

LEADING BUSINESS MODEL INNOVATION
IN ESTABLISHED FIRMS

by

Kristin Ringvold

Dissertation

Submitted to

the Department of Strategy and Management at NHH -

Norwegian School of Economics

In Partial Fulfilment of the Requirements

for the Degree of Doctor of Philosophy (PhD)

April 2022

ABSTRACT

The aim of this dissertation is to explore how established firms innovate their business models, including the organizational and managerial underpinnings of such innovations. The dissertation focuses on the following research questions: 1) “How do BMI processes unfold in established firms?” and 2) “How do managers and organizational design best support BMI processes?”. I approach these questions by applying an understanding of business models as cognitive schemas and activity-based systems. The research design is based on an in-depth, embedded case study of a multinational corporation experiencing major business model transformation which includes BMI at different levels (both corporate and business unit). I investigate the process of developing different types of BMI, including both modular, customer-oriented BMI, BMI in the form of replication to new markets and corporate-wide BMI. The findings are presented in three subsequent articles written together with co-authors.

In *Article 1*, we investigate the process of developing a modular BMI within the context of an established firm. The BMI in focus is a sustainable business model innovation (SBMI), and the specific research questions for this article addresses how managers, organizational processes and structure can support the development of SBMI processes. A framework consisting of microfoundations to support the SBMI process at the individual, interactional and structural level is developed. Further on, key phases of modular SBMI processes for established firms and their related microfoundations are discussed, as well as specific aspects of developing SBMI for established firms.

Article 2 examines the continued relevance of business model replication as a strategy in a digital context. Characteristics of digital business models are discussed, and findings from an embedded case study on replication of digital business models is presented. The article suggests that digital business models require distinct replication strategies supported by a dynamic and

flexible approach. It argues that replication in dynamic environments is a specific form of BMI, and that dynamic capabilities are key aspects of the replication approach in the case of digital business models.

In *Article 3*, we explore the role of the top management team (TMT) in transforming business models at the corporate level. This study offers a process perspective that illustrates how digitalization can trigger a cognitive change with regards to the way the TMT identifies business model problems, searches for solutions, and introduces change. It argues that TMTs can accelerate business model transformation processes through building capabilities within business model problem-identification, -formulation, -recombination and -search.

This dissertation contributes to the business model and the BMI literature by offering an enhanced understanding of how BMI processes unfold in established firms. It illustrates key activities and events both in the case of modular BMI processes and corporate level BMI processes, as well as how managers and organizational characteristics support BMI throughout the process.

ACKNOWLEDGEMENTS

This doctoral project would not have been possible without support from several people and organizations. I would like to begin by thanking Capgemini Invent for giving me the opportunity to pursue an industrial PhD while I was employed there. I would also like to thank the department of Strategy of Management (SOL) at the Norwegian School of Economics (NHH) for providing me with doctoral education, supervision, and office space. I am grateful to Capgemini Invent and the Norwegian Research Council (NFR) for funding the project.

I would further like to express my deepest gratitude to my supervisors Nicolai J. Foss at NHH/CBS and Frank Elter at NHH/Telenor for their encouragement and guidance during the PhD process. Nicolai, you provided the direction for the project and guided me along the way in a timely and flexible manner. You have been a great source of inspiration to me and a tremendous support. Frank, you took part in my data gathering, trusted me with your colleagues and network, provided me with a safe discussion zone and opened many doors for me. This research project would not have been possible without you.

I am also very grateful to all of you at SOL at NHH that welcomed me and met me with friendliness, as the odd consultant I was, and supported me on my way to becoming a researcher. I would especially like to express my sincere gratitude to Tina Saebi, who always kept her door open for me, encouraged me and taught me a lot about how to think like a researcher.

Finally, I am profoundly thankful to my family and friends. To my parents, thanks for bringing me up in a world consisting of other things than academia and for encouraging me to believe I can do anything I want. Thanks also to my mother for contributing to taking care of my children during intensive working periods. To my closest friends, thank you for cheering me on during tough times. To my husband Christopher, thank you for engaging in this journey with me. You have been there for me in many ways throughout these years and showed incredible patience

and support. It is safe to say that none of us had imagined the magnitude of work that we both signed up for by taking this life choice. And to our children, more than anything you are the ones providing meaning and a bigger context to my life. Thank you for being a constant reminder of what really matters.

Kristin Ringvold

Oslo, April 18th, 2022

Table of contents

1	INTRODUCTION	7
1.1	<i>Research motivation</i>	9
1.2	<i>An introduction to research on business model innovation</i>	11
1.3	<i>Aims and research questions</i>	13
1.4	<i>Outline of this dissertation</i>	17
2	POSITIONING THE STUDY	19
2.1	<i>The business model</i>	20
2.2	<i>Business Model Innovation</i>	31
2.3	<i>BMI processes</i>	40
2.4	<i>BMI and implications for management and organization</i>	43
2.5	<i>Summing up and highlighting research gaps</i>	52
3	METHODOLOGICAL CHOICES.....	57
3.1	<i>Methodological approach</i>	57
3.2	<i>Research design</i>	59
3.3	<i>Data gathering</i>	64
3.4	<i>Data analyses and theory building</i>	68
4	SUMMARY OF INCLUDED PAPERS	70
4.1	<i>Article 1</i>	70
4.2	<i>Article 2</i>	73
4.3	<i>Article 3</i>	76
5	CONCLUDING DISCUSSION	80
5.1	<i>How do BMI processes unfold in established firms?</i>	80
5.2	<i>How can managers and organizational factors best support BMI processes in established firms?</i>	90
5.3	<i>Limitations and future research</i>	100
6	REFERENCES	102
	ARTICLE 1.....	125
	ARTICLE 2.....	191
	ARTICLE 3.....	257

LIST OF ARTICLES

Article 1

Developing sustainable business models: a microfoundational perspective

Ringvold, K., Saebi, T., & Foss, N.

Article 2

Firm growth through digital business model replication: the case of Telenor

Ringvold, K., Foss, N. J., & Elter, F.

Article 3

Top management teams and business model transformation: identifying necessary managerial cognition and behaviors

Ringvold, K., Foss, N. J., & Elter, F.

LIST OF TABLES AND FIGURES

Table 1.1 Overview of research questions, unit of analyses, data set and key findings

Table 2.1 Selected business model definitions (chronological order)

Table 2.2 Selected business model innovation definitions (chronological order)

Table 3.1 Overview of research questions, unit of analyses, methodology, data set and analytical tools in the studies

Figure 3.1. Illustration of data gathering at different levels in the case company

Table 4.1 Overview of research questions, unit of analysis, main bodies of literature, methodology, data set, key findings and key contributions

1 INTRODUCTION

The design and functioning of a business model have long been viewed as essential to the success of most organizations, regardless of whether they are new ventures or established firms (Magretta, 2002; Yunus et al., 2010). Early thinking on this topic includes Drucker's statement that "the purpose of a business is to create a customer" (1954: 31) and Forrester's (1958) notion of the "company model" (Fjeldstad & Snow, 2018). As such, the idea of a business model is not a new phenomenon. However, although firms have always operated their businesses based on some form of a "business model", in the sense of a "holistic" approach to how customer segments, value propositions, value chain, resources, and so on can be coherently linked, the focus on business models as independent units of analysis has risen significantly in recent years (see e.g. Foss & Saebi, 2017; Freisinger et al., 2021). This includes a focus on different forms of business models, such as digital business models and sustainable business models, as well as a dynamic focus on business model innovation (BMI) (Geissdoerfer et al., 2018; Ritter & Pedersen, 2020b; Wirtz, 2019). The objective of BMI is often to find new ways to generate revenues for the firm and to develop value propositions for customers, suppliers and partners (Amit & Zott, 2001; Andreini & Bettinelli, 2017; Casadesus-Masanell & Zhu, 2013). For this reason, BMI is increasingly becoming part of mainstream strategy research (e.g. in the context of the resource-based perspective (Baden-Fuller & Mangematin, 2013; Barney, 2001)).

While there may be numerous potential triggers of an increased focus on the business model concept, of particular relevance for this dissertation is how forces at the macro level (e.g. related to digitalization, sustainability and globalization) put pressure on the way firms achieve their goals – and even change the goals themselves. Such macro-level forces compel top management teams to rethink and redesign their strategies and business models (Foss & Stieglitz, 2015; Teece, 2010). Traditionally, most firms in a given industry have followed a similar logic in their business

operations (Massa, et al., 2017). However, in today's dynamic environment, industry borders are blurring, and firms are to an increasing degree exploring new growth in adjacent industries – enabled by (among other things) the opportunities created by digitization (McGrath, 2019).

By digitization, I refer to the transformation from analogue to digital data (Ritter & Pedersen, 2020b). Digitization lays the foundation for digitalization opportunities. For instance, new technologies (like sensors, the Internet of Things, and machine learning) enable organizations to improve operations, enhance customer experience and even enable new business models (Harbert, 2021). Digitalization refers to the application of digital technologies, and the impact of digitization on society (Ritter & Pedersen, 2020b). Business model innovations related to digitalization have led many established firms with traditional brick-and-mortar business models to find themselves superseded by new firms whose business models are digitally based (Volberda et al., 2018).

A prominent example is the telecommunication industry, where born global players such as Google and Facebook have disrupted the traditional telecommunication business model and threatened the income model (Elter et al., 2021). The revenue model where people were charged according to the length of the call, or charged later per message sent, has more or less collapsed in the meeting with free voice and message services such as Skype, FaceTime and instant messaging (Volberda et al., 2018). Consequently, established telecommunications firms have searched for new revenue opportunities, for example, by building new digital business models (Dasi et al., 2017). Similar forms of digital disruption are also taking place in other sectors (Westerman et al., 2014).

Competition from new entrants means more intensive rivalry (Gambardella & McGahan, 2010; McGrath, 2010), value migration (Hacklin et al., 2018; Jacobides & MacDuffie, 2013; Slywotzky, 1996) and, of particular interest for this dissertation, increased uncertainty as well as an increased pace of change that affect managerial decision making and behaviour. These new

conditions call for more knowledge on how firms can approach strategy-making and business model innovation in volatile times.

Another major driver of BMI is related to increasing sustainability challenges. Expectations for businesses to take corporate responsibility have increased tremendously in the last decade, as well as growing awareness amongst top managers that profit can be gained from tackling sustainability-related challenges (Stubbs & Cocklin, 2008). As a result, corporate interest has expanded to include sustainability issues in the BMI process (Bocken & Geradts, 2020). However, while including sustainability issues in the BMI process may increase value creation, it also adds complexity and is likely to require new and different management practices. Hence, I saw a need for more knowledge of sustainable BMI processes, including managerial practices and organizational designs that support such practices.

My research was motivated by this increased managerial uncertainty and the need for new approaches to identify and realize innovation opportunities by pursuing opportunities (or addressing threats) related to digitalization and/ or an increased focus on sustainability. Below, I will present my motivation for engaging in this research project in more detail. Thereafter, I will briefly introduce the existing research on business models and business model innovation and present my definitions of the core concepts of my dissertation. Then, I explain my research questions and how they have been addressed in three different articles. Here I also explain my use of other key concepts in my dissertation. Finally, at the end of this introduction, I outline my dissertation.

1.1 Research motivation

From my experience as a management consultant within the field of strategy and innovation, I have witnessed how managers in established firms increasingly experience uncertainty as to the future direction of their companies, as well as the need for new tools to identify new growth paths and transform established firms. It was precisely this experience that motivated the focus of this

dissertation: I wanted to know more about how established firms can succeed in transforming their business models and building new business models for the future. Managers in established firms are faced with the challenge of identifying early signals of potential changes that may or may not affect their business models. Such signals may be related to a diverse set of forces affecting customer needs or technological innovations that change the existing customer interface. In recent years, due to trends such as digitalization and globalization, the pool of relevant signals has been rapidly increasing and coming from a diverse set of sources (McGrath, 2019). The Corona pandemic has in many ways reinforced the importance of knowledge regarding how to develop new, and transform existing, digital business models (Ritter & Pedersen, 2020a). Thus, while the topic of BMI caught my interest when I was first planning my research project, the practical relevance and importance of the topic has arguably increased since I first started my research journey.

In an environment of rapid and disruptive change, maintaining the existing business model is likely to negatively impact long-term performance and may lead to a company being selected out of business (McGrath, 2013; Nunes & Breene, 2011; Hamel & Prahalad, 2000). Most firms fail to innovate their business models precisely because they continue with the same things that have made them successful in the past (Chesbrough, 2010). However, certain forces constrain established organizations from initiating radical change. According to Hannan and Freeman (1984), there is pressure on organizations to reliably produce collective actions and rationally account for their activities. Implementing routines, standard operating procedures and other stable aspects of organizations helps to achieve these goals. However, structural inertia, or persistent organizational resistance to changing architectural features, is the price to be paid for this (Hannan & Freeman, 1984). In a related context, Miller (1992: 24) describes the “Icarus paradox” of how firms’ strengths “so often seduce them into the excesses that cause their downfall” (1992: 24). A classic example in this context is Kodak, which invented the electronic still camera (the precursor to the

digital camera) in 1975 but decided to do nothing with it despite the evidence of its potential out of fear that it could endanger the company's traditional activities (Volberda et al., 2018). As this case illustrates, the determining factor is not whether a firm invents the right product at the right time but whether the firm (through its individual managers and organizational processes and structures) is able to innovate its business model in time. Several other examples of companies that were not able to reinvent their business model in time could also be mentioned here, such as Blockbuster, Blackberry and MySpace¹.

Disruption requires managers to act proactively in situations with high uncertainty and to think, act and mobilize in new, innovative ways (McGrath, 2010, 2019). Thus, an understanding of how to innovate new business models and transform established business models has become a matter of urgency that is characterised by complexity (Foss & Saebi, 2017). Existing literature on problem solving (e.g. Simon, 1991), organizational learning (e.g. March, 1991; Nelson & Winter, 1982), dynamic capabilities (e.g. Teece, 2007, 2018) and organization (e.g. Williamson, 1975; Christensen et al., 2002) provide some of the theoretical foundations for business model change. However, my experience with management consulting showed me that managers still have little research-based knowledge to help them identify and interpret new signals of disruption, or to ideate and develop new business models within the context of the established firm. Wanting to investigate and learn more about these issues was the start of my research journey. Below, I will provide a brief introduction to the research field into which I have entered.

1.2 An introduction to research on business model innovation

The practical challenges facing managers explained in the previous section has resulted in a growth in research on business models from a wide range of fields including strategy, entrepreneurship, and innovation (Foss & Saebi, 2015). In general, three research streams have

¹ <https://www.e-careers.com/connected/10-businesses-that-failed-to-adapt>

emerged in which business models serve different purposes: as a basis for enterprise classification, as an antecedent of heterogeneity in firm performance and as a potential unit of innovation in its own right (Foss & Saebi, 2015; Lambert & Davidson, 2013; Zott et al., 2011). These streams have evolved in “silos”, and the concept of business models remains ambiguous. However, a consensus seems to be emerging among many scholars that the business model denotes the firm’s core logic for creating, delivering and capturing value (Foss & Saebi, 2015; Teece, 2010). This core logic informs the choices made by management about how the firm should operate with regards to key issues, such as policies, assets and governance choices, as well as the consequences of those choices (Teece, 2010).

In the past few years, there has also been an increasing focus on the concept of business model innovation (BMI). Both practitioners and researchers seem to agree on the strategic importance of BMI as a new source of competitive advantage (e.g. Chesborough, 2010; Foss & Saebi, 2015; Ho, Fang & Hsieh, 2011; Teece, 2010). This focus on BMI manifests itself as both replication (scaling) (Winter & Szulanski, 2001) of existing business models and as a means for developing new and different business models (Demil & Lecoque, 2010; Johnson et al., 2008; Sosna et al., 2010), perhaps in order to diversify and compete with multiple business models (Kim & Min, 2015; Markides & Charitou, 2004). In the context of this dissertation, BMI is understood as the identification and implementation of new (or change of existing) business model components and the related logics for the ways the firm can create, deliver and/or capture value for itself and its stakeholders. These new forms of value creation, value delivery and value capturing logics can be understood as cognitive schemas held by top managers representing key activities as well as how these activities are interlinked.

As I address in more detail below, valuable insights have been developed in relation to the innovation of business models. However, while research on business models has received

significant attention in later years, there is still little research on how established firms are innovating their business models, nor on the processual perspective of BMI (Andreini et al., 2021; Wirtz et al., 2016). BMI is an important research field, as changing an established business model, replicating a business in new markets, replacing a business model with a new and (possibly) more advantageous model, or introducing a new business model in parallel with an established model are challenging endeavours prone to failure (Chesbrough, 2010; Mezger, 2014; Teece, 2010). These challenges arise for several reasons, including the difficulty of predicting the results of changes in a business model (Berends et al., 2016; Chesbrough & Rosenbloom, 2002), the challenge of *recognizing* new business model opportunities (Tripsas & Gavetti, 2000), the potential political resistance that such changes might encounter (Foss & Saebi, 2015), and the complexity and tough decisions associated with new business models (Markides & Charitou, 2004). However, *how* BMI evolves in established firms is still largely underexplored despite its obvious importance (Berends et al., 2016; Massa et al., 2017; Sosna et al., 2010).

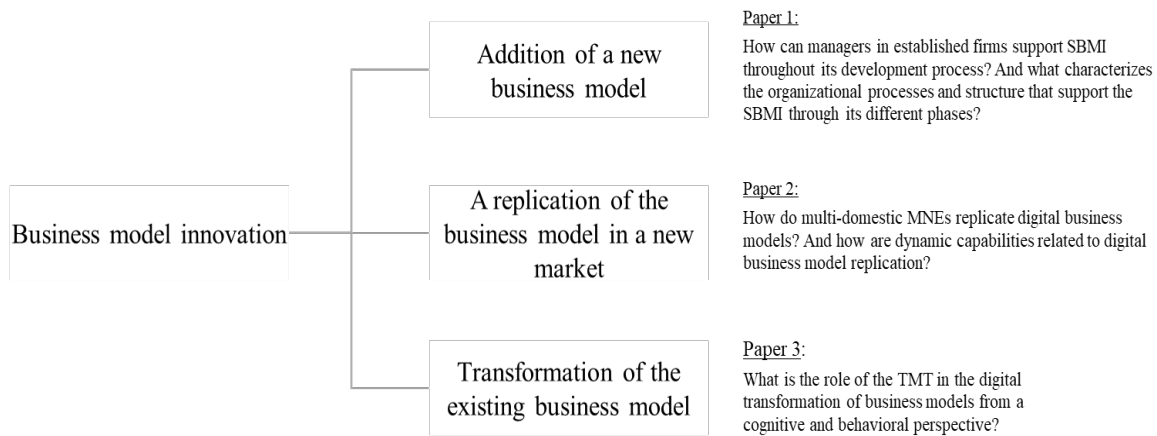
1.3 Aims and research questions

The aim of this thesis is to explore how established firms innovate their business models, including the managerial and organizational underpinnings that enable such innovation (such as cognition, interactions, processes and structures). Given the inherent difficulty managers in established firms face when attempting to invent new business models and transforming existing one, this dissertation seeks to explore BMI in established firms. I focus on the question of how managerial cognition and behaviour as well as organizational structures can help facilitate BMI. More specifically, this dissertation is guided by the following main research questions:

- 1) How do BMI processes unfold in established firms?
- 2) How can managers and organizational design best support BMI processes in established firms?

These research questions are addressed across three articles focusing on different types of business model innovation, as illustrated in figure 1.1 below.

Figure 1.1 Types of BMI addressed in the dissertation.



As the figure illustrates, I argue that there can be different types of BMI within established firms, and I investigate three central types of BMI. One is the addition of a new business model within the setting of an established firm (Article 1), another is growth through replication of an existing business model from one country market to a new country market (Article 2) and a third is the transformation of a business model at the corporate level (Article 3).

Article 1 explores the process of adding a new business model to an established firm. The process introduces a novel and modular sustainable business model to the established firm. A sustainable business model (SBM) is defined as a business model that “incorporates pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders and hold a long-term perspective” (Geissdoerfer et al, 2018:4). A SBM has the potential to go beyond incremental innovation and contribute to long-term and radical solutions for sustainable development; however, as we argue in Article 1, established firms may lack the processes and/or the structures to foster BMI. We argue that a microfoundational lens can provide the needed multidimensional detail and clarity to portray the cognition, behaviour, capabilities, processes and structures needed to succeed with SBMI. In this context, we focus on the choices,

behaviours and characteristics of managers and other organizational actors as they engage in the process of modular SBMI, and how they are simultaneously enabled and constrained by organizational structures and processes. Hence, this article contributes to both research and management by providing a processual framework of the microfoundations for modular SBMI in established firms.

Another type of BMI for established firms is the replication of a business model in a new market. Business model replication can be defined as the “re-creation of a successful model” (Szulanski & Jensen, 2008: 1738). Such recreation includes the further development or upscaling of components of the existing business model to create and capture more value (Volberda et al., 2018). In Article 2, we investigate the continued relevance of replication-as-strategy in the context of digital business models. We use the term “digital business model” to refer to business models where customers are engaged via a digital interface, such as websites and mobile devices (Weill & Woerner, 2013). We discuss key characteristics of digital business models and argue that characteristics of a business model (including the logic of value creation, delivery and capture) have implications for the choice of replication strategy. We question the continued relevance of the frozen template formula for replication and argue that the replication of digital business models is closely linked with innovation. Still, we argue that the replication of digital business models is a distinct form of BMI that requires its own approach. Our findings uncover key aspects of a framework for replicating digital business models and contribute to the literature on BMI, as well as the internationalization literature in international business, by reinforcing the continued relevance of replication as a strategy.

Article 3 explores BMI as a transformation of an established business at the corporate level. In this article, we investigate the BMI process from the perspective of the top management team (TMT). Managerial cognition, that is, the conceptual and operational representations or belief

systems that managers develop when operating with complex systems (Tikkanen et al., 2005), is a central concept in the article. Based on an abductive approach, we investigate the BMI process relative to the “problem-finding and problem-solving perspective” (PFPS). We explore how the TMT identifies relevant business model problems caused by digitalization, how they work together as a team to decide on a new strategic direction, and how they organize the search for solution alternatives and engage the rest of the organization. We discuss the implications of this related to the managerial cognition and behavior needed to support corporate-level BMI processes.

Table 1.1. Overview of research questions, unit of analyses, data set and key findings

Main research question	<ol style="list-style-type: none"> 1. <i>How do BMI processes unfold in established firms?</i> 2. <i>How can managers and organizational factors best support BMI processes in established firms?</i> 		
	Article 1	Article 2	Article 3
Research question	How can managers in established firms support modular SBMI throughout its development process? And what characterizes the organizational processes and structure that support the modular SBMI through its different phases?	How do multi-domestic MNEs replicate digital business models? And how are dynamic capabilities related to digital business model replication?	What is the role of the TMT in the digital transformation of business models from a cognitive perspective?
Unit of analyses	Modular SBMI processes, microfoundations at the individual, interactional and structural level.	Business model replication practices.	Business model problems.
Data Set	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Tonic business model. The last group of interviewees where the focus for the case description and data analysis.	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Mobile Financial Services business model and the Music Freedom business model. The last two group of interviewees where the focus for the case description and data analysis.	Combined dataset containing interviews with the top management team as well as employees at corporate level and business unit level. The first group of interviewees where the focus for the case description and data analysis.
Key Findings	A microfoundational framework is developed that combine a multi-level and processual perspective. It suggests that (modular) SBMI in established firms is supported by the following characteristics:	We analyze the replication of two different digital business models and identify four key capabilities central to developing both of the business models: sensing opportunities for digital value creation; utilizing local	We illustrate that digitalization can change the dominant logic of the business model, and that this can trigger a need for cognitive and behavioral changes in the TMT that affect the way problems

	<p><i>Individual level:</i></p> <ul style="list-style-type: none"> - individual initiators and forerunners - balancing complexity and effectuations - navigation capabilities <p><i>Processes and interactions</i></p> <ul style="list-style-type: none"> - recombination capabilities - in-depth problem understanding - shaping and maintaining a sustainable ecosystem <p><i>Structures</i></p> <ul style="list-style-type: none"> - long-term horizon on investments - flexible structures - alignment with existing organization <p>We also identify key phases for the process of SBMI for established firms and relate the microfoundations to this process.</p>	<p>resources to design digital business models; establishing a position in the local ecosystem and developing a monetization logic for digital business models.</p> <p>We identify key aspects of an emerging framework for replication of digital business models:</p> <ul style="list-style-type: none"> - dynamic approach with a continued link between innovation and replication - adaptive replication approach, balancing localization and standardization - rapid replication where preparations for replication are built into the early exploration process and continue into execution - flexible approach to knowledge transfer to transfer emerging knowledge, digital business model logic, dynamic capabilities and digital components. <p>We identify the following organizational underpinnings:</p> <ul style="list-style-type: none"> - dynamic capabilities - a central unit for replication - trust-based management approach and agile work practices, actor-oriented organization, self-organization. 	<p>are identified and formulated, the search for solutions, the push for change and the role and composition of the TMT. We further develop a model illustrating how the TMT can enable business model transformation.</p>
--	--	--	--

1.4 Outline of this dissertation

The extended abstract consists of five sections and aims to clarify, contextualise and discuss the overall study based on three articles. It outlines and discusses the theoretical and methodological perspectives and the main contributions of the study. Following this introductory section, I present the dissertation’s theoretical positioning in section 2. I provide a review of selected business models and BMI research to provide a background for the research questions. I focus especially on existing research on BMI processes in established firms, as well as research on

the role of managers and organizational design in supporting BMI. In section 3, I present my research approach and discuss my methodological choices before I present summaries of the three empirical articles that resulted from my studies in section 4. Finally, in section 5, I discuss the main contributions and implications of my research. Following this, each of the three research articles are included.

2 POSITIONING THE STUDY

While interest in the business model and BMI concepts arose from their use in practice, these phenomena have attracted significant research interest in the last 15 years. In fact, they are seen as simultaneously highly important and poorly understood (Foss & Saebi, 2017). Business models and BMI have been researched in various fields, including strategic management, technology management, e-commerce, entrepreneurship, and sustainability (Foss & Saebi, 2017; Massa et al., 2017; Zott et al., 2011). Perhaps it is precisely because research interest in BMI has developed within different fields that research has developed in different “silos”. There is still a lack of clear and unambiguous definitions of both these concepts (Massa et al., 2017). Thus, despite the increase in this research and its diversity, business models and BMI are still largely in need of theoretical grounding (Berglund & Sandström, 2013; Foss & Saebi, 2018).

Good theorizing depends on cognitive order, including “robust categories that distil phenomena into sharp distinctions that are comprehensible to a community of researchers” (Suddaby, 2010: 346). As conceptual abstractions, neither the business model nor BMI are directly observable. Only certain constellations of activities that relate to business model components (e.g. the value proposition offered to customers or the way the company is working to achieve certain results) can be observed. Thus, well-defined concepts that make the conceptually abstract phenomena of business models and BMI concrete are important (Foss & Saebi, 2018).

However, as emerging research topics, neither the business model concept nor the BMI concept are characterized by such clarity. While the focus of this thesis is on BMI and not the business model *per se*, it seems important to first answer the question of what exactly is being innovated, before going more in depth on the concept of BMI. Therefore, in the following, I present each of these key concepts and clarify the meaning attached to them. The objective of the review is not to map and categorise the existing business model literature, but to answer the following

question: what is BMI? In the process I highlight areas in which there is consensus or disagreement. Thereafter, I investigate some of the theories and research streams that are relevant for theoretically grounding the business model concept and the BMI concept to allow for additional theorizing. In particular, I review research that are relevant for my two main research questions; existing research on BMI processes in established firms (section 2.3) and selected research relevant to the understanding of how managers and organization design can support BMI processes (section 2.4). At the end, I sum-up the research gaps that I address with this dissertation (section 2.5).

2.1 The business model

The concept

Interest in the concept of business models has increased tremendously over the last twenty years, from less than 100 in 2002 to more than 7000 articles published on the topic in 2015 (Foss & Saebi, 2017). This increase in interest has paralleled the popularization and broad diffusion of the internet. While firms always have operated according to an (implicit) business model logic, this logic was similar across firms until the mid-1990s. As such, it was neither a focus of attention in itself nor a source of differentiation or competitive advantage. However, in recent years, innovative business models have not only disrupted and transformed companies and industries but also more indirectly affected civil society. The focus on the business model concept results from a need to explain the novel forms of “doing business” that have arisen in the modern, digitalized world (Massa et al., 2017).

The meaning of the business model concept has arguably changed over time in line with the emergence of new and different business practices. Moreover, the business model concept has been applied in a wide range of disciplines, resulting in a multitude of different understandings of the term (Günzel & Holm, 2013). In strategy, the business model is seen as a source of competitive advantage, as certain types of business models have been found to outperform others (Casadesus-

Masanell & Ricart, 2010; Teece, 2010). In technology management, the business model is used to explain why some firms are able to capture more value from certain technologies than others (e.g. Chesborough & Roosenblom, 2002). The entrepreneurship literature uses the business model to distinguish among different types of enterprises and to explain the related drivers of value (e.g. Morris et al., 2005).

This heterogeneity explains some of the variation in our understanding of the business model concept. Table 1 provides an overview of selected business model definitions, illustrating significant variation in how the business model is represented in the different definitions. At times, a business model is understood as a plan (Ventakatrman & Henderson, 1998), transactions (Amit & Zott, 2001), routines (Winter & Szuanski, 2001), a heuristic logic (Chesborough & Rosenbloom, 2002), stories (Magretta, 2002), a conceptual tool (Osterwalder et al., 2005), a model (Baden-Fuller & Morgan, 2010; Osterwalder & Pigneur, 2010), a framework or recipe (Afuah, 2014), an architecture (Teece, 2010), a logic (Casadesus-Masanell & Ricart, 2010), a set of decisions (Girotra & Netessine, 2014), an empirical “blueprint” (Osterwalder et al., 2005), or a cognitive map (Martin et al., 2015; Dopfer, 2017). Some of the most cited definitions of “business model” see the business model as “stories that explain how enterprises work” (Magretta, 2002: 4) and highlight the communicative aspect of business models. Other definitions adopt a more systemic and architectural approach (e.g. Afuah, 2004; Baden-Fuller & Morgan, 2010; Bock et al., 2010; Demil & Lecoq, 2010; Teece, 2010) that highlights the role of “a system of interdependent activities that transcends the focal firm and spans its boundaries” (Zott & Amit, 2010: 216).

Despite these differences in how business models are defined/conceptualized, most studies seem to converge on the foundational understanding that business models denote the core logic for creating, delivering and capturing value (Saebi & Foss, 2015). This core logic for value creation relates to both the key components (including value proposition, customer segments, structure of

value configuration and mechanisms for value configuration) and the linkages or logic between these components. In the following sections I investigate these aspects further, looking first at what are the key business model components and then at the logic or architecture connecting these components. Thereafter, I investigate newer trends in the understanding of business models and the related contributions to strategic management.

Table 2.1. Selected Business Model Definitions (chronological order)

Authors	Definitions	Business model representation
Amit & Zott, 2001	“The business model depicts the design of transaction content, structure, and governance so as to create value through the exploitations of business opportunities.” (p.494-495)	Transactions
Winter & Szulanski, 2001	“The formula or business model, far from being a quantum of information that is revealed in a flash, is typically a complex set of interdependent routines that is discovered, adjusted, and fine-tuned by “doing”. (p.730)	Routines
Chesbrough & Rosenbloom, 2002	“A successful business model creates the heuristic logic that connects technical potential with the realization of economic value.” (p. 529)	Heuristic logic
Magretta, 2002	“Business models are, at heart, stories – stories that explain how enterprises work [...] (p.4) The business model tells a logical story explaining who your customers are, what they value, and how you will make money in providing them that value.”	Stories
Afuah, 2004	“The set of activities a firm performs, how it performs them as it uses its resources to perform activities, given its industry, to create superior customer value... and put itself in a position to appropriate the value” (p.9)	Set of activities
Osterwalder et al., 2005	“A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It’s a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.” (p.17)	A conceptual tool
Shafer et al., 2005	“We define a business model as a representation of a firm’s underlying core logic and strategic choices for creating and capturing value within a value network.” (p.202)	A representation of core logic and strategic choices
Chesbrough, 2007	“At its heart, a business model performs two important functions: value creation and value capture. First, it defines a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or service in such a way that there is net value created throughout the various activities [...]. Second, a business model captures value from a portion of those activities for the firm developing and operating it.” (p.12)	Value creation and value capture
Johnson et al., 2008	“A business model consists of four interlocking elements that taken together create and deliver value.” (p.52)	Interlocked elements that create and deliver value

Teece, 2010	“A business model articulates the logic and provides data and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, and profits associated with the business enterprise delivering that value.” (p.173)	A logic and an architecture for value creation and delivery
Aspara & Tikkanen, 2011	“a combination of firm -related material structures and processes that exist objectively “in the world”, on the one hand – and intangible, cognitive meaning structures that exist in the minds of people at different levels of the organization, on the other” (p. 263).	
Cavalcante, 2011	“We conceptualize the business model as a systematic analytical device, partly for evaluation and action with respect to organizational change in general, and partly for addressing innovation”	An analytical device
Amit & Zott, 2012	“A system of interconnected and interdependent activities that determines the way the company “does business” with its customers, partners and vendors.” (p.42)	An activity-system
Bucherer et al., 2012	“The business model abstracts the complexity of a company by reducing it to its core elements and their interrelations and thus specifies the core business logic of the firm.” (p.184)	Core business logic
Aspara et al, 2013	The corporate business model resides primarily in the minds of the corporation’s top managers or top management team (TMT) members – essentially, it is the corporate top manager’s perceived logic of how value is created by the corporation, especially regarding the value creating links between the corporation’s portfolio of business (p.460)	Perceived logic
Baden-Fuller & Haefliger, 2013	“We define the business model as a system that solves the problem of identifying who is (or are) the customer(s), engaging with their needs, delivering satisfaction, and monetizing the value.” (p.419)	A problem-solving system
Casadesus-Masanell & Ricart, 2011	“A business model comprises choices and consequences.” (p.5)	Choices and consequences.
Girotra and Netessine, 2014	“Any business model is essentially a set of key decisions that collectively determine how a business earns its revenue, incurs its costs, and manage its risks.” (p.98)	Key decisions (revenues, costs, risks)
Martins et al., 2015	“Business model is an example of a schema, defined as a cognitive structure that consist of concepts and relations among them that organize managerial understandings about the design of activities and exchanges that reflect the critical interdependencies and value creation relations in their firm’s exchange networks” (p.100)	A cognitive structure of concepts and relations related to activities and exchanges
Saebi & Foss, 2015	“We define business models as the content, structure, and governance of transactions within the company and between the company and its external partners that support the company in the creation, delivery and capture of value.“ (p.204)	Content of transactions, structure of transactions and governance of transactions
Berends et al, 2016	“A BM defines how an organization creates and appropriates value and thereby captures essential features of how companies conduct their business.” (p.181)	Value creation and value capture
Wirtz et al, 2016	“A business model is a simplified and aggregated representation of the relevant activities of a company” (p.6)	Representation of activities
Saebi et al., 2017	“Although there is no generally agreed upon definition, many contributions to the literature define it in terms of the firm’s value proposition and market segments, the	Value proposition, value creation,

	structure of the value chain required for realizing the value proposition, the mechanisms of value capture that the firm deploys, and how these elements are linked together in an architecture.” (p.567)	value capture and holistic architecture
Sund et al. 2020	“The business model is... A schematic model of theorized interaction that is created, shaped and shared over time.” (p.1)	Schematic model

Business model components

As Table 2 indicates, many researchers have defined the business model based on its key components or essential elements. The heterogeneity in business model definitions is also reflected in what is seen as the essential business model components. A difference can be discerned when it comes to the scope of components included (Sniukas, 2020; Wirtz et al., 2016). Some, like Amit and Zott (2010), see the business model as a narrower activity system, decomposing it into activity system content (which activities are being performed), activity system structure (how the activities are being linked and sequences) and activity system governance (who performs which activities). Advocates of broader definitions refer to a wide and diverse range of components, including customer value propositions, profit formula, key resources, and processes and more (e.g. Johnson, 2010; Osterwalder & Pigneur, 2010). The business model canvas is a widely recognized example of the latter. The canvas identifies nine interrelated building blocks (i.e. value proposition, key resources, key activities, key partnerships, customer segments, customer relationships, distribution channels, cost structure and revenue streams (Osterwalder & Pigneur, 2010). Teece's (2010) definition of a business model as the architecture of the firm's value-creation, value-delivery and value-appropriation mechanisms reflects a more abstract however still comprehensive understanding. This understanding has become widely cited and used by several researchers as a basis for further dimensionalisation of the concept (see e.g. Dasi et al., 2017, Foss & Saebi 2017; Saebi et al., 2017). I will follow Teece's understanding in my discussion of the main business model components below.

Three components (reflected in Teece's (2010) definition) are common to most business model descriptions. The first key component relates to the value proposition (i.e. the unique value that the business offering provides to customers and other stakeholders). Through the value proposition, the firm establishes a link between what customers need and are willing to pay for ("the job to be done", Johnson, 2010) and what the company is able to offer. This can also be related to customer segmentation, as different customer groups may value different aspects of the business offering differently. As articulated by Johnson (2010: 239): "The CVP [customer value proposition] describes how a company creates value for a given set of customers at a given price.". The value proposition can also consist of features related to the customer experience, the design, convenience, and accessibility (Eyring et al., 2011; Johnson, 2010; Osterwalder & Pigneur, 2010; Sniukas, 2020).

The second business model component involves the creation of value in the value chain (or other forms of value configuration, such as value shop or value network (Stabell & Fjeldstad, 1998)). This component addresses how the firm is organized to create value, both internally and externally, through a value creation architecture. The value creation architecture reflects the firms' choices about how it will produce and deliver its products and services. Finding the right organizational set-up or value creation architecture that brings customers the wanted value for an acceptable price, allowing the firm to create a sustainable profit in the process, is a key managerial challenge. Increasingly, as a result of cooperation and collaboration among multiple partners (Amit & Zott, 2010; Applegate & Collura, 2000), value creation occurs in networks that cross firm and industry boundaries. In these contexts, the value-creation architecture shows how the firm uses its resources and activities in conjunction with its partner network to realize its value proposition. As a firm's ability to manage relationships is not just about its internal units anymore, a critical implication is that the management of external partnerships cannot rely on hierarchical control

(Dasi et al., 2017). Thus, new forms of management for such business models needs to be identified.

Finally, many seem to agree that the business model concept includes a third component—value capture or the profit model (e.g. Johnson 2010; Johnson et al, 2008; Osterwalder & Pigneur, 2010). This dimension highlights how the firm generates revenue based on its cost structure and pricing logic. This focus on value capture differs from strategy approaches that might focus on firm performance and profitability, and it highlights how appropriating value that has been created through a network might be challenging (Dasi et al., 2017). Digital platforms serve as an illustration, as only a limited number of the firms in the value-creating network directly face the customer, and the network logic may make it difficult to see who should be paid for what (Cennamo & Santalo, 2013; Dasi et al., 2017; Eisenmann et al., 2006). In cases where value-creation is a result of co-production between a firm and its customers, suppliers and partners, value appropriation mechanisms increase a firm’s bargaining power in relation to other network actors (Brandenburger & Nalebuff, 1997; Fjeldstad & Snow, 2018; Zott & Amit, 2010).

The link between business model components: architecture and core logic

The core business-model components of value creation, value delivery and value appropriation are tightly intertwined. Together, they form a system with a common *architecture* (Teece, 2010) in which modifications in one element affect the others. The notion of “architecture” refers to the relations among the firm's mechanisms for creating, delivering and capturing value as well as the underlying activities. More specifically, “an architecture is *the set of relations among elements in a system*” (Foss & Saebi, 2018:5, my underscore), where these relations can be characterized by different degrees of complementarity, strength, and content. These interconnections and complementarities may be complex, with multiple local equilibrium points that are difficult to foresee and design up-front (Foss & Stieglitz, 2015; Gavetti & Levinthal, 2000;

Levinthal, 1997). The system-characteristics of the business model complicates both the design of new business models and the process of changing existing business models.

The architecture, or the interconnections and relations between the core components of a business model, can also be seen as a reflection of the *core logic* of the business model (Linder & Cantrell, 2000; Teece, 2010). This logic stipulates how a firm creates value – that is, how it operates and creates value for its stakeholders. Teece (2010) exemplifies this by using a machine as an analogy, highlighting how any given machine has a particular logic as to how the different components are assembled and interact to create value for its users. This logic of operations affects the value offered to the stakeholders. Teece clarifies:

To assess how well a particular automobile works - or to create a new one, one must consider its components and how they relate to one another – just as, to better understand business models, one needs to understand their component parts and their relationships.... Business models are made of concrete choices and the consequences of these choices. The choices include but are not limited to compensation practices, procurement contracts, localization of facilities, assets employed, extent of vertical integration, and sales and marketing initiatives. *Teece (2010: 197).*

Newer trends in business model conceptualization

The perspective of business models as choices and consequences highlights the important role of managers in the design and implementation of business models, especially managerial decision making. As static tools business model representations enable the description and analyses of actual, empirical business models, and thus form the basis for comparison between companies to understand performance differences. Business model representations can also describe potential future models, in order to facilitate decision making, communication and action towards a new

state. However, as argued above, the business model components are interlinked in a systemic manner, making the implications of choices difficult to foresee.

The challenges related to how to design business models for a more uncertain future has highlighted the role of managerial cognition in business modelling and business model transformation. There seems to be an increasing focus on merging business model theory with managerial and organizational cognition theory (Sund et al., 2020). This ongoing trend is in line with the focus of this dissertation, on investigating the managerial and organizational implications of BMI. For this dissertation, the business model is defined as follows:

The business model is a (cognitive) reflection of activities and interactions that together form a logic for how to create, deliver and capture value for the firm and its stakeholders.

My definition of the business model highlights the cognitive and activity-based aspects of a business model, as the business model reflects choices and consequences (e.g. which activities should be performed and who should be involved, and which activities should not be prioritized) for strategic decision making. In its early stages, a novel business model exists primarily in the minds of key decision makers in the organization – before cycles of sensegiving (Gioia & Chittipeddi, 1991) (from managers) and sensemaking (gradually involving the rest of the organization) makes it known and understood and enacted by all (relevant) organizational members. This process is illustrated in Paper 1 (for modular BMI) and Paper 3 (for corporate-level BMI) in this dissertation.

Contributions to strategic management

Following Wirtz (2019), the business model approach has become an important management concept the last decade, as it enables “managers to focus on the essential aspects of their responsibility“ (p. 14). The business model is considered to be more generic than business strategy. However, it can contribute to competitive advantage and positioning (Teece, 2010; Voberda et al, 2018), by clarifying business model choices and consequences. As such, strategic

thinking is a crucial part of business model design (Teece, 2010) and business model design can enable strategic reorientation and change. By reducing complexity and ensuring focus on the relevant information a business model approach can improve decision making and thus contribute to long term business success. However, the business model concept has been subject to some critique (e.g. Doganova & Eyquem-Renault, 2009; Porter, 2001; Shafer et al., 2005). Sceptics suggest that business model research entails nothing new, and instead involves questions and concerns that have long been the cornerstones of strategy research (Massa et al., 2017). Supporters, on the other hand, acknowledge an overlap with strategy but suggest that “business model” and “strategy” are distinct concepts. The argument here is that the business model concept allows for the development of new research questions that have historically been overlooked (Amit & Zott, 2015; McGrath, 2010; Teece, 2010). The last two decades have seen considerable changes in competitive environments. A multitude of drivers including increased globalization, deregulation of market sectors, faster innovation cycles and digital transformation of business transactions have made markets more complex and created a growing pressure for change (Wirtz, 2019). In this regard, the business model concept can be helpful in creating room for a new focus on how value is created and appropriated in changing markets.

