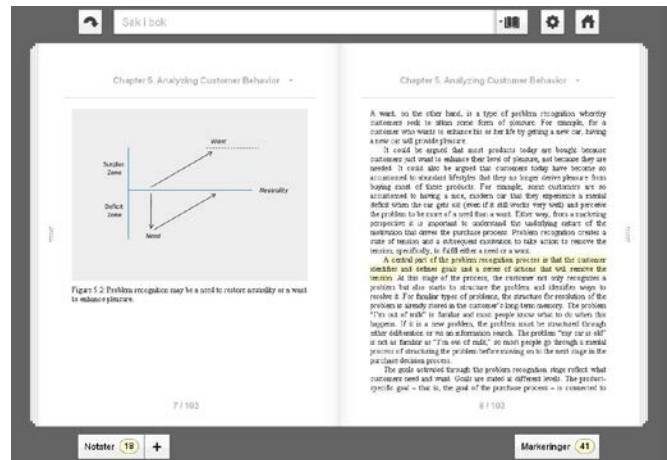


Figure 5: An extract of the interactive book reader

This project also represented a unique case (Yin, 1994) in terms of portraying one of the very first technological platforms for interactive textbooks in Norway. Additionally, it represented an interesting research opportunity because of its novel service offering, which could lead to very different outcomes through different adoption processes among hundreds of students. The project facilitated access to rich, contextual data that involved close interaction with numerous pilot users and other stakeholders at campus on BI Norwegian Business School in Oslo.

The intended service offering that was introduced could be ascribed to being part of a “blended learning” approach (Bonk and Graham, 2006). Blended learning is defined as “combining Internet and digital media with established classroom forms that require the physical presence of teacher and students” (Friesen, 2012, p. 1). Such a combination may serve to “facilitate a simultaneous independent and collaborative learning experience” (Garrison and Kanuka, 2004, p. 97) that attempts to deliver “the best of both worlds.” Christensen *et al.* (2013) have argued that blended learning that follows a hybrid pattern is on a sustainable trajectory relative to the traditional classroom. However, such hybrid learning could also appear as disruptive when it does not include conventional features of traditional classroom learning in its full form – and attempt to offer benefits that may align with a new definition of what is good, or “good enough.” Such benefits may relate to learning that is more personalized and customized according to individual student learning styles and pace. The case described above fits the characteristics of the latter form of blended learning. Nonetheless, since blended learning has a strong dependency on technical resources, such tools need to be reliable, easy to use, and up to date in order to obtain sufficient adoption rates and exert a meaningful impact

¹¹ My colleague, Professor Fred Selnes, was also co-author in Paper 2. He approached me and asked whether I was interested in researching a large-scale service innovation project. In retrospect, I am glad that I jumped on board.

¹² As such, it felt like that both case studies selected me as researcher, and not vice versa – as experienced by Dubois and Gadde (2014).

on the learning experience. This case study investigated such issues through a mixed-methods case design, and examined adoption of new service technology in a blended learning setting.

3.2 Data collection

One of the major strengths of conducting a case study is that it may facilitate the undertaking of a multitude of methods during data collection, both qualitative and quantitative (Eisenhardt, 1989; King *et al.*, 1995) – these include interviews, observations, ethnographies, and survey data. As argued by Dubois and Gadde (2002), multiple data sources may reveal unknown aspects and potentially facilitate the discovery of new dimensions of a research problem.

In describing the various research methods utilized in this study, it is important to note that case study 1 was based purely on qualitative sources, while case study 2 employed a mixed-methods case design with both qualitative and quantitative data sources. Tables 4 and 5 below provide an overview of the empirical data collected in each case study.

No. of home visits (observations)	No. of project member interviews	No. of unit leader interviews	No. of focus group meetings with nurses	No. of project leader interviews	No. of in-depth interviews with pilot users (and relatives)
40	5	4	4	2	8

Table 4: Overview of empirical data collected in case study 1

No. of short interviews with student groups on campus	No. of observations during lectures on campus	No. of focus group meetings with students	Real-time data monitoring on number of users	Survey data on number of users
20	5	3	690	169

Table 5: Overview of empirical data collected in case study 2

3.2.1 Applied ethnography

While developing theory that is grounded in social practices, the case studies pertaining to this study have gathered knowledge about various practices through ethnographic methods. A market-oriented ethnography approach (Arnould and Wallendorf, 1994) was employed in order to gain an understanding of how new technology was adopted and integrated in practices. The research approach facilitated the researchers’ learning process through descriptive contextual real-time data, including data on ordinary and seemingly insignificant activities. Ethnographic methodology is open-ended and flexible, and is not often defined before entering the field (Hammersley and Atkinson, 2007). Hence, researchers focus on novel issues as they emerge during the research process (Davies, 1998). Other practice theorists have employed similar combinations of ethnographic methods to study practices such as baseball games (Holt 1995), digital photography (Shove and Pantzar, 2007), and e-invoicing (Korkman *et al.*, 2010).

The type of ethnography used in this study is often referred to as “applied ethnography” (Ball and Ormerod, 2000; Maginn, 2007). Behind the rationale for choosing an applied instead of a “pure” ethnography are several factors. First, since this study has been positioned within service marketing and a socio-material understanding of innovation, it has focused particularly

on resource integration in practices¹³. Such an approach necessitates a specific ontological and epistemological starting point. In contrast, traditional ethnography tends to emphasize a grounded empirical approach with a less clearly pre-defined ontology and epistemology (Korkman, 2006). Second, as indicated in the research aims of this study, technology acceptance in practice is examined to gain managerially relevant insights to inform the practice of new service development. Hence, an applied ethnographic approach does not aim to explain the totality of a social setting, but rather at a comprehension of aspects deemed relevant to a specific study (Hughes *et al.*, 1994). Therefore, a major difference between applied and traditional ethnography relates to the reduced amount of fieldwork that is conducted. However, once the focus is narrowed down to a specific study's goals (Millen, 2000), it is arguably important not to exclude the unforeseen (Ball and Ormerod, 2000).

In my role as participant observer¹⁴ in the medication adherence case, I entered the field with an initial intention of learning by observing. Ethnographic observation is arguably the most distinguishing feature of ethnographic studies (Warne *et al.*, 2005). Initially, since I had not decided upon which theoretical lens to use, I attempted to acquire contextual data of various medication management procedures (later theorized as practices), carried out by the elderly and health personnel in four different home care units¹⁵. In order to understand how practices could change, or even be replaced by new practice, it was important for me to comprehend the performativity of existing medication management practices. I observed how the staff managed the packaging, ordering, and distribution of medicines to their respective service recipients. In participating in the distribution of medication to numerous home care users, I joined four nurses in their scheduled driving routes in a specific home care unit in Sarpsborg municipality, once a week for a month, a total of 40 visits. I made field notes of my observations and asked the nurses clarifying questions before and after the visits. The participant-observation provided important background knowledge of how seniors and their health care providers managed medication on a general basis without any technological intervention.

In the interactive learning case, I conducted non-participant observations of students to obtain a general understanding of their studying contexts during various lectures on campus. In the same vein as in the former case, I observed existing practices independent of the intervention that was made. Non-participant observations “allows the researcher to remain as an accepted outsider, watching and recording the interactions as a ‘fly on the wall’” (Fitzpatrick and

¹³ It is important to note that I did not know which theoretical lens to apply when I commenced with fieldwork. As the fieldwork progressed and through the matching of empirical data with various theories, I finally identified a theoretical lens that I considered valuable for my study. Incidentally, the search for a suitable theory lasted for a prolonged time. I was first introduced to practice theory through the doctoral thesis of Oskar Korkman (2006), which was referred to in a marketing article. His thesis and the work of other practice theorists made me realize the potential of employing an alternative understanding of social reality. In retrospect, I regard the reading of that specific marketing article as pure serendipity and, as events turned out, most timely.