One issue reinforced by business model research is that of reinventing value propositions (Kim & Mauborgne, 2005; Massa et al., 2017). In a world in which companies’ strategic time horizons become shorter, finding new and different ways to create value might be a strategic necessity and an integrated part of sustainable value creation. In this context, companies might need to shift from having one business model to managing multiple business models, perhaps at different times in their life cycles (Casadesus-Masanell & Tarjizan, 2012). Hence, there is a need for knowledge on how established firms can proceed to identify and develop new value propositions, as well as to build the organizational capabilities needed to realize business value from them.

Another issue for managers and organizations in the new and highly competitive digital economy is how to appropriate value from new types of value propositions. As Massa et al. (2017: 32) phrase it, “scholars have slowly started to accept that it is far from clear that if value is delivered to customers, customers will pay for it”. This is in line with Chesbrough and Rosenbloom (2002), who argue that innovative technologies and ideas in themselves do not create value. Instead, the business model realizes that value by connecting technology and ideas through value-creating activities in order to create economic output in markets. Therefore, by explicitly addressing value appropriation as part of the business model design, the business model concept might help guide managers attention into ideation also on new ways to appropriate money, and hence to include this important element as a key focus when making strategic decisions for the future.

In addition to differences in the focus on value creation and value appropriation, Massa et al. (2017) claim that research on business models versus strategy differs in terms of the basic assumptions underlying the two perspectives. According to these authors, the business model concept consciously assumes that firms’ and managers’ knowledge is cognitively limited. Massa et al. (2017) quote Chesbrough and Rosenbloom (2002: 550) in this regard:

The initial business model is more of a proto-strategy, an initial hypothesis for how to deliver value to the customer, than it is a fully elaborated and defined plan of action. It results less from carefully calculated choices from a diverse menu of well understood alternatives and more from a process of sequential adaptation to new information and possibilities.

The argument is that (less cognitively demanding) incremental experimentation becomes more central at the expense of strategic (and cognitively demanding) planning. This argument has been challenged by Martins et al. (2015), who suggest that it reflects a “small head view” of managers (Porac & Tschang, 2013). I consider this issue again in more detail at the end of this section,

suggesting that established firms must combine both incremental trial-and-error learning, cognitive, forward-oriented planning and processes of sensemaking and sensegiving to identify and implement new business models.

In summary, while the business model concept has been researched from different traditions operating in “silos”, there seems to be agreement about the essence of the business model revolving around creating, delivering and capturing value. However, the business model is more than a summing of the parts; it is a systemic concept where the different parts are interlinked by a common architecture, reflecting the core value-creating logic of the business model. This value-creating logic exists both at an activity-based and at a cognitive level. Further on, a business model can be a tool for description of empirical business models, but also for designing or modelling future business models. When applying business models as tools for future models, the mechanisms of business model innovation processes come into play. Below I first investigate the concept of business model innovation, discussing important dimensions and providing the definition applied for this dissertation, as well as antecedents and barriers for BMI. I then move on to discuss research addressing the two main research questions of this dissertation specifically: how established firms develop BMI processes (section 2.3) as well as the link between BMI and managerial cognition, strategizing, learning and dynamic capabilities and organizational design (section 2.4). At the end I highlight important research gaps in the understanding of organizational and managerial implications of BMI in established firms.

2.2 Business Model Innovation

The concept

Over the past 15 years, an increasingly dynamic perspective on business models has emerged in which changes to business models are studied over time (Achtenhagen et al., 2013; Foss & Saebi, 2017). BMI has been key to the commercialization of new technologies (Chesborough,

2007; Gambardella & McGahan, 2010; Teece, 2010), as the same idea or technology taken to market using different business models might result in different economic output (Chesborough, 2010). BMI has also been identified as a necessary type of innovation to apply when the growth of a product declines (Moore, 2004). In addition, business models are viewed as a source of innovation themselves separate from traditional innovation in processes and products and organizational innovation (Klang et al., 2010; Zott et al., 2011). Novel, innovative business models are often seen as key aspects of sustainable competitive advantage and drivers behind the success of companies like Amazon, Dell, Canon, Southwest Airlines, etc. (see e.g. Chesbrough, 2007, 2010; Johnson et al., 2008; Magretta, 2002).

Many terms are used to describe BMI, including “business model reinvention” (Johnson et al., 2008; Govindarajan & Trimble, 2011), “business model dynamics” (Cavalcante et al., 2011; de Reuver et al., 2009), “business model renewal” (Doz & Kosonen, 2010; Sandström & Osborne, 2011), “business model evolution” (Demil & Lecocq, 2010; Lee et al., 2013), “business model transformation” (Aspara et al., 2013; Berzosa et al., 2012) and “business model reconfiguration” (Calia & Guerrini, 2007). While these terms are sometimes used interchangeably, some of them seem to point to merely incremental changes, such as minor changes in an existing business model (e.g. evolution or adaptation), while others appear to refer to more radical forms of innovation.

Table 2.2 summarizes selected definitions of BMI.

Table 2.2. Selected BMI definitions (chronological order)

Author	Definition	Focus	Dimension
Markides, 2006	“Business model innovation is” the discovery of a fundamentally different business model in an existing business.”	Scope of change (radical)	Dimension 1
Aspara et al., 2010	“Initiatives to create novel value by challenging existing industry-specific business models, roles and relations in certain geographic market areas.”	New to industry	Dimension 2
Santos et al., 2009	“Business Model Innovation is a reconfiguration of activities in the existing business model of a firm that is new to the product service market in which the firm competes.”	New to the industry and innovation in components	Dimension 2, 3

Demil & Lecocq, 2010	“We view business model <i>evolution</i> as a fine-tuning process involving voluntary and emergent changes in and between permanently linked core components, and find that firm sustainability depends on anticipating and reacting to sequences of voluntary and emerging change, giving the label ‘dynamic consistency’ to this firm capability to build and sustain its performance while changing its business model.”	Scope of change (fine-tuning) and innovation in and between core components	Dimension 1 and 3
Cavalcante et al., 2011	Distinguish between four different types of business model change: business model creation, business model extension; business model revision and business model termination.	Output	Dimension 4
Aspara et al., 2013	Corporate business model transformation is “a change in the perceived logic of how value is created by the corporation, when it comes to the value-creating links among the corporation’s portfolio of business, from one point to another.”	Innovation in business model architecture/ logic	Dimension 3
Casadesus-Masanell & Zhu, 2013	“At root, business model innovation refers to the search for new logics of the firm and new ways to create and capture value for its stakeholders; it focuses primarily on finding new ways to generate revenues and define value propositions for customers, suppliers, and partners.”	Innovation in components and business model architecture/ logic	Dimension 3
Zott & Amit, 2015	“The ‘newness’ of the business model may refer to any of its design elements– that is, content, structure, or governance. Because of the systemic, interconnected nature of the business model, a change in any of these elements may engender further changes at the system level [...] The more wide-ranging the changes at the system-level the more encompassing (and radical) the BMI.”	Scope of change and innovation in components and business model architecture/ logic	Dimension 1 and 3
Berends et al., 2016	“BM innovation involves changes in multiple components, and the eventual outcomes depend on the interactions between all components involved.” (p. 183)	Innovation in components and business model architecture/ logic	Dimension 2
Massa et al., 2017	“We propose that BMI may refer to (1) the design of novel BMs for newly formed organizations, or (2) the reconfiguration of existing BMs”	Output	Dimension 4
Foss & Saebi, 2017	“We define BMI as designed, novel, nontrivial changes to the key elements of a firm’s business model and/or the architecture linking these elements.”	Degree of newness (novel and nontrivial) and innovation in components and business model architecture/ logic	Dimension 1 and 3

The lack of clarity on the BMI concept as illustrated by the diversity across definitions suggests that BMI is an emerging field of research, as emerging fields often lack consensus on the nature of the basic phenomenon they seek to address and explain. The definitions listed above can

be grouped based on four dimensions: 1) the scope of change needed for BMI, 2) whether BMI can be new to the firm or must also be new to the industry, 3) whether BMI requires innovation of the business model architecture or merely of business model components, and 4) what the outcome of BMI is.

Firstly, the definitions vary with regard to the *scope of change* needed. This is related to degree of incremental versus radical change. One group of scholars emphasizes the range of business model components that are changed in this regard. At one end of the scale, BMI can “refer to any of its design elements – that is, its content, structure or governance” (Zott & Amit, 2015: 397). For instance, Giesen et al. (2007) conceptualize BMI as innovation in the industry’s value chain, the revenue model or the enterprise model (i.e. refining organizational boundaries) (Foss & Saebi, 2017). At the other end of the scale, some see BMI as requiring change in all business model components (e.g. Johnson et al., 2008; Yunus et al., 2010). Second, the definitions differ related to the degree of newness it entails. Some see BMI as a game-changing, disruptive type of innovation that is *new to the industry* (Aspara et al., 2010). Alternatively, BMI may only be *new to the firm* (Zott & Amit, 2015). Thirdly, another group of scholars sees BMI as innovation in the *business model architecture* rather than *innovation of business model components*. The perspective of innovation in the business model architecture emphasizes the links among the activities underlying business model components (Foss & Saebi, 2017). Several authors argue that BMI can refer to both innovation in the business model architecture and/ or the business model components (e.g. Foss & Saebi, 2015; Mitchell & Coles, 2003). A fourth dimension relates to the *outcome of BMI*. Some definitions highlight BMI as a renewal or transformational process in which the outcome is a new business model that *replaces the old* one (e.g. Aspara et al., 2013; Sandström & Osborne, 2011). Others focus on how firms can compete with *two or more business model innovations* and

potentially develop a portfolio of different business models for different markets (e.g. Markides & Charitou, 2004; Sabatier et al., 2010).

In this dissertation, I combine several of these dimensions in my understanding of BMI. BMI is viewed as more than mere product or service innovation – it includes changes to business model components and/or their linkages. By the same logic, BMI is not (only) a process or organizational innovation (dimension 1). Hence, BMI poses specific requirements on managers and organizations. BMI involves changes in the business model components and/or their linkages (the logic or architecture connecting them) (dimension 3). This understanding is in line with my dual perspective of business models as cognitive models and activity systems and emphasizes the systemic character of the business model and the processual character of business models as reflecting choices and consequences. The objective (and result) of BMI can be a refinement of the existing business model (by finding a new way of proposing, creating or capturing value), a replication of the business model in a new market, or the addition of a new business model that might either replace or co-exist with existing business models (Massa et al., 2017; Volberda et al., 2018) (dimension 4). Hence, for the purposes of this thesis, BMI is defined as follows:

Changes in the business model components and/or its linkages (logic) that incorporate both a change at the cognitive level and at the activity level and that can lead to different outputs, including a transformation of the existing business model, a replication of an existing business model in a new market and an addition of new business models.

While research on BMI is rapidly growing, this type of innovation is still poorly understood (Foss & Saebi, 2017; Wirtz et al., 2016). Conceptualizations and empirical evidence on how existing firms can *achieve* BMI are still relatively scarce, though existing research recognise that strategy is important, and that experimentation plays a role (McGrath, 2010; Teece, 2010). It is clear from the description above that BMI poses challenges on managers, however unclear how to

come about it: is BMI a structured and planned management task or an experiment/a product of chance? (Wirtz, 2019). Further on, previous research has not differentiated sufficiently between various types of BMI (Volberda et al., 2018), such as the addition of a new modular BMI, the replication of an existing BMI and the transformation of a corporate-level BMI. Thus, there is a need for more extensive knowledge on what it takes to identify relevant BMI opportunities and to manage the BMI process alongside or as a substitution for existing business. In the following, I will look at what is known on BMI from existing research, related to both the antecedents to and barriers for BMI, as well as different types of BMI.

Antecedents to BMI

BMI is often seen as a response to disruption, intense global competition (Doz & Kosonen, 2010), competitive pressures or shifting bases of competition (Johnson et al., 2008). However, as Foss and Saebi (2017) point out, the antecedents of BMI are not systematically identified, and empirical tests of the connections are lacking. Saebi et al. (2017) distinguish between proactive and reactive business model adaptation. While the former refers to firms that are attempting to disrupt and shape the competition in a market or industry, the latter refers to a business model dynamic in which external threats are the main driver. Research indicates that BMI is more likely to occur in threatening situations than in situations in which opportunities are present (Saebi et al., 2017). The antecedents and the context BMI occur within is likely to affect the way managers approach BMI, including the decision making and mechanisms applied to drive the BMI process.

Barriers to BMI for established firms

While most BMI literature focuses on entrepreneurial firms and their creation of new business (Kim & Min, 2015), this dissertation focuses on BMI in established firms. Despite the many advantages of BMI highlighted in the literature, established firms face substantial challenges and barriers in their work with BMI, as they cannot immediately abandon old business models in

favour of new ones. They find it challenging to change, renew and innovate their existing business models (Chesbrough, 2010; Johnson et al., 2008; Teece, 2010). Chesbrough (2010) differentiates between two types of barriers to BMI that existing firms may face: structural or organizational barriers, and cognitive barriers. The cognitive barriers are also related to top managers abilities to envision BMI, both the innovation and the implementation thereof. In addition, another type of barrier is related to the management of BMI as a new type of innovation (Sniukas, 2012; Svejnova et al., 2010).

First, incumbent firms have organizational routines and operating procedures that have been developed over time and that is likely to have provided value to the firm (at least in the past). As noted by Christensen (1997) and Amit and Zott (2001), there is a “conflict between the business model already established for the existing technology, and that which may be required to exploit the emerging, disruptive technology” (Chesbrough, 2010: 358). Therefore, abandonment of the existing business model is likely to be met by barriers related to: 1) resistance to allocating resources to the new business model due to conflicts with existing assets and resources (Chesbrough & Roosenbloom, 2002; Tripsas & Gavetti, 2000); 2) lock-in effects, which create switching costs for customers or other stakeholders that prevent adoption of the new business model, 3) inertia related to uncertainty about the effectiveness of the new business model (Berends et al., 2016) and 4) challenges related to the complexity of managing multiple business models in parallel (Markides & Charitou, 2004). Such structural barriers, where “managers readily recognize the right business model, but its development is resisted due to its conflict with the prevailing business model” (Chesbrough, 2010: 359), might reflect a lack in motivation among managers to introduce BMI.

In addition, Chesbrough (2010: 359) identifies a second type of barrier, which he refers to as cognitive, in which “it is far from clear to [managers] even what the right business model ought to be”. This type of barrier is related to (well-known) constraints on managerial cognition, where

cognitive biases keep the manager from acting on the basis of perfect information access and assimilation. Instead, decisions are based on what is deemed satisfactory. This makes it difficult for managers to identify the potential in BMI and to envision alternative business model solutions. For successful firms, the “dominant logic” (Prahalad & Bettis, 1986) of the existing business model may prevent managers from identifying, realizing or capturing value from BMI.

A related barrier relates to top management’s abilities to envision BMI and how to bring it about given the characteristics of the company, the markets it faces etc. In other words, top management must understand the structures, capabilities and processes needed to realize the new business model (Chesbrough, 2010; Doz & Kosonen, 2010; Johnson et al., 2008). This barrier also reflects the functioning of the TMT, including how authority is distributed within the team and how the decision-making process looks like. For instance, Foss and Saebi (2015) suggest that the likelihood of recognizing the need for BMI is higher in firms in which middle managers have the decision-making authority and can make decisions regarding cooperation with external partners (Foss & Saebi, 2015). This illustrates how the choices made by top management (such as the delegation of decision rights) can affect BMI realization.

The result of established players’ barriers towards BMI is that they face considerably more challenges in adopting new courses of action than entrepreneurs (Huang et al., 2013). Thus, path dependencies at both the firm and the individual (managerial) level keep established firms from responding to external threats (Hannan & Freeman, 1977; Nelson & Winter, 1982). The last identified barrier is that of knowing how to proceed with developing and implementing BMI in established firms (Svejenova et al., 2010). BMI is a new type of organizational innovation and needs to be treated as a distinct phenomenon, as it poses distinct challenges for established firms (Hamel, 2006; Markides, 2006; Mol & Birkinshaw, 2009). Consequently, established approaches to and theories on other types of innovation such as product and process innovation cannot merely be

transferred to BMI (Sniukas, 2020). This leaves a gap in knowledge of how established firms can approach BMI in an effective manner. To complicate matters even further, BMI does not come in one form and shape, as I will look more into below.

Different types of BMI for established firms

As touched upon in the introduction, there are various types of BMI, including the addition of a new service-based BMI, corporate-level business model replication and BMI transformation. I will briefly review existing literature on these below.

Foss and Stieglitz distinguish between different types of BMI based on the depth and the breadth of (intended) changes to an existing BMI that is entailed. The term “modular BMI” can be understood as changes to a business model that are confined to particular business units or departments, with none or only limited changes effecting other parts of the firm. Architectural changes however rewire complementarities across business units and departments and can thus be seen as corporate-wide transformations. Foss and Stieglitz (2015) further hold that these different types of BMI have implications for the role of the top management in the different BMIs.

The focus of business model replication in new market is on identifying aspects of the existing business model that can create growth in new markets, and on realizing this growth. Replication thus involves the subtle reconstruction of a system of activities and processes, that is, the existing business model. However, the way the existing business model function is often imperfectly understood, casually ambiguous, complex and interdependent (Szulanski & Jensen, 2008; Winter & Szulanski, 2001). Dunford et al. (2010) portrays replication as a dynamic and evolving process that requires the right balance between learning, change and precise replication (Winter et al., 2012).

As the above sections highlight, there are different types of BMI. However, to know more about how established firms can approach BMI, I argue that there is a need for more knowledge on

the different types of BMI and their managerial and organizational underpinnings. Below I continue reviewing existing research related to the two main research questions of my dissertation: 1) How do BMI processes unfold in established firms? (section 2.3) and 2) How do managers and organizational design support BMI processes? (section 2.4), before I extract the relevant research gaps (section 2.5).

2.3 BMI processes

While cognitive and organizational barriers challenge managers in established organizations in their pursuit of BMI, knowledge of the BMI process may support BMI by enriching knowledge of how BMI is brought about and which events, activities, interactions and choices it entails. Thus, the BMI process is a vital BMI concept (Andreini et al., 2021; Foss & Saebi, 2017; Wirtz et al., 2016), and I found it to be an attractive focus area for me in my search to expand on current insight. While existing research on BMI processes is “blossoming” according to a recent review (Andreini et al., 2021), there are still important gaps in our knowledge of these processes, and further insight into this issue can support both researchers and practitioners. Hence, one of the two main research questions in this thesis addresses how BMI processes unfold in established firms. In the following, I first briefly discuss how the concept of *process* is used in organizational research, and then review existing theorizing around BMI processes.

Van de Ven (1992:170) defines a process as a “sequence of events or activities that describes how things change over time, or that represents an underlying pattern of cognitive transitions by an entity in dealing with an issue”. Such entities can be individuals, teams or the organization as a whole. Process studies focus on evolving phenomena by asking “questions about how and why things emerge, develop, grow or terminate over time” (Langley et al., 2013: 1). The focus is on the *mechanisms that link* dependent and independent variables in order to understand the causes of events and developments over time (Langley et al., 2013). In other words, the focus is on

events, activities, and choices as these unfold over time. Some separate between “weak” process theories, where processes are regarded as “events happening to things” that maintain their unique identity over time, and “strong” process theories, where all observed elements and actors are “momentary instantiations of processes” (Cloutier & Langley, 2020: 3; Langley et al., 2013). For BMI processes, most studies apply a “weak” process theorizing perspective (Andreini et al., 2021), analysing the change in an organization’s business model over time while assuming that the organization preserves its essence (2021: 19). In this dissertation, I apply a strong process understanding, and understand BMI processes as the combination of cognition, actions and interactions, events and choices (related to strategizing, learning, sensegiving and operations) that brings new forms of value creation into being.

As a reflection of widespread, independently developed exploratory studies, a variety of BMI processes have been identified with notable variation in the number of process steps as well as the orientation and focus of the identified processes (Wirtz & Daiser, 2018). Some process studies focus on the design of business models as a conscious process (e.g. Chatterjee, 2013; Osterwalder & Pigneur, 2010). Others emphasize the emergent and iterative nature of BMI development in the form of trial-and-error learning or experimentation (Dmitriev et al., 2014; McGrath, 2010; Sosna et al., 2010). Some suggest that design is a preliminary step, which is followed by refinement or adjustment at a later stage after the business model has been implemented (Cortimiglia et al., 2016; Demil & Lecocq, 2010; Lehoux et al., 2014). Yet other research on processes (such as the six-step BMI process described by Amit and Zott (2012)) focus more on operational aspects.

Few studies undertake comparative investigations of BMI processes for established firms (Cortimiglia et al., 2016; Mezger, 2014; Sánchez & Ricart, 2010). However, a recent review of BMI processes by Wirtz and Daiser (2018) seeks to identify generic aspects and common features of a set of twenty distinctive approaches, each involving its own BMI process. These authors

uncover seven steps, or process phases, each characterized by a certain set of activities. The first five steps (i.e. analyses, ideation, feasibility, prototyping and decision-making) are design oriented, while the last two (i.e. implementation and sustainability) are more operational.

Several authors point to the lack of knowledge of the process for innovation of new and/ or transformation of established business models as the biggest barrier to BMI within established organizations (e.g. Eyring et al., 2011; George & Bock, 2011; Klang et al., 2010). Wirtz and Daiser's (2018) research offers an interesting and useful aggregation of the BMI process steps recommended in the research literature. They highlight the multidirectional character of BMI processes and describe these processes as a "semi structured flow of activities that need to be matched with the specific requirements on the respective BMI initiative" (Wirtz & Daiser, 2018: 53). This implies that the process is not intended to be strictly followed in a step-by step manner. Depending on the BMI initiative in question, some phases might be recurring, while others might not occur at all.

Andreini et al. (2021) see BMI as a phenomenon that imply a multitude of interactions both within and across different organizational levels. They further identify five different types of BMI processes: cognition processes for BMI, knowledge-shaping processes for BMI, strategizing processes for BMI, value creation processes in BMI and evolutionary learning processes. These BMI processes are seen as distinctive, yet interconnected, and evolutionary learning processes are suggested as the "glue" between the different types of processes.

To further investigate the nature of BMI processes, including the nature of different BMI sub-processes, this thesis focuses on the role of managers and organization in supporting BMI processes. Below I continue reviewing selected existing research related to the second of my main research questions, "How can managers and organizations best support BMI processes?".

2.4 BMI and implications for management and organization

Despite recent efforts to further develop our understanding of the drivers and processes for BMI, little is known about how established firms innovate their business models in response to changes in their environments (Andreini & Bettinelli, 2017; Saebi et al., 2017; Sniukas, 2020). Moreover, insights into the related managerial and organizational factors are even more scarce (Foss & Saebi, 2015). BMI is intrinsically linked to managerial and organizational choices that affect the likelihood of success. These choices relate to both “objectively” designable parts of an organization (such as organizational boundaries and internal structure) and less tangible factors of leadership and decision making, learning, cognition and belief systems. There are different perspectives on how these choices are made (e.g. the role of cognition versus trial-and-error learning, see Martins et al., 2015), and on how the processes related to these choices look like. In the following section, I review selected aspects of established literatures on managerial cognition, strategizing, learning and dynamic capabilities, and organizational design, to frame the second main research question of this dissertation.

A cognitive perspective

There is growing awareness that managerial cognition plays important roles in enabling organizations to renew itself. For instance, Martins et al. (2015) argues for a more cognition-oriented analyses of the role of managers in BMI, seeing BMI as a holistic *interpretation* of internal and external variables and resources (Andreini & Bettinelli, 2017). This focus on interpretation put cognition centre stage.

Managerial cognition relates to topics such as attention, attribution, decision making, information processing, learning, mental representations, cognitive frames and perceptual and interpretive processes (Sund et al., 2020). Managerial cognition can be defined as the conceptual and operational representations or belief systems that managers develop when operating with

complex systems (Tikkanen et al., 2005). Gavetti and Levinthal (2000: 113) describe cognition as “a forward-looking form of intelligence that is premised on an actor's beliefs about the linkage between the choice of actions and the subsequent impact of those actions on outcomes. Such beliefs derive from the actor's mental model of the world”. Mental models are models that are learned and help managers to solve problems (Kieras & Bovair, 1984) as well as to make inferences or causal predictions (Johnson-Laird, 2001) (Sund et al., 2020). Inspired by cognitive psychologists, managerial cognition scholars refer to mental representations as “schemas”, which are defined as “cognitive structures that represent knowledge about a concept or type of stimulus, including its attributes and the relations among attributes” (Fiske & Taylor, 1991: 98). As such, schemas encompass both knowledge about specific stimuli and the organization of knowledge in larger structures (Martins et al., 2015). In behavioural organization theory, cognition is seen as a filter between the way actors understand the external environment and the intra-organizational context (March & Simon, 1963; Tikkanen et al., 2005). Furthermore, while schemas help to organize individuals' knowledge, much of that knowledge is based on what can be referred to as “culturally available schemas”, which “provide default assumptions about characteristics, relationships and entailments under conditions of incomplete information” (DiMaggio 1997: 269). Therefore, cognition can be an individual-level process and an organizational-level process (Hill & Levenhagen, 1995; Walsh, 1995).

The idea that managers hold *images* of real systems, and not the real systems themselves, has long been accepted in management research. It is found in theories of organizations (Eggers & Kaplan, 2009, 2013), organizations as “interpretation systems” (Daft & Weick, 1984), organizational learning (Senge, 1990) and strategy (Bettis & Prahalad, 1995) as well as in more general theories concerning cognition and industry belief systems (e.g. Porac et al., 2002; Massa et al., 2017).

Teece (2010: 172) was one of the first to focus on the link between managerial cognition and business models, stating that the business model “reflects management’s hypothesis about what customers want, how they want it, and how the enterprise can organize to best meet those needs, get paid for doing so, and make a profit”. He also indicates that “the [business model] notion refers in the first instance to a conceptual, rather than a financial, model of a business”. In a related vein, Aspara et al. (2011: 623) conceptualize the business model as “a combination of firm-related material structures and processes that exist objectively ‘in the world’, on the one hand – and intangible, cognitive meaning structures that exist in the minds of people at different levels of the organization, on the other”. Several scholars have suggested that business models reflect managerial mental models (e.g. Baden-Fuller & Haefliger, 2013; Baden-Fuller & Mangematin, 2015; Baden-Fuller & Morgan, 2010; Loock & Hacklin, 2015; Martins et al., 2015; Sund et al., 2020). Massa et al. (2017) argue that this stream of research sees the business model as a mental schema or cognitive structure that functions as a focusing device, thereby facilitating the decision-making of boundedly rational decision-makers facing imperfect information and cognitive complexity (Doz & Kosonen, 2010; Prahalad & Bettis, 1986; Walsh, 1995). In this manner, the business model can improve decision-making efficiency. This is achieved by configuring simple rules into a coherent structure that inform value creation and value capture (Furnari, 2015; Loock & Hacklin, 2015).

While cognition can be a source of inertia due to the human tendency to preserve existing schemas, it also has the potential to change these schemas in a proactive manner. By the use of the natural process of generative cognition, existing schemas can be changed, and completely new schemas can arise. Generative (or creative) cognition refers to how knowledge is reorganized rather than stored. Entirely new schemas can be created through specific mental operations enabling individuals to recognize their existing knowledge and cope with novelty (Martins et al., 2015; Ward, 2004). At the individual level, cognitive processes involving controlled mental operations

that effects the structure of mental schemas have been identified. These processes occur naturally in situations where individuals need to make sense of new information. Martins et al. (2015) argues that such natural processes at the individual level can be used in a determined manner at the organizational level. They further illustrate this by two different cognitive techniques that managers can use to assist ideation for new opportunities: analogical reasoning and conceptual combination. While analogical reasoning refers to the correct identification and appropriate transfer of attributes and relationships from an analogue to a target business model, conceptual combination refers to the creation of new concepts as variants of existing ones. Along a similar line of reasoning, Schneckenberg et al. (2019) identify six cognitive processes that influence managerial reasoning when designing new business models as a response to environmental changes. These cognitive processes include both deductive reasoning (analogical transfer and learned heuristics) as well as emerging logic (problem sensing, considering adaptation, intuitional insights, integrating customer perceptions). This perspective where BMI is largely about schema change highlights how cognition can be used actively by managers and firms to omit inertia and as a tool for identifying new opportunities.

A cognitive approach to BMI also relates to the sensemaking and sensegiving processes that managers and top management teams are faced with when developing BMI in an established organization (Gioia & Chittipeddi, 1991; Stensaker & Falkenberg, 2007). Managers cognitive schemas of the new business model must be shared, communicated and translated into narratives or representations for BMI to be realized (Andreini et al., 2021; Islam, 2019) within a modular unit and/ or the entire organization, both to internal and external stakeholders. Business model schemas are seen as useful tools for managers to reflect strategically and develop leadership unity and resource fluidity (Andreini et al., 2021; Deken et al., 2016; Forkmann et al., 2017). Indeed, the business model is often treated in the literature as a shared mental representation, resulting from a

shared sensemaking process within the organization (Daft & Weick, 1984; Sund et al. 2020; Weick 1995). However, there is also research that focuses on the diversity in mental models, reflecting different experiences from different positions and carriers, and how this gives rise to different understandings and interpretations of the business model (Sund et al., 2020).

Strategizing

Through (consciously or unconsciously) identifying and choosing between alternative business model strategies (Andreini et al., 2021), the organization's direction for the future and presence in the market is decided upon (Andreini et al., 2021; Broekhuizen et al., 2018; Martin-Rios & Parga-Dans, 2016). This choice can be understood as a result of a rational and planned process, where the wanted business model is decided upon and implemented, or as a less linear process of events where a multitude of factors (rational and others) affect the choices made in the organization.

Much business model literature relates to a rational, strategic positioning perspective where business models are seen as purposefully designed systems (Zott & Amit, 2010) that reflect managerial choices and their consequences (Casadesus-Masanell & Ricart, 2010; Martins et al., 2015; Shafer et al., 2005). When circumstances in the environment changes, the business model design is changed as well. The question within this perspective is how to (rationally) optimize the business model to the surroundings.

In general, the strict planning- and rational positioning perspective on strategy is seen as in decline (Ouakouak, 2021), and some argue that the role of strategists has become more about coordinating strategies as they develop from within the business (Mantere & Whittington, 2021). This has implications also for who is involved in BMI strategy making, and how the processes of making strategic choices develop. To an increasing degree, strategy making is no longer a matter just for the TMT, and recent exercises in "open strategy" have extended strategic conversations to include all

organizational members (Hautz et al., 2017; Mantere & Whittington, 2021; Neeley & Leonardi, 2018).

For both perspectives, whether BMI strategies are approached from a planned design or a strategizing perspective, there is a set of decisions an organization need to make as part of developing a business model strategy. A main question is related to the type of value creation the firm is pursuing, i.e. the relative focus on economic, social and environmental value creation. The literature on sustainable business models (SBM) relates to BMIs that have a significant positive and/ or significantly lower negative impact on the environment and/ or society because of changes to the way the organization delivers and captures value (Baldassarre et al., 2017). SBMs often have a larger and more complex set of stakeholders than other business models, resulting in a somewhat different BMI process with other key events and activities than “ordinary” BMI processes (Geissdoerfer et al., 2016). With an increasing focus on sustainability overall in the society, it is likely that more and more business model strategies will include a focus on sustainability concerns in one way or another. This leads to a more complex, multiple goals hierarchy of the SBM, where financial goals are not necessarily the highest objective, and has implications for the value creation logic and activities of the business model as well as the governance mechanisms applied.

Amit and Zott (2010) describes three decisions all business model strategies must take into consideration: the content of the activity system (i.e. what activities should be performed), the structure of the activity system (i.e. how the activities are linked) and the governance of the activity system (i.e. decisions about who is going to perform the different activities, and how decisions (about prioritization etc.) are to be made, and by whom). Given the systemic nature of business models, these choices are coherent, and together create the business model value creation logic. A key element of this value creation logic is the value propositions provided for customers and stakeholders as well as how the firm itself captures part of the value. This is the focus of

commercialization processes, that typically include marketing and innovative ways of capturing value in a way suited to user needs, such as pay-as-you-go or subscription services.

Many authors have found tight connections between cognition and strategizing for BMI (Andreini et al., 2021; Aspara et al., 2011), implying that the processes of setting and maintaining competitive advantage is strongly related to managers cognitive models and belief systems. Forward-oriented techniques and tools are utilized to facilitate the development of new cognitive models, such as scenario developments and “future backward” exercises (Wright & Cairns, 2011). The intention in such exercises is not predictions per se but preparing managers and organizations for disruptive changes.

Learning and dynamic capabilities

BMI strategies can also be understood from an evolutionary perspective, where strategy is seen as emergent and as something that can best be understood in retrospect (e.g. Mintzberg, 1987). Researchers adopting an evolutionary learning approach focus on incremental strategic change “driven more by trial than by forethought” (Gavetti & Rivkin, 2007: 424). Nelson and Winter’s (1982) perspective on the evolution of relatively stable organizational routines as the outcome of trial-and-error learning and as a reflection of experiential wisdom is an example of this approach (Gavetti & Levinthal, 2000). Similarly, Sosna et al. (2010) see experimentation as the primary mechanism that generates BMI and argues for “a trial-and-error learning approach involving all echelons of the firm” (Sosna et al. 2010: 385). McGrath (2010) follows similar reasoning in arguing for the need for marketplace experimentation and time to discover the most effective business models.

Different forms of experimentation and trial-and-error learning have become widespread in managerial practice in recent years. Where most development projects in organizations a few years ago were run according to what is known as the “waterfall method”, which relies heavily on

planning and established, generic governance mechanisms, recent years have seen a new practice spread in many organizations, characterized by flexibility and a willingness to explore, experiment, and iterate (Leberecht, 2016). New products and services are tested in as little format as possible first, before it is being scaled, in a “Minimum Viable Product” type of logic (Ries, 2011). From the IT side, this is known as “agile organizations”; in reference to the “Agile manifesto”. Based on a similar logic, the “Design thinking” method has emerged, as a way to develop innovative solutions for complex problems (Brown, 2008; Meinel & Leifer, 2011). Design thinking is an explicit human-centred approach and based on collaboration in multidisciplinary teams and follows an iterative and generic six-step process (understanding, observing, defining, ideating, prototyping and testing). Multiple possible solutions are ideated and tested to arrive at an optimal solution (Brown, 2008; Denning, 2013; Waloszek, 2012).

As many organizations are developing new practices for rapid learning, an interesting question is what the implications of such rapid learning practices are for organizational capabilities. The link between dynamic capabilities and BMI has been stressed by several, including Sniukas (2020) that sees BMI as a type of dynamic capabilities. Dynamic capabilities have been defined as “the capacity of an organization to purposefully create, extend or modify its resource base” (Helfat et al., 2007: 96). Both cognitive and experiential learning mechanisms are central in the process of identifying an opportunity or need for BMI change or transformation and in developing a response to this need (Teece, 2007).

The role of organizational design

To build organizations for the future, flexibility and mechanisms to deal with complexity are important (Fjeldstad & Snow, 2018). Some organizational set-ups are presumably better suited for BMI than others, and the “best” set-up is likely to vary with the type of BMI (e.g. with whether it is modular or transformative or with the specific characteristics of the problems it is to solve) as well

as other characteristics of the environment and the organization itself. Organizational designs that are flexible and adaptable are arguably likely to be more prone to BMI, as capability for change is built into the business model system. The same could be assumed for organizational designs where teams are self-driven and front-end employees have autonomy and opportunities to pursue new innovative ideas (Fjeldstad & Snow, 2018). The organizational design can also mediate the effect of BMI, by effecting the likelihood of succeeding with BMI. For instance, the way projects are organized, and governance structure operationalized, may affect the likelihood of BMI to succeed. Lastly, BMI is likely to result in a need for changes in organizational design for the new business model to be realized. Organizational design is reported to affect the effectiveness, efficiency and agility of the business model, and facilitates the control and coordination that arise from the value configuration underlying the business model (Fjeldstad & Snow, 2018). Hence, organizational design choices are of great importance to succeed with BMI.

BMI in established firms can involve either a transition from one business model to another or the development of multiple business models in the same organization. Each of these scenarios implies comprehensive organizational change processes that make different demands on the organization. For instance, Santos, Spector and van der Heyden (2015) classify various types of business model changes based on how they affect the firm's activity set: "reactivating", "relinking", "repartitioning" and "relocating".

Several researchers have highlighted the complexity of succeeding with BMI change, and that firms seldom get the business model design right initially (e.g. Sosna et al., 2010). New and more experimental ways of working to develop BMI have implications also for organizational design issues. Key business model choices must be made regarding at what level decisions are to be made, what role will autonomy play, how roles and responsibilities will be divided, how will collaboration take place and between who, and what type of leadership style that will support the

business model. For organizations transitioning from a traditional business model logic to a more agile and flexible business model, this implies a radical change in logic, and potentially far-reaching changes at multiple organizational levels; both for individuals, teams, organizational structure, and management. While experimentation can be a solution also for figuring out the organizational or “how” components of the business model, in a “Minimum Viable Organization” type of logic, the complexity of the business model activity system might benefit from elements of a forward-oriented, cognitive approach.

Organizations are extraordinarily complex systems (Massa et al., 2017). Moreover, they operate in highly complex environments. Thus, managers face the strategic challenge of understanding both their organization and how it functions, as well as how it relates to the external world (Gioia et al., 2000). Establishing new capability areas, engaging in partnerships, hiring, and preparing the organization for BMI (through processes of sensegiving and sensemaking as well as the development of new routines and practices) are costly, resource-demanding processes. Foss and Stieglitz (2015) stress that BMI decisions must be coherent and support the same underlying logic – highlighting the complexity managers of established firms are faced with in enabling the operational aspects of BMI.

2.5 Summing up and highlighting research gaps

Firms increasingly need to change their business models over time to achieve sustained value creation. Firms that have been successful for some time run the risk of failure if they do not adapt their business models to changes in the competitive situation (Doz & Kosonen, 2010). To take advantage of new strategic opportunities and proactively address threats, firms may need to develop new business models or transform existing ones. As my review has revealed, such BMI processes involve managerial cognition, strategizing, learning and dynamic capabilities and organizational design, and require changes in both managerial and organizational approaches.

While this review has focused on the development of existing knowledge with regard to business models and BMI, it has also hinted at knowledge gaps in these fields of research. Overall, empirical research on BMI in established firms is rare (Dottore, 2009; George & Bock, 2011; Morris et al., 2005). We know little about how business model change and innovation are accomplished or fail in established firms, or about how managers and organizations can support and accelerate such change processes.

For established firms, BMI happens within the context of established structures and ways of doing things. To be able to innovate and break established patterns within this context, managers within established firms need to make choices and develop capabilities that enable them to build new paths. To support this quest, and as highlighted in the above literature review, there is a need for more research on two areas in particular: 1) How do BMI processes unfold in established firms? 2) How can managers and organizations (through their cognition, strategizing, learning and use of organizational design mechanisms) support BMI processes? I describe each of these gaps more thoroughly below.

Gap 1: How do BMI processes unfold in established firms?

While BMI processes must be adapted to the conditions specific to the company and the problem in focus, it can be of considerable support to managers in established firms to be able to lean on descriptions of how the process has been conducted in other cases. As argued in section 2.3, a lack of knowledge of such processes is seen as one of the major reasons why established firms fail with BMI. While emerging research is investigating how these processes can look, this is still a nascent research field (Andreini et al., 2021). As Berends et al. (2016) note, we lack insight into how the specific challenges that apply to established firms affect the BMI process. While Wirtz and Daiser (2018) provide an aggregated BMI process, they specify that it is not intended to be strictly followed in a step-by-step manner. Depending on the BMI initiative in question, some phases might

be recurring, while others might not occur at all. However, this leaves the important question of how BMI processes can be tailored to specific types of BMI and specific contexts. Wirtz and Daiser (2018) do not specify this. I see a need for increased knowledge on how BMI processes unfold for different types of BMI, including modular BMI, business model replication, or the transformation of existing business models into new business models. Moreover, I see a need to both verify the most central BMI sub-processes, to further advance knowledge about the nature of each of the sub-processes and to understand more about how the different processes are connected.

Gap 2: How do managers and organizational design support BMI processes?

As the business model reflects choices and consequences for strategic decision making, BMI is characterized by a series of choices at both the strategic and operational levels, including issues such as the logic of value creation and the positioning in the ecosystem, organizational set-up and capabilities, routines, practices and management styles. The complexity of these choices highlights the need for new organizational and managerial capabilities to succeed with BMI. However, we still lack a clear understanding of how managerial cognition and behaviour (including strategizing and learning) and organizational structures support or inhibit BMI processes.

As the review above reflects, there is an emerging literature on the cognitive processes related to BMI. Existing research shows that cognitive techniques can be used to help established firms omit inertia. It also highlights the importance of sensemaking and sensegiving processes as part of BMI and the potential diversity that may exist when it comes to managers' cognitive models. While research on the link between managerial cognition and BMI has increased in recent years, there are still numerous gaps (Sund et al., 2020). There is a need for more knowledge on how managers at different organizational levels develop mental models of BMI. For instance, there is a gap in knowledge on the approach and techniques (e.g. forward-oriented analysis and/ or experimental testing) that are best suited to envision, ideate and implement BMI for managers of

established firms, and on what point in the BMI process these approaches or techniques should be used. While most established literature points to the need for shared cognitive models, there is a need for more knowledge on how these shared mental models arise and to what degree the cognitions should be shared. There is also a lack of knowledge about how and when the TMT's mental models of BMI are best shared with the other echelons of the organization.

Established research also addresses the link between strategizing and BMI, including BMI as a way to position the organization towards competition and other ecosystem players, as well as value creation logic as a key focus of strategizing processes. BMI strategies can be developed in a forward-oriented manner, combined with techniques for forward-oriented thinking, such as scenario- and back-casting exercises, where the long-term sustainability of the value-creating logic of the business model can be explored. Developing BMI strategies is cognitively challenging. There is a tendency towards more “open” strategizing processes; however, there is still little knowledge on what such a BMI sub-process looks like, for instance, who the central actors are, what the key events look like and how different types of actors contribute. There is also a need for more knowledge on how the focal problem the BMI addresses (such as the multiple goals of sustainable business models) affects the SBMI process and decision making for business model strategies. In fact, more needs to be known about how managers make key decisions on business model design under uncertainty. Who is involved in such decision making and at what part of the BMI process? What tools or mechanisms support the decision-making process? How is this different for different types of BMI?

In dynamic and rapidly changing environments, it can be hard to foresee (or “plan”) all potential reactions to BMI, both in long- and shorter-time horizons. In addition, you cannot really know the response to BMI before it is tested in real life. Hence, trial-and-error learning and experimentation are seen by many researchers as essential for BMI. Related to the growth in the use

of experiments and trial-and-error learning, there is a need for increased knowledge of when such methods are most suitable, what capabilities are needed within the organization to succeed with such forms for learning, and what organizational set-up works best to support these new and more agile working practices. This links to the need for more knowledge on how dynamic capabilities relate to BMI (Sniukas, 2020).

It feels intuitive that BMI has implications for organisational design. There is a growing use of more agile and flexible organizational forms, which support the build-up of dynamic capabilities and thereby BMI (Sniukas, 2020). However, more research needs to be done on how such new organizational setups are introduced in established firms. In addition, different types of BMI might require different organizational set-ups. Hence, there is a need for research that specifies organizational design implications for the addition of modular BMI, corporate-wide BMI, BMI replication and SBMI. Yet, there is little guidance for managers as to how to go about developing the organization to succeed with its business model operations. I see a need for more knowledge to support managers in making decisions that provide the right balance between autonomy and management, flexibility and efficiency, and collaboration with and distance from the established firm.

My research aims to help close these gaps. In the following, I first describe my methodological choices (section 3) before I provide summaries of each of the papers (section 4) and a further detailing of their contributions and overall research value in the conclusion (section 5).

3 METHODOLOGICAL CHOICES

In the following section, I describe the methodological orientation of this dissertation. The three empirical studies conducted and presented in articles 1 to 3 are all based on the study of one multinational company, but each article focuses on distinct cases within this company. However, they are all concerned with BMI processes within the context of an established company. The research strategy for each of the studies is thoroughly accounted for in each article. Here, I focus on the overall approach of the research design for the dissertation. However, I also provide summaries of the approaches applied for each of the articles. This section is structured as follows: Below, I present my methodological approach. Second, I describe the overall research design, including the decision to use a case-study methodology, the theoretical sampling applied, my grounded theory approach and the high-level methodological approach used for each article. Then, I present the research setting and the data collection process. Finally, I discuss my approach to data analyses and theory building.

3.1 Methodological approach

The overall research approach applied in my dissertation is phenomenon-driven. This research approach argues that instead of relying on existing theories to drive research, important contemporary phenomena can (and sometimes should) drive the research process (Schwartz & Stensaker, 2014). I seek to contribute to knowledge within the field of BMI. The aim is to identify, capture, describe and conceptualize (aspects of) this contemporary phenomenon, as it is of interest to strategic management theory as well as to practice. To facilitate the understanding of this phenomenon, I use empirical data and combine different theories (Von Krogh et al., 2012) that can help explain the managerial and organizational underpinnings of BMI. Phenomenon-based research can be seen as an early phase of scientific inquiry (Blau, 1970; Von Krogh et al., 2012) and a proto-

theoretic form of theorizing. Phenomenon-based research is also in line with an overall grounded approach to theorizing (Schwartz & Stensaker, 2014).

When trying to understand and explain different phenomena, organization scholars rely on different ontological views of the social world and, therefore, the essential nature of the organization (Langley et al., 2013). Bryman and Bell (2007) describe a continuum of ontological positions ranging from objectivism to constructionism, while epistemological positions can range from positivism to interpretivism. My opinion is that we construct our realities based on how we interpret our experiences and the meaning we ascribe to events taking place around us. Hence, my position can be described as constructionist and interpretative. This means that I see reality as constructed and given meaning by people (Bryman & Bell, 2007; Gioia & Chittipeddi, 1991). It also means that I believe knowledge can be gained about others' constructed realities through interpretative understanding of human action, interpretations and meanings (Charmaz, 2006). Further on, I acknowledge that researchers "are pretty knowledgeable people too" (Gioia et al., 2013:17), capable of finding patterns in data and delineating concepts and relationships and formulating these in theoretical terms (Gioia et al., 2013).

One distinction that can be traced back to antiquity relates to the differences between the philosophical approaches of Democritus and Heraclitus (Rescher, 1966). This distinction is between seeing the world as a constellation of things and seeing the world as consisting of processes. In the former approach, where the social world is a constellation of *things*, processes represent changes in those things. In the second approach, where the social world consists of *processes*, things are reifications of those processes (Tsoukas, 2005; van de Ven & Poole, 2005). A process explanation of a phenomenon may include a story of critical events and turning points, including how one event leads to a subsequent event, as well as emergent actions and activities that shape an overall pattern (Pentland, 1999; van de Ven & Huber, 1990; van de Ven & Poole, 2005). The research questions

included in this dissertation are focused on understanding how BMI has emerged and developed. As such, it is compatible with a process metaphysics, in which the focus is on how processes (rather than things) unfold over time (Langley et al., 2013). Thus, I sought to better understand BMI processes in established firms with a constructivist and interpretative worldview and a focus on understanding key events and mechanisms that drive BMI processes forward in established firms.

3.2 Research design

This dissertation is qualitative and focuses on enhancing the contemporary understanding of how established organizations innovate and transform their business models. A qualitative research design is well suited to capture the complexity of process-related phenomena, including their underlying mechanisms, in rich and nuanced detail (Bryman & Bell, 2007; Langley, 2009). The purpose of this dissertation is to build and refine theory by empirically and conceptually linking BMI to strategic management theory and related managerial and organizational issues in order to respond to recent calls for a more comprehensive understanding of the organizational dimension of BMI (see Foss & Saebi, 2015). To advance our understanding of this emerging research field, I adopted a case-based research design (Flyvbjerg, 2006; Yin, 2014). Case studies are the preferred method “when (1) “how” and “why” questions are being posed, (b) the investigator has little control over events, and (c) the focus is on a contemporary phenomenon within a real-life context” (Yin 2009: 2).

The case company was selected based on the revelatory potential and richness of the data (Langley & Abdallah, 2011), such that I selected a case of interest that stood out as a case with “high experience levels with the phenomena under study” (Pettigrew 1990: 276). As the focus of my research is BMI processes, a company that was simultaneously experimenting with a variety of new BMI processes and undergoing an overall business model transformation process at the corporate level seemed well suited for an embedded case study (Yin, 2014). An embedded case

study considers multiple sub-units of analysis that focus on different aspects of the case (Scholz & Tietje, 2002; Yin, 2014). Such a design allowed me to include a focus on different types of BMI in the research, including sustainable BMI and digital BMI, and modular and corporate-wide BMI, and to compare and contrast my findings on specific business models.

I followed the company from 2015 to 2018 and focused on both the overall business model transformation at the corporate level and a variety of new BMI initiatives. Of the latter, I analysed three in detail: Mobile Health, Mobile Financial Services and Mobile Music Services. I selected these three BMI initiatives, given their relation to the problem under investigation in each article, in line with the suggestions of Eisenhardt (1989) and Siggelkow (2007). In addition, I analysed the corporate-level BMI process. The use of the term “case” in this dissertation refers to either the corporation as a whole or the particular business model in focus.

The case-study approach has traditionally been met with some scepticism, mainly owing to its potential for scientific generalization (Dubois & Gadde, 2002). As cases do not allow for much variation, generalization in any statistical manner is hazardous, especially when dealing with single case studies. Advocates of case studies argue that researchers should “try harder to make interpretations specific to situations” (Weick, 1979: 37), and that “the interpretation between a phenomenon and its context is best understood through in-depth case-studies” (Dubois & Gadde, 2002: 554). There are some pitfalls that case studies should try to avoid, such as providing only rich descriptions with no conclusions, acting as mechanisms for quasi-deductive testing, and being framed as if they rely on some notion of statistical generation (Dubois & Gadde, 2002).

To avoid these pitfalls, I have sought a rigorous design for my research, allowing for a close link between data, findings and theory building. I chose a grounded theory methodology (Charmaz, 2006; Corbin & Strauss, 2008) and have strived to remain faithful to the data and to infer concepts, relationships and conclusions based upon iteration between theory and data. Iteration between data

collection and analysis is one of the key characteristics of grounded theory methodology, with data analysis starting immediately after the first data have been collected (Charmaz, 2006; Corbin & Strauss, 2008). I primarily based my analysis on inductive logic, inferring categories or conclusions based more or less solely upon data (Thornberg & Charmaz, 2014), but at times I utilized a more abductive approach. I understand abduction as the selection of existing theories to explain a particular empirical case or data set and pursue this theory through further investigation (Kennedy & Thornberg, 2018; Charmaz et al., 2018). As in inductive research, abductive research strives to be open and sensitive to the data while allowing the use of pre-existing theories as a source of inspiration to identify and interpret patterns (Alvesson & Sköldbberg, 2008). The different logics of induction, deduction and abduction can be present at different stages in the grounded theory research process (Kennedy & Thornberg, 2018), and I have iterated between them but with a primarily inductive orientation.

I have found support for my design decisions, as well as my data gathering and analysis procedures, primarily from “the Gioia methodology” (Gehman et al., 2018; Gioia et al., 2013) in combination with Langley’s approach to process studies (Langley, 1999). The “Gioia methodology” is a systematic approach to new concept development and grounded theory articulation (Gioia et al., 2013). Langley’s approach to process studies has supported me in focusing my attention on how and why BMI processes emerge and develop over time. For Article 2, where I, as part of my data gathering, compared two cases, I also found support in Eisenhardt’s (1989) research process and approach to analysing multiple cases. In building theory, I have, as I go more in-depth on in section 3.4, followed Gioia et al. (2013) in my search for “portable” concepts and principles based on data structures as a foundation for theory building.

Each of the three articles addresses different aspects of BMI in an established company. Hence, different research strategies were chosen to illuminate the phenomenon from different

angles. These research strategies are described in depth in each article. My intention here in the extended abstract is to provide an overview and summary of the main aspects of each strategy.

In the first article, I focus on the development of SBMI, and the unit of analysis is the BMI of Tonic, a digital healthcare business model that was in its early development when I started my research. I first gathered data on the antecedents of developing SBMI and the characteristics of several different SBMI processes that were under development within diverse fields such as mobile agriculture, mobile education and mobile health. In hindsight, I recognize that it would have been interesting to continue the data gathering on several of the SBMI processes to allow for comparison and the build-up of a stronger causal hypothesis regarding what it takes to succeed with SBMI. However, at the time, I felt the need to narrow my focus to manage the amount of data for the research project. Thus, I narrowed my focus to the mobile health business model (Tonic), as this one was deemed by informants to be the one that was most successful at an early stage, and I hoped to be able to follow the business model over time. I approached the data inductively and sought to give a voice to the informants, identifying both characteristics with SBMI and key events throughout the process. I coded the data with open codes (Gioia et al., 2013; Strauss & Corbin, 1998) and developed narratives of the corporate context and the emergence of the Tonic SBMI. Building on these initial analyses, I identified first-order themes. Through circulation between theory and data, I identified second-order categories and overarching concepts. I utilized temporal bracketing (Langley, 1999) to map the SBMI process, and related the different microfoundational concepts to the different process phases. The main contribution of this article is a process model that captures the microfoundations of SBMI for established firms.

For the second article, I focus on the phenomenon of digital business model replication and apply an embedded case study design that includes two embedded cases, each with two units of analysis (Eisenhardt, 1989; Yin, 2014). I started by gathering data on and analysing the overall

(corporate-level) case setting, focusing on the strategy of becoming a digital service provider. The topic of replication emerged in some of the first interviews I conducted and was revealed through open coding. By including a focus on replication in the subsequent interviews, I identified two different (embedded) cases of digital business models replicated across country markets. I analysed the data by developing in-depth descriptions of the corporate context and each of the embedded cases, and I developed codes in an inductive manner and structured them into data structures. I then developed a theoretical framework that illustrates how the identified concepts are related to supporting the replication of digital business models.

In the third article, I focus on how a top management team (TMT) identifies business model problems and searches for relevant solutions. Together with my co-authors, I identified existing theory suggesting a problem-finding – problem-solving (PFPS) perspective as a potential interesting lens for investigating the process of corporate-level business model transformation from the perspective of the top management team (TMT). I interviewed TMT members as well as other employees in central positions and analysed these data together with relevant secondary data to understand how the established theory can explain the BMI process and to further elaborate on how TMTs can support corporate-level BMI processes. I developed codes abductively based on key concepts from the PFPS perspective, as well as concepts revealed by induction, and a data structure and a process model reflecting the relationships between these concepts.

The table below provides an overview of the research questions, data and analytical tools and concepts that were used in each of the three empirical studies. In the next sections, I will give a more thorough description of my overall research design, how I have been working with data collection and how I have analysed these data to provide for rigorous theory building.

Table 3.1: Overview of research questions, unit of analyses, methodology, data set and analytical tools in the studies.

Main research question	<ol style="list-style-type: none"> 1. <i>How do BMI processes unfold in established firms?</i> 2. <i>How can managers and organizational factors best support BMI processes in established firms?</i> 		
	Article 1	Article 2	Article 3
Research question	How can managers in established firms support modular SBMI throughout its development process? And what characterizes the organizational processes and structure that support the modular SBMI through its different phases?	How does multi-domestic MNEs replicate digital business models? And how are dynamic capabilities related to digital business model replication?	What is the role of the TMT in the digital transformation of business models from a cognitive perspective?
Unit of analyses	Modular SBMI processes, microfoundations at the individual, interactional and structural level.	Business model replication practices.	Business model problems.
Methodology	Process study. Inductive approach.	Comparing two embedded cases. Inductive approach.	Process study. Abductive approach.
Data Set	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Tonic business model. The last group of interviewees where the focus for the case description and data analysis.	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Mobile Financial Services business model and the Music Freedom business model. The last two group of interviewees where the focus for the case description and data analysis.	Combined dataset containing interviews with the top management team as well as employees at corporate level and business unit level. The first group of interviewees where the focus for the case description and data analysis.
Analytical tools	Coding, narratives, data structure, temporal bracketing.	Coding, narratives, within-case study, cross-case study, data structure.	Coding, narratives, data structure.

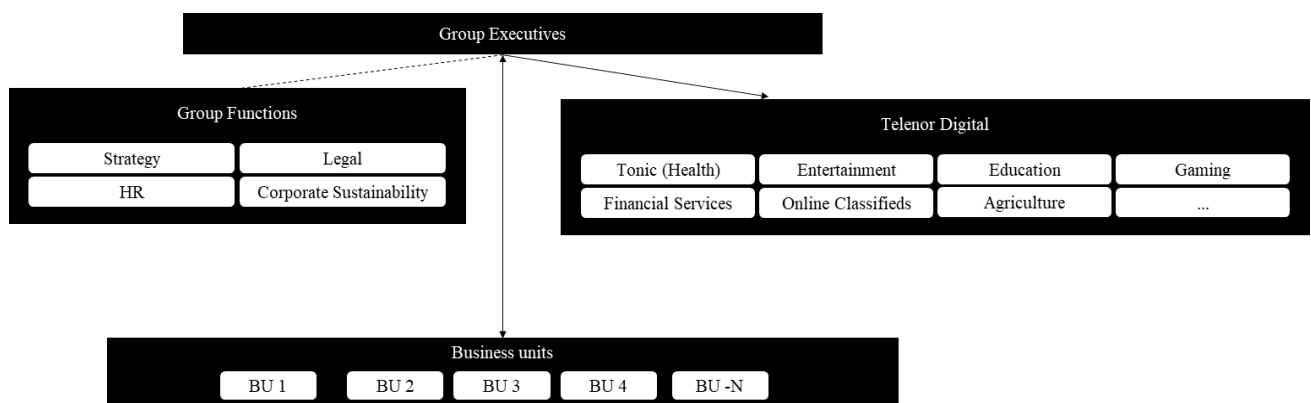
3.3 Data gathering

I carried out all three empirical studies with the Norwegian-based telecommunications operator Telenor Group (henceforth “Telenor”). Telenor was founded in 1855 as a provider of telegraph services for the Norwegian market. It established mobile telephony operations abroad in 1994, and at the time of my data gathering (2015-2018), it had mobile operations in 13 country markets in Scandinavia, Central Eastern Europe and Southeast Asia. Traditionally, Telenor had enjoyed a position as a “hub firm” (Dhanaraj & Parkhe, 2006) in its value chain, and in its predigital phase, it possessed both the prominence and power to orchestrate its value chains (Dasi et

al., 2017; Dhanaraj & Parkhe, 2006). However, at the time I started my data gathering, the telecommunications sector was in the process of being disrupted by companies such as Amazon, Facebook, Google and Apple. This changed the logic of the competition in the industry (Dasi et al., 2017), and Telenor had a need to identify new growth opportunities. Part of their response to this was to start developing digital business models.

While Telenor’s main operations remained in the mobile retail business, the company was developing new business models within a diverse set of areas, including mobile financial services, mobile health services, mobile education services, online classifieds, music streaming and gaming. I gathered data for my research both by studying developments at the corporate level as a response to these changing environments, and by following some of the business models that were in development in-depth. At the corporate level, I gathered data from the top management team (group executive), group functions such as strategy, legal, corporate sustainability and HR, as well as the corporate unit Telenor Digital and the different business models that were initiated. In relation to the business models on which I focused my research, I also gathered data at the relevant business unit level. Figure 3 below illustrates the different levels at which I gathered data throughout the research project.

Figure 3.1. Illustration of data gathering at different levels in the case company.



I was granted access to carry out research in the corporation as a result of my contact with Frank Elter, Vice President in Telenor Research and part-time Associate Professor at NHH. He later became my second supervisor and co-author of two of my papers. As a long-term internal researcher within Telenor, Frank has in-depth knowledge of many of the strategic changes the corporation has undergone over the years and has a wide set of relations and contacts within the company. Prior knowledge inevitably shapes a researcher's observations (Alvesson & Kärreman, 2011). Aware that Frank's history with the company and with people within the company could bias my research, we tried to mitigate potential biases. Of particular concern was the potential for confirmation bias (the tendency to search for information that confirms one's beliefs (Peters, 2020)), leading question bias (questions asked in a way that may lead the respondents to answer in a biased way (Allen, 2017)), and cultural bias (suggesting a preference for one culture over another (Yingst, 20119)). We applied several mitigation techniques to try to minimize potential biases. For instance, the potential for confirmation bias and leading question bias was mitigated by Frank not taking part in the development of the interview guide and by ensuring that general questions were asked first and that the questions were asked in an open-ended manner. The potential cultural bias was mitigated by ensuring interviewees were chosen based on a combination of formal positions and recommendations by the interviewees themselves through using the snowball data collection method (Atkinson & Flint, 2001), where existing informants are asked to identify other informants. Our mitigation efforts were intended to help the results be as "objective" as possible while acknowledging that all the researchers involved viewed their world through their own lens (Kelle, 1995).

I gained access to different types of internal documents and workshop observations, in addition to my primary source of data: interviews. In total, I conducted 42 interviews. The different articles focused on different parts of the data material (as illustrated in Table 3.1 above). For Article

1, the focus was on interviews carried out with group executives, relevant group functions (particularly Corporate Sustainability) and different SBMI (focusing on Tonic, but also including Mobile Education Services and Mobile Agriculture services). For Article 2, the focus was on interview data from group functions such as legal and HR, as well as Telenor Digital and different BMIs focusing on MFS and MES and the relevant business units where the business models in focus were initiated or replicated. For Article 3, the focus was on the interviews with the top management team (Group Executive Management) as well as group functions (in particular Strategy, HR and Legal) as well as Telenor Digital.

I utilized a (primarily) inductive approach in my data gathering. I sought to give a voice to the informants (Gioia et al., 2013), and I took great care to ensure that I represented the informants' voices properly. For this reason, the interview guide contained open questions and tried to omit the direct use of theoretical constructs or categories that could be leading in any way. When interesting topics arose in the interviews, such as business model replication, I followed up on them to gather detailed information. Later, I compared the interviews with replication practices, as described in the literature, and then I went back to the data for more information on the practice. In this manner, I iterated between data and theory.

However, as time went by and I moved into the last cycles of interviews with the company – those with the top management team – I as a researcher, became more informed. Based on my inductive approach, I had built an awareness and knowledge of the triggers that had caused the company to experiment with new forms of BMI, as well as some of the hurdles and challenges that had arisen. When preparing for the interviews with the top management team, my research process had, in some ways, begun to take on a more abductive form in that data and existing theory were considered more in tandem (Gioia et al., 2013). This allowed me to use theory more actively in developing the interview questions and to be more targeted in focusing on data related directly to

the theoretical points. Together with my supervisors, I identified the “problem-finding problem-solving” theory as a potential explanation of the dynamism driving the process of corporate-level business model transformation and used this as inspiration when developing the interview protocol and analysing the data. Hence, I included questions in the interview guide that focused on problem formulation, problem identification, and problem solving, and I also included these topics as thematic codes when analysing the data material. This development in a more abductive direction is also in line with the “Gioia methodology,” in which the process of initial analysis is described as follows: “Upon consulting the literature, the research process might be viewed as transitioning from “inductive” to a form of “abductive” research, in that data and existing theory are now considered in tandem (Alvesson & Kärreman, 2007)” (Gioia et al. 2013:21).

3.4 Data analyses and theory building

As noted in the previous sections, research on BMI is still in its early stages. In particular, the managerial and organizational implications of BMI are poorly understood. This made an inductive and grounded approach to data analyses and theory building favourable. I applied a systematic approach to data gathering and theory building inspired by the Gioia methodology (Gehman et al., 2018; Gioia et al., 2013; Langley & Abdullah, 2011), as well as the works of Charmaz (2006) and Glaser and Strauss (1967) on grounded theory, Miles and Huberman (1994) on coding and data analyses, and Langley (1999) on specific steps and techniques in the theory-building process.

The Gioia methodology follows a strong social scientific tradition in which inductive grounded theory is developed on the basis of qualitative data (Glaser & Strauss, 1967; Strauss & Corbin, 1998; Gioia et al., 2013). Such inductive theorizing provides deep and rich descriptions of the context within which organizational phenomena occur. However, criticism of such inductive approaches claims that they fail to meet the standards of rigorous scientific advancement (e.g.

Bryman, 1988; Campbell, 1975). The Gioia methodology strives to balance this potentially conflicting need between developing concepts inductively and meeting high and rigorous standards for rigor. It has perhaps become best known for its analytical set-up with first-order and second-order codes, but the methodology represents a holistic approach. Some key fundamental assumptions are that the world is seen as socially constructed and that people constructing their organizational realities are “knowledgeable agents” – meaning that they “know what they are trying to do and can explain their thoughts, intentions, and actions” (Gioia et al., 2013: 17).

Each of my papers has a thorough description of my data analysis proceedings. I attempted to generalize to theory (not populations) and searched for concepts and principles that I believed to be transferable and relevant to other contexts (Gioia et al., 2013). This is again in line with the Gioia methodology, where concepts are seen as “precursors to constructs in making sense of organizational worlds” (2013: 16). Concepts are a necessary but insufficient condition for theory; the relations between the concepts also need to be specified. Thus, in my theory sections, I used either formal or informal propositions to guide the nomothetic research. The use of these propositions is in line with the Gioia methodology and is intended to “provide an opportunity to speculate on where further exploration of the grounded theory might lead” (Gioia et al., 2013:25).

4 SUMMARY OF INCLUDED PAPERS

This section provides summaries of the papers included in this dissertation and includes their main contributions to answering the main research questions. In section 5, I will go more in-depth into how the articles contribute to my main research questions. However, I also briefly reflect on this in this section.

4.1 Article 1

Ringvold, Saebi and Foss (2021): Developing Sustainable Business Models: a microfoundational perspective (R&R (“minor revisions”) at Organization & Environment (Sage Publications).

My main research questions address the nature of BMI processes in established firms and how managers and organizations can support such processes. Article 1 is a study of a specific type of BMI process, namely that of an established firm adding a new sustainable BMI (SBMI) to its existing business model portfolio. This article asks the following two research questions: 1) How can managers in established firms support modular SBMI throughout its development process? and 2) What characterizes the organizational processes and structure that support modular SBMI through its different phases? In the context of an SBMI targeted at providing digital health services in an emerging market, we explore the individual-level cognition and behaviour of managers, as well as the interactions and structure that characterize the SBMI process.

As a result of an increased focus on sustainability in society as a whole, firms are increasingly seeking to implement sustainable business models (SBM) that integrate the creation of economic, environmental and social value. By definition, an SBM “incorporates pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders and hold a long-term perspective” (Geissdoerfer et al., 2018:4). The development of SBMIs is likely to be complex. However, research into the management of this complexity is lacking. In particular, the *process* of SBMI is still to some degree a “black box”, and we have

limited knowledge of how the development of SBMI is influenced by manager's cognition, capabilities, behaviours and interactions.

The findings of our study illustrate key activities and events in the development of a modular SBMI. They show that the process of developing a new SBMI for an established firm can be supported by four phases: opportunity identification, searching for SBM solutions, operational build-out and testing, and fine-tuning and scaling up. Hence, this paper contributes to my first overall research question. Further on, each of the phases is underpinned by microfoundations at the individual, interactional and structural levels. This contributes to my second overall research question.

For the first two phases, individual managers characterized by pro-social motivation, capable of managing cognitive complexity and with the social capital to push the "status quo" and navigate the existing organization were pivotal for driving the SBMI. Processes supported recombination capabilities, testing and adjusting, the building of new capabilities and partnership arrangements. Top management helped navigate the established organization and create room for innovation through loose governance structures that supported the SBMI process. In the next two phases of the SBMI process (i.e. establishing the infrastructure, and testing and fine-tuning the new SBM), speed and effectuation became more important. In these stages, the complex cognitive capabilities were supplemented with a stronger focus on effectuation and commercial and growth-minded cognitive frames. At the processual level, there was continued iterative and data-driven testing to establish an in-depth understanding of the customer- problem and both convince and deliver value to the customer, as well as appropriating some of this value. At the structural level, we saw a change from a small and unstructured team shielded from the established structures of the company to an increasingly professional organization in its own right (e.g. the establishment of a management team and a board). Structures were kept flexible and agile and differed from the rest of

the organization, making alignment an operational obstacle. Throughout the SBMI process, the organization's top management played an important role as sponsor and boundary spanner, and it continually needed to ask the right questions.

Based on the case findings, we developed an empirically informed framework of the microfoundations at individual, processual and structural levels for SBMI processes. The framework highlights the role of individual managers as initiators and forerunners of SBMI, with the capability to balance complexity and effectuation and navigate between the new SBMI and the established firm. At the interactional and processual level, it highlights the importance of interactions that allow the identification of the potential for recombining existing resources and capabilities into new use for the SBMI, of developing an in-depth understanding of the problem the SBMI is to solve and of shaping and maintaining a sustainable ecosystem. These individual and interactional microfoundations are supported by a long-term horizon on investments and structures that allow the flexibility needed for the SBMI while at the same time supporting alignment with the existing organization.

We focused the discussion on three central issues. The first issue relates to the process of (modular) SBMI for established firms. Here, we discuss four key phases or main activities for modular SBMI processes in established firms. Next, we discuss key microfoundations that could support managers in SBMI processes. The third discussion relates to the specific challenges established firms face when developing SBMs.

Article 1 contributes to the established literature on BMI by discussing key aspects and events of modular BMI processes and by highlighting the individual, processual and structural foundations that underpin each of the phases. It also contributes to the SBMI literature by focusing on the microfoundations of SBMI in established firms.

4.2 Article 2

Ringvold, Foss & Elter (2021): Firm growth through digital business model replication: the case of Telenor. (Being prepared for submission)

The second article contributes to my overall research question by allowing me to analyse a particular type of innovation for an established firm, namely that of replicating an existing business model to a new market. In this article, we aim to examine the continued relevance of the replication-as-strategy literature in the context of digital business models. The business model as a *model* perspective highlights the inherent opportunity to replicate or re-create this model somewhere else. We take as our starting point that increasing the value of an extant business model is a central management challenge, and that this could include replicating the business model in new markets. Established multi-domestic multinational enterprises (MNEs) often expand internationally by replicating their business models across borders, either by utilizing existing international business units or by trying to create new ones. In the case of traditional business models, this typically involves investing in physical infrastructure, hiring local employees and striking alliances with local partners, all of which are costly and time-consuming processes (Jonsson & Foss, 2011; Winter & Szulanski, 2001). In the case of digital business models, where customers are engaged via a digital interface (Weill & Woerner, 2013), the build-up of physical infrastructure and local employees and partners does not (at first sight) seem to be an essential part of the replication strategy. Digital business model components can change in an instant. In such a context, is there still merit in a replication strategy for MNEs that replicates digital business models?

There are many different types of digital business models – something that must be considered when trying to understand their logic (Hennart, 2019; Wirtz, 2019). However, some common success factors related to (different types of) digital businesses have been identified. Wirtz

(2019) postulates that succeeding with digital business requires four dynamic abilities: digital innovativeness, ease of use, strategic and organizational flexibility and networking and integration capability. Others have stressed how digital technologies create new requirements for a firm's capabilities (Ritter & Pedersen, 2020). These requirements for new capabilities for digital business models might also include a change in replication practice.

In the replication-as-strategy literature (Baden-Fuller & Winter, 2007; Nelson & Winter, 1982; Szulanski, 2000; Szulanski & Jensen, 2006; Winter, 2010; Winter & Szulanski, 2001), replication is a strategy aimed at reaping scale advantages through the reproduction of the organization in multiple locations, all of which deliver a product or perform a service (Winter & Szulanski, 2001). The emphasis is often on the rigid and highly exploitative replication of a “template” that can be copied to new markets by detailing and sharing a set of procedures and practices for how the business model creates value. In other words, the company’s value proposition, internal organization and value chain are copied across markets and locations. Format franchising, where “the franchisor is expected to provide the franchisee with all of the elements necessary to run the business” (Watson et al., 2005), represents a close approximation of this replication strategy (Watson, 1997; Winter & Szulanski, 2001). McDonalds is a familiar example that has clearly demonstrated the great potential for exploitation that may lie in such “copying exactly” procedures.

In later years, some scholars have suggested more dynamic approaches for business model replication, for example, as a strategy for rapid internationalization. Such dynamic forms of replication bear a close resemblance to the practice of business model innovation (BMI). BMI can be defined as designed, novel and non-trivial changes in the business model components and/or their linkages (the logic or architecture connecting them). However, there is limited understanding of the link between business model replication and business model innovation. Further research is

warranted to understand the relationship between replication and innovation, as well as how digital business models create specific requirements for replication. For instance, it seems unclear whether a dynamic form of replication is just a form of innovation to be understood as business model innovation, or if it has some distinct characteristics that managers need to take into consideration.

To understand how digital business models are replicated, we also need to understand the characteristics of digital business models and how these affect the replication approach. Since there is little knowledge on the replication of digital business models, we conduct an embedded case study of two different digital business models with the same case company. We analyse the characteristics of the business models, the capabilities needed to develop them, and the applied replication practice. We find that the two business models we analyse are digital to different degrees (one completely relies on a digital customer interface, while the other is supported by a physical customer interface). We identify four key capabilities central to developing both business models: sensing opportunities for digital value creation; utilizing local resources to design digital business models; establishing a position in the local ecosystem; and developing a monetization logic for digital business models. We also observe that there are differences in the replication approach of the two digital business models, where one applies a template-based replication approach and the other applies one replication of core business model principles. However, we observe some similarities between the replication approaches: they are both dynamic and adapted to local needs, the importance of speed in the replication practice is stressed, as well as the importance of managerial invention and the flexible use of replication schemas. We also find that replication is a continuous focus throughout the development of new digital business models and is closely linked to innovation.

While we acknowledge the well-known limitations of generalizing from case-based research, our findings suggest that certain characteristics of digital business models affect the

replication approach. We find that to successfully replicate digital business models, a dynamic and flexible approach is useful. This speaks to the processual nature of business model replication, and my first overall research question. We argue that business model replication is both a sub-process of ordinary BMI processes and a distinct form of BMI. We also contribute to the business model literature by highlighting the link between business model characteristics and organizational implications. This contributes to my second main research question. Finally, we contribute to the internationalization literature by providing an emerging framework for the replication of digital business models.

4.3 Article 3

Ringvold, Foss & Elter (2021): Top Management Teams and Business Model Transformation: Identifying Necessary Managerial Cognition and Behaviors

In the third article, we explore the role of the top management team (TMT) in transforming business models from a cognitive perspective. The article builds on data from a case study and investigates how TMT members facing pressure to engage in digitalization identify business model problems and search for new solutions in a traditional telecommunications company. The study offers a process perspective that illustrates how digitalization can trigger a cognitive change with regard to the way the TMT identifies business model problems, searches for solutions and introduces change. Hence, this article contributes to my first research question, providing insight into a different type of BMI processes than the other two articles. With its focus on the TMT, the article also provides insight into different managerial and organizational aspects of BMI processes than the other two articles.

Digitalization is one of the main forces behind the increased need for business model change and innovation that give rise to what we call “business model problems”. A problem may be abstractly defined as a deviation from a set of desired conditions as perceived by a decision maker

and/or relevant individuals who are affected by the problem. A *business model problem* then occurs when the current business model deviates from a set of “desired conditions,” such as the overall performance associated with the business model or the preferred configuration of the business model.

The study suggests that digitalization exposes the TMTs of established firms to the contradictory pressures of problems that require changes in existing business models and calls for the preservation of old business models. Together, these opposing forces require the TMT to combine the old and the new business model, and to mobilize the organization for change. Based on the case study, four key capabilities are identified that we suggest are needed for the TMT to accelerate the process of business model transformation: business model problem identification, business model formulation, business model recombination and business model search. Further on, a model is developed to illustrate how the TMT can enable business model transformation. We also identify related propositions to theoretically elaborate on how the TMT identifies business model problems and organizes knowledge to search for business model solutions and mobilize the organization through its leadership of the business model transformation.

We make two key contributions to the existing literature. We contribute to the BMI literature by enhancing our understanding of how the TMT can drive business model transformations and overcome related cognitive and organizational hurdles. We also contribute to behavioural theory by detailing the process of problemistic search in the context of digitalization, focusing on the role of managerial cognition and highlighting the important roles of problem formulation, recombination capabilities and agile practices. As our key contribution to practice, we provide empirical examples and propose mechanisms through which the TMT can accelerate business model transformation, a key area of concern for TMTs in numerous industries.

Table 4.1: Overview of research questions, units of analyses main bodies of literature, methodology, data set, key findings and key contributions

Main research question	<ol style="list-style-type: none"> 1. How do BMI processes unfold in established firms? 2. How can managers and organizational factors best support BMI processes in established firms? 		
	Article 1	Article 2	Article 3
Research question	How can managers in established firms support modular SBMI throughout its development process? And what characterizes the organizational processes and structure that support the modular SBMI through its different phases?	How do multi-domestic MNEs replicate digital business models? And how are dynamic capabilities related to digital business model replication? ? And how are dynamic capabilities related to digital business model replication?	What is the role of the TMT in the digital transformation of business models from a cognitive and behavioural perspective?
Units of analyses	Modular SBMI processes, microfoundations at the individual, interactional and structural level.	Business model replication practices.	Business model problems.
Main bodies of literature	BMI, SBMI, microfoundations, cognition, learning, organizational structure.	Business model, BMI, replication-as-strategy, internationalization, digital business models.	BMI, problemistic search and the problem-finding and problem-solving perspective.
Methodology	Process study. Inductive approach.	Comparing two embedded cases. Inductive approach.	Process study. Abductive approach.
Data Set	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Tonic business model. The last group of interviewees was the focus of the case description and data analysis.	Combined dataset containing interviews with employees at corporate level, employees working on developing different new business models and employees working specifically with the Mobile Financial Services business model and the Music Freedom business model. The last two groups of interviewees were the focus of the case description and data analysis.	Combined dataset containing interviews with the top management team, as well as employees at the corporate and the business unit levels. The first group of interviewees was the focus of the case description and data analysis.
Key Findings	<p>A microfoundational framework is developed that combines a multi-level and processual perspective. This suggests that modular SBMI in established firms is supported by the following characteristics:</p> <p><i>Individual level:</i></p> <ul style="list-style-type: none"> -individual initiators and forerunners -balancing complexity and effectuations -navigation capabilities <p><i>Processes and interactions</i></p> <ul style="list-style-type: none"> -recombination capabilities -in-depth problem understanding 	<p>We analyse the replication of two different digital business models and identify four key capabilities central to developing both of the business models: sensing opportunities for digital value creation; utilizing local resources to design digital business models; establishing a position in the local ecosystem and developing a monetization logic for digital business models.</p> <p>We identify key aspects of an emerging framework for the</p>	<p>We illustrate that digitalization can change the dominant logic of the business model, and that this can trigger a need for cognitive and behavioural changes in the TMT that affect the way problems are identified and formulated, the search for solutions, the push for change and the role and composition of the TMT. We further develop a model illustrating how the TMT can enable business model transformation.</p>

	<p>-shaping and maintaining a sustainable ecosystem <i>Structures</i> -long-term horizon on investments -flexible structures -alignment with existing organization We also identify key phases for the process of SBMI for established firms and relate the microfoundations to this process.</p>	<p>replication of digital business models: -dynamic approach with a continued link between innovation and replication -adaptive replication approach, balancing localization and standardization -rapid replication, where preparations for replication are built into the early exploration process and continue into execution -flexible approach to knowledge transfer to transfer emerging knowledge, digital business model logic, dynamic capabilities and digital components.</p> <p>We identify the following organizational underpinnings: -higher-order dynamic capabilities -a central unit for replication -trust-based management approach and agile work practices, actor-oriented organization, self-organization.</p>	
Key Contribution	<p><i>To the BMI and SBMI literature:</i> by presenting a process for established firms diversifying into SBMI and by suggesting (empirically founded) microfoundations for key phases in the SBMI process. <i>To managers:</i> identification of key challenges in developing SBMI and suggestions for how to overcome them, including suggestions for key microfoundations that support SBMI throughout the SBMI process.</p>	<p><i>To the BM literature:</i> by highlighting the link between business model characteristics and replication approach. <i>To BMI literature:</i> by suggesting BMI as both a sub-process of ordinary BMI processes and as a distinct form of BMI. Successful replication of digital BMs requires a flexible and dynamic approach. <i>To internationalisation literature:</i> by identifying key aspects of a framework for replication of digital business models.</p>	<p><i>To BMI theory:</i> enhance our understanding of how the TMT can drive business model transformations and overcome related cognitive and organizational hurdles. <i>To behavioural theory:</i> detail the process of problemistic search in the context of digitalization, focusing on the role of managerial cognition <i>To practice:</i> propose mechanisms through which the TMT can accelerate business model transformation.</p>

5 CONCLUDING DISCUSSION

The research reported in this dissertation is motivated by the increasing academic and managerial interest in BMI, combined with a relative lack of research concerning how established firms can succeed with BMI. Accordingly, the purpose of this dissertation is to explore the managerial and organizational challenges of engaging in BMI in established firms. In particular, I seek to contribute knowledge on how managers (e.g. by making organizational design decisions) can support (and even accelerate) different types of BMI.

To this end, I formulated two main research questions: 1) “How do BMI processes unfold in established firms?” and 2) “How can managers and organizational design best support BMI processes?” Based on a qualitative research design, data from one overall in-depth case was gathered and analysed, and distinct parts of the data were used for three different sub-studies, resulting in my three research papers.

In this section, I synthesize the findings and contributions of the different research papers. I first, in section 5.1, relate the findings to the first research question regarding how BMI processes unfold in established firms. Then, in section 5.2, I relate the findings to the second research question of how managers and organizations best support BMI processes. In section 5.3 I reflect on limitations and future research needs.

5.1 How do BMI processes unfold in established firms?

As argued above, there are important gaps in our knowledge of BMI processes. This lack of knowledge has been viewed as a major barrier to BMI within established organizations (e.g. George & Bock, 2011). A recent review of the emerging BMI process theory highlights this, arguing that “the time is probably ripe for the emergence of a process-based BMI theory that could leverage the richness of empirical research findings to explain how and why BMIs “emerge, develop, grow, or terminate over time”” (Andreini et al., 2021:18). In particular, as highlighted in section 2.5 of this

extended abstract, there is a need for increased knowledge on how different types of BMI emerge and develop and the different sub-processes of BMI and how they interact.

To contribute knowledge that may lead to novel hypotheses concerning BMI process theory, the three papers included in this dissertation all address BMI processes in different ways. Two of the papers explicitly address BMI processes, namely Article 1 (“Developing sustainable business models: a microfoundational perspective”) and Article 3 (“Top management teams and business model transformation: identifying necessary managerial cognitions and behaviors”). Article 1 does this from the perspective of an established firm developing a new and distinct modular business model. Article 2 (“Firm growth through digital business model replication: the case of Telenor”) explores the concept of digital business model replication and links this to BMI processes. Article 3 focuses on a corporate-level BMI transformation. Jointly, the papers provide hypotheses concerning how and why BMI emerges, develops, grows and terminates or needs change, including the key events, sub-processes, actors, levels and interactions involved in BMI processes. The findings and contributions of each paper are detailed in the respective papers. However, when comparing the articles, I find that three key findings stand out as hypotheses concerning the process nature of BMI in established firms. I elaborate on these below.

Distinct BMI types require distinct processes

When comparing the three different articles, I see differences in the findings on BMI processes that suggest that there are different types of BMI that established firms can engage in, and that these distinct BMIs require distinct processes. The differences are related to both the relationship between the BMI and the established firm (modular or corporate-wide) and to specific characteristics of the BMI processes, such as the objectives of the BMI (e.g. sustainability-related), the starting point of the BMI (e.g. replication or starting from scratch) and the nature of the problem that is addressed (such as digitalization or sustainability). This is exemplified by how sustainable

BMI (SBMI) and digital BMI can each require somewhat different processes. The following sections address key characteristics related to the distinct BMI processes of modular BMI, corporate-wide BMI, business model replication, digital BMI and sustainable BMI (SBMI).

Modular BMI. Article 1 illustrates a modular BMI process initiated as a result of efforts by multiple individuals at different organizational levels. In the case of multiple business models, the existing literature (e.g. O'Reilly & Tushman, 2013) has to a large degree highlighted the need for organizational distance or separation between the different business models. Article 1 confirms this for the case company and suggests that, in the case of modular BMI processes, managers and organizations strive to free themselves from existing interactions, practices and governance systems, at least for the initial phases of BMI. Further on, the article suggests that the modular BMI process can be driven by a team that to some degree works “separate from” or in parallel with the rest of the organization. Article 1 also points to the need for forms of collaboration that support interactions between the established organization and the team working on developing the modular BMI. The article further suggests that this collaboration could be supported and incentivised by setting objectives for the established firm that include support for the goals of the BMI.

As described in section 2, Wirtz and Daiser (2018) propose a view of BMI as a seven-step process where the first five steps (i.e. analyses, ideation, feasibility, prototyping and decision making) are design oriented, and the last two (i.e. implementation and sustainability) are more operational. Article 1 suggests that modular BMI processes are supported by four phases: opportunity identification, searching for business model solutions, developing operational and financial models, and fine-tuning and scaling up. Thus, while the distinct phases arising from the data analysis in Article 1 are somewhat different from those suggested by Wirtz and Daiser (2018), the separation between the design for the first phases and the operationalisation for the last phases is the same. Further on, Article 1 highlights how each of the phases is underpinned by

microfoundations at the individual, interactional and structural levels that support BMI for established firms. Article 1 extends existing research by taking a processual view of how the degree of separation from the established organization can vary throughout the BMI process. The article illustrates that the need for separation from the established organization may be the greatest during the first two phases (of opportunity identification and searching for business model solutions). For the latter two phases of developing operational and financial models and fine-tuning and scaling up, this suggests a greater prominence of recombination capabilities. The concept of recombination capabilities emerged from the data analysis and refers to the ability to realize new business model opportunities for established firms based on identifying new potential ways of combining existing resources and skills.

Building on Article 1, hypotheses regarding what characterizes each of the phases in modular BMI can be extracted. First, Article 1 indicates that throughout the *opportunity identification* phase, top management that supports BMI is an important enabler, as are individuals with the capacities (in terms of the time and resources needed) to develop new concepts. At the interactional level, inspiration from external experts is of crucial importance for the BMI process uncovered in Article 1.

For the second phase of *searching for BMI solutions*, Article 1 suggests that this phase involves activities of structured data and insight generation and iterative testing of what would work in the marketplace. For established firms, Article 1 also illustrates how existing infrastructure and customer knowledge can be utilized to accelerate the BMI process, creating a potential advantage for established firms in the BMI process. This adds to existing literature on BMI that has primarily focused on the *disadvantages* established firms have in pursuing BMI (see e.g. Chesbrough & Roosenbloom, 2002; Tripsas & Gavetti, 2000).