¹⁴ As a participant-observer, I made the members in the social setting aware of my role as researcher. Moreover, I attempted to become a “natural” part of the social setting by taking both a participatory and a more distant observer's role in the inquiry (Hammersley and Atkinson, 2007; Tedlock, 2000)

¹⁵ Initial observations demonstrated a significant variance in the performativity of medication adherence, in terms of cognitive understanding, physical ability, and the health outcomes that were obtained. Not surprisingly, remembering to take medication (or remembering if it had already been taken) was a particular problem for seniors with comprised health. Monitoring such consumption is therefore a profound challenge for the elderly, their relatives, and caretakers. Initial observation also showed how the temporal rhythms of other everyday practices and spatial features of their homes influenced medication adherence, which is consistent with findings from Palen and Aaløkke (2006). As events turned out, such contextual interdependencies proved important in terms of continued adoption of the electronic pill dispenser that was introduced.

Boulton, 1994, p. 110). This observational technique is especially useful when the researcher attempts to describe and conceptualize everyday practices as they occur in naturalistic settings. As such, my role as observer was not communicated as I observed various student behaviors, actions, interactions, and routines. The non-participant observations were done during five different lectures. The results from these observations were documented in field notes in which I described various practices as social “happenings.” Although such observations did not provide “thick descriptions” of what was going on, they gave valuable insights of various practices that were prevalent in an important study setting.

3.2.2 Interviews

I conducted a number of interviews in both case studies. The interviews constituted an important part of my qualitative inquiries and functioned as a highly efficient way of gathering rich, empirical data (Eisenhardt, 1989). This was particularly important since the phenomena I studied were both highly episodic and infrequent. Interviewing as method is favored when a researcher attempts to understand how respondents make sense of their lives, work, and relationships (Ragin and Amoroso, 2011). In my studies, it was crucial to understand the sense-making efforts of individuals, relatives, groups, project members, and professional service providers as new technology was introduced and adopted in various practices.

All interviews were conducted in a semi-structured fashion and were guided by pre-written interview guides. In following the recommendations of Kvale and Brinkmann (2009), I used a five-step interview process: 1) selecting interviewees; 2) booking appointments and preparing for the interview; 3) conducting and recording the interview; 4) transcription; and 5) coding.

Moreover, the interviews followed a well-established procedure for conducting semi-structured interviews as described by Patton (1990). Open-ended questions were typically asked before closed-ended questions in an attempt not to bias respondents’ answers. This initially open-ended format allowed both the interviewer and the respondent the opportunity to explore new leads and related topics. Answers to such questions were indicative of areas that were most important to respondents – and served to confirm or disconfirm expectations. I also employed standard probes, such as verification and compare-and-contrast questions, that helped elicit additional information. In case study 1, I obtained permission from respondents whose privacy of information was guaranteed through a signed agreement. All interview data was gathered through the use of handwritten notes as well as audio recordings.

Selection of relevant respondents was facilitated through the contact persons in each case. In the medication adherence case, conducting interviews with end-users was critical. I interviewed eight pilot test users. Unfortunately, the remaining pilot users had either become affected by dementia or died during the project period. Since some of the respondents lived together with family members, I also invited them to join, if possible, to clarify various adoption issues. This was particularly relevant in instances where the respondent suffered from serious illness or suffered from cognitive impairments. As such, I was able to elicit important insights from relatives, who offered nuanced details concerning the use of the electronic pill dispenser. I also conducted four interviews with unit leaders in each home care unit to compare adoption results. Additionally, it was important to interview various project members (five interviews) and the project leader (two interviews), who were all highly knowledgeable informants and provided diverse perspectives of the adoption processes.

In the second case, I interviewed numerous students (20 interviews) on campus regarding the acceptance or rejection of the interactive book reader that had been introduced. I specifically

asked first-year marketing students, as they had all been introduced to this new service offering on campus. This was done through a less rigorous approach, as I had to select respondents before or after marketing lectures, and ask them directly if they had time to answer some questions. Consequently, these interviews were short and somewhat limited in detail. Yet they provided interesting insights regarding initial adoption issues, in terms of why respondent had chosen to utilize the book reader or not.

In sum, the interviews conducted in both cases allowed exploration of complex adoption issues that were prevalent in various practices at different periods of time. Nonetheless, it is important to acknowledge weaknesses that often arise when conducting interviews. For instance, Eisenhardt (1989, p. 28) argued that data from respondents could be biased “in which impression management and retrospective sense making are deemed the prime culprits.” Such pitfalls were to a large degree mitigated by interviewing a diverse set of people who could offer differing perspectives on the same phenomena. Hence, I sought diversity of experiences, facts, and contextually based insights by conducting interviews with respondents in their own contexts; in other words, in naturalistic settings in which they had accepted or rejected the new technology that was offered. Additionally, I combined retrospective and real-time cases (Leonard-Barton, 1990), by employing longitudinal data collection, in which findings from interviews were triangulated with data from participant observations.

3.2.3 Focus group meetings

During my research process, I also conducted focus group interviews in both case studies. The uniqueness of a focus group is its ability to yield data based on the synergy of the group interaction (Green *et al.*, 2003). The use of focus groups has been popular (Morgan, 1993; Krueger and Casey, 2008; Kitzinger, 1995) as one type of interview technique. This approach is particularly well suited to cases in which we want to learn about the experiences, attitudes or opinions in an environment where many people interact – and was therefore relevant for my research setting. However, the method requires experience in dealing with group processes, and assumes that the researcher provides a realistic assessment of results (Malterud, 2001). Therefore, group interviews could be considered as a pragmatic approach capable of providing new and useful knowledge with reasonable effort.

Focus group members were selected purposefully in both case studies. In the medication adherence case, I assembled nurses from each home care unit who had been directly involved in the introduction of the new service offering. As such, four meetings (with 3–5 nurses) were held, each lasting approximately one hour. In the interactive book case, we contacted students that were particularly active in using the new book reader (observed through real-time data monitoring). Three meetings were held on campus (with 3–5 students) that lasted between 1–2 hours each.

All focus group meetings were recorded and transcribed. Additionally, I attempted to mitigate informant bias in both case studies by combining and comparing the data obtained (again through triangulation) with other research methods.

3.2.4 Applying mixed methods

Since I have employed mixed methods in case study 2, I will provide a short description and corresponding challenges that are prevalent in carrying out such an approach. Mixed methods research is defined here as the class of research where the researcher mixes or combines

quantitative and qualitative research techniques, methods, approaches, concepts, or language into a single study (Johnson and Onwuegbuzie, 2004). In order to combine such diverse approaches, it is important to gain an understanding of the strengths and weaknesses of quantitative and qualitative research. This puts a researcher in a position to mix or combine strategies and to use what Johnson and Turner (2003) call the fundamental principle of mixed research. According to this principle, researchers should collect multiple data using different strategies, approaches, and methods in such a way that the resulting mixture or combination is likely to result in complementary strengths and non-overlapping weaknesses. It is argued that such an approach is superior to mono-method studies.

However, an important question that prevails in such methodological choices is: How can we apply a method and philosophy that fit together the insights provided by qualitative and quantitative research into a workable solution? As a “workaround,” many mixed method evangelists¹⁶ have advocated a consideration of the pragmatic method of the classical pragmatists (e. g. James, 1975; Dewey, 1920; Peirce, 1878) as a way for researchers to address the conventional dualisms that have been debated by the purists in quantitative and qualitative research (Johnson and Onwuegbuzie, 2004). Furthermore, Creswell (2008) asserted that “pragmatism opens the door to multiple methods, different worldview, and different assumptions, as well as different forms of data collection and analysis,” thus allowing a researcher to choose a combination of methods that may best answer a particular research question¹⁷.

In case study 2, I combined rich, longitudinal data with survey and real-time data monitoring. A detailed description of both methods follows.

3.2.5 Survey data

By recollecting the discussion about case studies, one could describe these as “thick” (Geertz, 1973) and holistic (Rist, 1977), whereas quantitative approaches could be characterized as “thin” (Geertz, 1973) but generalizable (Sieber, 1973). Furthermore, while fieldwork (like case studies) and related methods can provide important insights and discoveries during research, fieldwork is considered a poor method for objectively verifying hypotheses (Gable, 2009). Attewell and Rule (1991, p. 313) suggested that “traditional survey work is strong in ... areas where field methods are weak.” Could surveys then perhaps be employed to verify assumptions made from qualitative observations? In a defense of grounded theory, Glaser and Strauss (1967) criticized the deductive approach because it is based on a priori assumptions that may easily lead to the data being “pushed” within a given theoretical framework. They argue that the inductive strategy that “grounded theory” is to some extent based on results in a better match between empirical data and the theoretical model, since the model is developed based on empirical data. At the same time, they argue that deduction may also play an important role, but only when combined with an inductive strategy.