In the third phase of *developing operational and financial models*, Article 1 indicates a possible advantage for established firms in having existing market knowledge and infrastructure in place. Such advantages might include knowledge of the local system and customer needs, and potentially also facilities that the BMI can tap into to some degree (e.g. office space and shared services). However, several potential challenges have also been identified. One is to balance between utilizing the existing resources and capabilities and creating the necessary distance for the BMI to develop its own specific resources and capabilities. A related challenge is for the focal firm to protect itself through ensuring the right governance of the BMI, and so mitigate potential risks the BMI can pose for the existing business model.

The fourth phase of modular BMI captured in Article 1 concerns *fine-tuning and scaling up* the solutions. Article 1 suggests that this phase is supported by an increased focus on effectuation. Here again, it is suggested that the established firm can benefit from looking at how these activities can be strengthened by the resources available through the focal business model.

Corporate-wide BMI. While modular BMI processes have important interfaces with established firms, our findings suggest that they can take place without creating substantial changes for the larger part of the focal firm. This differs from the corporate-wide BMI process. Corporate-wide BMI has much broader implications for the ways of working within the established firm, and my research confirms Foss and Stieglitz's (2015) theorizing by giving empirical examples of how the TMT (naturally) has a more active role in corporate-level BMI processes. The findings from Article 3 provide a detailed illustration of how corporate-wide transformation can play out in established firms.

The article describes the process of corporate-wide BMI based on the case findings as a process of 1) Leaping towards the future; 2) Critique and a need to detail business model change; 3) Re-orientation: Focusing and deciding what not to do; 4) Building recombination capabilities; 4)

Searching for solutions; and 5) Mobilizing for business model transformation. The empirically based process description from Article 3 has a nonlinear development and indicates that processes of sensegiving and sensemaking (for internal and external stakeholders) are a particularly important part of the BMI process for corporate-wide BMI. This suggests that for corporate-wide BMI, it is important to ensure the involvement of the right stakeholders (both internally and externally) at an early enough point in time and to have a focus on storytelling to ensure legitimacy for the new business model. It also suggests the importance of ensuring that the new business model is developed in a thoroughly detailed and concrete way to minimize feelings of uncertainty and stress among employees.

Business model replication. In addition to investigating modular and corporate-wide BMI, my research also explores business model replication. Article 2 argues that business model replication can be seen as a growth strategy in which established firms replicate a business model to new markets. In environments of rapid change (to which digital business models are prone), Article 2 shows that this requires a flexible and adaptive approach to replication (in contrast to the “traditional” replication-as-strategy approach, where a replication formula is identified and then treated as fixed). In the case of digital business models, Article 2 argues that the process of business model replication does not only represent a next step after having successfully implemented a business model in one market. Instead, Article 2 suggests that established firms can integrate replication into the early steps of BMI, addressing the question of how the business model could be developed in a manner that supports replication and further growth in other markets. Article 2 suggests that business model replication is another distinctive form of BMI that requires a different set of sub-processes, events and tools than starting a BMI from scratch. As a form of BMI, business model replication separates itself from more radical innovation in that it takes as its basis

the established business model and what can be re-used. Thus, it builds on different cognitive mechanisms and different capabilities than the innovation of novel business models from scratch.

Business model replication is found to be supported by the dynamic capabilities of sensing, seizing and transforming coupled with digital capabilities and local knowledge. Thus, this study extends existing research that has seen business model replication merely as a “copy exactly” procedure (e.g. Winter & Szulanski, 2001) and contributes to the literature that sees business model replication as a dynamic strategy (e.g. Dunford et al., 2010; Cavallo et al., 2019) that can be applied in the context of rapidly changing digital business models. It further highlights the potential benefits of including business model replication as an integrated part of the BMI process for established firms.

Digital BMI. The specific characteristics of the business model that is being developed may affect the BMI process. While this is reflected in established research (Wirtz, 2019), it is not related to the differences between modular and corporate-wide BMI, nor is it detailed with respect to managerial and organizational implications. All three articles in this dissertation contribute knowledge of digital BMI. The findings hypothesize that digital BMI requires a cognitive transition and specific sensing and seizing capabilities for established firms. This is highlighted both in the case of modular digital BMI (Articles 1 and 2) and corporate-wide digital BMI (Article 3). Identifying and formulating the business model problem might, however, be a substantial hurdle in the case of digital business model transformation. We propose that the identification of digitalization-related business model problems is likely to be enhanced by replacing outdated cognitive maps with the content and structure of new cognitive maps of digital value creation, distribution and appropriation logic that can guide the TMTs’ attention and support the interpretation of new information. By acquiring new information and understanding new types of business model logics, established but outdated truths may be unlearned. For modular digital BMI,

Article 2 suggests that it is important to ensure the conditions for distinct governance and the build-up of digital capabilities and ways of working for the digital part of the business. For corporate-wide BMI, Article 3 suggests that a change in governance and ways of working is required, including cognitive change and unlearning of old ways.

Sustainable BMI processes. This dissertation proposes that BMI processes can differ based on characteristics related to the central problem that the business model is trying to solve. A sustainable business model (SBM) is defined as a business model that “incorporate pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders and hold a long-term perspective” (Geissdoerfer et al., 2018:4). Article 1, which focuses on sustainable BMI (SBMI), proposes that for firms diversifying into SBMI, the process could consist of four phases: 1) Identifying an unmet sustainability-oriented need that the established firm has some resources or capabilities to meet; 2) A search for a business model solution to meet this need in a sustainability-oriented manner; 3) Operationalization and in-depth problem-understanding of the sustainability-oriented implications; and 4) Commercialization and sustainable growth. The article further highlights the increased complexity arising from an established commercial firm developing an SBMI that addresses health problems in an emerging market. The article suggests that for emerging markets, a challenge in the early phase of identifying opportunities is to identify an opportunity where there is a business model. The article further proposes that it can be a strength for established firms in such a setting to use the resources and capabilities of the established business model as a way of narrowing the search. The article also proposes that starting a dialogue with governments and potential cross-sector partners at an early stage of SBMI development may be favourable, as building an ecosystem position and developing trusting relationships are challenging and time-consuming endeavours. The important role of external stakeholders and partners in SBMI is well known from earlier literature (e.g. Stubbs &

Cocklin, 2008; Evans et al., 2017). The article describes managerial challenges related to stakeholder involvement, such as “speaking different languages” and the potential lack of necessary infrastructure in emerging markets. Article 1 also illustrates the advantages established firms may have in tackling the SBMI process by having the potential resources to build trust with governments and potentially the ability to delay monetization requirements until the SBM has found its form and its value creation potential has been proven.

BMI processes are multi-level, non-linear and complex

To varying degrees, all the BMI processes investigated as part of this dissertation require attention from multiple levels in the organization. While established literature does recognize the multi-level character of BMI (see e.g. Andreini et al., 2021), there is little detailing of how BMI plays out across organizational levels, and the BMI processes are not analysed in relation to their distinct types. The articles in this dissertation suggest that multi-level considerations come into play at different points in the process and to different degrees, depending on the type of BMI. For modular BMI, Article 1 illustrates the multi-level nature of drivers for SBMI. For instance, corporate enablers, such as a sustainability-oriented vision, are found to contribute to creating a “playing field” that encourages SBMI. At the same time, intrinsic motivation by key individuals is also found to be a key driver of SBMI. The article further illustrates that SBMI initiatives are developed both at the individual and team levels and together with external and internal stakeholders. The article suggests that different parts of the established firm can be drawn upon to support the modular BMI at different points in time, such as existing research centres, call centres or other facilities, etc. To realize the advantages of existing infrastructure and knowledge resources in the established firm while still protecting the new BMI from existing bureaucracy, the top management is found to play a vital role in the case company.

The findings from Article 3 suggest that corporate-wide BMI is also a multi-level process. The findings provide a detailed illustration of the important role of the TMT in problem identification and problem formulation as well as in the search for business model solutions. However, it also highlights that an important part of this role is to ensure that the rest of the organization is involved and understand the need for the business model transition, as well as what it will entail for their specific roles. Article 3 also illustrates the non-linear nature that BMI processes can take on, exemplified by how key stakeholders were not thoroughly involved at an early enough point in time, and how there was a need to detail and clarify the implications of the BMI.

All three articles also illustrate uncertainty as an important aspect of BMI processes. At the outset, this uncertainty relates to both identifying the right problem to address and how to address it. The complexity of BMI is heightened for those BMI processes that involve a multitude of (internal and/ or external) stakeholders that need to be involved throughout the process, such as SBMI and corporate-wide BMI. The findings from this dissertation point to the need for tailoring the BMI process to the type of BMI and problem at hand.

Summing up contributions

Together, the three articles contribute to an understanding of BMI processes in established firms in which BMI is triggered by macro-level changes, strategic objectives and individual motivations. In line with extant theory (Cavalcante, 2011), the initial business model problem and conceptualization are primarily identified by individual managers. However, our research indicates that for an established firm, modular BMI may be initiated at multiple levels and several individuals may contribute to this process. In later stages, for modular BMI, interactions and teamwork may become more central and the business model can move from a merely cognitive form to a form manifested in actions and activity systems. For corporate-level BMI, our findings illustrate that this

movement could go from a cognitive change within the TMT to the involvement of the wider organization, which, in turn, could create negative feelings and a need to create coherence through a common language and a convincing narrative.

The articles also point to how BMI processes can vary considerably for an established firm for distinct types of BMI, both with regard to the degree of change they mean for the established firm and to the type of problem they seek to solve. The differences in the BMI process for distinct types of BMI are naturally reflected in the managerial and organizational factors that best support BMI. We will go more in-depth on these factors in the next section.

5.2 How can managers and organizational factors best support BMI processes in established firms?

As argued earlier, little is known about how managers and organizations can best support BMI processes. Established firms tend to focus their efforts on managing and executing the present business model (Teece, 2009; Voelpel et al., 2004). This leads managers to rely on established decision-making rules, resource allocation processes, path-dependent routines, assets, and strategies and established problem-solving heuristics (Teece, 2009), the departure from which creates a high level of anxiety (Teece, 2007) and thus limits the search for new businesses (Teece, 2009). I wanted to investigate the cognition and behaviour of managers in established firms to understand what characteristics support BMI processes, as well as the organizational factors that best support BMI processes in established firms, in order to contribute knowledge that can help established firms combat obstacles and succeed with BMI. The three papers address this in different ways. Article 1 adopts a multi-level, microfoundational perspective; Article 2 focuses on how business models can be replicated to new markets through a combination of dynamic capabilities and knowledge sharing; and Article 3 focuses on how the TMT can set the direction and mobilize the firm for a corporate-wide transition. Below, I discuss the implications of my findings for cognition,

strategizing, learning, organizational design and the role of managers in better supporting BMI processes.

Cognition

Cognition is an important BMI sub-process (Andreini et al., 2021) that regards how BMI is cognitively constructed in terms of the context and structure of new business model schemas and how these schemas are (to varying degrees) shared within groups of the organization. The present study highlights the processual nature of cognition and suggests that cognition is important throughout the overall BMI process. The findings further suggest that business model schema formation at the individual and team levels is most important during the first (explorative) parts of the BMI process, followed by schema detailing and revisions through testing and iterations. Article 1 suggests that modular BMI is supported by individual (mid-level) managers willing to invest time and resources in uncertain processes and prioritise long-term goals, and to act proactively to obtain top management approval. Individual-level characteristics, such as complexity management or cognitive diversity at the team level, are proposed to support the development of new cognitive maps (Article 1). As argued in Article 1, external inspiration contributes to cognitive recombination—that is, the ability to identify new opportunities by seeing new potential ways of combining existing resources and skills. This is an important capability for identifying and designing new business models. Article 3 further proposes that the likelihood of identifying business model problems for the TMTs of established firms is enhanced by the development of (the content and structure of) new cognitive maps. This cognitive process is supported by an external orientation and requires forward thinking and sensemaking at the individual level, as well as sensegiving and further rounds of ideation and revisions at the team level to detail the business model schema, as illustrated in Article 3.

As highlighted in Articles 1 and 3, the complexity of both SBMI and corporate-wide BMI is supported by cognitive diversity in the identification of problems and search for solutions. As the complexity of mental maps within a domain is linked to job experience and the scope of a manager's job, a higher-level manager is expected to have a more complex cognitive representation of the business model as a whole than other employees (Sund et al., 2020). However, frontline employees may have deeper knowledge of emerging needs for change in the established business model. They may also be less constrained by the existing business model than the top management team and emerge as important change agents for BMI. Thus, cognition can also be seen as a phenomenon at the organizational level, strengthened by engagement at multiple levels. Article 1 also suggests that a team with different mental frames can be complementary in finding new, complexity-embracing solutions (Hahn et al., 2014; Hahn et al., 2015).

Regarding how new cognitive maps or schemas can be built from new knowledge, Article 3 suggests that there is a need to establish how new knowledge relates to an existing business model's components and logic. Article 3 suggests that formulating new business model problems requires that the TMT can make sense of the new information, foresee how the business model problem may play out in new and different knowledge landscapes, and decide accordingly on a future direction. From a processual perspective, the business model schema is not necessarily (and probably should not be) the same for different internal stakeholders in the initial phases (Article 3). However, Article 3 also suggests that frictions in the TMT must be balanced and time set aside to create unity within the team to establish a common understanding of the future direction. This finding suggests that business model schema formation in established firms is a team-level activity.

Articles 2 and 3 suggest that digital business model transformation involves a cognitive shift. In the case of cognitive shifts, Article 3 suggests that emotions are likely to be involved, such as confusion, uncertainty and fear. The findings suggest that to mitigate these feelings and prepare

the organization for change, effort should be put into building a common language and tools for the change to come, and that there should be a focus on sensegiving and mobilization. This includes a focus on the emotional aspects of the change. Article 3 also suggests the importance of being sufficiently detailed in business model schemas to avoid confusion and frustration. Article 3 proposes that sensegiving activities (supported by narratives and business model representations) are important throughout the BMI process for different groups of stakeholders.

Research has treated the business model as a shared mental representation within the organization resulting from a shared sensemaking process (Daft & Weick, 1984; Weick, 1995; Sund et al., 2020). As illustrated in Article 3 of this dissertation, managers throughout the organisation may not fully share the mental model, at least not when the business model is new and emerging. Article 3 further illustrates that this can be the case in the top management team as well as in the rest of the firm. Egfjord and Sund (2020) support this finding, finding that members of different teams have different perceptions of environmental changes as they are exposed to different information. Article 3 shows that in the TMT, each member represents a different part of the business and hence has a different perspective on the business model problem, with each member's perspective revealing some part of the "true picture". In turn, different mental models of firms' environments lead to different views on what the business model is and should be (Bogers et al., 2015; Martins et al., 2015; Sund et al., 2020). However, for the TMT to be able to unite and lead the corporation in a common direction, they need to agree on a common problem formulation. Still, as cognitive diversity might bring about better solutions, Article 3 highlights that it is important not to arrive at the common problem formulation too quickly and to build a climate and culture in the TMT where diversity is allowed, while the individual members' expert knowledge is recognized and appreciated within the team. This requires the TMT to spend (an increased amount of) time together to jointly develop business model schemas.

All three articles propose that the processes of sensemaking and sensegiving (Gioia & Chittipeddi, 1991) within the organization as well as towards partners and stakeholders are critical to succeed with BMI. Sensegiving, or influencing others' meaning construction, is important to facilitate business model schema change at the organizational level. Article 1 even focuses on sensegiving relative to the larger ecosystem and on establishing an understanding of how the new business model will create value and contribute relative to established actors. Article 2 points to the importance of sensegiving related to new (digital) business model logic in the case of replication to new markets. Article 3 highlights the importance of sensegiving to involve and create support and understanding with internal stakeholders. This also points to the close link between cognition and strategizing activities.

Strategizing

BMI strategizing relates to both the value creation and value capture logic for the business model as well as the positioning of the business model related to other actors in the ecosystem. It involves defining and selecting alternative BMI strategies. Articles 1 and 3 highlight the strong link between cognition and strategizing, exemplifying the theoretical discussion in Andreini et al. (2021). This link can be exemplified by how forward-oriented thinking and analogical reasoning play an important role in developing new business model schemas or cognitive representations of the business model (Articles 1 and 3). The cognitive representation of the business model reflects strategic choices and the narratives that support this cognitive representation are indeed strategic, explaining the business models' value creation and value capture logic. With increasing disruption and uncertainty, forward-oriented thinking has arguably come to be a much more salient part of strategizing processes, as discussed in section 2.4. Article 3 illustrates the complicated nature of developing a new strategic direction for established firms when little is known about how the future will look in the longer term. These complications can be caused by political "battles" (Kaplan,

2008), but also by mere differences in viewpoints related to the different information and impressions to which different members of the TMT are exposed. This underlines the need to set aside enough time for discussions in TMT meetings. It also illustrates how the TMT can become a bottleneck for decision making under high uncertainty and the importance of enabling the established firm to make rapid decisions, even in the case of large changes.

Article 3 further suggests that in the context of radical business model transformation, it can be risky to allow strategizing to be merely a top management activity. Involving internal and external stakeholders on the board is highly important for corporate-wide BMI. For modular BMI processes, our research suggests that strategizing activities can be open and happen in collaboration with key external stakeholders while being protected from inertial forces.

Learning and dynamic capabilities

“The building blocks (constructs) and the mortar (the interactions) exist only as concepts”, it has been said (Sund et al., 2020). However, the present research supports Behrend’s (2017) explanation of how forward-oriented (cognitively demanding) and backward-oriented (experience-based) cognition is combined for BMI. The multiple opportunities in the case of SBMI in emerging markets can be overwhelming, as Article 1 shows. In this case, the process of BMI design was supported by a combination of forward-oriented cognition and experimental testing. As the article points out, established firms might have an advantage in the business model design process if the existing business can function as a “test pool” in which experiments can be conducted and the results of different design choices analysed. Article 3 also describes other ways of experimenting with and testing new ideas for corporate-level BMI. Our research suggests that both modular and corporate-wide BMI is driven by a search process in which forward-oriented (cognitively demanding) and backward-oriented (experience-based) cognition are important at different stages to combat inertia at the individual and organizational levels.

BMI involves learning at multiple levels, and the present research illustrates learning at both the individual-, team- and firm-level, as well as inter-firm learning with partners and other key stakeholders. Experimentation and learning-by-doing (e.g. Sosna, 2010) is an important part of gaining new knowledge on BMI, but for established firms, our research suggests that this approach might require new dynamic capabilities that enable the firm to effectively search for and explore new opportunities. This is exemplified by the use of techniques such as Minimum Viable Product and Design thinking. The research suggests that such dynamic capabilities support BMI (as also emphasized by Sniukas, 2020; Teece, 2018) and that established firms can benefit from building such capabilities within the firm to prepare for and allow business model replication (Article 2) and business model transformation at the corporate level (Article 3). The research also adds to existing research by showing how new (dynamic) capabilities that are developed for part of a firm, and not the whole firm, can create divides that can constrain collaboration (Article 2, Article 3). Another contribution of the research in this dissertation is how it highlights how the TMT can benefit from gaining in-depth insight by following some BMI initiatives closely, and thereby play an important role in developing new (dynamic) capabilities (Article 3).

Organizational design

Effective organizations constantly adapt their business models to the environment in which they are operating (Fjeldstad & Snow, 2018). The findings discussed in Article 1 show that each part of the BMI process requires appropriate governance structures. Articles 1 and 3 suggest that the search for new business model solutions is supported by agile working processes for both modular- and corporate-level BMI. Furthermore, Article 1 suggests that BMI in established firms could be supported by loose and informal governance structures for the initial phases of BMI. The research also illustrates how an established firm temporarily expands its TMT in order to improve decision making, knowledge sharing and coordination abilities in the case of corporate-level business model

changes (Article 3). This finding exemplifies the potential structural implications of the need for a larger part of the organization to be involved in decision making at a strategic level in the case of corporate-level BMI.

Other organizational implications of BMI are found in the need for new roles, new capabilities and new forms for collaborations. For example, for digital BMI, there can be a need for new TMT roles related to digitalization opportunities (Article 3). Articles 2 and 3 also illustrate the need to build digital capabilities, either through hiring, acquisitions, or knowledge-creating processes. We suggest that there may be a need to develop ambidextrous solutions (O'Reilly & Tushman, 2013; Raisch et al., 2009) that allow and support the usage of resources from the established business model while protecting the new model from established structures. Article 1 illustrates the potential advantages of combining resources and capabilities from the established business to support BMI. Utilizing this advantage, however, requires certain specific capabilities. Article 1 identifies these capabilities as navigation capabilities (e.g. abilities for navigating the politics of the established organization) and recombination capabilities (e.g. agile and flexible processes and managers capable of identifying which resources to utilize from the established organization).

New types of collaborations may arise across organizational borders, which in turn require new forms of governance and collaboration models (Article 2). Developing a strategy for how to innovate the business model together with partners that might also be competitors in other markets was a particular challenge for our case company (Article 2, Article 3).

All three articles show that managers at multiple levels in the organization play important roles in BMI processes. The articles exemplify the potential advantages of mid-level managers bringing external ideas for business model change (Article 1) or frontline employees being able to adapt the business model to local markets (Article 2) to help the organization innovate its business

model according to local customer demands. Article 1 illustrates the role frontline managers can have in accelerating BMI processes by bringing together key external experts in workshops in which concepts are ideated. Article 2 highlights the important role of frontline managers in developing and replicating digital business models and transferring the tacit aspects of digital business model logics. The research also confirms and extends Fjeldstad and Snow (2018) with empirical examples of how ensuring autonomy and self-governance for frontline employees may be a way to stimulate the diverse cognitive capabilities of the established firm, thereby making it more disposed to identifying a need for BMI in the first place (Article 1) or to replicating a BMI in new markets (Article 2). Article 1 suggests that important opportunities to facilitate identification lie in allowing individuals to spend time on early-phase concept development and in allowing the separation of such initiatives from the governance of other (more strictly governed) projects of more continuous innovation or development. In fact, Article 1 suggests that modular BMI is supported by an increasing degree of governance and structure throughout the process.

The articles also confirm that top management has a vital role that differs for corporate-wide and modular BMI. In this regard, our findings expand Foss and Steiglitz's (2015) theorizing of the role of top management with empirical illustrations and new theoretical insights. For corporate-wide BMI, Article 3 suggests that top management must act as both problem identifiers and storytellers, and for modular BMI as boundary spanners and question askers, contributing to driving the BMI process forward. This includes ensuring a management style and governance approach that allows time for pursuing BMI. The TMT team needs to be united, but at the same time act as a representative for their different business units (or "kingdoms", as they were called in our case setting). The TMT must strike a balance between calls for the preservation of the old business model and problems that require changes in the existing business model. Adding to this complexity,

the new business model solution might change existing roles and responsibilities at the TMT level, and even make some members redundant.

Summing up contributions

Together, the contributions provide support for the relevance of a dual perspective on BMI that highlights the activities and cognitions that support managers and organizations throughout BMI processes. The findings suggest that the development of new cognitive representations is supported by individual-level characteristics (such as complex cognitive frames) and team-level characteristics (such as cognitive diversity), and after cycles of testing and adjusting, they are negotiated to (more or less) shared understandings within groups of the organization. Strategizing plays an important part in positioning and setting the direction of BMI (Teece, 2007). However, the research reported in this dissertation suggests that BMI is not a structured and planned management task. Nor is it contained in one firm, but rather happens in a dialogue with partners and wider ecosystems and other stakeholders. Indeed, BMI strategizing might require sensegiving and an open BMI process in which a large set of stakeholders are involved throughout the journey. Article 3 illustrates how a continuous need for rapid decision making in the case of corporate-wide BMI puts pressure on the TMT and necessitates prioritization and increased delegation. Given the increase in the relevance of and need for BMI in established firms, the papers included in this dissertation suggest that firms must develop capabilities for continuous BMI, both in the form of modular and corporate-wide BMI, as well as capabilities specific to the problems to be solved. This includes dynamic capabilities for sensing, seizing and replicating BMI, such as capabilities for forward-oriented and backward-oriented (experimental) learning and for tacit knowledge transfer. It also includes building an organizational set-up that supports the specific type of BMI. The findings support prior research (e.g. Fjeldstad & Snow, 2018) in indicating that agility and autonomy support BMI. Managers at the TMT level play an important role in enabling and making room for

BMI, including creating conditions that help individuals throughout the organization engage in BMI.

5.3 Limitations and future research

A limitation that applies to all three studies included in this dissertation relates to the generalizability of the findings. The research is qualitative and all based on cases from one multinational firm. Hence, the possibility of generalizing from this research is limited. More research is needed to support the hypotheses of particular BMI types, the characteristics and implications of specific BMI processes, the identified BMI sub-processes and their interlinkages and the managerial and organizational implications. Factors other than those identified in this research might require adjustments and changes in the BMI process. However, the research presented in this dissertation contributes new knowledge and suggests interesting avenues for further research. For instance, there is much more to explore regarding the interactions between cognition and behaviour in BMI processes. This dissertation suggests that cognition and strategizing are strongly related and that learning happens through a mix of forward-oriented (cognitive) and backward-oriented (experience-based) mechanisms. It also suggests that these processes look different for modular and for corporate-wide BMI, both for the managers involved and the teams working on identifying and realizing business model opportunities. For instance, for modular BMI, the Article 1 hypothesizes that the first BMI events start in a loose and informal manner, separated from the established business, and become increasingly formalized. The BMI is also suggested to move from being an idea in the minds of a few to becoming a team-level activity where testing and experiments played a vital role. For corporate-level BMI, the research suggests the need for a top management team that works together and generates new knowledge to develop new cognitive schemas to guide business model transformation. It also highlights the importance of storytelling and sensegiving to get employees and other key stakeholders on board with corporate-

wide BMI transformations. Further research could explore these findings in other settings, to further identify ways to support managers in the initial stages of the BMI process. I also see a need for more research on how business model decision making in the context of radical and/or frequent change can be supported through prioritization and enablement of the organization to avoid the TMT to act as a "bottleneck". In addition, I see a need for more knowledge on how to build collaboration patterns (internally and externally) to support BMI through its different phases. Another interesting research area is that of bridging agile and non-agile practices within firms with multiple business models. I hope to be able to investigate several of these areas in the future.

6 REFERENCES

- Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of business models – Strategizing, critical capabilities and activities for sustained value creation. *Long Range Planning*, 46(6), 427–442.
- Afuah, A. (2004). *Business models: A strategic management approach*. McGraw-Hill/Irwin.
- Afuah, A. (2014). *Business model innovation: Concepts, analysis, and cases*. NY, USA: Routledge.
- Allen, M. (Ed.). (2017). *The SAGE encyclopedia of communication research methods*. SAGE publications.
- Alvesson, M., & Sköldbberg, K. (2008). *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod*. Studentlitteratur, Lund.
- Alvesson, M., & Karreman, D. (2011). *Qualitative research and theory development: Mystery as method*. Sage Publications.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6–7), 493–520.
- Amit, R., & Zott, C., Business Model Innovation: Creating Value in Times of Change (July 2, 2010). IESE Business School Working Paper No. 870, Available at SSRN: <https://ssrn.com/abstract=1701660> or <http://dx.doi.org/10.2139/ssrn.1701660>
- Amit, R., & Zott, C. (2012). Creating value through business model innovation. *MIT Sloan Management Review*, 53(53310), 41–49.
- Amit, R., & Zott, C. (2015). Crafting business architecture: The antecedents of business model design. *Strategic Entrepreneurship Journal*, 9(4), 331-350.
- Andreini, D., & Bettinelli, C. (2017). *Business model innovation*. Cham, Switzerland: Springer.
- Andreini, D., Bettinelli, C., Foss, N. J., & Mismetti, M. (2021). Business model innovation: a review of the process-based literature. *Journal of Management and Governance*, 1-33.

- Applegate, L. M., & Collura, M. (2000). Emerging networked business models: lessons from the field. *HBS No. 9-801-172*. Harvard Business School, Boston, MA.
- Aspara, J., Hietanen, J., & Tikkanen, H. (2010). Business model innovation vs replication: Financial performance implications of strategic emphases. *Journal of Strategic Marketing*, *18*(1), 39–56.
- Aspara, J., Lamberg, J.-A., Laukia, A., & Tikkanen, H. (2013). Corporate business model transformation and interorganisational cognition: The case of Nokia. *Long Range Planning*, *46*(6), 459–474.
- Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, *33*(1), 1-4.
- Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, *14*(4), 496–515.
- Baden-Fuller, C., & Haefliger, S. (2013). Business models and technological innovation. *Long Range Planning*, *46*(6), 419–426.
- Baden-Fuller, C., & Mangematin, V. (2013). Business models: A challenging agenda. *Strategic Organization*, *11*(4), pp–pp.
- Baden-Fuller, C., & Morgan, M. S. (2010). Business models as models. *Long Range Planning*, *43*(2–3), 156–171.
- Baden-Fuller, C. and S. Winter (2007). ‘Replicating knowledge practices: principles or templates’, Working paper, Cass Business School, City University, London, UK.
- Baldassarre, B., Calabretta, G., Bocken, N. M. P., & Jaskiewicz, T. (2017). Bridging sustainable business model innovation and user-driven innovation: A process for sustainable value proposition design. *Journal of cleaner production*, *147*, 175-186.

- Barney, J. B. (2001). Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6), 643–650.
- Berends, H., Smits, A., Reymen, I., & Podoyntsyna, K. (2016). Learning while (re) configuring: Business model innovation processes in established firms. *Strategic Organization*, 14(3), 181–219.
- Berglund, H., & Sandström, C. (2013). Business model innovation from an open systems perspective: Structural challenges and managerial solutions. *International Journal of Product Development*, 18(3/4), 274.
- Berzosa, D. L., Davila, J. A. M., & de Pablos Heredero, C. (2012). Business model transformation in the mobile industry: co-creating value with customers. *Transformations in Business & Economics*, 11(2).
- Bettis, R. A., & Prahalad, C. K. (1995). The dominant logic: Retrospective and extension. *Strategic Management Journal*, 16(1), 5–14.
- Blau, P. M. (1970). A formal theory of differentiation in organizations. *American Sociological Review*, 201–218.
- Bock, A., Opsahl, T., & Gerard, G. (2010, August). Business Model Innovation and Strategic Flexibility: Effects of Informal and Formal Organization. In *2010 Academy of Management Annual Meeting*.
- Bocken, N. M., & Geradts, T. H. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, 101950.
- Brandenburger, A. M., & Nalebuff, B. J. (1997). Co-opetition. A Currency Paperback.
- Broekhuizen, T. L., Bakker, T., & Postma, T. J. (2018). Implementing new business models: What challenges lie ahead?. *Business Horizons*, 61(4), 555-566.
- Brown, T., 2008. Design Thinking. *Harvard Business Review*, 86, 84–92.

- Bryman, A. (1998). Quantitative and qualitative research strategies in knowing the social world.
- Bryman, A., & Bell, E. (2007). *Business Research Methods*. Oxford: Oxford University Press.
- Bucherer, E., Eisert, U., & Gassmann, O. (2012). Towards systematic business model innovation: Lessons from product innovation management. *Creativity and Innovation Management, 21*(2), 183–198.
- Calia, R. C., & Guerrini, F. M. Business-Model Reconfiguration by Innovation Networks for Software Development. *CEP, 13175*, 662.
- Campbell, D. T. (1975). III. “Degrees of freedom” and the case study. *Comparative political studies, 8*(2), 178-193.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning, 43*(2–3), 195–215.
- Casadesus-Masanell, R., & Tarzijan, J. (2012). When one business model isn't enough. *Harvard Business Review, vol*(issue), pp-pp.
- Casadesus-Masanell, R., & Zhu, F. (2013). Business model innovation and competitive imitation: The case of sponsor-based business models. *Strategic Management Journal, 34*(4), 464–482.
- Cavalcante, S., Kesting, P., and Ulhøi, J. (2011). Business model dynamics and innovation: (Re)Establishing the missing linkages. *Management Decision, 49*, 1327-1342.
- Cennamo, C., & Santalo, J. (2013). Platform competition: Strategic trade-offs in platform markets. *Strategic Management Journal, 34*(11), 1331–1350.
- Chandler, A. D. (1962). *Strategy and structure: Chapters in the history of the industrial enterprise*. Cambridge, MA: MIT Press.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: SagePublications Ltd.

- Charmaz, K., Thornberg, R., & Keane, E. (2017). Evolving grounded theory and social justice inquiry. In Norman K. Denzin and Yvonna S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (5th edn) (pp. 411-43). Thousand Oaks, CA: Sage.
- Chatterjee, S. (2013). Simple rules for designing business models. *California Management Review*, 55(2), 97–124.
- Chesbrough, H. (2007). Business model innovation: It's not just about technology anymore. *Strategy & Leadership*, 36(6), 12–17.
- Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning*, 43(2–3), 354–363.
- Chesbrough, H. W., and Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change*, 11(3), 529–555.
- Christensen, C. (1997). *The innovator's dilemma*. Cambridge, MA: Harvard Business School Press.
- Christensen, C. M., Johnson, M. W., & Rigby, D. K. (2002). Foundations for growth: How to identify and build disruptive new businesses. *MIT Sloan Management Review*, 43(3), 22.
- Cloutier, C., & Langley, A. (2020). What makes a process theoretical contribution?. *Organization Theory*, 1(1), 2631787720902473.
- Corbin, J., & Strauss, A. (2008). Strategies for qualitative data analysis. *Basics of Qualitative Research. Techniques and procedures for developing grounded theory*, 3(10.4135), 9781452230153.
- Cortimiglia, M. N., Ghezzi, A., & Frank, A. G. (2016). Business model innovation and strategy making nexus: Evidence from a cross-industry mixed-methods study. *R&D Management*, 46(3), 414-432.

- Daft, R. L., & Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *Academy of Management Review*, 9(2), 284–295.
- Dasi, A., Elter, F., Gooderham, P. N., & Pedersen, T. (2017). New business models in-the-making in extant MNCs: Digital transformation in a telco. In T. Pedersen, T. M. Devinney, L. Tihanyi, & A. Camuffo (Eds.), *Breaking up the global value chain: Opportunities and consequences* (pp. 29–53). Bingley, UK: Emerald Publishing Limited.
- De Reuver, M., Bouwman, H., & MacInnes, I. (2009). Business model dynamics: A case survey. *Journal of Theoretical and Applied Electronic Commerce Research*, 4(1), 1–11.
- Deken, F., Carlile, P. R., Berends, H., & Lauche, K. (2016). Generating novelty through interdependent routines: A process model of routine work. *Organization Science*, 27(3), 659–677.
- Demil, B., & Lecocq, X. (2010). Business model evolution: In search of dynamic consistency. *Long Range Planning*, 43(2–3), 227–246.
- Denning, P.J., 2013. The Profession of IT. Design thinking. *Communications of the ACM*, 56, 29–31.
- Dhanaraj, C., & Parkhe, A. (2006). Orchestrating innovation networks. *Academy of management review*, 31(3), 659–669.
- DiMaggio, P. (1997). Culture and cognition. *Annual Review of Sociology*, 23(1), 263–287.
- Dmitriev, V., Simmons, G., Truong, Y., Palmer, M., & Schneckenberg, D. (2014). An exploration of business model development in the commercialization of technology innovations. *R&D Management*, 44(3), 306–321.
- Doganova, L., & Eyquem-Renault, M. (2009). What do business models do?: Innovation devices in technology entrepreneurship. *Research Policy*, 38(10): 1559–1570.

- Dopfer, M. (2017). Pick and choose: A venture's cognitive toolbox to business model innovation. HIIG Discussion Paper Series No. 2017-06. Available at SSRN: <https://ssrn.com/abstract=3035244> or <http://dx.doi.org/10.2139/ssrn.3035244>
- Dottore, Antonio Gabriele. "Business model adaptation as a dynamic capability: a theoretical lens for observing practitioner behaviour." *BLED 2009 Proceedings* (2009): 11.
- Doz, Y. L., & Kosonen, M. (2010). Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long Range Planning*, 43(2–3), 370–382.
- Drucker, P. F. (1954). *The practice of management*, New York, NY: Harper & Brothers.
- Dubois, A., & Gadde, L. E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55(7), 553–560.
- Dunford, R, I. Palmer and J. Benveniste (2010). ‘Business model replication for early and rapid internationalisation: the ING direct experience’, *Long Range Planning*, 43(5), pp. 655-674.
- Eggers, J. P., & Kaplan, S. (2009). Cognition and renewal: Comparing CEO and organizational effects on incumbent adaptation to technical change. *Organization Science*, 20(2), 461–477.
- Eggers, J. P., & Kaplan, S. (2013). Cognition and capabilities: A multi-level perspective. *Academy of Management Annals*, 7(1), 295–340.
- Eisenhardt, K. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2006). Strategies for two-sided markets. *Harvard Business Review*, 84(10), 92-104.
- Elter, F., Gooderham, P. N., & Stensaker, I. G. (2021). Successful and unsuccessful radical transformation of multinational mobile telephony companies: the role of institutional context. In *The Multiple Dimensions of Institutional Complexity in International Business Research*. Emerald Publishing Limited.

- Eyring, M. J., Johnson, M. W., & Nair, H. (2011). New business models in emerging markets. *Harvard business review*, 89(1-2), 88-95.
- Fiske, S. T., & Taylor, S. E. (1991). *Social Cognition*. London, UK: McGraw-Hill Book Company.
- Fjeldstad, Ø. D., & Snow, C. C. (2018). Business models and organization design. *Long Range Planning*, 51(1), 32–39. doi:10.1016/j.lrp.2017.07.008.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219–245.
- Forkmann, S., Ramos, C., Henneberg, S. C., & Naudé, P. (2017). Understanding the service infusion process as a business model reconfiguration. *Industrial Marketing Management*, 60, 151-166.
- Forrester, J. W. (1958). Industrial dynamics: A major breakthrough for decision makers. *Harvard Business Review*, 36(4), 37–66.
- Foss, N. J., & Saebi, T. (2015). Business models and business model innovation: Bringing organization into the discussion. In N. Foss & T. Saebi (Eds.), *Business model innovation: The organizational dimension* (pp. 1–23). New York, NY: Oxford University Press.
- Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management*, 43(1), 200–227.
- Foss, N. J., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*, 51(1), 9–21.
- Foss, N. J., & Stieglitz, N. (2015). Business model innovation: The role of leadership. In N. Foss & T. Saebi, T. (Eds.), *Business model innovation: The organizational dimension* (pp. 104–122). Oxford, UK: Oxford University Press.

- Freisinger, E., Heidenreich, S., Landau, C., & Spieth, P. (2021). Business Model Innovation Through the Lens of Time: An Empirical Study of Performance Implications Across Venture Life Cycles. *Schmalenbach Journal of Business Research*, 1-42.
- Furnari, S. (2015). A cognitive mapping approach to business models: Representing causal structures and mechanisms. In *Business models and modelling*. Emerald Group Publishing Limited.
- Gambardella, A., & McGahan, A. M. (2010). Business-model innovation: General purpose technologies and their implications for industry structure. *Long Range Planning*, 43(2–3), 262–271.
- Gavetti, G., & Levinthal, D. (2000). Looking forward and looking backward: Cognitive and experiential search. *Administrative Science Quarterly*, 45(1), 113–137.
- Gavetti, G., & Rivkin, J. W. (2007). On the origin of strategy: Action and cognition over time. *Organization Science*, 18(3), 420–439.
- Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding theory–method fit: A comparison of three qualitative approaches to theory building. *Journal of Management Inquiry*, 27(3), 284-300.
- Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of cleaner production*, 198, 401-416.
- George, G., & Bock, A. J. (2011). The business model in practice and its implications for entrepreneurship research. *Entrepreneurship theory and practice*, 35(1), 83-111.
- Giesen, E., Berman, S. J., Bell, R., & Blitz, A. (2007). Three ways to successfully innovate your business model. *Strategy & Leadership*, 35(6): 27–33.
- Gioia, D.A. & Chittipeddi, K. Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, 1991, 12, 433–8.

- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31.
- Gioia, D. A., Schultz, M., & Corley, K. G. (2000). Organizational identity, image, and adaptive instability. *Academy of Management Review*, 25(1), 63–81.
- Girotra, K., and Netessine, S. (2014). Four paths to business model innovation. *Harvard Business Review*, 92(7), 96–103.
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. London, UK. Weidenfield & Nicolson.
- Govindarajan, V., & Trimble, C. (2011). The CEO's role in business model reinvention. *Harvard Business Review*, 89(1-2), 108–114.
- Günzel, F., & Holm, A.B. (2013). One size does not fit at all – Understanding the front-end and back-end of business model innovation. *International Journal of Innovation Management*, 17(1), 1340005-1-1340005-34.
- Hacklin, F., Björkdahl, J., & Wallin, M. W. (2018). Strategies for business model innovation: How firms reel in migrating value. *Long Range Planning*, 51(1), 82–110.
- Hautz, J, Seidl, D, Whittington, R (2017) Open strategy: Dimensions, dilemmas, dynamics. *Long Range Planning* 50(3): 298–309.
- Hamel, G., & Prahalad, C. K. (2000). *Leading the Revolution* Harvard Business School Press. Boston, MA, USA, 343-354.
- Hamel, G. (2006). The why, what, and how of management innovation. *Harvard business review*, 84(2), 72.
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82(5), 929–964.

- Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American sociological review*, 149-164.
- Harbert, T. (2021, May 18). *Digital transformation has evolved. Here's what's new*. MIT Management Sloan School. <https://mitsloan.mit.edu/ideas-made-to-matter/digital-transformation-has-evolved-heres-whats-new>
- Hautz, J., Seidl, D., & Whittington, R. (2017). Open strategy: Dimensions, dilemmas, dynamics. *Long Range Planning*, 50(3), 298-309.
- Helfat, C., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D. and Winter, S. (2007) *Dynamic Capabilities: Understanding Strategic Change in Organizations*. Malden, MA: Blackwell.
- Hennart, J. F. (2019). Digitalized service multinationals and international business theory. *Journal of International Business Studies*, 50(8), 1388-1400.
- Hill, R. C., & Levenhagen, M. (1995). Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities. *Journal of Management*, 21(6), 1057–1074.
- Ho, Y., Fang, H., & Hsieh, M. (2011). The relationship between business-model innovation and firm value: A dynamic perspective. *World Academy of Science, Engineering and Technology*, 77(5), 599-607
- Hohl, P., Klünder, J., van Bennekum, A., Lockard, R., Gifford, J., Münch, J., ... & Schneider, K. (2018). Back to the future: origins and directions of the “Agile Manifesto”—views of the originators. *Journal of Software Engineering Research and Development*, 6(1), 1-27.
- Huang, H. C., Lai, M. C., Lin, L. H., & Chen, C. T. (2013). Overcoming organizational inertia to strengthen business model innovation. *Journal of Organizational Change Management*. 26(6), 977-1002.

- Islam, S. (2019). Business models and the managerial sensemaking process. *Accounting & Finance*, 59(3), 1869-1890.
- Jackson, J. H. & Morgan, C. P. (1982). *Organization theory*. Upper Saddle River, NJ: Prentice Hall.
- Jacobides, M. G., & MacDuffie, J. P. (2013). How to drive value your way. *Harvard Business Review*, 91(7), 92–100.
- Johnson, M. W. (2010). *Seizing the white space: Business model innovation for growth and renewal*. Harvard Business Press.
- Johnson, M. W., Christensen, C., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review*, 86(12), 50–59.
- Johnson-Laird, P. N. (2001). Mental models and deduction. *Trends in cognitive sciences*, 5(10), 434-442.
- Kelle, U. (1995). Theories as heuristic tools in qualitative research. *Openness in research: The tension between self and other*, 33-50.
- Kennedy, B. L., & Thornberg, R. (2018). Deduction, induction, and abduction. *The SAGE handbook of qualitative data collection*, 49-64.
- Kieras, D. E., & Bovair, S. (1984). The role of a mental model in learning to operate a device. *Cognitive science*, 8(3), 255-273.
- Kim, W. C., & Mauborgne, R. 2005. *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Boston, MA: Harvard Business School Press.
- Kim, S. K., & Min, S. (2015). Business model innovation performance: When does adding a new business model benefit an incumbent? *Strategic Entrepreneurship Journal*, 9(1), 34–57.
- Klang, D. J. H., Wallnöfer, M., & Hacklin, F. (2010). The anatomy of the business model: a syntactical review and research agenda. In *Druid Summer Conference 2010 on Opening Up Innovation: Strategy, Organization and Technology*. Imperial College Business School.

- Lambert, S. C., & Davidson, R. A. (2013). Applications of the business model in studies of enterprise success, innovation and classification: An analysis of empirical research from 1996 to 2010. *European Management Journal*, 31(6), 668–681.
- Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management Review*, 24(4), 691–710.
- Langley, A., Smallman, C., Tsoukas, H., & van de Ven, A. H. (2013). Process studies of change in organization and management: Unveiling temporality, activity, and flow. *Academy of Management Journal*, 56(1), 1–13.
- Langley, A., & Abdallah, C. (2015). Templates and turns in qualitative studies of strategy and management. In *Research methods for strategic management* (pp. 155-184). Routledge.
- Leberecht, T. (2016). Make your strategy more agile. *Harvard Business Review*, 31.
- Lehoux, P., Daudelin, G., Williams-Jones, B., Denis, J. L., & Longo, C. (2014). How do business model and health technology design influence each other? Insights from a longitudinal case study of three academic spin-offs. *Research Policy*, 43(6), 1025–1038.
- Linder, J. C., & Cantrell, S. (2000). Changing business models: surveying the landscape. Accenture Institute for Strategic Change.
- Loock, M., & Hacklin, F. (2015). Business modelling as configuring heuristics. *Business Models and Modelling*, 33, 187–205.
- Magretta, J. (2002). Why business models matter. *Harvard Business Review*, 80(5), 86–92.
- Mantere, S., & Whittington, R. (2021). Becoming a strategist: The roles of strategy discourse and ontological security in managerial identity work. *Strategic Organization*, 19(4), 553-578.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization science*, 2(1), 71-87.
- March, J. G., & Simon, H. (1963). *Organizations*. New York, NY: Bohn Wiley.

- Markides, C., & Charitou, C. D. (2004). Competing with dual business models: A contingency approach. *The Academy of Management Executive*, 18(3), 22–36.
- Markides, C. (2006). Disruptive innovation: In need of better theory. *Journal of product innovation management*, 23(1), 19-25.
- Martin-Rios, C., & Parga-Dans, E. (2016). Service response to economic decline: Innovation actions for achieving strategic renewal. *Journal of business research*, 69(8), 2890-2900.
- Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the hidden value of concepts: A cognitive approach to business model innovation. *Strategic Entrepreneurship Journal*, 9(1), 99–117.
- Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals*, 11(1), 73–104.
- McGrath, R. G. (2010). Business models: A discovery driven approach. *Long Range Planning*, 43(2–3), 247–261.
- McGrath, R. G. (2013). *The end of competitive advantage: How to keep your strategy moving as fast as your business*. Harvard Business Review Press.
- McGrath, R. (2019). *Seeing around corners: How to spot inflection points in business before they happen*. Houghton Mifflin.
- Meinel, C., & Leifer, L. (2012). Design thinking research. In *Design thinking research* (pp. 1-11). Springer, Berlin, Heidelberg.
- Mezger, F. (2014). Toward a capability-based conceptualization of business model innovation: Insights from an explorative study. *R&D Management*, 44(5), 429–449.
- Miles, M., & Huberman, M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage.
- Miller, D. (1992). The Icarus paradox: How exceptional companies bring about their own downfall. *Business Horizons*, 35(1), 24-35.

- Mintzberg, H. (1987). The strategy concept I: Five Ps for strategy. *California management review*, 30(1), 11-24.
- Mitchell, D., & Coles, C. (2003). The ultimate competitive advantage of continuing business model innovation. *Journal of Business Strategy*, 24: 15–22.
- Mol, M. J., & Birkinshaw, J. (2009). The sources of management innovation: When firms introduce new management practices. *Journal of business research*, 62(12), 1269-1280.
- Moore, G. A. (2004). Darwin and the demon: Innovating within established enterprises. *Harvard business review*, 82(7-8), 86-92.
- Morris, M., Schindehutte, M., & Allen, J. (2005). The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research*, 58(6), 726–735.
- Neeley, T.B., & Leonardi, P.M. (2018) Enacting knowledge strategy through social media: Passable trust and the paradox of nonwork interactions. *Strategic Management Journal*, 39(3): 922–946.
- Nelson, R. R., & Winter, S. G. (1982). The Schumpeterian tradeoff revisited. *The American Economic Review*, 72(1), 114–132.
- Nunes, P. F., & Breene, T. (2011). *Jumping the S-curve: how to beat the growth cycle, get on top, and stay there*. Harvard Business Press.
- O'Reilly III, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. *Academy of management Perspectives*, 27(4), 324-338.
- Osterwalder, A., Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. Hoboken, NJ: Wiley.
- Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present, and future of the concept. *Communications of the Association for Information Systems*, 15(1), 1–43.

- Ouakouak, M. L. (2018). Does a strategic planning process that combines rational and adaptive characteristics pay off? Evidence from European firms. *Australian Journal of Management*, 43(2), 328-349.
- Pentland, B. T. (1999). Building process theory with narrative: From description to explanation. *Academy of Management Review*, 24(4), 711–724.
- Peters, U. (2020). What is the function of confirmation bias?. *Erkenntnis*, 1-26.
- Pettigrew, A. (1990). Longitudinal field research on change: Theory and practice. *Organization Science*, 1(3), 213-337.
- Poole, M. S., & Van de Ven, A. H. (Eds.). (2004). *Handbook of organizational change and innovation*. New York, NY: Oxford University Press.
- Porac, J., & Tschang, F. T. (2013). Unbounding the managerial mind: It's time to abandon the image of managers as "Small brains." *Journal of Management Inquiry*, 22(2), 250–254.
- Porac, J., Ventresca, M., & Mishina, Y. (2002). Interorganizational cognition and interpretation. In: J. Baum (Ed.), *The Blackwell companion to organizations* (pp. 579–598). Oxford, UK, Wiley-Blackwell.
- Porter, M. E. (2001). Strategy and the Internet. *Harvard Business Review*, 79(3), 62-79.
- Prahalad, C. K., & Bettis, R. A. (1986). The dominant logic: A new linkage between diversity and performance. *Strategic Management Journal*, 7(6), 485–501.
- Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organization science*, 20(4), 685-695.
- Rescher, N. (1996). *Process metaphysics: An introduction to process philosophy*. Albany, NY: State University of New York Press.
- Reis, E. (2011). *The lean startup*. New York: Crown Business, 27.

- Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Currency.
- Ritter, T., & Pedersen, C. L. (2020a). Analyzing the impact of the coronavirus crisis on business models. *Industrial Marketing Management*, 88, 214-224.
- Ritter, T., & Pedersen, C. L. (2020b). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, 86, 180-190.
- Sabatier, V., Mangematin, V., & Rousselle, T. (2010). From recipe to dinner: Business model portfolios in the European biopharmaceutical industry. *Long Range Planning*, 43(2–3), 431–447.
- Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *European Management Journal*, 33(3), 201-213.
- Saebi, T., Lien, L., & Foss, N. J. (2017). What drives business model adaptation? The impact of opportunities, threats and strategic orientation. *Long Range Planning*, 50(5), 567–581.
- Sanchez, P., & Ricart, J. E. (2010). Business model innovation and sources of value creation in low-income markets. *European Management Review*, 7(3), 138–154.
- Sandström, C., & Osborne, R. G. (2011). Managing business model renewal. *International Journal of Business and Systems Research*, 5(5), 461–474.
- Santos, J., Spector, B., & van der Heyden, L. (2009). *Toward a theory of business model innovation within incumbent firms*. Working Paper No. 16. INSEAD, Fontainebleau, France.
- Santos, J. F. P. D., Spector, B., & Van der Heyden, L. (2015). Toward a theory of business model change. In N. Foss, & T. Saebi (Eds.), *Business model innovation the organizational dimension* (pp.104–122). Oxford, UK: Oxford University Press.

- Schneckenberg, D., Velamuri, V., & Comberg, C. (2019). The design logic of new business models: Unveiling cognitive foundations of managerial reasoning. *European Management Review, 16*(2), 427-447.
- Scholz, R. W., & Tietje, O. (2002). *Embedded case study methods: Integrating quantitative and qualitative knowledge*. Sage.
- Schwarz, G., & Stensaker, I. (2014). Time to take off the theoretical straightjacket and (re-) introduce phenomenon-driven research. *The Journal of Applied Behavioral Science, 50*(4), 478–501.
- Senge, P. (1990). *The fifth discipline: The art and science of the learning organization*. New York: Currency Doubleday.
- Shafer, S. M., Smith, H. J., & Linder, J. C. (2005). The power of business models. *Business Horizons, 48*(3), 199–207.
- Siggelkow, N. (2007). Persuasion with case studies. *Academy of Management Journal, 50*(1), 20–24.
- Simon, H.A., 1969. *The sciences of the artificial*. Cambridge, MA: MIT Press.
- Simon, H. A. (1991). Bounded rationality and organizational learning. *Organization science, 2*(1), 125-134.
- Slywotzky, A. J. (1996). *Value migration: How to think several moves ahead of the competition*. Cambridge, MA: Harvard Business Press.
- Sniukas, M. (2012). *Making business model innovation happen*. InnovationManagement. se.
- Sniukas, M. (2020). *Business Model Innovation as a Dynamic Capability*. Springer International Publishing.
- Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business model innovation through trial-and-error learning. *Long Range Planning, 43*(2–3), 383–407.

- Szulanski, G. 2000. The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational Behavior and Human Decision Processes*, 82: 9-27.
- Szulanski, G., & Jensen, R. J. (2006). Presumptive adaptation and the effectiveness of knowledge transfer. *Strategic management journal*, 27(10), 937-957.
- Szulanski, G., & Jensen, R. J. (2008). Growing through copying: The negative consequences of innovation on franchise network growth. *Research Policy*, 37(10), 1732-1741.
- Stabell, C. B., & Fjeldstad, Ø. D. (1998). Configuring value for competitive advantage: On chains, shops, and networks. *Strategic Management Journal*, 19(5), 413–437.
- Stensaker, I., & Falkenberg, J. (2007). Making sense of different responses to corporate change. *Human relations*, 60(1), 137-177.
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: Sage.
- Stubbs, W., & Cocklin, C. (2008). Conceptualizing a “sustainability business model”. *Organization & environment*, 21(2), 103-127.
- Suddaby, R. (Ed.). (2010). Editor's comments: Construct clarity in theories of management and organization. *Acad. Manag. J.* 35, 346-357.
- Sund, K. J., Galavan, R. J., & Bogers, M. (Eds.). (2020). *Business Models and Cognition*. Emerald Publishing Limited.
- Sutton, R. I., & Staw, B. M. (1995). What theory is not. *Administrative science quarterly*, 371-384.
- Svejenova, S., Planellas, M., & Vives, L. (2010). An individual business model in the making: A chef's quest for creative freedom. *Long Range Planning*, 43(2-3), 408-430.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), 1319-1350.

- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2–3), 172–194.
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49.
- Thornberg, R., & Charmaz, K. (2014). Grounded theory and theoretical coding. *The SAGE handbook of qualitative data analysis*, 5, 153-69.
- Tikkanen, H., Lamberg, J. A., Parvinen, P., & Kallunki, J. P. (2005). Managerial cognition, action and the business model of the firm. *Management Decision*, 43 (6), 789-809.
- Tripsas, M., & Gavetti, G. (2000). Capabilities, cognitions, and inertia: Evidence from digital imaging. *Strategic Management Journal*, 21(10–11), 1147–1161.
- Tsoukas, H. (2005). *Complex knowledge: Studies in organizational epistemology*. Oxford, UK: Oxford University Press.
- Van de Ven, A. H. (1992). Suggestions for studying strategy process: A research note. *Strategic management journal*, 13(S1), 169-188.
- Van de Ven, A. H., & Huber, G. P. (1990). Longitudinal field research methods for studying processes of organizational change. *Organization Science*, 1(3), 213–219.
- Van de Ven, A. H., & Poole, M. S. (2005). Alternative approaches for studying organizational change. *Organization Studies*, 26(9), 1377–1404.
- Venkatraman, N., & Henderson, J.C. (1998). Real strategies for virtual organizing, *Sloan Management Review*, 40(1), 33–38.
- Volberda, H., Van Den Bosch, F. A., & Heij, K. (2018). *Reinventing business models: How firms cope with disruption*. Oxford, UK: Oxford University Press.
- Von Krogh, G., Rossi-Lamastra, C., & Haefliger, S. (2012). Phenomenon-based research in management and organisation science: When is it rigorous and does it matter? *Long Range Planning*, 45(4), 277–298.

- Waloszek, G., 2012. Introduction to Design Thinking.
http://www.sapdesignguild.org/community/design/design_thinking.asp. Accessed December 8, 2014.
- Walsh, J. P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science*, 6(3), 280–321.
- Ward, T. B. (2004). Cognition, creativity, and entrepreneurship. *Journal of business venturing*, 19(2), 173-188.
- Watson, J. L. (1997). Golden Arches East: McDonald's in East Asia. Stanford, CA: Stanford University Press.
- Watson, J. L. (1997). Golden Arches East: McDonald's in East Asia. Stanford, CA: Stanford University Press.
- Watson, A., Stanworth, J., Healeas, S., Purdy, D., & Stanworth, C. (2005). Retail franchising: an intellectual capital perspective. *Journal of Retailing and Consumer Services*, 12(1), 25-34.
- Weick, K. E. (1979). *The social psychology of organizing*. New York, NY: Addison-Wesley.
- Weill, P., & Woerner, S. L. (2013). Optimizing your digital business model. *MIT Sloan Management Review*, 54(3), 71.
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Press.
- Williamson, O. E. (1975). Markets and hierarchies: analysis and antitrust implications: a study in the economics of internal organization. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*.
- Winter, S. G. (2010). The replication perspective on productive knowledge. In Dynamics of knowledge, corporate systems and innovation (pp. 95-121). Springer, Berlin, Heidelberg.

- Winter, S. G., & Szulanski, G. (2001). Replication as strategy. *Organization Science*, 12(6), 730–743.
- Wirtz, B. W. (2019). *Digital business models: Concepts, models, and the alphabet case study*. Springer.
- Wirtz, B. W., & Daiser, P. (2018). A meta-analysis of empirical e-government research and its future research implications. *International Review of Administrative Sciences*, 84(1), 144–163.
- Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business models: Origin, development and future research perspectives. *Long Range Planning*, 49(1), 36–54.
- Wright, G., & Cairns, G. (2011). *Scenario thinking: Practical approaches to the future*. Springer.
- Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.
- Yin, R. K. (2014). *Case study research: Design and methods (applied social research methods)*. Thousand Oaks, CA: Sage Publications.
- Yingst, T. E. (2011). Cultural bias. *Encyclopedia of child behavior and development*, 14-162.
- Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building social business models: Lessons from the Grameen experience. *Long Range Planning*, 43(2), 308–325.
- Zott, C., & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning*, 43(2–3), 216–226.
- Zott, C., & Amit, R. (2015). Business model innovation: Toward a process perspective. In C. E. Shalley, M. A. Hitt, & J. Zhou (Eds.), *The Oxford handbook of creativity, innovation, and entrepreneurship* (pp. 395–406). Oxford, UK: Oxford University Press.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future research. *Journal of Management*, 37(4), 1019–1042.

ARTICLE 1

DEVELOPING SUSTAINABLE BUSINESS MODELS: A MICROFOUNDATIONAL PERSPECTIVE

Kristin Ringvold, Tina Saebi and Nicolai J. Foss

NHH – Norwegian School of Economics; CBS – Copenhagen Business School

Abstract

Sustainable business models (SBM) integrate economic with social and/or environmental value creation. Many relevant aspects of organizing for sustainable business model innovation (SBMI) have yet to be accounted for to understand how firms can add a new SBM to their already existing portfolio of business models. Specifically, how the development of a new SBM is influenced by managers' cognitions, capabilities, behaviors, and interactions, and how the SBMI process can be supported by organizational processes and structures is less well understood. Taking a microfoundational approach, we identify the capabilities at the managerial and organizational level that enable established firms to add a new SBM to their business model portfolio. In a longitudinal study, we explore how Telenor, a multinational telecommunications company headquartered in Norway, introduced a new SBM targeted at providing digital health services in Bangladesh. We offer a framework that highlights key microfoundational elements supporting each of the phases in the SBMI process.

Keywords: BMI processes, sustainable business model innovation, microfoundations.

INTRODUCTION

Firms increasingly seek to develop sustainable business models (SBM) that integrate the creation of economic, environmental, and social value (Bocken et al., 2014; Lüdeke-Freund et al., 2016; Schaltegger et al., 2016). A SBM (also referred to as, e.g. a “business model for sustainability”) differs from a conventional business model design in that it “creates, delivers, and captures value for all its stakeholders without depleting the natural, economic, and social capital it relies on” (Breuer & Lüdeke-Freund, 2014:2). In established firms, sustainable business model innovation (SBMI) refers to the process of either 1) introducing a novel SBM to the firm’s existing business model portfolio (by diversification), or 2) innovating the firm’s core business model to increase its positive (or reduce its negative) impact on society and/ or environment (Baldassarre et al., 2017; Foss & Saebi, 2017; Schaltegger et al., 2015; Stubbs & Cocklin, 2008). While both types of SBMI deserve scholarly attention, we focus on understanding the process of developing and adding a new SBM alongside the firm’s existing ones.

The emerging SBM literature deals with many aspects of SBMI, such as the role of organizational design (Bocken & Geradts, 2020) and organizational processes for SBMI (Inigo et al., 2017), the dynamic capabilities needed for SBMI (e.g. Santa-Maria et al., 2021; Khan et al., 2019), as well as practical tools that assist managers in mapping value creation for different stakeholders (Bocken et al, 2014) and developing a sustainable value proposition (Baldassarre et al., 2017; Yang et al., 2017). However, the *process* of SBMI is still to some degree a “black box”. Many relevant aspects of organizing for SBMI have yet to be accounted for to understand how firms can add a new SBM to their already existing portfolio of business models. This includes knowledge on the phases that an established firm undergoes when creating a new SBM from scratch as well as to understand the key activities and challenges in each of these phases. Specifically, how the development of a new SBM is influenced by managers’ cognitions,

capabilities, behaviors, and interactions, and how the SBMI process can be supported by organizational processes and structures, is less well understood. Our lack of understanding of these microfoundational elements of the SBMI process is problematic, given that so many firms are pursuing SBMs, but may find that they lack the necessary support.

The aim of our study is to understand how SBMs emerge from the three microfoundational components of (1) the *individuals* with their different cognition (mental models and beliefs (“knowledge structures”), mental processes (and managerial cognitive capabilities) and emotions, their social capital (goodwill derived from relationships) and human capital (learned skills and knowledge (Helfat & Martin, 2015); (2) the *processes of interaction* between individuals; and (3), the *structure and design* that enables or hinders individual and collective action within an organization (Felin et al., 2012).

Prior research has highlighted the importance of individual-level behaviors (such as pro-activeness and pro-social behavior) in relation to sustainability (Strauss et al., 2017). Yet, there is still little knowledge on what that characterizes the individual level microfoundations of SBMI, and especially if and how this varies throughout the SBMI process. For example, a key problem in the SBMI process is a heightened complexity (Hahn et al., 2015; Strauss et al., 2017) as managers attempt to align environmental and/or social objectives with financial goals (Weissbrod & Bocken, 2017; Arevalo et al., 2011; Aragón-Correa & Sharma, 2003) and navigate multiple stakeholder interests (Saebi et al., 2019). Many gaps remain in our understanding of how managers can actually do these things.

Another key problem is that, often, established firms do not have the processes or structures—nor indeed the individuals—to foster SBMI. This type of innovation might create challenges at multiple levels in the established firm. Creating a SBM involves designing and implementing new activities, processes, resources, and structures for value creation (Teece, 2010).

When the SBM is created within the setting of an established firm, a set of activities, processes, capabilities, and structures already exists; however, these were developed in relation to the firm's already existing portfolio of business models.

To understand the microfoundations of SBMI, we study how Telenor ASA, a multinational telecommunications operator based in Norway, developed, and launched Tonic, a new SBM for digital health services in Bangladesh. We map the SBMI process in our case based on major events in the SBMI trajectory, and highlight the individual, processual and structural foundations that underpins each event. This allows us to develop a framework that captures key microfoundational elements supporting each of the phases in the SBMI.

We contribute to literature on SBMI in several ways. First, adopting a microfoundational view (Foss, 2011; Felin et al., 2012) helps us to shed light on how individual, interactional and structural components interact throughout the phases of the SBMI (i.e. the activities preceding, during, and following the launch of a new SBM) and aggregate to a higher-level outcome (i.e. the introduction of a novel SBM). Second, by adopting a processual view, we can relate microfoundations at the individual, interactional, and structural levels to key activities in the SBMI process. This allows us to identify the key microfoundational elements supporting each of the phases in the SBMI as well as to develop a deeper understanding of the key activities and challenges in each of these phases. Third, we identify the key activities and challenges of adding a new SBM alongside the firm's existing business model portfolio.

THEORETICAL BACKGROUND

Business Models and Business Model Innovation

A business model is a complex system of interrelated components that define how a firm creates, delivers and captures value (Teece, 2010; Massa et al., 2017; Foss & Saebi, 2017).

Business model innovation (BMI) is typically considered as a strategic response to opportunities or

threats in the firm's internal/external environment (Saebi et al., 2017), such as changes in the competitive landscape (e.g. Berends et al., 2016) or demands for sustainability (Sinkovics et al., 2021). In established firms, the process of BMI can take the form of either modifying existing business model components or adding a new business model to the firm's business model portfolio (Zott et al., 2011). These two processes of BMI pose idiosyncratic challenges. In an existing BM, the BM components are tightly intertwined, and together form an architecture in which modifications in one element affects the others (Teece, 2010). Modifying an existing business model poses to managers the challenge of finding a high-performing combination of interdependent choices, and can be a complex, cognitive demanding endeavour (Foss & Saebi, 2018). Designing a new business model from scratch and implementing it alongside the firm's existing one(s) can offer synergies if the old and the new models share some components or organizational capabilities (Kim and Min, 2015). However, the existing business model portfolio can also shape managerial thinking and create cognitive inertia that prevents the perception of new business model designs and opportunities (Berends et al., 2016).

Business Models and Sustainability

Research on the intersection of sustainability and business models has only emerged relatively recently (see e.g. special issues in *Journal of Cleaner Production* (Vol. 45, April 2013), and *Organisation and the Environment* (Vol. 29, Is. 1, March 2016), and review articles by Bocken et al. (2014), Boons and Lüdeke-Freund (2013), Evans et al. (2017), Geissdoerfer et al (2018) and Schaltegger et al. (2016). The literature on sustainable business models (SBM) includes studies from different disciplines, such as ecological sustainability management, innovation, and technology studies. In general, this research field has focused on definitional ("what") and motivational ("why") questions (Zollo et al., 2013). As such, the field has mainly adopted a conceptual approach to examining the constituent elements of SBMs (e.g. Stubbs & Cocklin, 2008;

Wells, 2013; Schaltegger et al., 2012; Schaltegger et al., 2016; Upward & Jones, 2016; Lüdeke-Freund et al., 2016), various archetypes (e.g. Boons & Lüdeke-Freund, 2013; Bocken et al., 2014), and the tools and frameworks that help managers assess the level of sustainability of their business (e.g. Franca et al., 2017; Joyce & Paquin, 2016; Lüdeke-Freund et al., 2016).

In the business context, sustainability can be defined as the adoption of business strategies and activities “that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future” (IISD, 1992). In their review of the corporate sustainability literature, Montiel and Delgado-Ceballos (2014) note that the majority of scholars agree on a definition of sustainability that encompasses “economic prosperity, social equity, and environmental integrity” (Bansal, 2005;198), using different terminologies such as the “Triple Bottom Line” or the “3Ps” of people, planet, and profit (e.g. Hart & Milstein, 2003). Hence, while some scholars define SBM as a tridimensional construct, where the social, environmental and economic dimensions need to be present (e.g. Schaltegger et al., 2012), others acknowledge that SBMs in practice often focus on either the social or environmental aspect of sustainability (e.g., Abdelkafi & Tauscher, 2016; Breuer & Lüdeke-Freund, 2014; Bocken, Short, Rana & Evans, 2014; Bocken & Geradts, 2020; Geissdoerfer, Vladimirova & Evans, 2018).

Sustainable business model innovation (SBMI) is defined “as innovation to create significant positive impacts, and significantly reduced negative impacts for the environment and/or society, through changes in the way the organization and its value-network create, deliver and capture value or change their value propositions” (Bocken & Geradts, 2020:2). SBMI allows businesses to address longstanding sustainability challenges at a potential profit, as SBMI may be a way to realize new and innovative growth areas for a business, providing both direct revenue and more indirect advantages such as improved reputation (Homburg et al., 2013) and employee

attractiveness (Greening & Turban, 2000). Realizing SBMI is thus a key challenge for managers (Stubbs & Coklin, 2008).

However, the pursuit of sustainability adds new variables to strategy formulation and execution processes, which may have uncertain performance outcomes (Strauss et al., 2017). Prior studies typically highlight the heightened complexity of SBMI due to increased importance of stakeholder management (Bocken et al., 2014; Stubbs & Cocklin, 2008) as a challenging task that requires the management of multiple objectives (Freeman, 1984; Donaldson & Preston, 1995; Post et al., 2002). Thus, SBMI is a highly complex process (Rauter et al., 2017). However, how exactly the process of SBMI unfolds is underexplored (Geissdoerfer et al., 2018), and a microfoundational view is required to better understand how managers (at multiple organizational levels) can develop SBMIs through their cognitions, behaviors, and interactions, and how this can be supported by organizational processes and structures.

Microfoundations of SBMIs

The establishment of microfoundations for strategic management theory matters, for example, as it aims to explain “how strategic dynamics may be rooted in individual characteristics and behavior” (Foss, 2011:1414). “Strategic dynamics” may here include SBMI. Helfat et al. (2009) argues that in order to understand how organizations identify or respond to opportunities or needs for change and implement a course of action (e.g. SBMI), we need to understand the underlying processes, activities and practices in a manner that goes beyond describing *what* organizations and managers do, and also includes *how* they do it. Picking up on this, the microfoundational challenge is to understand how SBMI emerge from the three components of (1) the *individuals* with their different cognition (mental models and beliefs (“knowledge structures”), mental processes (and managerial cognitive capabilities) and emotions, their social capital (goodwill derived from relationships) and human capital (learned skills and knowledge (Helfat &

Martin, 2015); (2) the *processes of interaction* between individuals; and (3), the *structure and design* that enables or hinders individual and collective action within an organization (Felin et al., 2012). In the following, we briefly highlight key aspects of what we know and don't know about the role of these microfoundational components in SBMI.

Individual level components

Entrepreneurial agents in existing companies (i.e. managers, entrepreneurs, or employees that take initiative to contribute towards SBMI) with their cognition, including their mental models (Barr et al., 1992; Gavetti & Levinthal, 2000; Gavetti & Rivkin, 2007) and cognitive belief systems (Aspara et al., 2011), as well as their social and human capital and behavior (such as adaptivity and proactivity (Strauss et al., 2017), are of crucial importance for SBMI (Cavalcante, 2011; Strauss et al, 2017). Mental models refer to both the knowledge about specific stimuli as well as the organization of knowledge in larger structures, and “allow individuals and organizations to make sense of their environment and act within it” (Barr et al., 1992:16). They are shaped by prior experience, determine what information deserves attention, and affect key cognitive processes, such as perception, information processing, problem solving, learning, judgment, and decision-making (Johnson-Laird, 1983). Engaging in SBMI requires that managers must, at least to some extent, resist their natural tendency to follow known schemas (Dewald & Bowen, 2010; Doz & Kosonen, 2010; Baden-Fuller & Mangematin, 2013; Chesbrough, 2010; Dopfer et al., 2017), and instead develop new and different schemas or business models (Hahn et al., 2014; Hahn et al., 2015). SBMI often requires a radical form of innovation (e.g. Bocken, et al., 2014) which again requires managers able to take a leap away from existing practices and foresee new opportunities for value creation. Cognitive techniques such as conceptual combination (creating new concepts that are variants of existing ones) are examples of ways new business models can be designed (Martins et al., 2015). Some research suggests that a combination of paradoxical and business case driven

mental frameworks may support SBMI (Hahn et al., 2014; Hahn et al., 2015). Another argument is that actors engaged in SBMI must be intrinsically motivated (Strauss et al., 2017). However, further research is needed to understand what characterizes the individual level microfoundations of SBMI, and especially if and how this varies throughout the SBMI process.

Processual and interactional components

While some suggest that the initial hypothesis of the value proposition is conceived by the entrepreneurial agent (Cavalcante et al., 2011), several researchers suggest that SBMI could be strengthened by involving stakeholders in the value proposition development (Bocken et al., 2014; Geissdoerfer et al., 2016; Baldassarre et al., 2017). For example, Roome and Louche (2015) suggest that SBMI requires the interactions between individuals and groups inside and outside companies. The testing and refining of the value proposition as well as the processes for value creation, delivery and capture are usually developed by a team and over time (Doz & Kosonen, 2010; Saebi, 2015). Researchers differ in their descriptions of how the potential business model components are identified and decided upon. Some studies emphasize the primacy of cognitive search (Cortimiglia et al., 2016; Furnari, 2015), and, in a related vein, several normative models for designing business models emphasize forward-looking analytical processes, suggesting that business models must be conceived first and then put into action (Chatterjee, 2013). Others describe (S)BMI as a process that primarily emerges from action (McGrath, 2010; Sosna et al., 2010) that can be linked to either an “ad hoc” problem solving type, or a more stochastic test manner (Felin et al., 2012). For SBMI, recent research has suggested to use elements of design thinking in combination with a Minimum Viable Product (MVP) approach to test and adjust the SBMI (Geissdoerfer et al., 2016; Baldassarre et al., 2017). Berends et al. (2016) argue that BMI processes involve a combination of cognitive search and experiential learning. Hence, research does not yet agree on how cognition and behaviour interplay in the development of business model components, and more research is

warranted to understand *how* stakeholders are involved throughout the SBMI process, and how this poses new and different demands for managers and organizations.

Structural and design components

Organizational structure and design enable or constrain individual and collective action within an organization (Felin et al., 2012) and thus can affect the overall effectiveness, efficiency, and agility of SBMI. An emerging literature links organizational design, dynamic capabilities and BMI (Bocken & Geradts, 2020; Fjeldstad & Snow, 2018; Teece 2018; Leigh et al., 2015), focusing on the organizational design antecedents of dynamic capabilities for BMI (e.g. Teece, 2018; Zollo & Winter, 2002). Fjeldstad and Snow (2018) highlight the need to increase our understanding of how new organizational architecture that span conventional organizational boundaries affect BMI, and the importance of organizational agility under uncertainty. For agile organization designs, broad guidelines are important for providing structure to individuals as they take the initiative to identify new goals (Eisenhardt & Martin, 2000). However, the most appropriate form of broad guidelines for SBMI and the ways in which those guidelines might balance long-term and short-term goals to reduce uncertainty and complexity are unclear.

Furthermore, the BMI literature indicates that top management plays an important role as a sponsor of radical BMI (Foss & Stieglitz, 2015; Smith & Tushman, 2005). The uncertain and distant rewards (March, 1991) of SBMI make the prioritization of resources both challenging and important (Foss & Stieglitz, 2015; Noda & Bower, 1996). Foss and Stieglitz (2015) suggest that top management must be active in its sponsorship of the new initiative, especially in the face of internal pressure for capital reallocations, and that it must act as a boundary-spanner to ensure coordination with the rest of the organization (Foss & Stieglitz, 2015). However, more research is needed to address the specific case of SBMI and the requirements that SBMI places on the top management team.

In sum, research has not yet fully empirically addressed the microfoundational issues related to the SBMI process. The process of SBMI is still to some degree a “black box”. A processual view that relates microfoundations at the individual, interactional, and structural levels to key activities in the SBMI process is lacking. Our case study of the recent Telenor experience of SBMI helps to fill this gap.

RESEARCH STRATEGY

To understand how microfoundations underlie SBMI we needed a method that can provide data on key events or developments of the SBMI and the related practices and reflections of managers at multiple levels. Choosing a qualitative approach to understand the emergence and development of a phenomenon over time (Langley, 1999; Van de Ven, 2007), our study is based on an exploratory, longitudinal study of Telenor ASA, a multinational telecommunications operator based in Norway. The study closely follows how key individuals in Telenor developed, and launched Tonic, a new SBMI for digital health services in Bangladesh. Our aim is to map the SBMI process in our case based on major events in the SBMI trajectory, and highlight the individual, processual and structural foundations that underpins each event. Our aim is theory building, and case studies are well suited as they allow for explanations that capture the complexity of the situation to build theory that is both rigorous and context sensitive (Gehman 2018; Ozcan et al., 2018; Welch et al., 2001). This methodological approach suited the purpose of our study as the first author of this study had a unique level of access to the case firm and were allowed in-depth exploration of the research question in a real-world context (Eisenhardt & Graebner, 2007; Eisenhardt, Graebner & Sonenshein, 2016).

Research Setting

Our empirical setting is the telecommunications operator Telenor Group (henceforth “Telenor”), which is based in Norway. During the 1990s, Telenor was increasingly facing

saturation in its home market of Norway. As part of an international expansion strategy, Telenor entered Bangladesh in 1997 through a joint venture with Grameen Bank called Grameenphone (Seelos & Mair, 2007). Grameenphone was to become one of Telenor's most profitable ventures as well as the largest taxpayer in Bangladesh with 63 million customers and approximately 600,000 points of sale (Telenor video, 2017). In many ways, Telenor's engagement in Bangladesh was the start of its multinational activities. In 2018, Telenor had mobile operations in eight markets in Scandinavia and Asia. It had a widespread presence in emerging markets, such as Bangladesh, Malaysia, and Pakistan. It had approximately 20,000 employees, of which about 2,500 were located in Bangladesh.

While Telenor's main operations were in the mobile retail business, the company was pursuing a diversification strategy by developing digital, internet-based business models. At the time of our study (from June 2015 to January 2018), Telenor was working on developing a diverse set of new business models (e.g. mobile banking, mobile health, mobile education and online classifieds) as additions to their existing business model portfolio. Several of these business models have the potential for significant societal impact, as the provision of internet connectivity and access to information can help individuals in low-income communities improve their economic, physical, and social well-being. The initial work on these new SBMs were organized in a corporate unit called Digital, that had as its responsibility to build digital capabilities and generate digital additions to the business model portfolio. The employees in the Digital unit collaborated with other corporate units such as Social Responsibility and Legal for ideation and knowledge exchange, and with the relevant local business units for knowledge on customer needs and for BMI development.

To explore and gain specific insight on the process of SBMI throughout its key phases of development, we focused on Telenor's SBMI called Tonic. The case of Tonic was selected based on revelatory potential and richness of data (Langley & Abdallah, 2011). We needed to build an

understanding from the ground-up of the microfoundations for SBMI. Launched in 2015 through Telenor's mobile operator Grameenphone, Tonic offers mobile-health services in Bangladesh. With its pluralistic healthcare system, Bangladesh regularly experiences shortage of physicians, specialists and clinical equipment. Each year, millions of families are pushed into poverty due to healthcare costs and lack of access to affordable, quality health care (WHO, 2018). At the same time, Bangladesh has one of the highest mobile phone penetration rates. Hence, with the launch of Tonic, Telenor aimed to provide affordable health information and medical advice to the lower income segment in Bangladesh. Per our definition, Tonic can be considered a SBM for providing mobile-based health information and medical advice to the mass market, simultaneously targeting a social need in the Bangladeshi population as a well as business opportunity (Saebi, et al., 2019; Yunus et al., 2010).

Research Design

As little empirical evidence exists on the development of SBMI (Zollo et al., 2013), we adopted an exploratory research design based on a case study (Eisenhardt, 1989). A single-case research design was appropriate, as we were studying a rarely explored phenomenon (Eisenhardt & Graebner, 2007) and as we aimed to develop analytically generalizable findings. We used a process approach to investigate how SBMI was realized through sequences of events (Langley, 1999; Tsoukas & Chia, 2002). Through an iterative approach to data collection and analysis (Strauss & Corbin, 1997), we explored the dynamics of SBMI and uncovered the characteristics of the microfoundations underpinning the different phases.

We selected as our primary focus a SBMI that was new to Telenor and relatively new for the telecommunications sector. Hence, uncertainty was high, which arguably made the managerial challenges high and thus easier to observe (Pettigrew, 1990). Another reason to choose Tonic was that it was off to a good start at the time we started our interviews, and that was also important for

our choice as it gave us reason to believe was that there was a good chance, we would get to follow this SBMI through to implementation. And this proved right as we were fortunate enough to gain access to first-hand data for most of the important events of the trajectory from how the idea of providing mobile-based health services in Bangladesh initially initiated, to how it took shape and was eventually implemented into a full-blown SBM.

Data Collection

We build this study on several sources of data, including both in-depth qualitative interviews as well as archival data such as internal company videos, internal strategy documents, board minute of meetings, reports on business model developments, newspaper articles, annual reports, etc. A key source of information was semi-structured interviews, which allowed for detail and depth that allowed us to build an explanation of the cognition and behavior of managers as well as the role of interactions and structures in supporting the BMI process. These interviews were conducted with managers at different organizational levels, and the primary selection criteria was the managers involvement in SBMI initiatives. We sought out different organizational environments to get different views on the SBMI process, including the top management, the legal department, the corporate sustainability department as well as the digital department responsible for developing the new business models and the local business units involved in the development. Interviewees thus had different experiences with SBMI from having different roles in the SBMI process. The archival documents were used to triangulate the results from the interviews (Eisenhardt, 1989), and supported the identification of key events throughout the BMI process as well as the cognition and behavior of managers throughout the process. Table 1 provides an overview of our data sources and its use.

[Insert Table 1 here]

We conducted the interviews from June 2015 to January 2018. An interview protocol including general questions was developed in order to generate comparable data from each interview (George & Bennett, 2005). The questions were developed based on the *a priori* specification of key constructs in the literature (e.g. business model, BMI, corporate sustainability, managerial cognition). These potentially important constructs provided boundaries for our investigation of the BMI. In total, we conducted 42 interviews.

The interviews were recorded and transcribed verbatim in Nvivo. We triangulated the interview data with secondary data from both internal and external sources, such as corporate strategy presentations, board memos, previously published articles on Telenor and Tonic, and media coverage. In combination, the interviews and archival data provided us with a rich, reliable understanding of the microfoundations of the BMI process.

Data Analysis

First, narratives of the corporate context and the emergence of the Tonic business model were developed. Building on this initial analysis, first-order themes were identified, as suggested by Strauss and Corbin (1997), Miles and Huberman (1994), and Charmaz (2006). We used NVivo to facilitate the code process, which assisted us in staying close to the respondents' language to firmly ground our understanding in the empirical case. First, we coded sentence by sentence, highlighting anything relevant to the research question. To describe the process of developing Tonic, we sought to identify key events, activities and actors throughout the SBMI process.

The first order themes served as the basis for theoretical reasoning. We circulated between theory and data and identified relevant novel concepts to aggregate the first order themes. For instance, we identified first order themes related to the role of individuals in SBMI, that we aggregated to related second order categories (including pro-social orientation, pushing the status quo, cognitive complexity, growth mindset, effectuation focus, social capital and navigating the

existing organization) and which we grouped together in overarching concepts representing microfoundations for SBMI at the individual level. In a similar manner, we also identified first order themes that we related to processes and interactions and to structure and design, and the related second order categories and overarching concepts. We ensured trustworthiness through combining multiple sources of data as well as developing data tables that show the quotes supporting the first order codes (see Ciulli et al., 2020; Gioia et al., 2013; Pratt et al., 2020) Figure 1 provides an overview of our data structure.

[Insert Figure 1 here]

The theoretical reasoning phase was followed by a phase where we returned to the case data to gain a more fine-grained understanding of the temporal sequencing of the SBMI process and the microfoundations of each phase. We mobilized the methodological device of temporal bracketing to allow discontinuities in event patterns to decompose the case of the SBMI process into successive phases. Even though the SBMI process was not entirely linear in nature, we were able to identify process steps that corresponded well with the descriptions given by our interviewees as well as the secondary data. This enabled systematic examination of the different microfoundations at each phase, included the context and actions of each phase and how the actions led to changes in context that would affect subsequent phases (Stensaker & Langley, 2010).

ANALYSIS AND FINDINGS

We first describe the process of developing the Tonic business model, Telenor's new venture providing a digital health service in Bangladesh. Based on this we analyze the microfoundations underlying the Tonic SBMI process and utilize our findings as inputs into a potentially more general SBMI framework.

Developing the Tonic Business Model

Launched through Telenor’s mobile operator Grameenphone, Tonic is a SBM which delivers digital health services to the lower-income consumers in Bangladesh who lack access to affordable healthcare and medical services. Tonic’s business model consists of a service offering with four major components: “Everyday Health,” “Professional Interaction”, “Insurance” and “Discounts”, that are designed with the aim to cover the customer’s entire health journey. “Everyday Health” provides free health-related information and wellbeing content to all Tonic members through its app or by SMS. “Professional Interaction” is a helpline that provides all Grameenphone’s customers with access to doctors 24 hours a day, seven days a week. “Insurance” recognizes that insurance is weakly developed in the Bangladeshi market, at the same time as the costs of hospital stays can be considerable. Thus, Tonic offers members cash coverage for hospital stays of three nights or more. “Discounts” offers Tonic members discounts of up to 40 per cent on products and services available in partner hospitals, diagnostic labs, pharmacies, and lifestyle brands.

All these services are offered as a membership product to Grameenphone’s revenue-generating customers are intended to provide users that have had no or little access to healthcare services with easier and cheaper healthcare services. The users do not have to pay for the basic healthcare services. They also get discounts on the more advanced services. The exception is the helpline, which is charged a rate of BDT 5 per minute plus taxes. In addition to these basic services, Telenor is also developing a package that they are calling “Telenor health plus”, where customers pay a fee on a regular basis and get an additional or advanced service level.

Tonic is established as a health-focused subsidiary of Telenor Group and a service provider to Grameenphone. The company has created an in-house clinical team led by a chief medical officer. Grameenphone is the main distributor partner with its 57 million customer base.² In

² <https://www.telenor.com/tonic-is-the-new-face-of-digital-health-services-for-telenor/>

addition, several partnerships are established. Tonic sources health content from leading global institutions. Local partnerships are established in the Bangladeshi markets, including 200+ hospitals and pharmacies across the country where the members get discounts as well as thousands of hospitals across the country where the members can use their insurance. Another important partner is the government of Bangladesh (the Health Ministry), with whom Tonic has collaborated to develop necessary digital infrastructure.

Below, we describe important events in the process of developing the Tonic SBM. By the use of “temporal bracketing”, we identified four phases in the development process: identifying the opportunity, searching for SBM solutions, operational build-out and testing, and fine-tuning and scaling-up. Figure 2 shows a timeline of the development. We describe each of the phases briefly and highlight the microfoundations that support the related activities.