¹⁶ Various authors who advocate this kind of perspective have written methodological works on the mixed methods research paradigm (Brewer and Hunter, 1989; Creswell, 2008; Greene *et al.*, 1989; Johnson and Christensen, 2007; Newman and Benz, 1998; Reichardt and Rallis, 1994; Tashakkori and Teddlie, 2002, 1998).

¹⁷ Nevertheless, many research philosophers would argue against such an approach; for instance, Guba (1990) asserts that “accommodation between paradigms is impossible . . . we are led to vastly diverse, disparate, and totally antithetical ends.” Indeed, such a statement reflects the “paradigm war” where differences between two research cultures are illuminated and discussed: “one professing the superiority of ‘deep, rich observational data’ and the other the virtues of ‘hard, generalizable’ . . . data” (Sieber, 1973).

As a valid combinatory method for the investigation of my research question, the application of surveys might be appropriate, as this method also focuses on contemporary events. The method emphasizes quantitative analysis where it is possible to collect data from a large collection of respondents that is later analyzed using statistical techniques. By studying a representative sample of organizations, the survey approach seeks to discover relationships that are common across organizations (Gable, 2009) or another type of analysis unit, and hence can provide generalizable statements about the object of study (Irani *et al.*, 1999). However, an important limitation to realize in this type of research approach is that it provides only a “snapshot” of the situation at a certain point in time, yielding little information on the underlying meaning of the data. Moreover, some variables of interest to a researcher may not be measurable by this method; for example, cross-sectional studies offer weak evidence of cause and effect (Gable, 2009).

Furthermore, it is argued that that survey research may also contribute to greater confidence in the generalizability of the results (Jick, 1979). In line with the above-mentioned arguments, surveys might complement case studies and do not need to be competing sources of evidence (Danziger and Kraemer, 1991). Notwithstanding, it is important to reflect upon limitations of such an approach if it is not a part of a mixed method; Attewell and Rule (1991, p. 314) argued that “conventional survey methods, such as mail questionnaires and telephone interviews, are inappropriate for many of the issues we need to address, and that a multi-method approach is more effective.”

In the interactive book case, we distributed a web-based survey to all 690 pilot users through e-mail addresses, which were used as usernames to access the interactive book reader¹⁸. In all, 147 students responded to the survey, which resulted in a response rate of 21.3%. The survey was distributed after the pilot period, and provided a snapshot feedback of recent technology use in various studying practices. Even though the results from the survey did not explicate complex dynamics of resource integration processes, we achieved interesting insights in terms of explaining how the interrelatedness between various learning practices influenced the adoption rates among the students. Such insights are arguably generalizable to the population studied, yet there might be “inherent inaccuracy problems of self-reports only data, low correspondence of fixed-point scales with actual processes and events, and shallow coverage inherent with data collected retrospectively from the stance of one period” (Woodside, 2010, p. 67). We attempted to mitigate such weaknesses by triangulating survey findings with data from interviews, focus group meetings, participant observations, and real-time data monitoring.

3.2.6 Real-time data monitoring

In investigating how numerous students utilized the interactive book reader (case study 2) as part of their studying practices, we were curious as to whether usage patterns from the service application could induce relevant insights for our research purpose. Fortunately, we were able to gain access to the log file generated by the web server from the software developers who were involved in the project^{19, 20}. Additionally, the log file had to be read by log analysis

¹⁸ Our contact person in the project provided the e-mail addresses.

¹⁹ The publishing company approved this request.

²⁰ The users of the service application were informed about the monitoring of anonymized data upon registration.

software²¹ that could connect all relevant data points to individual users in order to generate insights about how the service application was used during the semester. Consequently, we were able to assess usage patterns through the analysis of massive data sets such as log-in time, number of book openings, session time, events such as highlighting and searching, and other data points.

However, in order to generate relevant insights from the data, it was important to know what we were looking for. The various SQL queries we wrote were largely derived from theory, since we specifically investigated how the use of certain functions in the interactive book reader could be related to specific study practices. For instance, the use of the highlighting function was regarded as an “event” in the interactive book reader that we directly associated with the practice of reading. Hence, measuring such events gave us the opportunity to analyze not only adoption rates, but also the various and often interdependent study practices that necessitated the utilization of different functions within the service application. To my knowledge, the use and analysis of real-time data has not been employed in previous service innovation studies. As a result, this case study represents a novel methodological approach in examining service adoption by including the exploration of usage patterns through the analysis of large data sets.

3.3 Data analysis

In qualitative studies, there is often “frequent overlap of data analysis with data collection” (Eisenhardt, 1989). This was also evident in my research process, as there was no clear distinction between data collection, sampling, and analysis. In line with the systematic combining method (Dubois and Gadde, 2002), I moved back and forth between conducting fieldwork and using theory through an abductive case study approach (Peirce, 1931; Timmermans and Tavory, 2012).

In conducting initial observations through applied ethnography in both case studies, I generated new questions on which further interviews could be based. Moreover, the insights that resulted from unanticipated data contributed to further development of a “tight and emerging” framework, as described by Dubois and Gadde (2002). Consequently, I tried to categorize data in various categories and subsets during the participant observations, which later triggered the search for complementary theoretical concepts. The observations, therefore, added new dimensions to the empirical phenomena that were studied, which eventually resulted in a new view of the phenomenon itself.

As part of my qualitative inquiries, I analyzed data during and after interviews and focus group meetings. During these inquiries, I attempted to classify emerging themes as I wrote notes. The analysis continued by listening to the recordings, and was later fine-tuned and modified as I inductively identified various categories from the text. The material was then organized into matrices by following some of the codification techniques suggested by Strauss and Corbin (1990). In that way, I was able to reduce the amount of material (Miles *et al.*, 2013) and still be open-minded in regards to patterns, contrasts, and emerging themes (Coffey and Atkinson, 1996). Hence, theory and data co-evolved during the research process by mutually informing each other (Van Maanen *et al.*, 2007).

²¹ I want to thank Svein Parnas, who conducted the analysis of the log files. Analysis of such “big data” arguably requires very specific competence in order to extract and transform information from large data sets. This was done by employing a contemporary analysis software combined with Google Analytics, as traditional data processing applications often prove inadequate for such purposes.

In case study 2, I triangulated qualitative data with survey and real-time data as part of the mixed method strategy described earlier. The survey was analyzed through structural equation modeling (SEM) in order to design and test a conceptual model (Kaplan, 2007). This was done by using the statistical software package LISREL²² for identifying manifest and latent variables. Finally, results from real-time data monitoring were analyzed through a specific analysis software in order to structure certain “events” into identifiable actions as part of various study practices.

3.4 Limitations and tradeoffs

Case study research might facilitate the exploration of complex relationships through rich, longitudinal, and contextually embedded data anchored in real-life situations, which is arguably difficult, if not impossible, to accomplish through other methods. Case study as a methodology has been increasingly acknowledged in social research (e. g. Weick and Kiesler, 1979; Woodside, 2010). However, several limitations and tradeoffs have been identified (Eisenhardt and Graebner, 2007; George and Bennett, 2005; Yin, 1994), such as informant and researcher bias, lack of rigor in design, and generalizability of claims.

I have attempted to mitigate such limitations and tradeoffs in different ways. First, I interviewed a diverse set of participants (which was especially warranted in case study 1) to cross-check for inconsistencies in order to achieve objectivity in interpretations. In addition, I employed a multitude of methods to reduce informant bias through triangulation with other methods (observations and focus groups) to ensure accuracy. Although eliminating researcher bias is not completely possible, I aspired to make the path from data collection to analysis as traceable as possible by recording, transcribing, and coding textual material. Second, the research design was inspired by the characteristics of systematic combining, which by its very nature is a non-linear and path-driven approach (Dubois and Gadde, 2002, 2014). Consequently, applying an abductive research process is often “messy, idiosyncratic, and difficult to articulate” (Van Maanen *et al.*, 2007, p. 1149), yet I have attempted to present the actual process and various methodological considerations in this chapter. Third, I have strived to illustrate each case in a way that captures its unique features (Ruddin, 2006) in an attempt of achieving “moderatum generalization²³” (Payne and Williams, 2005), by making moderate claims and making them moderately held. This is consistent with the systematic combining approach employed in this study, which advocates evolving frameworks and preliminary findings in which generalizations are open to change (Dubois and Gadde, 2014).