[Insert Figure 2 here]

Phase 1: Identifying the opportunity

Individual level. The SBMI of Tonic started as a result of different initiatives from multiple individuals at different organizational levels and units in Telenor. The crucial importance of individuals for the first phases of the SBMI was highlighted by several informants. One of these important individuals were the CEO of Grameenphone, who gave his Chief Strategy Officer a new mission: identify opportunities in areas that would empower and give back to the local community. Given its position as a major player in Bangladesh, Grameenphone had the ability to find ways to contribute to society and to build SBMI. With Telenor’s new “Empowering Societies” vision, the CEO of Grameenphone was motivated for action. Based on his mandate, three projects (all expected to have a high social impact) were initiated: mobile health (Tonic), mobile agriculture and mobile education. While all three projects were put into action, one of Grameenphone’s senior managers explained to us that the Tonic project had a key differentiator from the other initiatives,

helping it to become a success: a new employee (we call him Bill) who was determined to help develop digital health services.

Bill was an MIT graduate whose prior experience included digital inclusion and IT-based health-care solutions. He had a desire to work on digital health with Telenor before he even joined the company and started working on health services before he had a mandate to do so. Located in Norway as part of the corporate-level unit Telenor Digital, Bill continued developing his ideas on digital health in his free time before finally presenting them to his manager, when the business model had begun to take shape. His manager gave him the opportunity to pursue the health initiative, and Bill connected with other internal units with relevant expertise, including Telenor's social responsibility unit and the strategy unit in Grameenphone.

Interactions and processes. The processes and interactions at this stage were highly informal. Ideation activities were conducted within groups at different organizational levels, involving both Grameenphone, Telenor's social responsibility unit and Telenor Digital. The strategy team from Grameenphone contributed local-based knowledge on consumer needs and market characteristics; the corporate responsibility unit contributed knowledge on how to meet consumer needs in a sustainable manner; and Telenor Digital contributed insights from their diverse set of digital BMI processes under development. In addition, Bill talked to different external experts and actors from the health and insurance industry, starting to form important partnership contacts and getting input on potential value proposition and business model ideas already at this stage. The challenge lay in identifying where to start, as Bill explained:

When you are looking at an area as broad as health, and you are looking at health in Bangladesh, there is a lot of customer needs. Where is the opportunity, where do you start? And particularly where do you start where there is actually a potential business model?

Bill spent time in Bangladesh in order to gather in-depth market insight and establish relations with key stakeholders. He carefully considered how the new business model could build on Telenor's existing strengths. Inspired by an ongoing dialogue with an industry expert, he concluded that the new business model should be built on a combination of Telenor's existing capabilities in digital services and payments, in combination with new capabilities on health.

As digital health was a new service area that would require the development of new capabilities within Telenor, identifying partners with the needed capabilities were seen as essential already in this explorative phase. Telenor initiated two major corporate partnerships: one a global health-care provider, the other a for-profit company with a social mission to increase access to insurance for the underinsured.

Structure. At the structural level, the new vision of “Empowering Societies” was important as an enabler, and Grameenphone's considerable presence in the Bangladeshi market carried the potential for trust and legitimacy towards governments as well as breadth of distribution. Multiple units within the company were building capabilities within SBMI simultaneously. Locally, Grameenphone had the customer and market knowledge to build an understanding of social needs that Telenor could meet through SBMI. The set-up of a separate unit at the corporate level that focused on developing new digital business models created an environment for ideation and initiation of new SBMs. The social responsibility unit at the corporate level contained high level of expertise on social implications of business in emerging markets and supported several SBMs under development. In sum, these diverse placed capabilities provided knowledge on how to pursue SBM initiatives. In addition, top managers encouraged employees to spend time on new initiatives in adjacent sectors as well as to explore opportunities without strict project procedures and progress-report requirements that had to be followed.

[Insert Table 2a here]

Phase 2: Searching for sustainable business model solutions

Individual level. After the initial business model concept had been loosely identified, a small project team together with internal and external actors and partners worked on determining the business model components. This phase was driven primarily by forward-oriented cognition. At the individual level, the uncertainty and complexity of putting together value creation ideas in a way that would actually work as a business model was described as demanding, favoring both individuals with the ability to handle complex cognitive models and a team with varied competence and experience.

Interactions and processes. As to the interactions and processes, Bill worked with both Telenor's internal social responsibility unit, external actors and Grameenphone to develop the value proposition and service components. The internal social responsibility unit contributed knowledge on sustainability issues (including experience related to issues and trade-offs that might occur related to sustainability) and on building SBMI from diverse initiatives in the emerging market context (e.g. within digital education and digital agriculture). Ideation with external experts took the form of both workshops and more informal meetings. For identifying the business model components, techniques of conceptual combination were used, by taking examples from health and insurance industries to see how similar logic could be used for business models within digital health. In addition, there was an established digital health service run by Grameenphone that gave health care advice and that could be used as a test-site to get customer feedback at an early stage. While this offer was not considered to meet the necessary quality-level from the outset, it produced an easily available potential learning opportunity, and facilitated experience-driven learning.

Due to the strong social impact of health services and the fact that Telenor was entering this established industry as a telecommunications actor wanting to provide health services, numerous discussions with the government focused on defining Telenor's role in the ecosystem. In the

beginning, Telenor's interest was perceived as a threat. As a member of Tonic's management explained:

We had many discussions with the [Bangladeshi] government before the launch. We were getting involved in health services and the government was not sure why. Grameenphone has a large presence, so the government was scared that we would take over the whole sector. ... We had to convince the government that [our involvement] was good for the country at the end of the day.

Telenor invested in establishing relations and dialogues with the relevant authorities, and in building the infrastructure needed for its health-care service. As expressed by another member of the Tonic management team:

For us to do our job, we might have to make some investments that would be handled by the state in other markets or are in areas where we would not usually be involved. That is something new for Telenor.

In addition to partnership with the government, Tonic also formed partnerships with other health-care providers from the non-profit side. The ways to communicate in cross-sector partnerships are however different from the business partnerships. He continues:

You can't have a conversation in a way you would typically do it from a commercial side. If you go into this meeting and it is about wanting to make money, using the term consumer, that does not work. It needs to be around "this is the changes we want to make in health, this is the issues we want to address", and find common ground.

One thing that is seen to separate Tonic from many of the non-commercial players in health is the long-time horizon of their investment. This is something that is made possible due to Tonic being part of the established firms Grameenphone and Telenor.

Structure. At the structural level, the follow-up and dialogue with Telenor’s top management as well as the involvement of Grameenphone’s top management were critical at this stage of the development. Based on the iterations with internal and external actors and knowledge from the existing health service, a presentation was held for top managers on the ideas for a coherent business model. The top management supported further work on the SBMI. Governance and other structures remained largely informal. As expressed by one of the members of the Tonic team: “We had quite a bit of autonomy in the early days to be able to kind of formulate the plans and execute them... So yes, I think we had support from the executives and the level above us”. An important part of top management’s role was to protect the initiative from the established structures of Telenor, which were considered threats that might slow down or hamper the BMI process. As explained by one of the top managers: “it is] not easy to do this within Telenor. We are structurally put together in a way that kills this kind of innovation”. The role of top managers to help individual managers to navigate the structures and politics of the established firm was highlighted by several informants as crucial in order to get started with the Tonic initiative. One of the Tonic project members described it this way:

We were aware we needed to go through a saucy process to get somethings done but we knew everyone was basically bound by the rules because effectively we were a project. And that was a big... stumbling block. It wasn’t a major impediment because we managed to get around it. But it made things a little bit more difficult.

[Insert Table 2b here]

Phase 3: Operational build-out and testing

Individual level. After having settled on the main components for the SBM’s design, it was time to build the operations that would launch the mobile health services. This moved the process from forward-oriented thinking and conceptual ideation to a focus on how to build the necessary

operations and on testing aspects of the solutions on consumers. As expressed by one of the Tonic team members:

I think once you have something in the market, things change kind of quite dramatically.

And so that's been a great learning experience, I think. Things tend to in some ways become clearer, in other ways maybe less clear.

The team working on Tonic was expanded and strengthened with new and different capabilities to complement the individual-level microfoundations. The first person hired was a doctor with experience in health services, who was made responsible for Medical and Products. Then a CEO was hired. He was originally from Bangladesh but had international experience in banking in Africa and Asia as well as start-up experience. Other members of the management team offered expertise in technology, commercial and new markets, and operations and performance.

Interactions and processes. Tonic took over Grameenphone's existing health-advice line, which provided it with a key opportunity to learn through iterative testing of different ways to advance the service. The challenge was, as expressed by a member of the Tonic management team: "how do you take a healthcare advice line and transition that into something that resembles quality healthcare that you would expect? That's a big part of the journey: how do we build the right things?". He continues:

It was a big quality improvement program. [...] We identified a lot of areas we could improve on the process side, on the people side. What doctors do we work with? How do we structure the clinical consultation that they're going to do? [...] A lot of these health advice lines people call up and just want to know what medication to take and then they want to hang up. We saw the opportunity, if you can actually change that into something that looked more like a real clinical consultation; understand your personal history, understand a bit about who you were, what your risk factors were, what medications you might take – then

not only could we address your current problem better in a proper way, but we could also lay down the foundations for what we call a patient-centered model of care.

In addition to taking over and further developing Grameenphone's health-advice line and producing relevant content, Tonic worked on developing new service components related to professional interaction and advanced care. Customer research provided important input during the development of the service. Telenor worked closely with a design studio specialized in health services. It also gathered information through interviews, demonstrations, and the use of sample websites. As expressed by a member of the management team, it "did all of the things that rapid start-ups typically do to find out what works".

Telenor used Grameenphone's go-to market structure to drive the new service's distribution and reach. Grameenphone customers who qualified as revenue customers and enrolled in the new service received a basic bundle of health services for free. This helped increase Grameenphone's market share and helped it attract revenue-generating customers. In exchange, Grameenphone paid Tonic a monthly license fee. Tonic was also realizing at this stage that they would be needing different partners to produce the health services and started to identify what they would be doing themselves and what they would be needing partnerships for, as well as how the partnerships would have to be managed:

We are talking about hospitals, clinics, investigation centers, diagnostics centers. We are talking all the non-governmental organizations. We are talking about the entire health ecosystem to support you. So, we have to be really doing exceptional well in partnerships management. It will require a lot of efforts to ensure that. And a lot of local companies are also trying many things in the health sector... A lot of startups are coming up and doing bits and pieces of this. So how Tonic as a brand can embrace all those and take a leadership role

and use the entire ecosystem to its benefit and eventually pass the benefit on to the consumer is the biggest challenge.

Structure. At the structural level, the operations were formalized with the introduction of a separate board to support the management team and to ensure that the venture had the resources it needed. Due to the complicated nature of health services and the risks associated with clinical services, Telenor chose to establish Tonic as a separate subsidiary within the Telenor Group. In the beginning Tonic shared locations with Grameenphone, but it later moved out of these in order to have its own, dedicated office space. It also wanted to group together all those working with the Tonic operations, including the doctors that were now co-located with Grameenphones call center. The process proved challenging, as one of the Grameenphone manager explained:

This is a simple thing. You have twenty-five of your doctors sitting in one place, which is a Grameenphone place. You want to bring them in to the Tonic office. But that gave us a huge, huge challenge because... If you look from a start-up point of view, it's simply nothing. You have your call center at a location x. you will bring them to location y. But from a Grameenphone point of view you cannot do that because you have to have some sort of guidelines for moving your people from location X to location Y.[...] You see the challenge?

[Insert Table 2c here]

Phase 4: Fine-tuning and scaling up

Individual level. In this phase, the Tonic's customer base was scaled up, and the core product was refined and improved. Technical solutions and operations were also built and scaled up. As for the individual-level microfoundations, this meant an increased focus on commercial and efficiency-minded capabilities. In June 2016, the "Tonic" offering was launched. From June to December 2016, Tonic served about two million people in Bangladesh. While the Tonic basic

products remained free for Grameenphone customers, monetization efforts were introduced. There were some concerns regarding customers' reactions to having to pay for some Tonic services, but customer research indicated a willingness to pay for "Tonic Plus" services such as insurance and phone consultations with doctors. A major challenge was ensuring that the payment process was efficient given the relatively low charges. However, in May 2017, the Tonic Plus services were launched. Management described the early results as promising.

The Tonic SBMI process did not stop there. The government decided that the services should be made available for distribution by all telecommunications players, which implied a need to change the way the service was distributed. In addition, plans for scaling up the service to other emerging markets were developed. Thus, there was a need for individual-level capabilities that support continued recombination as well as for a growth mindset. The Tonic team was growing. In hiring, it was made explicit that this was not a Telenor or Grammenphone position. The use of the Telenor brand tended to lead people into thinking they had "Telenor security". They wanted individuals that were willing to take a risk because they believed in the Tonic business model.

Interactions and processes. At this point, more experience-driven thinking took place. This included testing and customer research based on an in-depth understanding of the customer needs. As expressed by one of the Tonic management team:

I mean, when we think about it, launching the paid-for-product is about really understanding the business model, right? So, can we get the product... what we would call product-fit: does the product work in a way that we derive value from it?

Extensive customer research was conducted, such as reaching out to customers that had not renewed their services and in-depth interviews with selected customers to try to understand why they chose Tonic. The ways of working are described by the interviewees as "design-led and data-

driven” and “agile”. There was still a need to make people aware of the product, to convince the customers of the product’s value and to familiarize them with insurance as a product.

Tonic also needed to build a wide partnership-network to be able to provide their services.

As explained by one of the Tonic managers:

One of the features we have in both Tonic Free and Tonic Premium products is basically based on partnership and that partnership is with hospitals, with the clinics, with the investigation centers, pharmacies. For example, at this moment we have a collaboration of some form with around fifty hospitals across the country.

Because the number of partners was high and growing, and due to the importance of getting high quality services from the partners given the nature of health, it was clear that partnership management became an important capability to get right.

Tonic were also facing challenges of alignment with the existing organization. Getting the technical platforms to work rightly was important but challenging. Also, other forms of internal collaboration suffered to some degree from lack of common goals across Grameenphone and Tonic, causing Tonic to be down prioritized without management intervention.

Structure. The work was structured in a flexible manner, with cross-functioning small teams working together towards particular goals. Quarterly objectives were used to steer the focus and resources, with metrics such as utilization of the services and whether customers came back. Related to measuring the social impact, one of the managers in Tonic explained the view in this way:

We don’t factor social impact into our [KPIs] --- we don’t measure it in terms of saying “okay, well this didn’t go well and this, but on the social impact we are doing well”. I suppose we believe we are purpose driven and we have a very kind of... our mission is to provide access to affordable healthcare. So, if we’re able –so it flows into I think the way we

think about the product and what we're doing and the way that we deliver it and things like that. And we believe that by doing it this way we will achieve the social impact.

Tonic's governance and board structure were formalized, and health -experts were included in both. The decision to establish Tonic as a separate subsidiary was made, at least in part, to manage the risks associated with the operation and to avoid the possibility that quality issues could have spill-over effects on the telecommunications business. As explained to us by a member of the Tonic management team: "Taking the risk of being in health... Health is more complicated, there are more risks. Such as clinical implications. That is way health operates as a separate company [subsidiary]". However, during this phase of the SBMI, Telenor's top management began to ask questions aimed at ensuring that the new SBM complied with Telenor's corporate policies and standards.

[Insert Table 2d here]

A Microfoundational Framework for SBMI

In the following, we describe the characteristics of key microfoundational aspects throughout the SBMI process that we believe could be applicable also for other established firms developing SBMs. Our aim is to provide a framework to assist the understanding of how SBMI emerges as an aggregate from the three microfoundational components of (1) the *individuals* with their different cognition, mental models and beliefs, (2) the *processes* that shape interactions between individuals and groups inside and outside companies and (3), the *structure and design* that enables or hinders individual and collective action within an organization. See figure 3 below for an illustration of the framework. As our findings are based on a single case, we acknowledge that they are not generalizable in any statistical manner. However, we have sought to generalize to theory by identifying "portable" concepts and principles based on our key findings (Gioia et al., 2013).

[Insert Figure 3 here]

The individual level

In the first phases of SBMI, those of “*identifying opportunities*” and “*searching for business model solutions*”, our findings suggest that individual managers in established firms play a key role as initiators and forerunners throughout the SBMI process. Our findings further suggests that individual managers are central in the identification of ideas and hypotheses for SBMI and in finding ways to develop the ideas into a coherent business model. To identify new opportunities, our findings suggests that a wide search for external inspiration from other industries is useful to create inspiration. Further on, our findings suggests that identification of internal strengths to build upon can be used as a way of narrowing down the search.

For the later phases of the SBMI, of *operational build-out and testing* and *fine-tuning and scaling-up*, the needs for individual level microfoundations related to effectuation and operationalization increases. This includes a commercial and growth-focused mindset. For SBMI particularly, potential tradeoffs could arise at this stage between short and long-term objectives and financial and social value creation. There may also be a need to internalize in-depth expertise knowledge in the team. Having a long-term perspective is beneficial, and a potential strength that established firms can be able to contribute given a solid financial situation for the established parts of their business. Another important individual level microfoundation for established firms that grows in importance for the latter phases of the SBMI process is the ability to navigate the internal organization, identifying ways of resource sharing and collaboration.

Level of processes and interaction

Defining the SBM components through the search-phase is supported by a team effort – including both the team tasked to develop the SBMI, external stakeholders and partners and other internal stakeholders. The idea for the initial business model develops into more coherent business model hypothesis through discussions and rethinking with (internal and external) experts and key

stakeholders. To further strengthen the ability to identify SBMI opportunities and search for SBM solutions, our findings highlight the importance of cross-unit collaboration within established firms, bringing together expertise on the established business model, BMI processes, sustainability, and local market knowledge. Together, the rethinking with internal and external experts can contribute to what we refer to as “cognitive recombination”, that is, the ability to identify new opportunities based on seeing new potential ways of combining existing resources and skills. In addition to building hypotheses and identifying resources and capabilities from the existing firm that can be utilized for the SBMI, testing of ideas are an important part of the “searching for SBM solutions” phase. These processes contribute to in-depth problem understanding in order to further develop the product or service and to be able to deliver the service in a manner that brings value to the customer.

For the later phases of *operational build-out and testing* and *fine-tuning and scaling-up* there is also a need to identify ways of collaborating with both internal and external stakeholders, to build the right value creation network for the service. While the first phases of the SBMI process can play out rather isolated from the firm's core business model, the potential advantages in utilizing existing resources to support the new SBMI (such as distribution and customer service) strengthens the need to build collaboration patterns between the firm and its subsidiary that allow for more synergy. Also, it can be an advantage for established firms to be able to utilize existing resources such as go-to market infrastructure to quickly drive distribution and reach, and to be able to test new services on existing customers. SBMI can unite actors from different parts of the firm, not usually working together. Still, there is a need to protect the SBMI from the inertia and constrains in the existing business model especially in the earlier phases.

For established firms involved in SBMI, our findings show that the process may require distinct and new capabilities that differs from their existing capabilities. External partners can be

central to provide insight and develop new capabilities on expertise areas that are distinct from the traditional business model. In our case setting this is important already in the first two phases of *identifying opportunities* and *searching for business model solutions*. Throughout these phases our findings also show that is important to start to build the infrastructure and ecosystem necessary to support the SBM, and to build trust and legitimacy with governments and cross-sector partners. For the later phases of *operational build-out and testing* and *fine-tuning and scaling-up*, a lot of efforts go into shaping and maintaining a sustainable ecosystem, especially when partners are an important part of creating and delivering the product or service to the customers.

The structural level

We found that top management plays a key role at an early stage of the SBMI in terms of making room for entrepreneurship and establishing sustainability-related goals that encourage the search for SBMI. Such goals can help mitigate the trade-offs among social, financial, and economic pressures, thereby enabling organization-wide acceptance of the paradoxes and concurrent management of contradictory elements (Ivory & Brooks, 2018). Specifically, our findings illustrate challenges around balancing commercial interest to focus on long-term value creation, and here top management has an important role to mitigate throughout the SBMI process. In emerging markets particularly, it is also important to ensure that both internal and external stakeholders as well as customers understand the why and logic around the payment model.

Our findings also suggest that SBMI can be supported by introducing agile project-governance structures adopted to complex goals, avoiding rigid “business case” requirements at an early stage, and finding suitable ways to manage SBMI. For the first phases of “*identifying opportunities*” and “*searching for new business model solutions*”, strategic and tactical decision making largely takes place within the new SBM, which may concentrate on identifying the right problem and the best way to address it. Our findings further emphasize the important role of top

management to shelter the new SBM throughout its development phases and ensure that it has the necessary organizational “slack” by, for instance, postponing requirements for monetization and a concrete business case plan until after the SBM’s fundamentals have been worked out. SBMIs should thus have more time to show positive returns than “ordinary” BMIs.

For the later phases of “*operational build-out and testing* and *fine-tuning and scaling-up*”, there is a larger focus on alignment with the existing organization. A critical task for top management is to ensure that the new business model does not get slowed down by rigid processes and/ or different goals and prioritization in the established business model. This can partly be done by separating the work on the new SBM from the rest of the organization to the greatest possible degree, e.g. in the form of ambidexterity through “spatial separation” (O’Reilly & Tushman, 2013). However, to be able to take advantages of the resources in the existing firm, complete separation comes at a high cost. Instead, top management must ensure that there are ways to overcome rigid processes and different goals between the teams working for the established organization and the new business model. Top management must also protect the development of the SBMI against the pressures for exploitation from the old business model.

DISCUSSION

This study aims to contribute to a better understanding of how established firms can best develop needed underpinnings at the micro level for SBMI. Our case analysis points to several crucial elements that together make up an emergent framework for SBMI in established firms (as laid out in the previous section). We thus contribute to the SBMI literature, by identifying 1) key phases, activities and outcomes for adding an SBM to an existing firm’s business model portfolio, 2) key microfoundations that support the process of developing the new SBM and 3) key challenges related to succeeding with the SBMI process in established firms.

The Phases, Activities and Outcomes of the SBMI Process

There is a lack of knowledge on what phases an organization undergoes when adding a new SBM and what are the key activities of these phases (Geissdoerfer et al., 2018). Based on our findings we propose that for firms diversifying into SBM, the SBMI process generally will consist of four phases: 1) identifying an unmet sustainability-oriented need that the established firm has some resources or capabilities to meet; 2) a search for a business model solution to meet this need in a sustainability-oriented manner, 3) operationalization and in-depth problem understanding of the sustainability-oriented implications and 4) commercialization and sustainable growth.

Based on our findings, we suggest that the first part of the SBMI process for firms diversifying into SBMI is characterized by a combination of identifying new sustainability-oriented opportunities and identifying what (if any) of the existing resources and capabilities can be built on in pursuing this new opportunity. Key activities in the first phase of *sustainability-oriented opportunity-identification* include scanning through material on new sustainability trends and on what other actors are doing in other industries, and to reflect and ideate on unmet needs and on how existing resources and capabilities can be used in different ways to create sustainable outputs. Based on our findings, we suggest that these activities preferably include both individual work and reflection as well as group discussions with participants with diverse background and perspectives. A wide set of stakeholders could be involved in such discussions (Bocken et al., 2014; Roome & Louche, 2015; Geissdoerfer et al., 2016; Baldassarre et al., 2017). Tools that can be useful at this point of time are SBM analysis of other industries, case stories, (qualitative or quantitative) analyses of societal problems combined with traditional market potential analysis. The output can be a sustainable value proposition (Bocken et al., 2014; Geissdoerfer et al., 2016; Baldassarre et al., 2017) and initial thoughts of segmentation and market potential.

When the SBM components have been detailed, we propose that it is time to operationalize to establish the necessary activities to deliver the sustainable value proposition to the. For the third

phase of *operationalization and in-depth problem understanding*, key activities include marketing, sales, product development, partnership recruitment, partnership management and hiring. For an SBM it is important to ensure that all these activities are put into action in a sustainable manner. To ensure in-depth problem understanding, customer research and data can be utilized to improve and further develop the service. Managers need to decide which existing organizational resources and capabilities can contribute to the new SBM and in what manner.

For sustainability-oriented visions to truly pave the way for SBMI, our findings suggest that it is important that they are operationalized in a manner that allows them to guide decision-making throughout the SBMI process. Based on our findings, we propose that the SBMI process may be strengthened substantially if also the prioritization of the established firm reflects the objectives of the SBMI at an operational level, for example, in terms of developing common performance indicators or as a minimum ensuring that the SBMI objectives are reflected in the business reviews of the relevant parts of the established firm.

With an in-depth understanding of the customer problem as well as having built the necessary ecosystem to deliver on the value proposition, focus can move on to *commercialization and sustainable growth*. Part of testing that the SBM solution provides value for the customer could be whether they have a willingness to pay for the product or service delivered. However, monetization is an issue that might cause dilemmas in SBMI processes, as our research illustrates. This can be related to the timing of monetization, as there can be different opinions on when to introduce monetization in the SBMI process. Delaying monetization requirements might cause tensions with investment boards etc. Our findings suggest that for established firms, it is important to ensure that pressures towards monetization does not come too early and jeopardize the long-term value creation potential. However, there can also be pressures related to whether the SBM could and should be profitable. Some of the stakeholders (such as the government, pro-bono partners or

the customers themselves) could have expectations that this type of service should be provided for free. Our case illustrates a need to invest time and resources in explaining the perspective of an established firm on how to contribute in a sustainable manner to external stakeholders.

Microfoundations Underpinning the SBMI processes

Adding a SBM to an established firm represents a multi-level and systemic change affecting both the cognition and behavior that characterizes key individuals contributing to the SBMI, the processes and interactions that drive the SBMI, and the structures that are created to support activities and events. Hence, succeeding with SMBI requires a thorough change from existing ways of doing things. However, prior research has not yet fully empirically addressed the microfoundational issues related to the SBMI process. Our findings, based on a processual view, relates microfoundations at the individual, interactional, and structural levels to key activities in the SBMI process, hence opening the “black box” of SBMI.

Individual level

Existing theory postulates that the initial hypothesis of the value proposition is conceived by the entrepreneurial agent (Cavalcante et al., 2011) who has to engage in intrapreneurial bricolage to overcome organizational constraints and to mobilize internal and external resources (Halme et al., 2012) Our findings bring nuances to this in the case of established firms, as they suggest that SBMI can arise in the mind of *a few* central managers, where different initiatives and actions by individual managers in different parts of the organization can work together to create the needed individual-level microfoundations that identifies the SBM opportunity. Our research suggests that these individual initiators and frontrunners are likely to be characterized by a pro-social orientation (which further supports the importance of intrinsic motivation (Strauss et al., 2017)) and a willingness to “push” status quo.

The cognitive frames of individual managers allow them to filter, categorize and make sense of new information. External experience is likely to lead to more complex mental models (Aspara et al., 2021), and we advance earlier theory by illustrating that this is especially important in the early phases of SBMI. Thus, individuals with diverse and external experience should be included in the phases of opportunity identification and solution search. Our research also extends existing literature by illustrating that for established firms, navigation capabilities, that is, the social capital (Helfat & Martin, 2015) necessary to establish the needed internal and external relationships as well as the abilities to navigate the politics of the existing organization, are important individual-level microfoundations. We find that in the initial phases of the SBMI, of *sustainability-oriented opportunity identification and search for SBM solutions*, social capital is especially salient for establishing important relations and selling ideas to central stakeholders. A key challenge from our findings is for managers to be able to prioritize problem-identification activities despite the uncertainty of rewards and to convince top management to do the same. This suggests that top management endorsement of sustainability-oriented goals is necessary to legitimize long-term sustainability orientation.

Interactions and processes

Existing research suggest that a team with different mental frames can be complementary in finding new and complexity-embracing solutions (Hahn et al., 2014; Hahn et al., 2015) and that including external partners can bring in new expertise that can help in defining the components of the new SBM (Bocken et al., 2014; Geissdoerfer et al., 2016; Baldassarre et al., 2017). However, our findings suggest that managers may benefit from including external actors (e.g. experts and external stakeholders) from the very beginning of the process of identifying opportunities and searching for potential solutions, *before* the business model components have been defined. For established firms involved in SBMI, the process may require new capabilities that differ from their

existing capabilities. Our findings illustrate that this is important already in the first two phases of *identifying sustainability-oriented opportunities* and *searching for SBM solutions*. Throughout these phases it can also be important to start to build the infrastructure and ecosystem necessary to support the SBM, and to build trust and legitimacy with governments and cross-sector partners. For the later phases of *operationalization and n-depth understanding* and *commercialization and sustainable growth*, a lot of efforts will go into shaping and maintaining a sustainable ecosystem, especially when partners are an important part of creating and delivering the product or service to the customers.

Furthermore, SBMI is often portrayed as a process characterized by experimentation (Evans et al, 2017; Baden-Fuller & Morgan, 2010; McGrath, 2010). Through our processual lenses, we are able to identify how the “experimental” process varies between the different phases, with a more hypotheses-driven and cognitive demanding process at first, changing to a more data- and design-driven (experimental) process as soon as the product is launched. For the two later phases, our findings suggest that processes are characterized by design-driven iterative testing and research towards consumers to get a deep understanding of the customer needs and of how the solution could be improved in a sustainable manner.

Structure

As BMI processes are characterized by uncertainty (Cavalcante, 2011), broad guidelines can contribute some degree of certainty (Eisenhardt & Martin, 2000). In terms of structuring SBMI work, our findings confirm a need for broad guidelines on priorities in the different stages. Our findings further confirm the complexities in combining multiple goals in SBMI, and the importance of ensuring that both the new and the established business are working towards the same objectives. In addition to its roles as sponsor and boundary-spanner (see Foss & Stieglitz, 2015), our findings

suggest, that in the case of diversifying into SBMs, top management must ask questions to ensure a holistic perspective and that the appropriate governance functions are in place.

Developing SBMI in Established Firms

Developing SBMI is in many ways an uncertain endeavor, where managers take themselves into new territory, lacking the certainty and comfort provided by routines and established “ways of doing things”, while at the same time requiring substantial resources (financial and otherwise) (Evans et al, 2017). While prior research has highlighted the many challenges that are associated with SBMI, such as a heightened complexity (Hahn et al. , 2015; Strauss et al., 2017) as managers attempt to align environmental and/or social objectives with financial goals (Weissbrod & Bocken, 2017; Arevalo et al., 2011; Aragón-Correa & Sharma, 2003) and navigate multiple stakeholder interests (Saebi et al., 2019), it has not been clear how managers can actually do these things.

Our study highlights three keys to success when it comes adding an SBM to an established firm: 1) managers need to be able to prioritize sustainability-oriented problem-identification activities despite the uncertainty of rewards and to convince top management to do the same, 2) the processes and structures in the established firm need to clearly support the SBMI and 3) commercial interest needs to be balanced with long-term value creation.

Top management endorsement of sustainability-oriented goals is necessary to legitimize long-term sustainability orientation, as our findings illustrate. At an overall level, we propose that the firm can enable SBMI through building capabilities for SBMI and through making clear how contributing to sustainability is a way of contributing to the overall goals of the firm. In this way top management can stimulate the search for sustainability-related opportunities. To further attract and pave way for individual initiators and frontrunner, the established firms can ensure that sustainability is reflected in the firm’s public vision and values, give attention to and cheer

sustainability initiatives, and ensure that there is enough “slack” to give room for managerial discretion and firm heterogeneity (Felin et al., 212).

However, as our study also illustrates, adding a SBMI to an established firm can be a complex endeavor. A key question is how to best utilize the existing resources of the firm in a manner that support the new BMI, without constraining the new venture with existing structures and procedures. At the individual level, we propose that this requires the ability to navigate the existing organization for ideas and other resources that can support the SBMI process. At the processual level, we propose that this requires recombination capabilities, that is, the ability to realize new business model opportunities for established firms based on identifying new potential ways of combining existing resources and skills. In addition to developing specific processes for the SBMI that are sufficiently agile and flexible, we propose that managers must identify which resources to utilize from the existing firm and ensure that the processes that intersect between the SBMI and the firm’s core business model are able to support both environments. At the structural level, this could mean that the goals of the SBMI should be reflected also in the key measures of the established firm for those positions where there are intersections. We further propose that top management has an important role in ensuring not only space and boundaries for the SBMI (see e.g. Foss & Stieglitz, 2015), but also effective intersections.

There are well-known challenges and constrains for established firms in succeeding with SBMI (e.g. Chesbrough, 2010; Hahn et al., 2015). Our findings add to this knowledge by illustrating sustainability-specific challenges around balancing commercial interest to focus on long-term value creation in the context of SBMI processes. However, we also add to existing research in identifying that there are also *advantages* for established firms in engaging in SBMI. Several of our interviewees highlighted that being able to initiate this SBMI had much to do with the existing firm; both its values, its history, the strength of its local market position and its funding

are seen as vital in allowing a long-term horizon and a postponement of short-term monetary requirement.

CONCLUSION

The purpose of this article was to examine how SBMI processes play out in practice with a particular emphasis on the micro aspects of such processes and develop a potentially general empirically framework that may be of use to managers who are embarking on such processes. We asked the research question of how managers and organizational processes and design mechanisms support the SBMI throughout its development phases in the context of established firms, specifically investigating how SBMI emerge as an aggregate result of the interplay of the three microfoundational components of (1) *individuals* with their different cognition, mental processes and emotions, their social capital and human capital; (2) the *processes* that shape *interactions* between individuals; and (3), the *structure and design* that enables or hinders individual and collective action within an organization (Felin, Foss, Heimeriks & Madsen, 2012). Based on a case study from an established firm we mapped a SBMI process as it unfolded over time and identified relevant microfoundations at multiple organizational levels throughout the process. A synthesis of our findings and a review of the extant literature was used to develop an emergent framework for the microfoundations of SBMI processes.

We detected a shift between the first two phases (identifying opportunities and searching for a SBM solution) and the latter two phases (establishing the infrastructure and testing and fine-tuning the new SBM) of the process. For the first two phases, individual managers characterized by pro-social motivation, capable of managing cognitive complexity and with the social capital to push “status quo” and navigate the existing organization were pivotal for driving the SBMI. Processes supported recombination capabilities, testing and adjusting, the building of new capabilities and partnership arrangements. The top management helped navigate the established organization and

create room for innovation through loose governance structures supported the SBMI process. In the next two phases of the SBMI process, speed and effectuation became more important. In these stages, the complex cognitive capabilities were supplemented with a stronger focus on effectuation and commercial and growth-minded cognitive frames. At the processual level, the focus was on continued iterative and data-driven testing to establish in-depth understanding of the problem and to prove the value of the service to the customer as well as appropriating some of this value. Structures were kept flexible and agile, and differed from the rest of the organization, making alignment an operational obstacle. Throughout the SBMI process, the organization's top management played an important role as sponsor and question-asker.

By highlighting the important role of managers at different organizational levels as well as key processes and structures throughout the SBMI process, our study can help improve managers' abilities to construct their own SBMI processes. Senior managers will find it inherently useful to reflect on how the phases of SBMI may play out in their organization and how they can best nurture the microfoundations needed for SBMI.

REFERENCES

- Aragón-Correa, J. A., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. *Academy of management review*, 28(1), 71-88.
- Arevalo, J. A., Castelló, I., de Colle, S., Lenssen, G., Neumann, K., & Zollo, M. (2011). Introduction to the special issue: integrating sustainability in business models. *Journal of Management Development*, 30(10), 941-954.
- Aspara, J., Lamberg, J. A., Laukia, A., & Tikkanen, H. (2011). Strategic management of business model transformation: lessons from Nokia. *Management Decision*, 49(4), 622-647.
- Baden-Fuller, C., & Mangematin, V. (2013). Business models: A challenging agenda. *Strategic Organization*, 11(4), 418-427.
- Baldassarre, B., Calabretta, G., Bocken, N. M. P., & Jaskiewicz, T. (2017). Bridging sustainable business model innovation and user-driven innovation: A process for sustainable value proposition design. *Journal of cleaner production*, 147, 175-186.
- Bansal, P. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal*, 26, 197-218.
- Barney, J., & Felin, T. (2013). What are microfoundations? *The Academy of Management Perspectives*, 27(2), 138-155.
- Barr, P. S., Stimpert, J. L., & Huff, A. S. (1992). Cognitive change, strategic action, and organizational renewal. *Strategic management journal*, 13(S1), 15-36.
- Berends, H., Smits, A., Reymen, I., & Podoyntsyna, K. (2016). Learning while (re) configuring: Business model innovation processes in established firms. *Strategic Organization*, 14(3), 181-219.

- Bocken, N. M., & Geradts, T. H. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, 53(4), 101950.
- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42-56.
- Breuer, H., & Lüdeke-Freund, F. (2014, June). Normative innovation for sustainable business models in value networks. In *The Proceedings of XXV ISPIM Conference-Innovation for Sustainable Economy and Society* (8-11).
- Casadesus-Masanell, R., & Zhu, F. (2013). Business model innovation and competitive imitation: The case of sponsor-based business models. *Strategic management journal*, 34(4), 464-482.
- Cavalcante, S., Kesting, P., & Ulhøi, J. (2011). Business model dynamics and innovation:(re) establishing the missing linkages. *Management decision*, 49(8), 1327-1342.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. sage.
- Chatterjee, S. (2013). Simple rules for designing business models. *California Management Review*, 55(2), 97-124.
- Chesbrough, H. (2010). Business Model Innovation: Opportunities and Barriers. *Long Range Planning*, 43(2–3), 354-363.
- Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization Science*, 17(4), 453-469.
- Cortimiglia, M. N., Ghezzi, A., & Frank, A. G. (2016). Business model innovation and strategy making nexus: evidence from a cross-industry mixed-methods study. *R&D Management*, 46(3), 414-432.

- Ciulli, F., Kolk, A., & Boe-Lillegraven, S. (2020). Circularity brokers: digital platform organizations and waste recovery in food supply chains. *Journal of Business Ethics*, 167(2), 299-331.
- Dewald, J., & Bowen, F. (2010). Storm clouds and silver linings: Responding to disruptive innovations through cognitive resilience. *Entrepreneurship Theory and Practice*, 34(1), 197-218.
- Doz, Y. L., & Kosonen, M. (2010). Embedding Strategic Agility: A Leadership Agenda for Accelerating Business Model Renewal. *Long Range Planning*, 43(2–3), 370-382.
- Dopfer, M., Fallahi, S., Kirchberger, M., & Gassmann, O. (2017). Adapt and strive: How ventures under resource constraints create value through business model adaptations. *Creativity and Innovation Management*, 26(3), 233-246.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 14(4), 532-550.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50(1), 25-32.
- Eisenhardt, K., Graebner, M., Sonenshein, S.. 2016. “Grand Challenges and Inductive Methods: Rigor without Rigor Mortis.” *Academy of Management Journal* 59:1113–23.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic management journal*, 1105-1121.
- Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., & Barlow, C. Y. (2017). Business model innovation for sustainability: Towards a unified perspective for creation of sustainable business models. *Business Strategy and the Environment*, 26(5), 597-608.

- Felin, T., & Foss, N. J. (2012). The (proper) microfoundations of routines and capabilities: a response to Winter, Pentland, Hodgson and Knudsen. *Journal of Institutional Economics*, 8(2), 271-288.
- Felin, T., Foss, N. J., Heimeriks, K. H., & Madsen, T. L. (2012). Microfoundations of routines and capabilities: Individuals, processes, and structure. *Journal of Management Studies*, 49(8), 1351-1374.
- Fjeldstad, Ø. D., & Snow, C. C. (2018). Business models and organization design. *Long Range Planning*, 51(1), 32–39. doi:10.1016/j.lrp.2017.07.008.
- Foss, N. J. (2011). Invited editorial: Why micro-foundations for resource-based theory are needed and what they may look like. *Journal of Management*, 37(5), 1413-1428.
- Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management*, 43(1), 200-227.
- Foss, N. J., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*, 51(1), 9-21.
- Foss, N. J., & Stieglitz, N. (2014). Business model innovation: the role of leadership.
- Furnari, S. (2015). A cognitive mapping approach to business models: Representing causal structures and mechanisms. In *Business models and modelling* (pp. 207-239): Emerald Group Publishing Limited.
- Gavetti, G., & Levinthal, D. (2000). Looking forward and looking backward: Cognitive and experiential search. *Administrative science quarterly*, 45(1), 113-137.
- Gavetti, G., & Rivkin, J. W. (2007). On the origin of strategy: Action and cognition over time. *Organization Science*, 18(3), 420-439.
- Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of cleaner production*, 198, 401-416.

- Gehman, J., Glaser, V. L., Eisenhardt, K. M., Gioia, D., Langley, A., & Corley, K. G. (2018). Finding Theory–Method Fit: A Comparison of Three Qualitative Approaches to Theory Building. *Journal of Management Inquiry*, 27(3), 284-300.
- George, A. L., & Bennett, A. (2005). *Case studies and theory development in the social sciences*: MIT Press.
- Gioia DA, Corley KG, Hamilton AL (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, 16(1):15-31.
- Girotra, K., & Netessine, S. (2013). OM forum—business model innovation for sustainability. *Manufacturing & Service Operations Management*, 15(4), 537-544.
- Greening, D. W., & Turban, D. B. (2000). Corporate social performance as a competitive advantage in attracting a quality workforce. *Business & society*, 39(3), 254-280.
- Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in corporate sustainability: Towards an integrative framework. *Journal of Business Ethics*, 127(2), 297-316.
- Hahn, T., Preuss, L., Pinkse, J., & Figge, F. (2014). Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review*, 39(4), 463-487.
- Halme, M., Lindeman, S., & Linna, P. (2012). Innovation for inclusive business: Intrapreneurial bricolage in multinational corporations. *Journal of Management Studies*, 49(4), 743-784.
- Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of management*, 41(5), 1281-1312.
- Helfat, C. E., & Peteraf, M. A. (2015). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal*, 36(6), 831-850.
- Helfat, C. E., & Peteraf, M. A. (2009). Understanding dynamic capabilities: progress along a developmental path.

- Homburg, C., Stierl, M., & Bornemann, T. (2013). Corporate social responsibility in business-to-business markets: How organizational customers account for supplier corporate social responsibility engagement. *Journal of Marketing*, 77(6), 54-72.
- Inigo, E. A., Albareda, L., & Ritala, P. (2017). Business model innovation for sustainability: Exploring evolutionary and radical approaches through dynamic capabilities. *Industry and Innovation*, (5), 515-542. International Institute for Sustainable Development (IISD, 1992).
- Ivory, S. B., & Brooks, S. B. (2018). Managing corporate sustainability with a paradoxical lens: Lessons from strategic agility. *Journal of Business Ethics*, 148(2), 347-361.
- Johnson-Laird, P. N. (1983). *Mental models: Towards a cognitive science of language, inference, and consciousness* (No. 6). Harvard University Press.
- Khan, O., Daddi, T., and Iraldo, F. (2019). Microfoundations of dynamic capabilities: Insights from circular economy business cases. *Business Strategy and the Environment* 29:1479–1493.
- Kim, SK, Min, S (2015) Business model innovation performance: When does adding a new business model benefit an incumbent? *Strategic Entrepreneurship Journal* 9(1): 34–57
- Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management review*, 24(4), 691-710.
- Lüdeke-Freund, F., Massa, L., Bocken, N., Brent, A., & Musango, J. (2016). Business models for shared value. *Network for Business Sustainability: South Africa*.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization science*, 2(1), 71-87.
- Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the hidden value of concepts: a cognitive approach to business model innovation. *Strategic Entrepreneurship Journal*, 9(1), 99-117.