Incidentally, it is also important to reflect upon limitations and tradeoffs in employing a mixed method strategy. According to Johnson and Onwuegbuzie (2004), several “traps” in mixed methods should be considered and acknowledged before the research is conducted. For instance, carrying out both qualitative and quantitative research concurrently might be a challenging task for a single researcher. In addition, methodological purists have stated that one should always work within either a qualitative or a quantitative paradigm (Johnson and Onwuegbuzie, 2004). Since the second case study was co-authored with a quantitatively

²² Arguably, such analysis requires a “fairly high level of statistical sophistication,” and was conducted by my co-author Fred Selnes.

²³ Payne and Williams (2005) have attempted to supplement the positivistic view of axiomatic-statistical generalization and the perspective of quality researchers who minimize the relevance of generalization by proposing a new mode of generalization.

oriented researcher, we were able to combine qualitative and quantitative methods and specify specific features in each approach. Moreover, a pragmatist view was employed to address paradigm issues, thus allowing us to choose a combination of methods that best answered the research questions.

3.5 Reflecting on the quality of the study

This study has applied an interpretative approach, which implies that the methods a researcher employs “have effects, they make differences, they enact realities, and they can help into being what they also discover” (Law and Urry, 2004, p. 2). In contrast, a positivistic approach implies that there is an objective reality independent of human evaluation (Smith, 1998). The difference between these paradigms is of paramount importance and has, among other things, implications for how we evaluate the quality of a study. Hence, commonly used research criteria in the positivistic paradigm are not necessarily relevant for interpretative research.

Following an interpretative paradigm, I reflect on the research quality of this study by relating to three principal research objectives as described by Woodside (2010): i) achieving accuracy of process of actions and outcomes; ii) fulfilling generality of findings; and iii) capturing complexity of nuances and conditions. As such, the author has challenged Thorngate (1976) by proposing that it is possible to achieve all three principal research objectives without making tradeoffs in research design and theory development. The research criteria are illustrated in “Woodside’s box” (Figure 6), in which the figure contains combinations of low and high scores of accuracy, generality, and coverage²⁴.

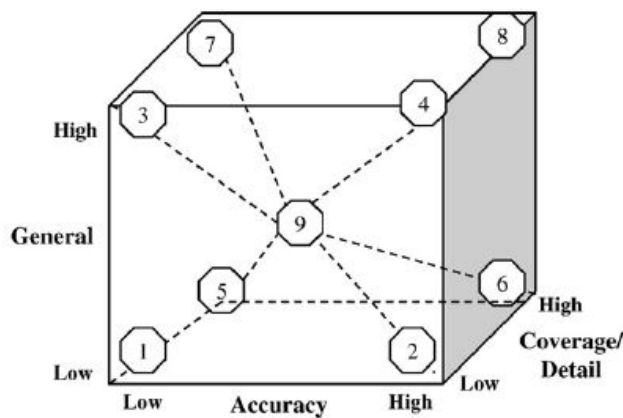


Figure 6: Woodside’s box metaphor of case and multiple case study research (Woodside, 2010).

According to Woodside (2010), accuracy is critical for a case study researcher. In both case studies, I have attempted to achieve high accuracy through triangulation of methods, correct²⁵

²⁴ The numbers in the box refer to various locations that are labelled as: 1) Anecdote and subjective personal introspections; 2) Thick description; 3) Fixed-point surveys; 4) Fuzzy set social science; 5) Multiple anecdotes in different contexts; 6) Multiple case studies in same contexts; 7) Naïve observation; 8) Multiple-case system dynamics modeling and 9) Triangulation: mixed methods; decision systems analysis (Woodside, 2010).

²⁵ The word “correct” implies that objective knowledge and subjective perspectives of participants and observers are covered (Hyde *et al.*, 2012).

reporting of relevant antecedents and outcomes of behavior²⁶. Moreover, data collection has mainly been conducted on site – while respondents have either engaged in various practices in real time (observed physically or virtually) or in recent time. Hence, I would argue that the accuracy of data collection has been high in both case studies.

Moreover, in both case studies I collected data in different situations and contexts related to individuals or groups of individuals as they adopted technology in various settings. This served to inform how antecedent-and-process conditional statements varied in each case study and how frequently various situations occurred. In the interactive book case, we were able to investigate occurrences for multiple contexts and time periods – thereby achieving context generalization (Hyde *et al.*, 2012). Additionally, this case represented a mixed method case study; as a result, it is argued that the generality of the claims was improved. By contrast, in the medication adherence case, the generality of findings was more or less moderate (Payne and Williams, 2005) as part of single case study that was based entirely on qualitative inquiries. Still, as argued by Feldman and Orlikowski (2011), theoretical generalizations depicted by practice theory explain situated dynamics, not universal variation²⁷. Hence, in the medication adherence case, I have theorized dynamic relationships that may be useful in other medication adherence contexts into which new technology is introduced.

Finally, in order to achieve complexity/coverage, the case studies contained various descriptions of outcomes, processes, and important antecedents by revealing the dynamics of practice constellations as consumers integrated technologies in various interdependent practices. These bundles of practices (Schatzki, 2001) were described as being systemic, path-dependent and evolving – and arguably influenced the adoption processes in both case studies. In that way, I was able to describe complex adoption processes anchored in contextually embedded situations informed by theory. Additionally, both case studies were longitudinal in nature, which is a common characteristic of high complexity/coverage (Hyde *et al.*, 2012).

In sum, I would argue that case study 1 could be categorized as somewhere in between numbers 6 and 8 in Woodside's box, as both high accuracy and coverage were achieved, yet the generality of the claims were rather modest. In case study 2, we triangulated data as part of a mixed method strategy, and as a result achieved high accuracy, generality, and coverage. Hence, we were able to provide rich and deep insights to what was happening, and I argue that this case study could be placed somewhere in between numbers 8 and 9 in Woodside's box. These assertions are only subjective, yet they provide an approximate of the research quality of this study based on the principal research objectives described above.

3.6 Concluding remarks on methods

In investigating technology acceptance, I employed a multitude of methods that have been described in this chapter. Moreover, I have attempted to elucidate the abductive research

²⁶ This was particularly evident in the medication adherence case, as I described outcomes of behavior in terms of new routines and activities. Moreover, I focused on outcomes related to uplifting changes, quality of life, and well-being among the respondents.

²⁷ Yin (1994) argued that the purpose of doing case studies is not to enumerate frequencies through statistical generalization, but to generalize theories through analytic generalization. This is a perspective that is also shared by other qualitative researchers, who typically minimize the relevance of obtaining generalizability or even deny any intention in this direction. For instance, Denzin (1983) rejected generalizability as a goal in qualitative research: “every instance of social interaction, if thickly described, represents a slice from the life world” and should therefore be considered as a proper subject matter.

process that was undertaken in both case studies. As mentioned earlier, I commenced the fieldwork with a desire to learn and make sense of complex interdependencies in a socio-material setting. It is important to note that I did not have a clear understanding of which theoretical lens to apply when fieldwork began. As the research process progressed, and through the matching of empirical data with various theories, I identified practice theory as a valuable perspective for my study. In the second case study, I applied the same lens to complement findings from the medication adherence case, this time through a mixed-method strategy that was closer to a deductive than an inductive approach.

By exploring adoption processes through a practice theoretical understanding, I have attempted to theorize innovation as a situated, local accomplishment involving diverse and multiple actors who engage in various practices. Theorizing practices is arguably a time-consuming and intellectually challenging process, as it requires a tolerance for complexity and ambiguity (Feldman and Orlikowski, 2011). Moreover, in employing a practice lens, it requires a deep engagement in the field, often through rigorous qualitative methods in order to grasp contextually embedded activities and corresponding performances. Hence, in order to explicate lasting changes in a practice, or bundles of practices, it is important to reflect upon past trajectories of developments, existing path dependencies, and explanations of how new actions are carried out and potentially integrated in emerging structures. The remainder of this dissertation explores such assertions further – through three research articles and a concluding discussion.