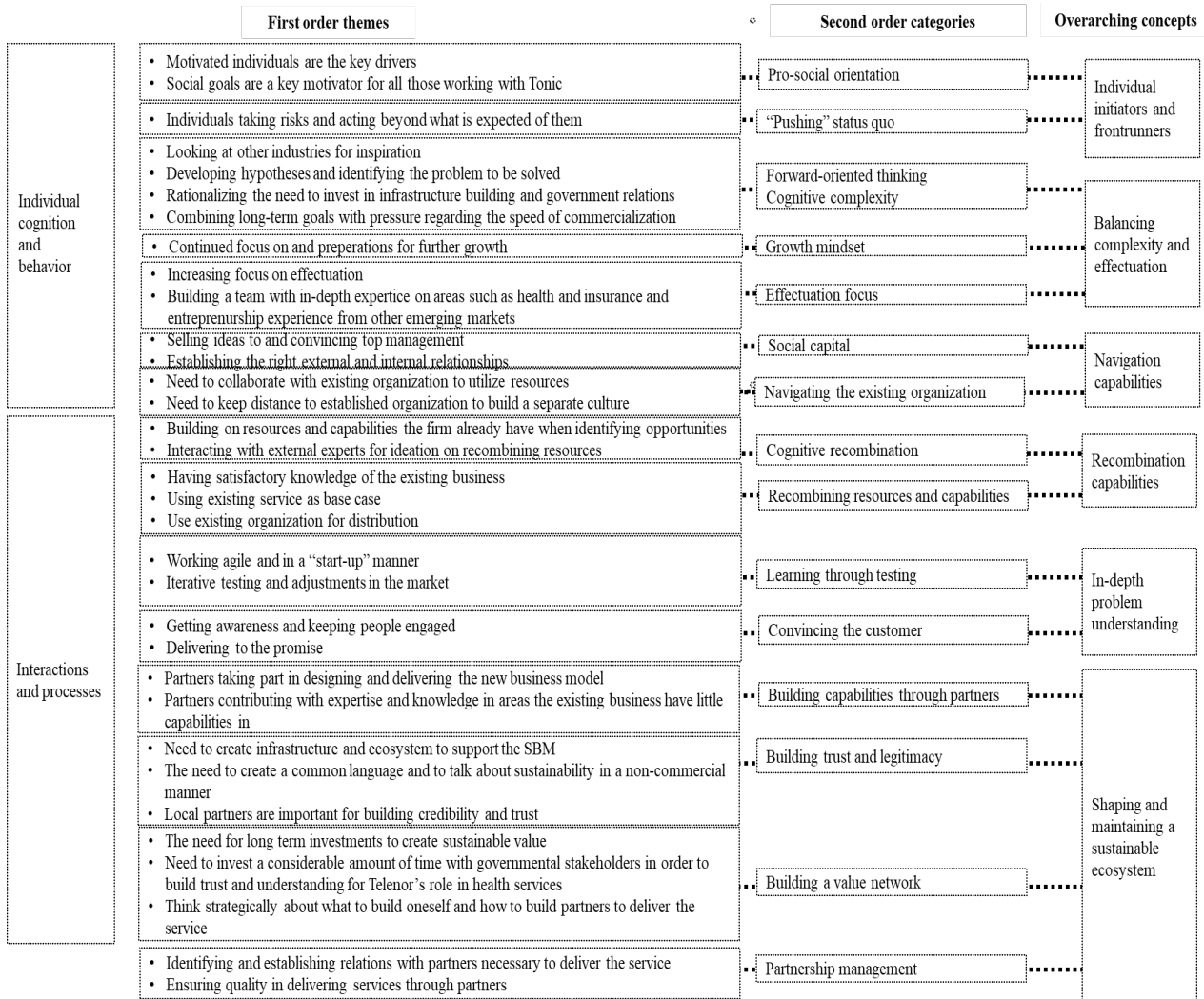
- Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals*, 11(1), 73-104.
- McGrath, R. G. (2010). Business Models: A Discovery Driven Approach. *Long Range Planning*, 43(2–3), 247-261.
- Miles, M. B., Huberman, A. M., Huberman, M. A., & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage.
- Montiel & Delgado-Ceballos (2014). *Organization & Environment*, 27 (2), 113-139.
- Morris, M, Schindehutte, M, Allen, J (2005) The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research* 58(6): 726–735.
- Noda, T., & Bower, J. L. (1996). Strategy making as iterated processes of resource allocation. *Strategic management journal*, 17(S1), 159-192.
- O'Reilly III, C. A., & Tushman, M. L. (2013). Organizational ambidexterity: Past, present, and future. *Academy of management Perspectives*, 27(4), 324-338.
- Ozcan, P., Han, S., Graebner, M. E., 2018. "Single Cases: The What, Why, and How." Pp. 92–112 in *The Routledge Companion to Qualitative Research in Organization Studies*, edited by Mir, Raza, Jain, Sanjay. New York: Routledge.
- Pettigrew, A. M. (1990). Longitudinal field research on change: Theory and practice. *Organization science*, 1(3), 267-292.
- Pratt, M. G., Kaplan, S., & Whittington, R. (2020). Editorial essay: The tumult over transparency: Decoupling transparency from replication in establishing trustworthy qualitative research. *Administrative Science Quarterly*, 65(1), 1-19.
- Rauter, R., Jonker, J., & Baumgartner, R. J. (2017). Going one's own way: drivers in developing business models for sustainability. *Journal of Cleaner Production*, 140, 144-154..

- Ritala, P., Huotari, P., Bocken, N., Albareda, L., Puumalainen, K., 2018. Sustainable business model adoption among S&P 500 firms: a longitudinal content analysis study. *J. Clean. Prod.* 170, 216e226.
- Roome, N., & Louche, C. (2016). Journeying toward business models for sustainability: A conceptual model found inside the black box of organisational transformation. *Organization & Environment*, 29(1), 11-35.
- Saebi, T., Foss, N. J., & Linder, S. (2019). Social entrepreneurship research: Past achievements and future promises. *Journal of Management*, 45(1), 70-95.
- Santa-Maria, T., Vermeulen, W. & Baumgartner, R. 2021. How do incumbent firms innovate their business models for the circular economy? Identifying micro-foundations of dynamic capabilities. *Business Strategy and the Environment*, 1-28.
- Saebi, T., Lien, L., & Foss, N. J. (2017). What drives business model adaptation? The impact of opportunities, threats and strategic orientation. *Long range planning*, 50(5), 567-581.
- Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G. (2012). Business cases for sustainability: the role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, 6(2), 95-119.
- Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. In: SAGE Publications Sage CA: Los Angeles, CA.
- Schneider, S., & Spieth, P. (2013). Business model innovation: Towards an integrated future research agenda. *International Journal of Innovation Management*, 17(01), 1340001.
- Seelos, C., & Mair, J. (2007). Profitable business models and market creation in the context of deep poverty: A strategic view. *Academy of management perspectives*, 21(4), 49-63.

- Sheehan, N. T., & Stabell, C. B. (2007). Discovering new business models for knowledge intensive organizations. *Strategy & Leadership*, 35(2), 22-29.
- Short, S. W., Rana, P., Bocken, N. M., & Evans, S. (2012, September). Embedding sustainability in business modelling through multi-stakeholder value innovation. In *IFIP International Conference on Advances in Production Management Systems* (pp. 175-183). Springer, Berlin, Heidelberg.
- Sinkovics, N.; Gunaratne, D.; Sinkovics, R.R.; Molina-Castillo, F.-J. (2021). Sustainable Business Model Innovation: An Umbrella Review. *Sustainability*, 13, 7266.
- Smith, W. K., & Tushman, M. L. (2005). Managing strategic contradictions: A top management model for managing innovation streams. *Organization science*, 16(5), 522-536.
- Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business model innovation through trial-and-error learning: The Naturhouse case. *Long range planning*, 43(2), 383-407.
- Spieth, P., Schneckenberg, D., & Ricart, J. E. (2014). Business model innovation—state of the art and future challenges for the field. *R&D Management*, 44(3), 237-247.
- Stabell, C. B., & Fjeldstad, Ø. D. (1998). Configuring value for competitive advantage: on chains, shops, and networks. *Strategic management journal*, 413-437.
- Strauss, K., Lepoutre, J., & Wood, G. (2017). Fifty shades of green: How microfoundations of sustainability dynamic capabilities vary across organizational contexts. *Journal of Organizational Behavior*, 38(9), 1338-1355.
- Stubbs, W., & Cocklin, C. (2008). Conceptualizing a “sustainability business model”. *Organization & Environment*, 21(2), 103-127.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43(2–3), 172–194.
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49.

- Weissbrod, I., & Bocken, N. M. (2017). Developing sustainable business experimentation capability—A case study. *Journal of Cleaner Production*, 142, 2663-2676.
- Welch, C., Piekkari, R., Plakoyiannaki, E., & Paavilainen-Mäntymäki, E. (2011). Theorising from case studies: Towards a pluralist future for international business research. *Journal of International Business Studies*, 42(5), 740-762.
- Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business models: Origin, development and future research perspectives. *Long range planning*, 49(1), 36-54.
- Yang, M., Vladimirova, D., & Evans, S. (2017). Creating and Capturing Value Through Sustainability: The Sustainable Value Analysis Tool A new tool helps companies discover opportunities to create and capture value through sustainability. *Research-Technology Management*, 60(3), 30-39.
- Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building social business models: Lessons from the Grameen experience. *Long range planning*, 43(2-3), 308-325.
- Zollo, M., Cennamo, C., & Neumann, K. (2013). Beyond what and why: Understanding organizational evolution towards sustainable enterprise models. *Organization & Environment*, 26(3), 241-259.
- Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization science*, 13(3), 339-351.
- Zott, C., Amit, R., & Massa, L. (2011). The business model: recent developments and future research. *Journal of management*, 37(4), 1019-1042.

Figure 1: Data Structure



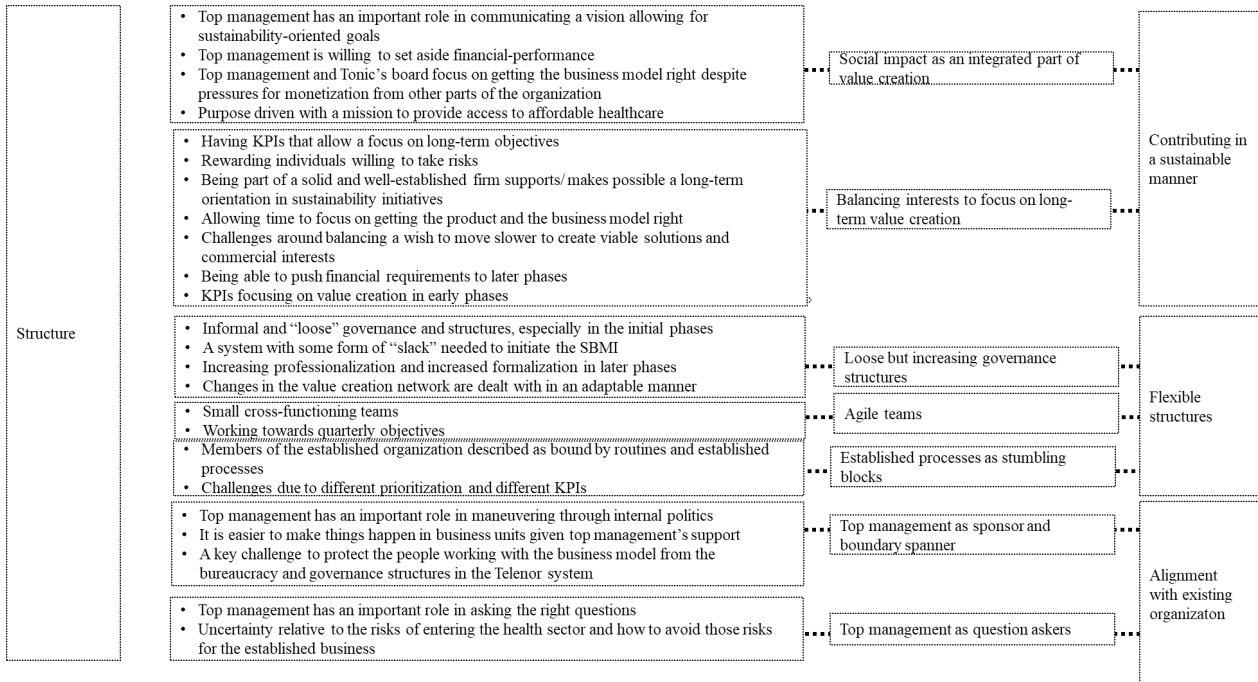


Figure 2: The Tonic trajectory

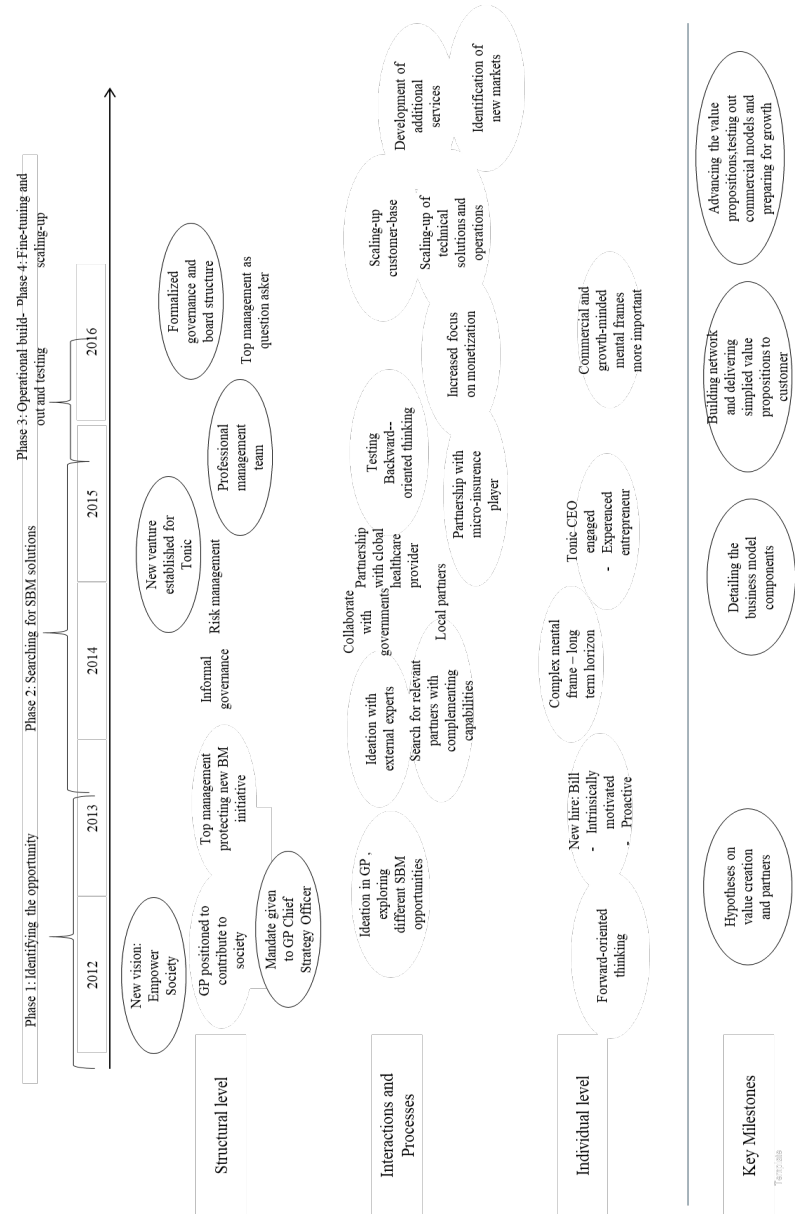


Figure 3: Microfoundations supporting SBMI in established firms

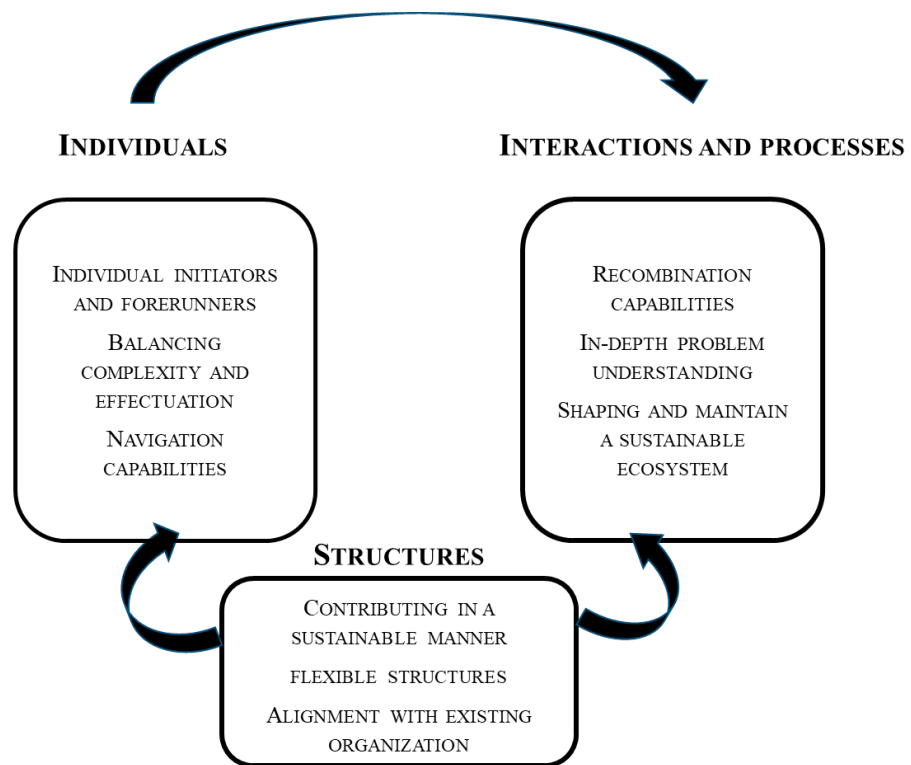


Table 1. Data sources

Data source	Type of data	Key interview questions	Use in analysis
42 Interviews	Interviews with employees at corporate level (including the top management team and CEO) working with strategy, corporate responsibility, human resources and legal services. This gave real-time data covering the current challenges and activities, and retrospective data on the long-term development of the company.	<p>What are the factors triggering change for the firm?</p> <p>How does corporate goals (such as the vision of “Empowering Societies”) effect the business model innovation process?</p> <p>What are the organizational capabilities needed to succeed with business model innovation in its different phases?</p> <p>Is there anything that characterizes managers that are successful in leading SBMI?</p>	<p>Understand the role of the TMT in the development of new business models.</p> <p>Understand the governance issues related to (S)BMI.</p> <p>Understand the prioritization of sustainability-oriented goals.</p> <p>Understand the corporate strategy and the role of sustainability in this.</p> <p>Understand how the complexity related to SBMI was experienced.</p>
	Interviews with employees working with developing new business models related to education services, financial services, gaming services and music services.	<p>For a business model you know well, how would you describe the business model innovation process? Who were the key participants?</p> <p>How would you describe the micro-foundations underlying business model innovation? (the distinct skills, processes, procedures, organizational structures, decision rules)</p>	<p>Understand the BMI process the firm used in the different business models, and the role of individuals in this development, as well as processes and structure that supported or hindered the BMI.</p>
	Interviews with employees working directly with the Tonic BMI	<p>Can you give a description of how you’ve been involved with m-health services in Bangladesh?</p> <p>What are the objectives for Telenor with the Tonic service?</p> <p>Can you describe the last key events in the development?</p> <p>Are there any key issues you are struggling with?</p> <p>Have you experienced any trade-offs at this stage of the development? If so, which?</p> <p>What have been the key phases of the development?</p> <p>What activities comes next?</p>	<p>Understand the key events of the Tonic BMI trajectory, as well as the related microfoundations.</p>

Archival data	Board documents, company representations, strategy documents, annual reports. Videos of internal and external meetings. Newspaper articles. Reports on the development of Tonic.		Provide information about the strategy of the firm, about how sustainability played a role, about the practice and challenges related to BMI in adjacent services.
---------------	--	--	--

Table 2.a. Phase 1 and related microfoundations

		Phase 1
Aggregated level	2 order codes	Selected quotes on 1st order codes
Individual	Pro-social orientation	<p>Motivated individuals are the key drivers in identifying the BM opportunity and searching for the BM solution</p> <p><i>“One of the reasons why this initiative has gotten so far is because of [Bill] being willing to spend time in Bangladesh, to understand the market and the conditions, to “put boots on the ground...”</i></p> <p><i>“In fact, I started working on this even before I got approval from my manager...”</i></p> <p>Social goals are a key motivator</p> <p><i>“I do believe that everyone here, that we are all motivated by the opportunity to contribute back to society</i></p> <p><i>“Actually, why I started in Telenor in the first place was with the ambition to build something within digital health services”</i></p> <p><i>” ...not that we are pure idealists, but we wanted to make a difference.”</i></p>

	Cognitive complexity	<p>Identifying opportunities</p> <p>““when you are looking at an area as broad as health, and you are looking at health in Bangladesh, there is a lot of customer needs. Where is the opportunity, where do you start? And particularly where do you start where there is actually a potential business model?”</p> <p>“there could be an argument saying that being a good company man in Telenor... that the orientation is not necessarily the same orientation that it takes to build up a new industry”</p>
	“Pushing” status quo	<p>Convincing internal stakeholders</p> <p>«I started working with this without having a mandate. Then, after I had worked on it for some time, I presented it to top management”</p> <p>“the people that have the entrepreneurial fire and will say, you know, that maybe if I take a risk here... I may not have a career with Telenor for 25 years, but I actually will take that risk to do something really special.”</p>
	Navigating the existing organization	<p>“You need people that have been Telenor people for 20 years. That is critical, they have the relationships to navigate. And those people need to see and recognize an opportunity when they meet them”</p> <p>“We were able to convince the key internal stakeholders”</p>
Interactions and processes	Cognitive recombination	<p>Building on identified resources and capabilities</p> <p>“And I outlined one slide with interesting capabilities Telenor had like partnerships, digital services, payments, insurance that were relevant to health given what I knew from experience working with the healthcare industry. He said those were interesting but that actually, it was when starting to put it together we potentially had a unique asset...”</p> <p>Co-creating with partners</p> <p>“We had a first workshop with the [partners to be] in Dhaka, and then this started to become a project, with a little bit of a mandate from Group Executive Management”</p> <p>Inspiration from other industries</p> <p>“The thought is that it is a nugget there around getting people access to various health care when they really need it, and making that affordable. [our partner] had been deploying very basics what they call “hosp[hospita] for cash services”.”</p>
Structures	Focus on long term value creation	<p>“My KPIS are not around what is our margin in the first quarter, my KPIs are around creating things that are engaging for our customers.”</p>

Table 2 b. Phase 2 and related microfoundations

Phase 2		
Aggregated level	2 order codes	Selected quotes on 1rst order codes

Individual	Cognitive complexity	<p>Cognitive thinking</p> <p><i>"I've done a bit of like laying the kind of business model canvas and tried to I suppose inject as much as possible of that into the way that we approached the problem and thought about it [the problem]."</i></p> <p><i>"On the product side, we do a lot of hypotheses generation. And try to validate those hypotheses. And I think we are learning a lot about the economics of low-cost mobile kind of healthcare in an emerging market."</i></p>
Interactions and processes	Recombining capabilities	<p><i>"...having the ability to, and knowing enough about the telco industry to be able to say "this is how it creates value to you"</i></p> <p><i>"from my perspective we were trying to figure out where to start. We were looking at basically what Grameenphone were offering today. We were not starting from scratch; they had a health tech service delivering basic SMS messages to people on health topics."</i></p> <p><i>"we use the Grammenphone go-to -market infrastructure to drive distribution and reach"</i></p>
	Learning through testing	<p><i>"The business model generation in order to win over the stakeholders were done before. But then going forward as we thought about different things to apply, a mix of lean start-up thinking and design thinking is what I try to do as much as possible"</i></p> <p><i>"We used the existing service infrastructure to test the different components, measuring the results"</i></p> <p><i>"We took over this health advice line, so that was one of the first things that we did and that was an opportunity to kind of look at how do you build a virtual care kind of a telehealth service? "</i></p> <p><i>"In Bangladesh [succeeding] is a lot about distribution and patience[...] you don't have to have a perfect user experience."</i></p>
	Building capabilities through partners	<p><i>"Telenor knows a lot about consumers in emerging markets. in general, we know a lot about technology, at least about telecom, and starting to know about digital technology, but we don't know a lot about health. The view is that if we wanted to be a credible player in a high-quality way consistent with Telenors brand positioning and values we needed to find people who knew what they were doing."</i></p> <p><i>"We formed partnerships with WHO, [international microinsurance player] and other global health companies in order to build expertise"</i></p> <p><i>"Partners play a role in providing credibility and bring expertise both globally and locally"</i></p>
	Building trust and legitimacy	<p>Need to create infrastructure and ecosystem to support the SBM</p> <p><i>"It builds credibility to have local partners (local health providers on the non-profit side). Both from a regulatory perspective and from a distribution and consumer markets perspective: the credibility you get from the ability to say that "we are working with the diabetes foundation etc". This is important as we are entering health from the telecommunication side, to build credibility.</i></p> <p><i>"Of course, it is time consuming. So, when I talk to colleagues and explain the amount of time I've spent on meeting with people from the government an where we need to invest in different types of partnerships... often it is hard, because people say: why do you spend so</i></p>

		<p><i>much worrying about stakeholders? Because in our typical business that is not important</i></p> <p><i>"I can give you an example. We're working with public health people to map out the existing health facilities. Because no one knows where these things [hospitals] are. So that's where you can argue that that seems a bit remote from delivering telemedicine consultation.</i></p> <p><i>Creating a common language</i></p> <p><i>"There are different views on this, but I think many of those working in these spaces trying to make a difference have been burnt by the NGOs a lot. NGOs that have a grant work during the grant and then when it is gone, or a funder run out of resources or get bored they stop. No thoughts on what happens next. So, the conversation around sustainability and saying: we're not doing a year project as maybe these folks are used to doing when interacting with donors. We want to create a business model that is around in 20 years.... To do that we need to make a model where this is self-sustaining"</i></p>
Structures	Loose but increasing governance structures	<p><i>"If you are going to be scared to death... You need to have some form of «slack" in the system to be able to go through with something like this "</i></p> <p><i>"we reported to CEO of GP and back to headquarters, but not in a very structural manner"</i></p> <p><i>"it was very individual driven. There was really not much governance in place"</i></p>
	Established processes as stumbling blocks	<p><i>We were aware we needed to go through a saucy process to get somethings done but we knew everyone was basically bound by the rules because effectively we were a project. And that was a big... stumbling block. It wasn't a major impediment because we managed to get around it. But it made things a little bit more difficult.</i></p>

Table 2 c. Phase 3 and related microfoundations

		Phase 3
	2 order codes	Selected quotes on 1rst order codes
Individual	Effectuation capabilities	<p>Increased "Business orientation"</p> <p><i>"[there was] an increased focus on effectuation"</i></p> <p><i>"We were also at this stage trying to get the right teams in place to be able to execute on what you need to do"</i></p> <p><i>"I suppose that what we have done well is that we have brought together a good team of people that have complimentary skills. That was a good basis for really understanding the problem"</i></p>

Interactions and processes	Learning through testing	<p><i>“At this stage, the whole thing became much more coherent”</i></p> <p><i>“I think once you have something in the market, things change kind of quite dramatically. And so that’s been a great learning experience, I think. Things tend to in some ways become clearer, in other ways maybe less clear.”</i></p> <p><i>The goal of this phase was to kind of, learn through the reaction of the market. Trying to understand whether we were meeting, kind of, the need that we had believed that we had set out to.</i></p> <p><i>“Try to understand how to improve the existing proposition enough... To do research at the same time without... How would we then fill out these basic pieces into something that could be part of a subscription offer that people would pay for?”</i></p> <p><i>“We identified for example, that appointment booking, the ability to help people book appointments, was an important feature that would add value to the proposition”</i></p>
	Building a value network	<p><i>“Understanding that okay, we’re not going to build every component of the solution. How would we partner with... Is there a local partner that we can work with in order to do that?”</i></p> <p><i>“Starting to think strategically about what we are building versus what are we, kind of, partnering in order to deliver the valuable service we believe people will pay for”</i></p>
Structures	Loose but increasing governance structures	<p>Professionalization</p> <p><i>“A professional management team was put in place”.</i></p> <p><i>“A separate board was established”</i></p>
	Established processes as stumbling blocks	<p>Need for separation</p> <p><i>“Do you see the difference between the company philosophy with us? The moment we ask our facilities department to move our colleagues from position x to Y they say: “Come on, that is not a Grammenphone premise so we cannot work in a place which is not a Grameenphone premise”.</i></p> <p><i>“These guys, Because they are so process oriented... He just won’t do this because his job doesn’t allow him to”</i></p>

Table 2 d. Phase 4 and related microfoundations

		Phase 4
	2 order codes	Selected quotes on 1rst order codes
Individual	Growth mindset	<i>“The next market should be in emerging markets clearly, one where there are big challenges regarding access to doctors and health</i>

		<p>insurance and stuff like that. Those clearly have to be the criteria. But it could be any market. Globally there are three billion in need; could be any of the three”</p> <p>“Everything that we are writing in wiki is a combination of all our learning. In Bangladesh everything has been built from scratch, we have made mistakes and learned from it. The same can be done in most of the [emerging] markets”</p> <p>“Hospital networks have to be created in each market. Insurance partners etc. Other than that: most of the dependencies are centralized. We should not have to change too much in each new market.60-70% could be used again”</p>
Interactions and processes	In-depth problem-understanding	<p>“I mean, when we think about it, launching the paid-for-product is about really understanding the business model, right? So can we get the product... what we would call product-fit? Does the product work in a way that we derive value from it?</p> <p>“Do we understand the needs well enough? Can we respond to those in a meaningful way and build something that is a great experience for people, and they will then be willing to pay for it ongoing”</p> <p>“We just launched a product a few months ago. What they like and what they don't like? What's causing that? Are there issues with the product? And are there issues with the customer? Do we have the right customer? Are there operational issues? Kind of nailing down the product fit. That's a lot of what we're doing for the moment”</p> <p>“we talk about being design-led and data driven”</p> <p>“We do a lot of user research, so we have a small team that helps us. We do customer surveys. We do regular what is called NPS, Net Promoter Score”. We kind of gather data from lots of different places, as well as both qualitative and quantitative data”</p> <p>Agile product development</p> <p>“We look a lot at the quantitative data around product usage and things. And now that we're selling products, we also do a lot of direct calls where we speak to people who are about to drop off. So if they haven't renewed, don't have an auto-renewal package or something like this, we try to understand why that might be. That is the first layer of trying to understand what the problems are, right? Then we do some more in.depth qualitative research; one-to one interviews with certain people, to try to understand why do they choose Tonic. What problems does it solve for them? How could it solve other problems? How else would it solve the problems? So kind of the classic types of questions to try to tap that just taking the hearing that there is a solution that we can try to take to the market to address that. So we try to work in what we call an agile manner”</p>
	Convincing the customer	<p>Getting customers awareness and keeping them engaged</p> <p>“So there's a challenge to convince people. Even if people love the product and ... keeping people kind of engaged enough to support it and to want to continue to pay”</p>

		<p><i>“The major challenge with regards to Tonic is the eye witness, because people do not know about this product. People simply do not know about this product”</i></p> <p><i>“Traditionally we have in the country very little penetration of the insurance industry. I son’t know why. But insurance as an industry never flourished in Bangladesh. So that means there is a trust factor in the market. You have to sort of... there’s entry barriers for all of our products”</i></p> <p><i>Delivering to the promise</i></p> <p><i>“For insurance verification is a very very important step. Because someone is claiming an amount you have to verify. And then you have your insurance partner and multiple partners working in the value chain. And creating a robust verification process is difficult when customer expectations is to make it as easy and as simple as possible</i></p>
	Partnership management	<p><i>“One of the features we have in both Tonic Free and Tonic Premium products is basically based on partnership and that partnership is with hospitals, with the clinics, with the investigation centres, pharmacies. For example, at this moment we have a collaboration of some form with around fifty hospitals across the country.”</i></p> <p><i>“As we move on there will be more and more partners who come in.[...] It is also a challenge because we have to have partners across Bangladesh. So far, we have been getting partners mostly around the big cities.”</i></p>
Structure	Established processes as stumbling blocks	<p><i>“Technically we are talking about two different networks handshaking and every now and then we see that there is some malfunction. Some system might come down. And then we have some thousands of people suffering. We are learning. Both of the technical teams are learning. In Grammenphone, it is a world class technical team we have. But they haven’t worked in such partnerships before. And telecommunication in Bangladesh is highly regulated. So there are issues for instance with where to host something. For example, Tonic had some stuff hosted in MSN cloud. And that’s okay for Tonic because they can do that, but as a telecommunication player that is a breach of regulatory guidelines.”</i></p> <p><i>“A challenge is having common KPIs. Every now and then we have to go to our colleagues across functions (legal, regulatory, commercial, distribution, retail sales, customer experience, plant management, marketing, communication, external communication). So we have to run through the entire organization for their support and sometimes we find out that we get deprioritised because they have already... they have bags full of KPIs that is related to the existing business. So alignments of KPIs ...”</i></p>
	Flexible structures	<p><i>“Agile is... it’s more like a product development or software development methodology that’s... what agile means is that you basically, we kind of start with a few... and kind of break down the problem, to break it down to the task which you think needs to be solved in order to move forward. You say: “okay, well, we’ve got this much time. These are the things that we’re going to work on now.”</i></p>

		<p><i>“We work in small teams, cross-functioning towards a particular goal, as opposed to the traditional way of working which might be that this department does this, and then they hand it over to the next</i></p> <p><i>“We’ve got different work strings set up on the products. We’ve got some specific strings on the channels of marketing side and the customer service side, and we kind of try to coordinate those together.</i></p> <p><i>“from a business perspective we set up kind of quarterly objectives that we are trying to achieve and then to try to ensure that most of the effort at the various streams are working on or people are working on is going towards achieving those kinds of quarterly goals or objectives. We try to use them as objectives and key results”.</i></p>
	Social impact as an integrated part of value creation	<p><i>“We don’t factor social impact into our --- we don’t measure it in terms of saying “okay. Well this didn’t go well and this .. but on the social impact we are doing well”. I suppose we believe we are purpose driven and we have a very kind of... our mission is to provide access to affordable healthcare. So if we’re able –so it flows into I think the way we think about the product and what we’re doing and the way that we deliver it and things like that. And we believe that by doing it this way we will achieve the social impact.”</i></p> <p><i>“We certainly want to get to a place where we can start to really evaluate the social impact , but we also track... some good metrics around utilisation of our services and whether people kind of come back.”</i></p>
	Balancing interests	<p><i>“Some of the bigger challenges can be around wanting to go slower because I believe that building something viable in healthcare takes time, and I think that that can be a challenge from a purely commercial standpoint”</i></p>
	Role of top manager	<p><i>“We have good support from the board-level that we don’t despite a lot of pressures at this stage, do anything [about pricing]”</i></p> <p><i>“It takes a lot of back-and-forth discussions. Then we will perhaps escalate to higher management and then eventually we get it resolved, but we have lost some time in the process”</i></p>

ARTICLE 2

FIRM GROWTH THROUGH DIGITAL BUSINESS MODEL REPLICATION: THE CASE OF TELENOR

Kristin Ringvold, Nicolai J. Foss and Frank Elter

*NHH – Norwegian School of Economics; CBS – Copenhagen Business School; Telenor
Research*

Abstract

A central challenge for managers in established firms is how to increase the value of an existing business model, for example, by replicating it across new locations and customer segments. While the replication-as-strategy literature focuses on replicating business models based on physical products, digital technologies has enabled the rapid build-up of new digital business models. We discuss the continued relevance of the replication-as-strategy literature in the context of digital business models and analyse the replication practices of two digital business models by means of an embedded case study. Our findings suggest that replication takes a different form for digital business models as compared to how replication is addressed in the replication-as-strategy literature. This is reflected in both the content of what is replicated and the form of knowledge sharing that is utilized. We also find that dynamic capabilities are both necessary for replication and part of what is replicated in the case of digital business models. Our findings uncover key aspects of a framework for replicating digital business models which contributes both to practice and relevant literatures, in particular the literature on BMI.

Keywords: business model replication, business model innovation, dynamic capabilities, digital business models, digital capabilities, knowledge transfer.

INTRODUCTION

Business model design has become a fundamental aspect of creating, delivering, and capturing firm-level value (Teece, 2010). The value created by a business model may increase as the business model is replicated across new locations and customer segments. It then becomes a central management challenge to identify ways of replicating the business model so as to maximize firm-level value creation over time and execute such replication.

Business model replication is the “re-creation of a successful model” (Szulanski & Jensen, 2008: 1738) across time and space. Such recreation often includes the further development or upgrading of components of the existing business model to create and capture more value (Jonsson & Foss, 2011; Volberda et al., 2018). Established firms often expand internationally by replicating their business models across borders, investing in physical infrastructure, hiring local employees, and striking alliances with local partners, all of which are costly and time-consuming processes (Winter & Szulanski, 2001; Jonsson & Foss, 2011). Thus, replication may be a distinct expansion strategy for a firm that is already a multinational enterprise (MNE) or seeks to become one. However, in the case of business models where customers are engaged digitally, the build-up of physical infrastructure and local employees and partners may seem to be a less essential part of the replication strategy. The key issue we address is how multi-domestic MNEs replicate digital business models, and to what extent we can understand this from the perspective of the traditional replication-as-strategy literature (e.g. Szulanski & Winter, 2001).

By a “business model,” we mean the architecture of the firm’s value-creation, value-delivery and value-appropriation mechanisms (Teece, 2010). We use the term “digital business model” to refer to business models where customers are engaged *via* a digital interface, such as websites and mobile devices (Weill & Woerner, 2013). Over the last couple of decades, digitalization has enabled a new type of firms (e.g. Google and Facebook) that are able to scale their business models from a global site in an instant, without local adaptation or local operations (Hennart, 2019). Telecommunication is a classic example of an industry that has been fundamentally disrupted by these new ventures (Elter et al., 2021). Interestingly, the telecommunications industry is at the same time both *enabling* digitalization by offering internet connectivity and simultaneously *facing radical disruption by* “born global” players such as Facebook (Messenger), Microsoft (Teams) and Google (Duo), that threaten to reduce multi-domestic telecommunication players to mere suppliers of connectivity to their business models. This has forced telecommunication players to replace voice and messaging with internet connectivity as their core revenue generating service (Elter et al., 2021). Consequently, telecommunication players have been under pressure to establish new income sources in addition to connectivity. This has led them to experiment with different ways of creating growth through digital business models (Capgemini Consulting, 2016).

The crux of the matter is that the business model logic--that is, the presumed cause-effect hypotheses underlying the value creation, delivery and capture of a business model (Teece, 2010)--is different for digital than for physical business models (Wirtz, 2019). The extant replication-as-

strategy literature primarily relates to the replication of physical products. Indeed, MNEs within the telecommunication sector have traditionally expanded their business country-by country (Elter & Ulset, 2017) by setting up new local physical operations based on existing routines that have been locally adapted, and perhaps reflected in subsequent replication efforts across different locations. However, the distinguishing characteristic of digitally enabled, born global firms is that they enjoy foreign sales almost from the outset (Hennart, 2014). This means that they have limited costs related to expanding to new countries and are able to do so rapidly. Their digital business models do only to a limited degree require (or allow) local adaptation. As more traditional MNEs, for example, in telecommunications, start competing with digital business models, what does their replication practice look like? What are examples of the digital business models they deploy and replicate and how do they do this? While there has been much attention given to digital business models in the research literature (e.g. Hennart, 2019; Wirtz, 2019; Ritter & Pedersen, 2020), there has been less attention to the replication of such models across time and space. Therefore, the extent to which the replication-as-strategy literature is helpful or not need to be revised for the case of digital business model replication is not well understood.

In this study, we provide an empirical investigation of digital business model replication. Given the lack of research on digital business model replication, we conduct an embedded case study (Eisenhardt, 1989; Yin, 2014) based on two cases in a single firm, Telenor. Telenor is one of the world's largest mobile telecommunications companies which has also expanded its business into digital business models. We focus on how Telenor replicates two digital business models that

are digital to different degrees (one completely relies on a digital customer interface in a platform-model, while the other model is supported by a physical customer interface). This allows us to investigate the link between the digital components and logic of the business model and the replication practice, and to proffer a basic framework for replication of digital business models. We identify some of the challenges related to crafting and implementing such models, including the dynamic capabilities this requires.

BACKGROUND: REPLICATING DIGITAL BUSINESS MODELS

Business Models and Dynamic Capabilities

While the notion of a business model is conceptually separate from business model replication, the literature often links them together. In fact, Markides (2013) even argues that business models must be replicable across markets and countries, and even between industries. Although this may be going too far, the notion of a “model” of course suggests a template that can be copied. The replication-as-strategy literature (Baden-Fuller & Winter, 2007; Nelson & Winter, 1982; Szulanski, 2000; Szulanski & Jensen, 2006; Winter, 2010; Winter & Szulanski, 2001) portrays replication as a strategy aimed at reaping scale advantages through the reproduction of the organization in multiple locations, all of which deliver a product or perform a service (Winter & Szulanski, 2001). Implicitly, this literature assumes the existence of a replicable business model, although it may not use the specific terminology. The emphasis in the literature is often on the rigid and highly exploitative replication of a “template” that can be copied to new markets by detailing and sharing a set of procedures and practices for how the business creates, delivers and captures

value. Format franchising (e.g. MacDonaldis) may be seen as a manifestation of this replication strategy (Watson, 1997; Winter & Szulanski, 2001). To better understand the potential for business model replication as well as the associated challenges, it is necessary to consider the notion of a business model in some detail.

Clear definitions of the business model construct are in short supply (Foss & Saebi, 2017). However, most are close to Teece's (2010: 172) definition of a business model as the "design or architecture of the value creation, delivery, and capture mechanisms" of a firm. Accordingly, the literature usually highlights the value proposition delivered to customers, the activities needed for such delivery, and the logic behind how these activities result in profits for the firm (Amit & Zott, 2001; Chesbrough & Rosenbloom, 2002; Teece, 2010; Zott & Amit, 2010). These components are related to sets of structured and interdependent operational relationships—the business model architecture—which are shaped by the choice of activities as well as the links among those activities and who performs them. They are articulated in procedures or contracts and embedded in routines (Doz & Kosonen, 2010). The architecture captures how the firm is embedded in multiple networks of suppliers, partners, and customers (Zott & Amit, 2010).

Business models may be subject to continuous modification because "once articulated, it is likely that the logic [of the business model] will have to be tested and retested, adjusted and turned as the evidence with respect to provisional assumptions becomes clarified" (Teece, 2010:188; see also Chesborough, 2010). Such continuous modifications may be small trivial changes, but they may also amount to what may be called "incremental business model innovation (BMI)". Here, BMI

is defined as “designed, novel, nontrivial changes to the key elements of a firm’s business model and/or the architecture linking these elements” (Foss & Saebi, 2017:2). Following Teece (2018), dynamic capabilities are required to create, refine and change business models. This type of capabilities reflects the firm’s ability to integrate, build, and reconfigure internal competence related to changes in the business environment. Dynamic capabilities are underpinned by organizational routines and managerial skills required to operationalize the business model, and vital in many ways to a firm’s ability to maintain profitability over the long term (Teece, 2018).

Teece (2018) describes the process of designing a business model using the dynamic capabilities of sensing, seizing and transforming. The process typically starts with managers sensing customers with an unmet need that are willing and able to pay for a product or service that fulfils this need (Teece & Linden, 2017). By a process of “generative sensing”, hypotheses about consumer demands are tested until potential solutions are validated (Dong et al., 2016; Teece & Linden, 2017). Through a firm’s seizing capabilities, revenue mechanisms are crafted, and the organization’s value chain or value network is designed so that it is clear which activities are to be internalized and which will be left to outside partners or suppliers. For implementing the business model, the firm’s transforming capabilities is needed to configure, or reconfigure, the necessary resources and capabilities to enact the new business model (Teece & Linden, 2017). Taken together, the firms dynamic capabilities help identify, develop, test, adjust and implement different hypotheses of how value can be created, delivered, and captured. These hypotheses together comprise the distinct business model logic. However, how dynamic capabilities is linked to the

process of replicating digital business models is not addressed. To enable an investigation of this we need to take a closer look at the concept of digital business models.