3.7 References

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The papers of this dissertation (pages 57-134) are not available open access, due to copyright matters. This also includes the tables and figures presented on these pages.

Paper 1

Facilitating transformative change with continued SST use in medication adherence practices

Ranvir S. Rai

Paper 2

Redefining adoption context: Understanding technology acceptance in practice

Ranvir S. Rai and Fred Selnes

Paper 3

Locating the origins of disruption: A practice-theoretical discussion of disruptive innovation within service ecosystems

Ranvir S. Rai

7. Concluding discussion

In this final chapter, I summarize the findings from the research papers and then propose an analytical model for understanding innovation through practice-theoretical premises. Afterwards, I discuss both theoretical contributions and managerial implications from this dissertation. Finally, I present some concluding remarks.

7.1 Summary of findings

Paper 1 investigated the long-term adoption of a self-service medication technology among elderly service recipients in a Norwegian municipality. This case study represented the emergence of a new medication adherence practice. Drawing on the literature of service-dominant (S-D) logic and practice theory, I found that the successful long-term adoption of new technology depended not only on improving a targeted practice (here, medication), but also affected other everyday practices in the life of consumer entities. Based on the empirical findings, the research uncovered four types of adoption variants and then linked these to well-being in a chronic healthcare context. Moreover, this study found that well-being is enhanced with technology use in various ways based on lifestyle fit and the consumer's ability to engage in a given practice. The paper suggests that SST literature in healthcare settings could incorporate the following viewpoints: i) initial adoption is shaped by practice-specific SST factors, the consumer's service network and ability to engage in a given practice, and ii) continued technology adoption is influenced by the lifestyle of consumer entities.

Paper 2 draws on a case study of how an e-learning application was adopted in various study practices among 1,500 undergraduate students in a marketing class. By conceptualizing "task environment" (in the "task-technology fit" model) as a practice constellation, we found that the adoption of new technology was strongly influenced by the interrelatedness of existing study practices. Hence, our study supports the concept that adoption of a technology is closely connected to the acceptance of existing and emerging practices (Alakärppä *et al.*, 2010). This study also showed that intention to adopt was mediated by perceived usefulness and ease of use, as predicted by the technology acceptance model (Davis, 1989). Moreover, we found that the electronic book reader did not facilitate a new practice itself but was rather partly integrated into existing study practices. As such, it failed to introduce a new way of studying and did not represent innovation in practice as defined in this study. By focusing on the interrelatedness between various practices, we also found that particularly one practice – the practice of writing term paper – emerged as a dominating practice that largely shaped the adoption of the new service offering among the students.

Paper 3 discusses disruptive innovation theory as introduced by certain researchers (Bower and Christensen, 1995; Christensen, 1997) through a practice lens. I introduce a framework that provides an alternative explanation of the mechanisms of disruptive innovation. The proposed framework portrays the cycle of construction and deconstruction of practices as new practices emerge, sustain themselves, get disrupted, and finally diminish. It is only certain practices with corresponding performances that disrupt or get disrupted, hence the ontological presumptions of practice theory elucidates new insight concerning how practices compete to recruit carriers. The paper sensitizes scholars to the systemic dynamics of practice developments as actors facilitate disruptive practices by lowering the threshold for participation for existing and new consumers. Empirical examples were drawn from Papers 1 and 2 to discuss and explore the theoretical contributions of the paper.

In sum, this study has explored the adoption of technology-based service innovations by applying a practice lens combined with the S-D logic framework. Papers 1 and 2 investigated the adoption processes of specific technologies and discussed resource integration challenges related to both initial and continued adoption. Moreover, the importance of adjacent and interdependent practices were highlighted as they influenced resource integration in new or existing practices in both case studies. The third paper discussed the peculiarities of disruptive innovation through a practice lens. The paper identified different phases of sustaining practices in order to examine how disruption in practices take place. Taken together, the papers covered three analytical themes in studying service adoption and innovation: 1) adoption processes and related outcomes; 2) level of analysis; and 3) degree of innovation (see Table 11).

	Processes and outcomes			Level of analysis		Degree of innovation	
	Initial	Continued	Outcomes	Single practice	Multiple practices	Improved practice	New practice
Paper 1	X	X	X	X			X
Paper 2	X				X	X	
Paper 3	X	X		X	X	X	X

Table 11: Various analytical themes covered in the research papers

7.2 A practice-theoretical understanding of innovation

In order to synthesize the theoretical and empirical findings from this study, I propose an analytical model for depicting how resource integration in practice(s) may have implications for the development of new value propositions, and vice versa. Recall the cyclical model (Figure 3) for consuming and designing by Ingram *et al.* (2007) introduced in the first chapter. Building on the findings above, I elaborate further on such a model of designing and consuming by applying a practice lens combined with the S-D logic framework. While Ingram *et al.* (2007) have described “new product opportunities” and “product” as cyclical entities influencing each other; I attempt to illustrate a more nuanced framework by conceptualizing the same terms as “practice constellations” and “value propositions.” In doing so, I propose that practices stimulate design and development of new value propositions (consisting of service and/or products), which again influence the emergence of improved or new practices in a reciprocal manner (see Figure 15).

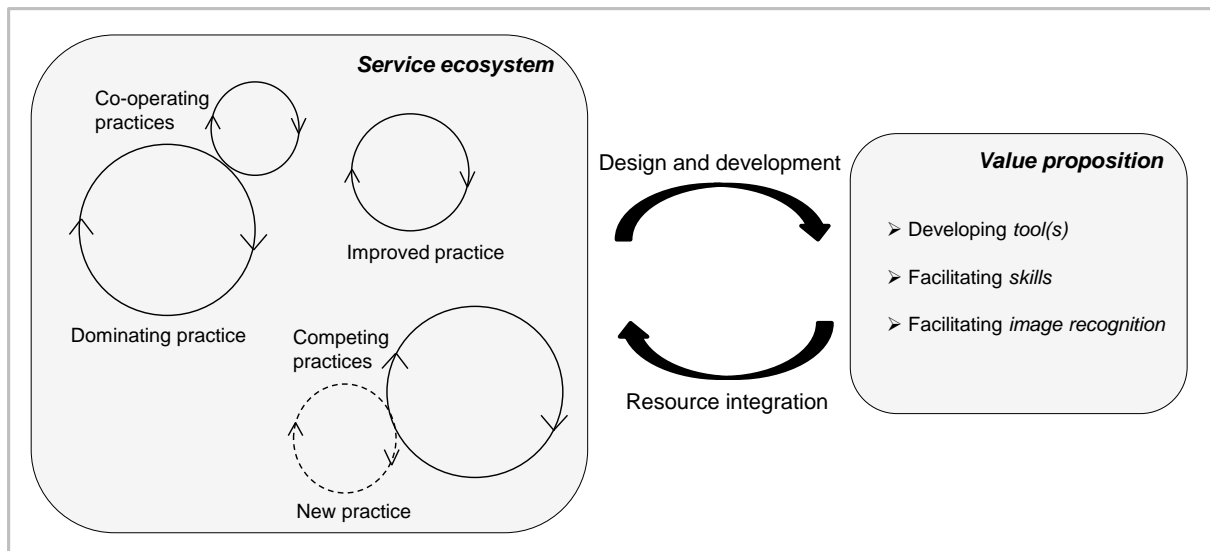


Figure 15: Analytic framework illustrating a co-evolving relationship between designing and consuming

The proposed framework portrays the reciprocal nature between value propositions and practices as they stimulate each other and co-evolve over time. The relationship is conceptualized as being cyclical, and illustrates how the development of new value propositions are initiated by perceived opportunities, while practices evolve depending on the successful integration of new technologies, skills, and meaning structures. The proposed framework therefore functions as an analytical device for discussing innovation in practice in a cyclical manner.

7.2.1 Cooperating and competing practices

As practitioners integrate new tools and skills while performing in routinized activities the performativity of engaging in a practice may improve. Yet, the assessment of such resource integrations must take into consideration existing interdependencies inherent in bundles of practices (Schatzki, 2001) or practice constellations, in which various activities are interconnected in loose systems of actions (Shove *et al.*, 2012). In doing so, Paper 2 depicted how the identification of a dominating practice within a practice constellation was crucial in terms of shaping adoption. It is therefore asserted that mapping of interdependent and cooperating practices is essential for both theoretical and managerial purposes; in terms of understanding adoption in practice or for facilitating such changes respectively.

In other instances, entirely new practices emerge as novel combinations of meanings, technologies, and skills are integrated (Pantzar and Shove, 2010). In such circumstances, new practices may compete for carriers from existing practices that have become entrenched or outmoded within longstanding institutions. For instance, in Paper 1, I found that the new medication adherence practice successfully recruited carriers from existing practices with long-held traditions. In doing so, images of “human touch” was replaced with images of independency and self-reliance that had not been addressed in the former practice. Even though the facilitation of this new practice required the acquisition of new skills related to the new device, added benefits surpassed the ‘costs’ for the individuals and caretakers involved. As such, this case demonstrated how a new practice transformed the images related to medication adherence. In unfolding the disruptive characteristics of such practices, it is nonetheless

important to acknowledge that new practices also must co-depend and connect with other related and non-related everyday practices in order to become self-sustaining.

7.2.2 Value propositions as resource integration opportunities

Furthermore, it is asserted that as new practices evolve, they constitute accomplishments that are situated in local contexts. Such a perspective acknowledges the role of value propositions – which is expanded to include the development of several tool(s), the facilitation of know-how and image recognition. Moreover, it argued that the development of a value proposition is often a shared achievement where multiple actors are involved – in the end, however, practitioners in practice integrate new tools based on what makes most sense in a given consumption context (Holttinen, 2010) .

The view above also indicates that a value proposition should not be viewed as a mere product or service, but rather as a resource integration opportunity (Korkman *et al.*, 2010) with the intended purpose of facilitating improved or new practices. It is argued here that this opportunity consists of the very elements that constitute a practice – meaning, skill, and material – which are not linked together prior to being integrated into a practice. Therefore, a provider should seek to promote associations between these elements into an existing or a new practice. Consequently, a value proposition is conceptualized as a possible reconfiguration of activities (Normann, 2001). In that sense, this study’s initial view of how to conceptualize a value proposition of a technological artifact is expanded by incorporating activities of image recognition and facilitation of knowledge. In that way, technology as artifact is represented as a value proposition that presumes that the provider(s) develop a technology and facilitate know-how and image recognition in such a way that the value proposition is integrated into existing or new practices.

7.2.3 Innovation regarded as new ways of doing

The orientation taken in this study acknowledges that innovation is not regarded as any new technology, product, or service itself, but instead relies upon what people do in new ways. These “new ways” of doing that are enacted and repeated into new routines are believed to determine the degree of innovation. Moreover, the framework implies the need to consider how service ecosystems of practices evolve when technologies are accepted and integrated. Such a view necessitates that not only the practices in the service ecosystem should be investigated and understood, but also their interdependencies. For instance, companies who seek to contribute to the customer practice of maintaining a wardrobe; might develop solutions pertaining to practices of shopping, storing clothes and facilitate the matching of various clothing items into different styles. Such an endeavor would require that producers fully comprehend how various practices are intertwined and depend on each other in a processual consumption context. Value propositions that successfully integrate in practice thus become extensions of customer practices (Korkman *et al.*, 2010), and not vice versa.

By emphasizing the importance of practice interdependencies and path developments that are grounded historically and contextually, this study regards innovation as an inherently uncontrollable process – as argued by Pantzar and Shove (2010). Such an evolutionary interpretation of innovation acknowledges the situated dynamics facilitated by numerous actors, histories, institutions, and other “accidental encounters” that may ascribe to so-called “chain reactions” (McCracken, 1986) or “path dependencies” (David, 2007). Yet, as discussed in Paper 3, such notions are challenged, as actors and entrepreneurs facilitate new ways of co-

creating value by introducing new meanings and practices in existing service ecosystems. As argued by Garud and Karnøe (2001), successful entrepreneurs disregard pressures from existing institutionalized structures and make mindful deviations with objects to create new futures. Their notion of “path creation” is therefore highly relevant in understanding how entrepreneurs escape lock-in within existing service ecosystems through experimentation and exploration.

Furthermore, I have demonstrated the importance of practice interdependencies and how they influence the adoption of new technologies, in which dominating and cooperative practices played a key role. Moreover, I have discussed how a practice may transform the elements of which it is made, and evolve into a new practice by recruiting carriers from existing practice. Innovation in practice is therefore regarded as a continuous, ongoing process with a history and a future.

7.3 Theoretical contributions and issues for further research

This study has contributed towards various literature streams within the fields of service innovation and innovation management. Although theoretical contributions and issues for further research have been described in the research articles, this section synthesizes the contributions, as well as outlining some new ones.

7.3.1 Service innovation

In theorizing innovation, this study has contributed to the emerging discussion within contemporary service innovation literature that integrates concepts from practice theory in order to understand services and service innovations as contextually situated and performative (e.g., Orlikowski and Scott, 2014). As such, it is important to recall the practice-based viewpoints that were discussed in the first chapter, stated by Korkman *et al.* (2010). In an attempt to enhance the S-D logic framework through practice theory, they proposed the following: i) practices are fundamental units of value creation; ii) practices are resource integrators; iii) firms are extensions of customer practices; and iv) value propositions are resource integration opportunities.

This dissertation develops the above-mentioned viewpoints further based on the proposed framework introduced in previous section combined with the overall findings from this study. Hence, the following viewpoints are proposed to advance the integration of practice theory with the S-D logic framework:

- A service ecosystem consists of interdependent customer practices – in which value is embedded in evolving practice constellations
- Resource integration opportunities either integrates into existing practices or evolve into a new practice – either way, the relative impact of a new value proposition is evaluated against existing customer practices
- Practice constellations consist of both cooperating and competing customer practices – such bundles of practices function as prerequisites for current and future value co-creation
- Innovation in practice occurs when value is co-created in new ways – in which actors engage in new or significantly improved customer practices

The viewpoints above center on one of the foundational premises of S-D logic as introduced by Vargo and Lusch (2008, p. 9): “All social and economic actors are resource integrators.” Yet, it is here argued that it is practice that “does” the resource integration through its carriers, in accordance with Korkman *et al.* (2010). The first viewpoint applies the notion of “service ecosystems” (Vargo and Lusch, 2004, 2008) which are regarded as self-adjusting systems of resource-integrating actors connected by shared institutional logic and mutual value creation (Lusch and Vargo, 2014). The notion of service ecosystem is thus enriched by including practice and practice constellations as units of analysis. The second viewpoint regards possible scenarios of resource integration endeavors given their successful adoption in practice. It is here important to note the “costs” of adopting a new product or service (in terms of acquiring new skills), since practitioners may compare new means of engaging in practice against existing ways of performing in the same practice. The third viewpoint mirrors the second one, since practice constellations are argued to function as prerequisites for current and future consumption. Improving an existing practice or facilitating a new one should therefore be a deliberate choice from a provider perspective – which would necessitate a thorough understanding of existing practices and their situated interrelatedness. Finally, the fourth viewpoint emphasizes that innovation in practice happens when value is co-created in entirely new ways as new practices emerge or are significantly improved. Either way, it is the practitioners who ultimately modify their routines to either conform to, or deviate from, undertaking a new artifact. In other words, it is those who *do* streaming, “skyping,” or “selfie-taking” who integrate – and in the process transform – the elements of which such practices are comprised (Pantzar and Shove, 2010).

Further research may employ the practice-based approach to expand the S-D logic framework into a more comprehensive theory about value co-creation. By regarding value co-creation as a practical phenomenon happening in the socio-cultural setting of everyday life, additional insights may augment the S-D logic framework. For instance, one of the foundational premises (FP6) in S-D logic concerns how the customer is always a co-creator of value (Vargo and Lusch, 2004). A practice-based agenda may investigate more closely the collaborative nature of value co-creation in which numerous actors, institutions, and providers are involved in facilitating improved or new practices. Additionally, more research is required to delineate service ecosystems consisting of practice constellations in order to determine the boundaries of a given market. Such an understanding may benefit the conceptualization of how markets “work” and how providers can enhance value co-creation.

7.3.2 Technology acceptance and adoption processes

This study has also contributed to the literature streams of technology acceptance and adoption research. As mentioned in the introduction chapter, the current technology acceptance models (TAM) have been widely criticized because of their limited explanatory and predictive power, questionable heuristic value, and lack of any practical value (Chuttur, 2009). Papers 1 and 2 have explicitly addressed such issues and have explored both initial and long-term adoption processes in different empirical settings. By applying alternative ontological starting points, the papers have differentiated between individuals, usage environments, and other socio-cultural variables in examining the relationship between users and technology.

The research papers have also acknowledged that acceptance is merely the first step toward constant use (Karahanna and Straub, 1999). Therefore, a number of variables may come into play when considering the use and acceptance of technology at an acquisition phase compared with continuous use of the same technology – such assertions were particularly elaborated in

Paper 1. Although this study has criticized the instrumental view (Lu *et al.*, 2005; Homburg *et al.*, 2010) of the relationship between users and technology applied in existing TAM literature, the second research paper also contributed to this field by explicating the “task environment” in the task-technology fit (TTF) model (Goodhue and Thompson, 1995) in terms of interdependent practices. In that way, we made an attempt of advancing the TAM/TTF models by employing a practice approach that derived findings that were more nuanced in terms of explaining the adoption processes that were involved. Such findings also contribute towards the literature on use contexts in consumer behavior research in which contextual elements play a significant role in the adoption of technology. These insights are consistent with, for instance, Jaeger and Rose (2008) and Mallat *et al.* (2009), who examined how consumer decisions are affected by situational factors.

By restricting themselves to strategies from the individualist paradigm, TAM scholars can be said to be sociologically naive as they neglect the profound influences of a wider contextual setting that shapes and sometimes pre-configures the choices and behaviors of individual consumers to a considerable extent. As a result, too much reliance is put on individual consumers as they respond to surveys drawing on past events or on the imagining of a hypothesized setting. Therefore, given the orientation taken in this study, the investigation of technology acceptance should not be undertaken with generic or fixed constructs that do not represent performance aspects of engaging in a given practice. This may explain why previous components of innovation characteristics and individual differences in TAM models have generated largely inconsistent findings (Meuter *et al.*, 2005). In a similar vein, Alakärppä and Valtonen (2011) suggest that innovation characteristics should be regarded as dynamic, as their significance varies according to context – implying that they should be interpreted as contextual constructs.

This study has contributed to technology acceptance and adoption literature by providing a rationale of not only how various contexts affect technology acceptance but also how their interrelatedness plays a significant role. Further explorations may investigate such assertions by considering context-specific drivers and barriers that affect the adoption of new technology. Importantly, future technology acceptance studies should seriously consider ontological and epistemological choices when undertaking empirical research. At a minimum, it is recommended that quantitative research should be combined with qualitative inquiries to more accurately incorporate the subtleties of real-world complexities.

7.3.3 Customer integration in new service development

The framework presented in previous sections presumes the involvement of numerous actors, both producers and consumers; and regards them as co-innovators as they engage in the production and reproduction of practice (Pantzar and Shove, 2010). Innovation in practice is therefore characterized as being a non-linear and evolving process, which is ultimately depicted as being uncontrollable from a provider perspective. Such an approach criticizes previous linear attempts within the new service development (NSD) literature (e.g. Alam, 2002; Trott, 2001), which have often focused on company processes in a strictly normative manner without incorporating the complexity of adoption and resource integration processes. In addition, previous NSD literature has stressed the importance of customer orientation in developing new services, as it is assumed to have a positive impact on provider performance (e. g. Matthing *et al.*, 2004; Edvardsson *et al.*, 2012; Magnusson *et al.*, 2003; Kristensson *et al.*, 2002). However, there can be severe limitations in employing customer information solely based on reported events and behaviors from focus groups and interviews. According to research conducted by

the Marketing Science Institute, 80% of new services and products fail within the first six months (Zaltman, 2003), even though customer feedback has been obtained. What people say and what they actually do may differ, especially if such surveys are not made in-situ (Korkman, 2006).

As noted by Warde (2005, p. 146), the consumer is not independent of the practice he or she engages in; in fact “the concept of ‘the consumer’, a figure who has bewitched political and social scientists as well as economists, evaporates.” Hence, it is argued in this thesis that it is nearly impossible to identify any generic customer integration method as part of an NSD process that is not anchored to a specific practice.

This study has made use of applied ethnography and real-time data monitoring to mitigate the issues mentioned above in order to investigate “real” behavior of customers within specific practices. The combination of methods applied and the proposed framework above have contributed to the NSD literature both methodologically and theoretically. Incidentally, more research is needed in order to explore the benefits of contemporary software applications that can monitor usage behavior in web-based service settings. Combining such observations with other qualitative methods may generate additional insights concerning how new technologies are embedded in practices.

7.3.4 Disruptive innovation

This study supports the concept of “innofusion,” a merger between innovation and diffusion that emphasizes that things change as their status and positioning within the broader environment evolve and they become “normal” (Bijker, 1992). During the process of becoming normal, technologies may disrupt and challenge previously established institutional arrangements, skills, and conventions (Abernathy and Clark, 1985). This was evident in both case studies, as practitioners from former practices were “recruited” from existing practices and the emergence of new practices challenged the status quo. Yet, the dissimilarities of both case studies revealed that it is not sufficient for a technology to embody disruptive characteristics (Christensen, 1997) in order to evolve into a self-sustaining practice. Hence, Paper 3 contributed to disruptive innovation theory by proposing that practices with corresponding performances disrupt or get disrupted. Christensen and his co-writers (Christensen and Raynor, 2003; Christensen *et al.*, 2008; Christensen *et al.*, 2009) have proposed that the concept of a “job to be done” (Ulwick, 2005) could be applied to reach a similar conclusion to contextualize the theoretical underpinnings of this popular theory. Still, this concept is not theoretically anchored, and is mostly used in non-academic settings. More importantly, Paper 3 contemplated on the systemic dynamics of such innovations by explicating the connection between sustaining and disrupting practices within service ecosystems. Nonetheless, further research may continue to use the practice approach to investigate such structural alterations in similar settings to explore how and why new practices may replace existing ones – for instance, through new dominant designs (Abernathy and Clark, 1985).

7.4 Managerial implications

This research also provides managerial guidance for new service development. It might be asserted that new service development requires two types of information: information on customer desires and information on how to best satisfy them (Thomke and Von Hippel, 2002; Von Hippel, 2005). A focus on customer practices may reveal both of these aspects as they

may function as prerequisites for current and future consumption, in which needs are “pre-configured” and enacted as practitioners engage in practice. Even though the framework presented in previous sections presupposes a non-linear interpretation of innovation, it is important to outline a processual understanding of new service development that may serve as guidance for practitioners in the field.

7.4.1 Implications for service design practice

Based on the theoretical underpinnings proposed in this thesis, I develop a practice-based service development framework that synthesizes insights from various research streams. In doing so, I include concepts from design thinking and user-oriented service development. Design thinking focuses on understanding and interpreting the perspectives of end-users and the problems they might face, largely through a human-centered approach. Moreover, design practitioners adopt an iterative process that moves from insight generation about end-user needs to idea generation and testing to implementation (Brown, 2008; Kimbell, 2012). While the exploratory facets of such an approach are valuable, I incorporate key tenets of the practice approach to service innovation as discussed earlier. Hence, the service development framework presented below (see Figure 16) consists of three phases: i) explore and identify; ii) establish; and iii) expand. These phases might overlap as illustrated in the figure. Moreover, each phase consists of several steps.

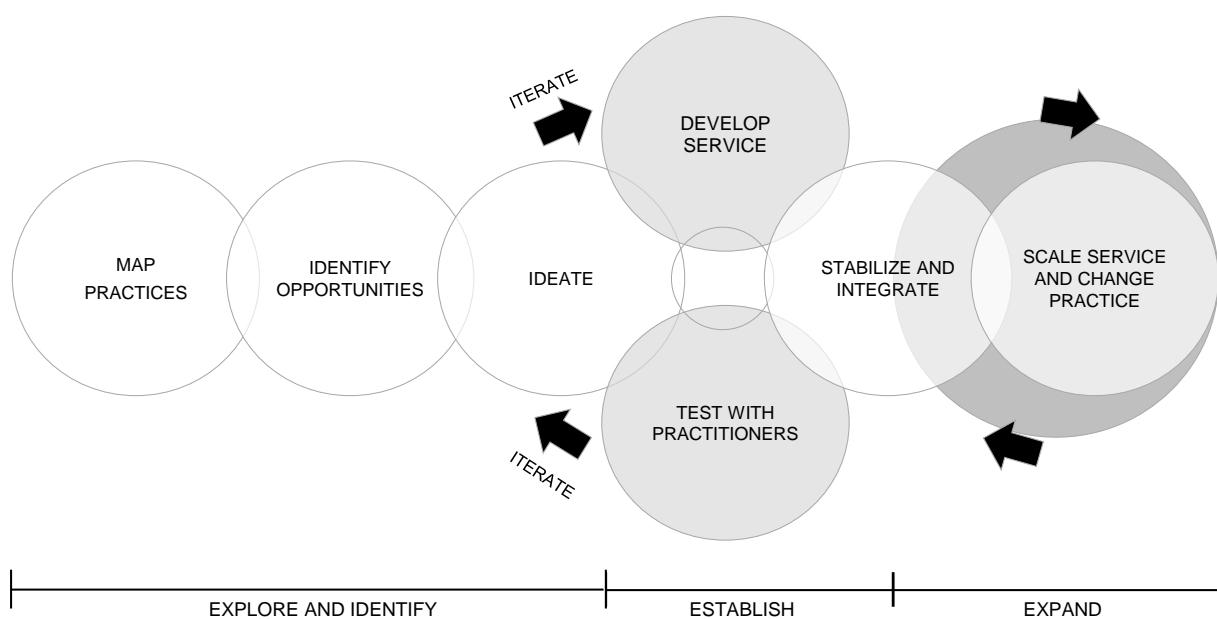


Figure 16: A practice-based service development framework. The framework synthesizes central aspects from practice theory, design thinking, and user-oriented service development

The framework visualized above does of course not represent an exhaustive list of steps. Yet it synthesizes important practice-based findings from this study and other practice theorists. Importantly, it deemphasizes the designer as being the main agent who does the designing and includes a wide range of actors involved in a service ecosystem who take part in the design (Barrett *et al.*, 2015). Below, I briefly describe each step proposed in the figure.

Map practices

The approach taken in this study suggests that managers should not only focus on the main practice on which a service offering is centered, but also consider intertwining and interrelated practices in the contextual site of practitioners. Such an endeavor requires substantial ethnographic fieldwork in order to grasp the mundane social practices through which value is formed in the everyday lives of consumers. Therefore, it is critical to map the various practices within a service ecosystem and determine how relevant units of adoption integrate tools, as well as to consider what is meaningful in various practices in specific contexts and situations. More specifically, the mapping of each practice could consider various elements of practice as proposed by Korkman (2006): Subject (individual), tools/know-how, images, physical space, and actions. Additionally, it is important to consider the interdependency between practices, in terms of functioning as cooperating or competing practice constellations, and possibly identify dominating practices on which other practices depend.

Identify opportunities

Based on the initial practice mapping, it is crucial to explore opportunities and define the problem that one seeks to resolve. In many instances, a problem statement may be pre-defined, yet the mapping of practices may refine and situate the overall problem statement in a more precise manner. For instance, if we consider the practice of managing photos, various activities may be involved; such as photo capturing, modifying, editing, storing, sharing etc. By analyzing all these activities, the former imaging giant Kodak, was able to identify new value creation opportunities and launch new digital offerings; such as online photo printing, services for printing cards and flyers and home printing papers and printers (Sawhney, 2006). Thus, by reorienting their focus on how consumers were managing their memories through existing activities, they were able to expand the opportunity space and offer more than merely cameras and film. Identifying opportunities within and between practices should therefore be a central step in the process of developing new service offerings.

Ideate, develop, and observe iteratively

The third step consists of three interrelated steps that may be repeated to obtain a desired result. The ideation process is based on the defined problem statement and represents a critical step in service development. Since practices involve a wide range of actors in a service ecosystem, the ideation process should include managers, employees, customers, and end-users. Additionally, it is important to confer with highly knowledgeable experts who might have intimate knowledge about the practices involved. Moreover, if a number of highly institutionalized practices are identified (theorized as “entrenched practices” in Paper 3) it may be worthwhile to identify opportunities for engaging in a practice in a more convenient way by facilitating simple tools and less know-how for the practitioners involved. In that way, one could seek to develop a disruptive (Christensen, 1997) practice as described in previous sections. After the ideation process, the service may be developed in cooperation with other companies or (software) suppliers. The proposed service offering may then be tested with relevant practitioners in their natural environments. As discussed earlier, it is important to observe how practitioners apply the new offering in situ to evaluate how it integrates in specific practices.

In developing new service offerings, it is also important to determine how they should be segmented. In this regard, traditional segmentation methods often tend to profile user types, instead of use-types (Ng *et al.*, 2012). Given the orientation taken in this thesis, the focus should rather be directed towards contextual characteristics, as individuals are shaped by their practices and cannot be defined on a generic level. Segmentation efforts should therefore not only focus on who the individuals are, but also the contexts from which they co-create value, i. e. when, where and how consumers employ new offerings and with whom (Ng *et al.*, 2012).

Integrate service into existing practices or stabilize as new practice

A key question that emerges in this step is whether to integrate the new service in existing practices or attempt to facilitate and stabilize a new practice. The latter option would particularly necessitate the promotion of new associations (Pantzar and Shove, 2010) and images that may supplement or replace existing practices. As discussed in previous sections, it is crucial to facilitate a practice that becomes self-sustaining by depending on other practices (Shove *et al.*, 2012) in the specific market. Alternatively, a new dominant design could be introduced consisting of entirely new practice constellations.

Scale service and change practice

The last step concerns the scaling of the service in order to generate lasting change in habits and routines – and ultimately change how value is co-created, not only in a local market but also in other localizations. Such diffusion might be understood as a “multiple local re-invention” (Shove and Pantzar, 2005) as new ideas must be codified (Czarniawska and Joerges, 1996) and translated to fit new contexts.

7.5 Concluding remarks

The overall purpose of this study has been to theorize innovation in practice. A conceptual framework has been developed as an analytical device to discuss the interaction between technologies and service ecosystems consisting of interdependent practices. It has been suggested that technologies and practices co-evolve through a reciprocal cyclical process where both elements stimulate each other over time. Consequently, I have focused on bridging development and consumption to interpret innovation in new ways. The view described above may solve a number of problems facing scholars working in new service development studies. First, it helps researchers regard innovation as a situated, local accomplishment involving diverse and multiple actors who engage in various practices. Second, it acknowledges the roles of value propositions in constituting practices. Third, it proposes an alternative contextual interpretation of needs to accommodate service development purposes.

The recent merger between practice theory and S-D logic (Korkman *et al.*, 2010) represents promising avenues for expanding the S-D logic framework into a more comprehensive theory about value co-creation, one that includes both services and products as part of a service offering. I have developed this view further based on the proposed framework combined with the overall findings from this study. Since S-D logic views all economic activity as being primarily concerned with service, the troublesome distinction between product and service is perhaps no longer relevant. Hence, products are regarded as a vehicle or mechanism for service provision (Vargo *et al.*, 2008), implying that all product innovations are service innovations. Thus, the main title of this dissertation is “Innovating in practice,” which reflects the transcendent understanding of economic exchange in S-D logic. Moreover, the term “innovating” emphasizes the dynamic and emergent characteristics of innovation; as something that actors do collectively in specific practices.

Furthermore, in exploring how social practices of everyday life may function as prerequisites for current and future consumption, I have theorized innovation in a service ecosystem consisting of several practices and practice constellations. Service innovation is therefore considered to be the facilitation of improved or new practice. Such a view emphasizes that practices survive and are stabilized through their repeated performance by practitioners, reinforcing the links between practice elements (Pantzar and Shove, 2010). By regarding the

decision to adopt an innovation as a consumption act, it is in this study argued that an examination of consumers' everyday practices provides a potentially promising understanding of the situated dynamics of consumption and adoption activities. My hope is that this study will inspire further research towards a practice-theoretical understanding of innovation and inform the practice of service development for practitioners in the field.

7.6 References

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