Digital Business Models

The rise of new digital technologies—such as cloud computing, big data analytics, artificial intelligence and collaboration platforms (Snow et al., 2017)—has led firms in many industries to introduce initiatives to explore and exploit their benefits (Fitzgerald et al., 2014). Changing customer demands as well as competition from born-digital pioneers (e.g. Amazon, Facebook and Google) put pressure on companies to engage in digital technology adoption (Sebastian et al., 2017; Westerman et al., 2011) and deploy such technologies as parts of international expansion strategies.

Two different ways of using digital technology in firms may be distinguished, namely, digital and digitized (Ross (2017), as discussed in Ritter and Pedersen, 2020). “Digitized” refers to the use of digital data to streamline existing processes through a standardized process where the end-state is known. “Digitalization,” on the other hand, refers to the creation of digital value propositions where the end-state is not known, which introduces more uncertainty as well as typically more radical innovation in the firm (Ritter and Pedersen, 2020). It is this latter form of using digital technology that is in focus in this research.

Several new challenges arise for firms when crafting and implementing digital business models (Ritter & Pedersen, 2020). Firstly, digital technologies can enable radical new value propositions, but such innovation requires a wide sensing process where sources across established industry borders are utilized (Teece, 2018; Ringvold et al., 2021a). Secondly, developing revenue

mechanisms for digital services is a key challenge. A new business model needs to be supported by a value capture strategy; however, this may not come across as self-evident for digital-based firms, including pioneering born-digital companies (Teece & Linden, 2017). Once the software-based solutions have been built, these companies often have very low marginal costs associated with providing a service (Shapiro & Varian, 1999; Snow et al., 2017). This may tempt them to give away a product early on, before deciding how best to leverage their success, risking failing to find a way to monetize their user base. A related challenge is the difficulty of differentiating in digital marketplaces where it is easy for potential customers to make detailed feature and price comparisons (Teece & Linden, 2017).

A fourth challenge is how to create the ecosystem and/or platform that can support the business model. While the firm's ecosystem consists of other firms or organizations that adds value to the focal firm's business model, a platform combines hardware and software to provide "standards, interfaces, and rules that allow providers of complements to add value and interact with each other and/or users" (Teece & Linden (2017:10). Companies that build their business model based on a platform that mediate information between actors in a network allows a company to act as the nexus in an ecosystem of partners, which can be a distinct source of advantage (e.g. Kirkpatrick, 2011).

The challenges described above reflect that digital business models may require distinct business model components as well as distinct business model logics (i.e. different hypotheses of how value can be created, delivered, and captured) relative to business models involving the

delivery of physical products or non-digital services. This may also mean that digital and non-digital business models differ in the dimensions of organization and management. Thus, whereas traditional firms adopt a hierarchy in which control and coordination are achieved through an authority-based reporting structure, the declining costs of communication and information processing have enabled a partial replacement of traditional hierarchies with new forms of coordination intended to provide higher flexibility and ability to change the firm quickly. Firms operating digital business models are likely to be such “agile organizations” (Alberts, 2007; Sherehiy, Karwowski & Langer, 2007). In agile organizations, individuals and teams are typically advanced users of technology, and they collaborate both within and outside the organization to make improvements and develop new solutions (Snow et al., 2017). They are typically good at “pivoting”, that is, quickly test, discard, and replace ideas and business models that does not work (Ries, 2011). For digital business models, such pivoting is relatively easy, as much software can be repurchased (Teece & Linden, 2017). However, agility and pivoting practices require a transition from established practices for most established firms.

The logic of digital business models is central to how the firm can best replicate the business model. For instance, the need for local production capabilities is usually not the same for digital and physical business models. Much of the value creation associated with digital business models arises from developing and distributing software or digitized content. Using digital technologies, immense amounts of information can easily be compressed, preserved, transmitted and instantaneously accessed anywhere in the world using a web browser or an application (as is approximately the case

for Facebook, Google Search and Amazon's Kindle eBooks). This stands in stark contrast to the business model offered by incumbent companies that use physical manufacturing equipment to produce fixed physical outputs or telecommunications networks physically located close to the customer to produce services. In such companies, replication involves physical production resources as well as human resources at the replication site.

Summing up, digital business models pose specific challenges as to the development of digital value propositions, the identification of opportunities for value appropriation and the ecosystem- and platform set-up. While much of the value creation associated with digital business models arise from developing and distributing digitized content, this value creation builds on an in-depth understanding of customer problems (Teece & Linden, 2017). Such in-depth problem understanding is likely to require deep immersion with local practices. How can firms build a replication strategy that strikes the right balance between business model exploration and exploitation in the case of digital business models? Before we address this question, we need to look more in depth at what is meant by a replication strategy, as well as different approaches to how this can be carried out.

Replication-as-Strategy – a valid strategy in dynamic environments?

The classical challenge (March, 1991) of striking a balance between exploration and exploitation is an issue that is directly addressed in the foundational paper on replication-as-strategy, namely Winter and Szulanski (2001). They build a two-phase model of temporal separation between exploration (in the space of possible business models) and exploitation. The

latter entails exact copying or replication of the business model that results from exploration across different geographical localities. A central replication capability located in company headquarters allows for large-scale, rapid leveraging of the business model. As this capability evolves, it reflects both the replicator's knowledge of the specific business model traits that should be reproduced at each site, the actions that should be taken to reproduce those traits and the environments in which those traits are expected to have satisfactory business value. Winter and Szulanski refers to this capability as the "Arrow core" (2001:731). The way in which the organization specifies replicable attributes of the business model as well as the procedures it develops for replication will, at best, approximate the Arrow core. However, Winter and Szulanski (2001: 736) further argue that given the costs of searching for and identifying *the* optimal replication strategy and format, it is usually best to freeze an imperfect template.³ In fact, they suggest that *any* revision is inefficient once a template has been selected. In other words, firms should only replicate using a fixed format that is not influenced by learning during the replication process.

However, others have approached the issue of business model replication in a more flexible, context-dependent manner (e.g. Jonsson & Foss, 2011). According to Baden-Fuller and Winter (2007), business model replication is essentially about leveraging knowledge of *ways of doing*

³ As Jonsson and Foss (2011) point out, Winter and Szulanski (2001) do not identify the exact trade-offs that determine the point at which explorative search should stop and the template should be "frozen" in order to allow for exploitative replication. Instead, Winter and Szulanski merely note that "at some point, business considerations will make leveraging a priority" (2001: 736). Such "considerations" suggest that exploitative "leveraging" must, at some point, take precedence, as the gathering, transmission and codification of new knowledge as well as the transformation of new knowledge into a revised format that can be fed back into the replication process are costly.

things. For traditional organizations, replication is about reusing organizational routines. Routines are essential in the subtle process of reproducing organizations' knowledge and technologies across locations (Argote, 2012) – especially in stable environments. Baden-Fuller and Winter (2007) discuss two approaches to replication – one involving the use of an extant working example or “template”, and the other relying on the use of causal principles. They also identify contingencies related to characteristics of the external context, the ease of monitoring and control, the uniqueness of the process, and motivational aspects affecting the relative performance of the two approaches.

In an international management context, there may be a need for local adaptation when replicating a business model from one location to the next. Dunford et al.'s (2010) study of ING Direct's early and rapid internationalisation and Jonsson and Foss's (2011) study of IKEA's international expansion suggest that it may be possible to combine fast replication of a business model with local learning that is fed back to the rest of the MNE's network. Dunford et al. (2010) suggest an approach of evolving, adapting and innovating the business model through experimentation, and they argue for the need to know more about inter-subsiary and head office–subsiary interaction in the context of early and rapid internationalization. Both papers support the argument that business model replication as copying exactly may not be enough when internationalizing.

MNEs are characterized by a value configuration that is decentralized and national self-sufficient. The different business units' sense and seize local opportunities, and knowledge is developed and retained within the business unit, but at the cost of efficacy and learning and

innovation across business units (Bartlett & Ghoshal, 1998). The international business literature has established that firm level knowledge creation appears very much embedded in localized innovation systems (Dosi et al., 1990; Rugman & Verbeke, 2001). MNEs may strengthen location advantages through reciprocal spillover effects from collaboration (and competition) with local networks (Dunning, 2000; Rugman & D'Cruz 2000), illustrating how a locally adapted replication approach might be provide new learning to the MNE. Thus, the practice of replication between multi-domestic business units would seem to bear with it the potential to increase learning and innovation (Teece, 2007). In this way, an adaptive replication approach might be beneficial in the case of building new capabilities for digital business models, providing new learning to the MNE. The question then remains, how can MNEs build a (locally adapted) replication approach for digital business models that allows growth in digital business models and provides new learning for the firm?

However, digitalization increases the dynamism of the environment (Fitzgerald et al., 2014), and Heij et al. (2014) suggest that replication in dynamic environments results in a lack of fit between the business model and the environment. Following this logic, replication of digital business models might result in a lack of fit between the digital business model and the environment. Instead of a replication strategy, Heji et al. (2014) argue for business model renewal (i.e. the introduction of a new business model that lies beyond the framework of the original model). Along the same lines, Cavallo et al. (2019) argue that internationalization leads to a need for adaptation and dynamic change that requires business model innovation rather than business

model replication, making the replication-as-strategy practice obsolete in international settings. This raises the additional question of whether replication-as-strategy is a valid strategy in dynamic environments.

Hence, more research is warranted – especially research into the dynamic context surrounding the development of digital business models. In this context, we argue that there is a need for more empirical-based knowledge on how replication of digital business models is supported and whether the replication-as-strategy perspective still contribute value in the case of digital business models. We investigate this gap in the literature in the following.

METHODOLOGY

Research Setting

The empirical setting for this research is the Norwegian-based multinational telecommunications operator, Telenor Group (henceforth “Telenor”), which had mobile operations in 13 country markets in Scandinavia, Central Eastern Europe and Southeast Asia at the time of our study (2015-2017). Telenor is one of the world’s largest mobile telecommunications companies with more than 200 million end-customers as of December 2015. The company’s revenue in 2014 was NOK 107bn, of which more than 89% was generated outside Norway and more than 50% was generated in Asia (Elter & Jacobides, 2016).⁴ Telenor is a multi-domestic MNE characterized by business units with a high degree of autonomy to respond to local market conditions (Elter et al.,

⁴ The company facts used in this description is in reference to the point of time when data on the cases were gathered.

2014; Gooderham et al., 2016). In addition to its mobile operations, Telenor has extensive broadband and TV distribution operations in the four Nordic countries and a research and business line for machine-to-machine technology. While Telenor's main operations are in the mobile retail business, the company was developing a diverse set of new digital business models (e.g. mobile financial services, mobile health services, mobile education services, online classifieds, music streaming, and gaming) at the time of our study.

The business model used by telecommunications operators such as Telefónica (Spain), Vodafone (UK) and Telenor (Norway) has traditionally revolved around the vertical integration of the voice and messaging businesses, with services offered over fixed lines or mobile networks (Elter, 2004; Elter & Jacobides, unpublished). Their basic expansion model has involved replicating the vertically integrated access and voice business in each country by purchasing network equipment from vendors and building effective physical distribution, a replication mode associated with substantial capital expenditure (Elter & Ulset, 2017). In line with the situation for other traditional telecommunications companies, country-based business units have been responsible for delivering locally adapted mobile telephony services and locally adapted business models. By building on physical networks, mobile operators offered voice, messaging and internet connectivity. As such, the mobile business has been a multi-local business.

Since the introduction of the Global System for Mobile Communications (GSM) standard in the early 1990s, the mobile telecommunications industry has had a stable business model. As mobile operators have built sufficient network coverage and capacity for most users, mobile

broadband has become a non-differentiated utility service similar to the supply of electricity. The deregulation of the telecommunications industry in the 1990s followed by the standardization of internet-access services resulted in fierce competition and downward pressure on prices, which implies that the currently high profits associated with mobile broadband are expected to decrease. Over the coming years, traditional voice and SMS services are expected to be outcompeted by free software-based communications applications, and telecommunications operators may be left offering only internet connectivity as a revenue generating service, which is expected to evolve into a low-margin business. Therefore, the mobile industry is at an inflection point. Driven by the fear of becoming a wholesale-based pure connectivity provider, operators are exploring opportunities to offer digital services with the aim of creating and capturing value beyond connectivity in order to remain relevant for end users (Dasí et al., 2017).

The transition from telephony to internet connectivity as a core service involves significant changes in the telecommunications industry's ecosystem of customers, operators, device and network vendors, and service suppliers. Internet-based services do not require the installation of specialized hardware in each country, as was the case with traditional mobile telephony and messaging. Software can be replicated at a marginal cost, and digital services operating on cloud-computing platforms can instantly be made available globally by piggy backing on internet connectivity. Moreover, generic voice and messaging services are global in nature. Internet-based companies have entered the communications industry with internet-based voice and messaging services (e.g. Facebook Messenger and WhatsApp). In order to compete with these internet-based

companies, telecommunications players arguably need to transform their business and build new capabilities to be able to capture value from services using the internet connectivity offered by the telecom operators. Within this setting, we investigate how Telenor uses its multi-domestic business to introduce new digital business models in one country market, and then replicates the digital business model and appurtenant capabilities to another country market.

Research Design

Given the lack of knowledge about how large MNEs replicate digital business models, we utilize a phenomenon-based (Schwarz & Stensaker, 2014) and explorative research design based on an embedded case study (Eisenhardt, 1989; Yin, 2014). The aim of our research is to understand the phenomenon of digital business model replication in a multi-domestic MNE. We examine the development of digital business models within an established firm and how replication is part of the BMI process. We further investigate the organizational and managerial underpinnings of digital business model replication in a multi-domestic MNE, including the mechanisms used for knowledge transfer as well as the role of managers.

Our research is based on information gathered through one in-depth embedded case study in which we compare two business models. A single-case research design is appropriate, as digital business model replication is a novel research area (Balogun & Johnson, 2004; Eisenhardt & Graebner: 2007). “Deviant” or “outlier” cases may be particularly useful for heuristic purposes (George & Bennett, 2005:75). Telenor can be seen as an “extreme case”, as its attempt to simultaneously develop a wide variety of new business models is, arguably, unusual. We study an

extreme case because such cases “often reveal more information because they activate more actors... and more basic mechanisms in the situation studied” (Flyvbjerg, 2006:13). The use of an embedded case design permits theoretical sampling in which we chose two business models within Telenor owing to the likelihood that they would offer theoretical insight into the phenomenon (e.g. Eisenhardt, 1989; Corbin & Strauss, 2008; Corley & Gioia, 2004; Miles & Huberman, 1994). For each of the two business models, we wanted to understand the process of business model replication (Langley, 1999; Langley, 2007; Langley et al., 2013). We investigated the process from idea development to replication was initiated and implemented, following a replication logic (Eisenhardt, 1989) where we examined a novel and emerging phenomenon across two different digital business models. Although our research design was exploratory, the investigation of two different digital business models adds to the robustness of our findings (Eisenhardt & Graebner, 2007).

Data Collection

Multiple data-collection methods were combined to allow for triangulation of the results (Eisenhardt, 1989). While interviews were the main source of information, we also utilized secondary sources, such as corporate and business unit’s strategy presentations, board memos, investor presentations, articles on the company and newspaper articles. In addition, we used our own field notes covering our thoughts and reflections after the interviews. See Table 1 for an overview of the data sources.

----- Insert Table 1 about here-----

The interviews were semi-structured to allow for detail, depth, and an insider's perspective (Leech, 2002). An interview guide including general questions (George & Bennett 2005: 86) was developed to generate comparable data. These general questions were combined with questions addressing the issues related to the specific business model in question. The general questions were based on specifications of various constructs in the literature (e.g. the business model construct) and on some initial inferences on the organizational implications of business model change in general. The constructs were viewed as potentially important and provided boundaries for our investigation of the organizational implications of business model change. The theme of business model replication emerged from the interviews.

The interview guide was divided into four main sections. First, all informants were asked to provide general information on business model development in Telenor and their role in that work. This provided insights into the variety of business models that were being created within Telenor and the exploration process. Second, the informants were asked to give detailed information on the business model(s) with which they were most familiar, including their core components and that model's development. This enabled us to describe and compare each of the business models. In addition, specific aspects of developing business model partnerships were addressed, as this emerged as a theme early in the interviews. Fourth, we asked questions related to the organizational implications of the new, digital business models for Telenor. When the theme of replication emerged from the data, questions regarding replication were added to the interview protocol. At the end of each interview, informants were given an opportunity to address other issues they felt were

relevant. Several changes were made in the interview guide based on the interviews (Eisenhardt, 1989) and to fit the competence areas of the different interviewees.

The interviews were part of a larger research project encompassing forty-two interviews with managers at different levels who were involved with business model innovation in Telenor. Informants were interviewed at least once between June 2015 and January 2018. The interviewees included former and present members of the top management team (11), managers in Telenor Digital (17), managers active in other corporate functions (e.g. legal, research and HR) and managers in local business units. Most interviews took place at Telenor's headquarters in Oslo, although some personnel stationed abroad were interviewed by phone. All interviews were recorded and transcribed verbatim. The interviews continued until saturation was reached. New informants were identified using the snowball data collection method (Atkinson & Flint, 2001) – where existing informants are asked to identify other informants. Some of the informants also provided us with additional information by email, while others were asked to check our case description for accuracy.

Data Analysis

As “it takes a complicated sensing device to register a complicated set of events” (Weick, 2007: 6), we approached the case with some initial ideas of relevant focus areas in order to organize the data collection and interpretation. Extant theory also served as a “dialogue partner” for the interpretation of the data. From the beginning, the business model construct informed the study, but when themes related to replication emerged from the data as essential, they also become central for

the data analysis. We attempted to build theory by analysing the data relevant for the concepts and linking it to theoretical conversations about those concepts in relevant fields.

All data (including interview transcripts, field notes and background documents) were uploaded into NVivo for coding and analysis. We then searched for patterns, insights or concepts in the data that seemed promising. First, we reviewed the field notes and interview transcripts, and noted surprising or reoccurring themes. Each author independently reviewed certain interview transcripts and noted insights that could contribute to fill theoretical gaps and meet managerial needs. Thereafter, the original research questions were revised to reflect the move from a general focus on the organizational implications of business model change to a more specific focus on business model replication. Narratives describing each of the business model replication approaches as well as the corporate (embedded) level story (Langley, 1999) were developed. The purpose was to develop thick descriptions given the research questions. In this process, secondary data on each business model's replication approach and relevant data on the approach to replication at the corporate level were also utilized. We conducted cross-case analyses to compare the patterns evident in each of the models. We then began to develop codes informed by our focus areas and our revised research questions.

We followed coding procedures suggested by Charmaz (2006) and Miles and Huberman (1994). Based on the interview transcripts, we inductively created a list of first-order codes (see Figure 1). We stayed very close to our respondents' language in this first step of the data analyses (Gioia et al., 2013). Then we abstracted the first order codes into distinct categories or themes

through a process of iterating between data and theory. The second-order theoretical categories were clustered into aggregate dimensions related to the challenges of creating digital business models as well as characteristics of a replication approach for digital business models. The theory and the data mutually informed each other in iterative cycles (Van Maanen et al., 2007). Our analyses led to the identification of emerging concepts, and to the development of an emerging theory or framework for replication of digital business models.

----- *Insert Figure 1 about here*-----

The use of NVivo supported the analysis in several ways. It brought rigor and traceability to the coding process. As such, it assisted in our sensemaking and theorizing from the data (Sinkovics & Alfoldi, 2012). Moreover, analytical memos were written directly in NVivo and could, therefore, be directly linked to relevant codes and data sources. In addition, NVivo facilitated the process of systematically searching and analysing large volumes of data, thereby mitigating the danger of “death by data asphyxiation” (Pettigrew, 1990:281).

FINDINGS

The case shows how Telenor builds replicable digital business models on top of its established telecommunication business. We focus on two cases in which the company developed new, replicable digital business models (i.e. entertainment and financial services). We investigate the process by which Telenor develops capabilities in value creation through digital business models, and how replication plays a role in this capability-development. Further on, we explore how the replication approach Telenor applies for the two investigated digital business models is built up and

analyse how this differs from the replication framework provided by the replication-as-strategy literature.

Telenor's Development of Digital Business Models

To respond to the changes in its sector, Telenor began to move from voice to data in all of its markets, and to make significant changes to its ecosystem of customers, operators, device and network vendors, and service suppliers. In a 2014 strategy document, Telenor set out its aim of remaining a growth company with retail operations. The bulk of revenue over the following three years was expected to come from communications and connectivity services. However, the company introduced a new goal: a significantly increase in its positions in adjacent markets. To establish a role in the new service ecosystem and realize its growth ambitions, Telenor focused on developing new digital business models in adjacent industries.

In 2010, Telenor established a corporate unit (“Digital”) to develop new digital services and business models in collaboration with its local business units, but without being constrained by established practices and routines. To overcome the hurdles of the existing organization, Telenor placed the responsibility for identification and design of new digital business models in this new organizational unit and separated it from the existing business. A senior manager in the unit explained the need for separation as follows:

We need to make sure that our governance, structure and setup fit the way we run product development and innovation [for digital business models]. We must make sure that we have KPIs [key performance indicators] to manage the organization in this way. Telenor has

always been financially driven. However, when developing digital business models, we must think more about strategic positions for the future.

The Digital unit relies on local business units for many of its projects and it must sell its ideas to the local CEOs. Therefore, new digital initiatives and the traditional telecommunications activities must find ways to function without negatively affecting each other. The development of such ambidextrous capabilities is necessary, although not necessarily easy. As a senior manager in Digital explained:

I feel that we are hampered by Telenor's current organization. We are running a lean start-up methodology in a big organization. When you have to manoeuvre in a big organization... [it] takes time to change and become more agile. Top management is crucial if we are to succeed with this way of working in the long term. It is one thing that the group level uses this [lean start-up] methodology, but we are dependent on getting every one of the country managers on board to bring it to the rest of the organization.

At the time of our study, Telenor's operating model was characterized by local country managers with considerable autonomy. Telenor's decision to replicate digital business models across its multi-domestic business units represents what might be seen as a path-dependent choice, as managers continue to build on the strengths of the former business model logic, which stressed such autonomy.

Digital Business Model Replication

To obtain detailed insight into the practice of digital business model replication we investigate two digital business models: Telenor Mobile Financial Services (MFS) and Telenor Mobile Entertainment Services (MES). Within MFS, we focus on Easypaisa, a joint venture between Telenor Pakistan and Tameer Microfinance Bank Limited (henceforth, “Tameer Bank”). Easypaisa was Telenor’s first large-scale effort in MFS. Within MES, we investigate the music streaming service Music Freedom, which was launched in Malaysia in 2015. While MFS is a digital financial services solution supported by a physical network of agents, MES is a platform-based solution for digital entertainment services. The two business models involve digital components to different degrees, with MES being the most digitalized. They also have different degrees of maturity – MFS is the more established and proven model, while MES is in a more exploratory phase. Table 2 illustrates the core aspects of each business model, while Boxes 1 and 2 highlight key aspects of each model.

----- Insert Table 2 about here -----

----- Insert Boxes 1 and 2 about here -----

The business model logic of both Easypaisa and Music Freedom differs from the logic behind Telenor’s traditional voice, messaging and internet connectivity services, and new capabilities are required to operate and succeed with these digital models. This includes both ordinary capabilities such as the administration and basic governance of these new digital business models, as well as dynamic capabilities, including the capabilities to sense, seize and transform new digital business models (Teece, 2018). We identified four specific challenges in developing digital

business models related to sensing and designing value-creation opportunities, establishing a position in the digital ecosystem, and identifying ways to monetize digital services. Below we describe how these challenges were experienced and dealt with.

Sensing opportunities for digital value creation

In order to sense opportunities for digital business models, an understanding of digital opportunities and customer needs is required (Teece, 2007). While Telenor's multi-domestic presence gives it some insight into local needs and practices, its employees do not necessarily possess the capabilities needed to develop digital services to meet those needs. A senior manager we interviewed expressed the divide between the "old telecom" and "new digital" as follows: "It is like talking to a wall". As discussed above, Telenor organized its digital services development in a separate unit, Digital, to systematically build competences in digital services by, for instance, hiring employees with digital experience and learning through digital partnerships. The Digital unit works together with local business units to develop digital services and it pitches ideas to local business units. If the local business units find those ideas interesting, then a project is initiated in which employees from the Digital unit work together with employees from the local units to develop new services and business models. One challenge for the Digital unit is to build a thorough understanding of the meaning of "digital" for those "outside the digital world", as explained by one informant.

Utilizing local resources to design digital business model

While acquiring digital capabilities is a challenge, Telenor has been able to utilize its local resources and know-how to design digital business models that take local needs and conditions into account. MFS is a case in point. The business model is built up in a similar manner in different countries. By utilizing its pre-existing country-by-country networks of retailers as bank branches, Telenor can provide basic, over-the-counter financial services to emerging-market customers. Lack of access to phones, a lack of trust of digital payments and unfamiliarity with digital services may keep certain customers from utilizing digital financial services. By allowing customers to access MFS through their local “mom and pop” shops that are typical retail outlets in the Asian business units, Telenor found a way around these obstacles by business model construction.

In addition, there may be a need to educate users about the potential of digital services. As expressed by one of our informants, “you cannot sell internet on the street corner”. For MFS, the distribution agents play a central role in establishing trust among customers, as explained by Telenor’s Head of Financial Services:

In the emerging markets and the very unbanked segments, it starts with distribution, where you educate customers through agents. First, you educate the agents on how to receive and disburse money. They then educate the customers – the customers do not normally encounter services like this, so they do not easily trust someone they do not know with their money.

Establish a position in the local ecosystem

Partnerships play a critical role in both focal business models. When entering adjacent digital industries, such as financial services and music services, new capabilities are required that might be accessed through partners. In addition, in the case of MFS, partnership is a result of governmental requirements. In the case of MES, the partnership opportunities are governed more by the underlying platform-based business model logic than by regulative authorities. In both cases, the new business models are developed and replicated in collaboration with partners (e.g. customer data is analysed together with digital partners). At the same time, partners might be collaborators in one setting but competitors in the next, as is the case with one of Telenor's partners for its MFS joint venture in India. This creates new risks for Telenor as well as a need for increased global coordination, as both the magnitude of partnerships and the extent of partners' involvement in core business model development has increased significantly while exploring digital services. Telenor Digital has established a Global Partnership unit. Moreover, a Global Partnership Forum has been introduced to encourage the sharing of practices regarding partnership strategies and agreements. Managers in Telenor indicated that there were varying views on the role of partners and partnership types in different parts of the organization as well as some disagreements about the meaning of a business model partnership.

Develop a monetization logic for digital business models

Digital business models represent different opportunities for value appropriation than those offered by physical business models. Hence, figuring out how (and when) to monetize the new models can be a challenge. Several of Telenor's new digital business models aim to support the

existing telecommunications business and, as such, do not necessarily need to be financially viable on their own. Music Freedom is one such example. The service is designed as a “freemium” service. While the service is open to everyone in Malaysia, a fixed-price data package on the data consumed by Music Freedom is only available to DiGi⁵ customers. As the consumers are highly price sensitive, offering fixed (and predictable) prices on internet connectivity is intended to help users overcome their fear of high data costs and familiarize them with internet-based services. The service is also seen as a possible way for DiGi to recruit customers. However, as Telenor moves toward relying more on income from digital business models, monetization will increase in importance.

Business Model Replication

Both business models were being replicated in other markets at the time of our research. The Easypaisa model was being replicated from Pakistan to Myanmar and India, which are seen by Telenor as national markets with similar customer needs.⁶ The Music Freedom model was being replicated from Malaysia to Thailand. Table 3 summarizes the replication approach used for each of the business models.

Two replication approaches

Telenor uses a flexible approach when replicating the core elements of digital business models across markets. The Easypaisa case involves a form of replication by a template –

⁵ DiGi is Telenor’s business unit in Malaysia.

⁶ In other markets, slightly different business models are being developed, and replication may be said to follow a “segmented” approach.

replication based on a detailed working example (Baden-Fuller and Winter, 2007). Even though most of the Easypaisa model can be replicated across markets, it is not a “frozen template”. The details of the processes are still sensitive to local differences and require local adaptation. Thus, the replication template serves not as a rigid model for exact replication, as portrayed by Winter and Szulanski (2001), but rather as a flexible, working example (Baden-Fuller and Winter, 2007). The Music Freedom case illustrates a replication approach based on working hypotheses of business model principles, that is, the underlying logic of the business model (Baden-Fuller and Winter, 2007). In this flexible and less detailed approach, successful replication requires an in-depth understanding of the business model logic as well as local market conditions.

Replication of the Easypaisa model is supported by a blueprint framework developed by Telenor experts. The blueprint details key aspects of the basic services to be provided to unbanked customers, the marketing approach and price setup, requirements for sales and distribution, partnership arrangements (given local regulations), IT requirements and digital solutions (with only minor modifications), back-office compliance functions, and project governance for the new venture. The blueprint encompasses the experience gained from the development of the initial business model. However, due to market differences (especially different regulatory conditions), it cannot function as a frozen template, but must be adapted to local conditions. The first attempt to use a blueprint to replicate the Easypaisa business model in Thailand failed because consumers’ needs were more mature in that market and customers’ needs did not match those of the “unbanked” segment that the business model (including its digital components) were based on.

Based on this experience, Telenor developed a segmented approach to the markets in which the Easypaisa model could work. Which (digital) services to include in the different markets are adapted based on the local needs. Fit with local market conditions, including regulations and customer needs, was identified as key for the success of the replication approach.

MES illustrates how replication can be conducted in an even more flexible manner that is based not on a working template but on working hypotheses about the underlying logic of the business model (Baden-Fuller and Winter, 2007). In fact, the core replicated in the Music Freedom case is related to the establishment of an ecosystem in which Telenor plays a platform-mediator role. Although the platform-based model seems to have the potential for instant scalability, our findings suggest that there is still a need for localization to secure the value proposition for customers as well as Telenor's position in the ecosystem. To capitalize on these ecosystem opportunities, Telenor needs to be able to attract the right actors and make assets available that will create a degree of dependency on Telenor and, thereby, secure its position in the ecosystem. To accomplish this goal, Telenor uses its local market knowledge. Moreover, it works on relationship management with music providers and record labels, and on content marketing with local artists. The partnership agreements are adapted locally as is the sharing of revenue between Telenor and its partners. The service offerings may also require local adaptations based on knowledge about local customer preferences and the vendor market. Although this does not necessarily require local adaptation of the digital components of the business model, it might do so, dependent on the customer and partner needs. However, in order to achieve high value creation through the

localisation of Easypaisa, speed is of the essence, as a Telenor Digital manager described:

We are not really in the digital world yet. We come from the telecommunications world, but we need to try to be much more forward leaning and we need to simplify. I have thought a lot about [how to simplify] and how to speed it up. That is basically what I think about all the time.

The Music Freedom business model was a result of trial-and-error testing of different entertainment models. A key insight gained by Telenor's business developers through these experiences is that exclusive partnership agreements might prevent growth and quality improvements. Thus, the two main principles for replicating the Music Freedom model are, first, a multi-partner approach with non-exclusive agreements to ensure incentives for continued improvements in service quality and, second, the use of local knowledge, marketing and relationship management to ensure Telenor's position in the ecosystem. However, one element that is essential for success cannot be replicated: having people in each business unit with an in-depth understanding of what the business is about. A Telenor Digital manager explained:

If not, it is not possible to operate because you need to be in touch with the local industry. If you do not have people who are really good at networking, you will never get the information, you will never get partnership opportunities... Therefore, at the operational level, you need people who are quite interested in this service. We need people on ground who actually know what is happening.

Local knowledge centre

Telenor's Digital unit function as the corporate centre that steers digital business model replication (Winter and Szulanski, 2001), and facilitates the transfer of personnel and knowledge among business units (Jonsson and Foss, 2011). While the Digital unit builds digital capabilities through partnerships and explorative ventures, the local business units provide much-needed local know-how. However, due to the importance of localization, personnel from the Digital unit also work from the local sites so that they can develop and share the necessary digital and local capabilities. Therefore, the Digital unit's replication capability relies on its investments in a local presence.

As both MFS and MES are replicated through a flexible, locally adopted approach, the managers who replicate the business model in new environments need to determine which aspects should be adapted to local context and how. For both models, tacit knowledge is a key part of the replication process. This means that the personnel managing the business model's replication must have a thorough understanding of the core business model logic and of specific local conditions. For the two business models, the transfer of personnel at the operational and group levels is a key knowledge-transfer mechanism. For instance, the manager who headed the work on Easypaisa later moved to the same position in Myanmar and then India. The same is true for many of the other key roles. One manager working on replication of the Easypaisa model in Telenor Digital told us:

That is the number one way to learn – by moving people around. To have people from another market come in, work with a local team and understand local market needs... I think

it is easier on OTT⁷ [over-the-top content] to say ‘this is how we roll out’ because you do that in a digital way. However, much of mobile financial services is about distribution and the distribution setup. It is also about needs. The best model is moving people around – both senior leaders and subject-matter experts.

For Music Freedom, the replicated business model is in an early phase of development.

Although the initial number of users is promising, the model is not yet established as a success.

Hence, hypotheses about cause-and-effect relationships are still not thoroughly proven and reside mostly in the heads of the business developers working on the business model’s design. For this reason, much of the developed knowledge is tacit. This makes sharing knowledge from the business developers who have hands-on experience imperative in the replication process. Knowledge transfer is primarily based on knowledge transfer between members of the Music Freedom team and representatives of other business units that are considering replicating the business model.

Telenor has also established more permanent arenas for knowledge transfer, such as global virtual teams and the regular use of conference calls between business units involved in the replication processes and key service-development teams. Relevant documents are also shared, as one manager stated:

⁷ In broadcasting, over-the-top content (OTT) refers to the delivery of audio, video, and other media over the internet without the involvement of a multi-system operator in the control or distribution of the content. See e.g. <https://martechtoday.com/marketing-landscape-ott-programming-matter-184073>.

We have shared all documents, such as background analyses, the background for our hypotheses, our conclusions, our strategy, the components of the APP [application], the partnership structure... everything.

A continuous link between innovation and replication

For a multi-domestic company like Telenor, which operates in 12 countries, variations in local regulations and needs are considered a competitive advantage, as global actors lack the resources needed to make local adaptations to business models. The replication of digital business models across markets requires a flexible approach that enables a close link between innovation and replication. The cases demonstrate that local innovation can be scaled to multiple markets through a flexible replication approach. Furthermore, core business model principles developed based on one digital service can be deployed for other services as well. This was the case for the platform-based Music Freedom business model, where the multi-partner approach developed for music services was later deployed for gaming.

MANAGING DIGITAL BUSINESS MODEL REPLICATION

Throughout its history of internationalization, Telenor, as a multi-domestic MNE, has specialized in growth through replication. The replication logic used for the traditional telecommunication business model has been extended into the domain of digital business models, and Telenor creates opportunities in new markets by combining new digital capabilities with local market knowledge gained through its existing services and capabilities. Our research illustrates that a strategy based on replicating business model features across markets and taking local circumstances into account can

make sense even in the case of digital business models. This is surprising when you consider the potential instant scalability digital technologies bear with them. But as our analysis shows, while the digital components of the business models are largely standardised between markets, there are significant other aspects of the business models that require local adaptation. Our analysis further indicates a need for a separate framework for digital business model replication, considering the specific characteristics and needs when replicating digital business models.

Generalizing from case-based research is fraught with well-known difficulties and must inherently be conjectural and speculative. Our attempts to derive insights into how multi-domestic MNEs can manage the replication of a digital business model is based on a search for “portable” concepts and principles (Gioia et al., 2013). Thus, we argue that some of the characteristics we have identified in the investigated business models--such as the inherent potential for quick change of the digital business model components, the need for local adaptation of the logic for value creation and value capture, and the need for dynamic and digital capabilities to develop and replicate digital business models--may be generalizable to other digital business models. Other research confirms this view (see e.g. Sebastian et al., 2017; Teece & Linden, 2017). A bit more specifically, our findings suggest that there may be an emerging framework for how digital business models can be replicated to new markets building on adaptation to local market needs, room for managerial discretion and iterative and dynamic processes.

In the following, we further discuss those aspects of our findings that we deem likely to be generalizable in the context of our research question (how are digital business models replicated,

and how are dynamic capabilities related to replication of digital business models?) and research aim of examining the continued relevance of the replication-as-strategy literature in the context of digital business models. We first discuss key elements of a framework for replicating digital business models and present a model summarizing our emerging framework. Then we discuss the relevance of replication-as-strategy for digital business models.

A Replication Approach for Digital Business Models

Combine digital capabilities and local knowledge

To some extent, the components and architecture of digital business models differ from business models built on traditional technologies, as our findings illustrate. For instance, value-creation components based on digital technologies can be changed in an instant. While the degree of traditional *versus* digital technology varies among the analysed business models (for instance, one completely relies on a digital customer interface while the other is supported by a physical customer interface), both have focal offerings that are produced by digital technologies. At the same time, both have a business model logic that are closely dependent on digital capabilities and an in-depth understanding of what aspects need to be adapted locally and what can be standardized across locations. Our findings suggest that the development of digital capabilities is a challenging endeavour for established non-digital firms, and that the logic of digital business models can be hard to grasp for managers and employees without experience in sensing, seizing, and transforming digital business models. Moreover, a combination of digital capabilities and local knowledge appears to be critical for successful replication of digital business models. Thus, the classical

question posed by Winter and Szulanski remains: “What is learned in one context may be useful in others, but which learning specifically, and useful in which contexts?” (2001: 741). Being able to utilize localization as a competitive strength requires the ability to adapt the business model to its local context without missing out on the scale advantages of standardization. Winter and Szulanski (2001) refer to the “strategic subtlety of replication” to capture the possibility that replication can be more than the rigidly repeated application of a basic business model. The use of a flexible approach to guide replication practices confronts managers with an important trade-off: balancing localization and the standardization of solutions (e.g. whether to develop a common app for the different business units). Successful replication of digital business models requires the ability to balance in an effective manner aspect of the business model that can be re-used with the necessary adaptation to local conditions.

Develop a digital business model architecture

The characteristics of digital business models are also reflected in the way the components are linked through the business model’s architecture. This relates to what is the best way of organizing and coordinating in the case of digital business models. For instance, as illustrated in our case study, agile work practices are taking over from traditional waterfall methods and innovation is becoming an important part of replication activities. This requires an ability to react quickly and to deal with a rapid rate of change at multiple organizational levels. The boundaries of the firm have also changed with the emergence of new digital business models. Digital ecosystems call for new and different forms of collaboration across companies, and all the knowledge needed for replication

may not be contained within one organization. As we discussed in our findings section, another implication might be that an important part of the knowledge that needs to be transferred may be related to setting up and governing such an ecosystem or platform approach. These changing organizational requirements fit well with what has been described as an actor-oriented organization (Snow et al., 2017), characterized by self-organization with minimal use of hierarchical control and coordination and based on direct exchanges among the actors themselves (Snow et al., 2017).

Think in terms of replication from the start of the digital BMI process

Urgency is a hallmark of a replication strategy in the physical world (Winter and Szulanski, 2001), and this is also true in the digital world. While the opportunity for rapid replication of digital business model components might be larger, competitors potential instant scaling requires multi-domestic MNEs to be able to facilitate rapid replication of new business models. Our cases indicate that digital business models should be replicated without complete knowledge of the “objectively” perfect template for replication or the local circumstances (Winter and Szulanski, 2001). Instead of a phase of exploration followed by a phase of exploitation, as argued by Winter and Szulanski (2001), our findings suggest that preparations for replication can be built into the early exploration process and that exploration can continue into the execution phase. They further suggest that a key managerial challenge is to think about replication from the beginning of the BMI process, even before the business model’s logic has been clearly established. The potential for swift implementation of changes in digital technologies as well as the need to localize some business model components suggest that replication is a dynamic process in which exploration and

exploitation have a continuing and iterative relationship across both markets and business models (Markides, 2013). As such, replication can be seen as a sub-process in “ordinary” BMI processes for digital business models.

Transfer “emerging knowledge” and combine it with locally adapted beliefs

Our findings suggest that to succeed with the replication of digital business models, the transfer of “emerging knowledge” is necessary. We use the term emergent knowledge to refer to knowledge that is still in the process of being tested and established. The knowledge to be transferred consists of hypotheses of core business model beliefs detailing the logic for value creation and value appropriation (such as the role to take on in an ecosystem and how to position to gain this role). These hypotheses need to be tested and adapted to ensure coherence with local markets and ecosystems (Dong et al., 2016; Teece & Linden, 2017). Our findings further suggest that the transfer of this emerging knowledge must be combined with the build-up of a related, locally adapted belief system. We propose that managers at the local site must develop an understanding of the possibilities and limitations of digital business models, create digital solutions that meet customers’ needs, establish a position in the digital ecosystem, and work towards monetizing digital services. To support this, in-dept knowledge on the digital business model logic as well as knowledge on how to organize the value creation both internally and in an ecosystem is needed. Our findings suggest that human interaction is important to succeed with this knowledge transfer– getting people to meet and discuss the way in which the logic has been built up in one context and how it can serve as inspiration for replication. Such meetings can be supported by case

documentation and rotations of experienced personnel. The importance of such knowledge sharing routines to succeed with flexible replication is also highlighted in Jonsson & Foss (2011).

Establish knowledge centres and tools for knowledge transfer

The replication-as-strategy literature views a knowledge centre as essential for the transfer of knowledge to the replicating units (Winter & Szulanski, 2001). To ensure that those working on replicating the business model have an in-depth understanding of the digital business model logic, it can be advantageous to build central knowledge through a central knowledge unit. We propose that that unit or “knowledge centre” is tasked with supporting local operations and working closely with local resources with intimate knowledge of local market conditions and customer needs. Such a centre could also facilitate reverse and lateral knowledge flows. In practice, this means (as we saw in our case example) that the centre’s knowledge-transfer efforts can include rotating personnel to locations in which different business models are being replicated. The use of other traditional knowledge-transfer tools discussed in the replication-as-strategy literature, such as templates and how-to manuals, may still be relevant in this context. However, the rigidity of the approach should be aligned with the characteristics of the business model’s components.

Develop replication schemes that allow for managerial discretion

Hierarchical organizational schemes are less relevant in rapidly changing environments in which an organization seeks to stimulate innovation (Fjeldstad et al., 2012). In such cases, we see a need for managers who work closely with local customers and ecosystem actors to adapt the replication scheme so that it stays true to their evolving understanding of the emerging business

model logic, which reflect their beliefs about cause-effect relationships in the local marketplace. As such, our findings suggest a need to ensure a high degree of autonomy among the key personnel involved in replication, allowing for managerial discretion.

Develop dynamic capabilities to support dynamic replication

Our findings also illustrate the link between replication of digital business models and dynamic capabilities. Indeed, any form of business model replication that does not mean “copying exactly” require some form of dynamic capabilities (Teece, 2018). This can include the dynamic capabilities to sense, seize and transform business model replication. The findings suggest the need for managers involved in the replication of a business model at a new location that inhibit the dynamic capabilities of sensing to ensure the value proposition gets right and seizing to build the necessary ecosystem and operational set-up for the business model to be realized. Our findings suggest utilizing knowledge from a centre together with local knowledge to get the sensing and seizing part right. While dynamic capabilities are underpinned by organizational routines and processes, the gradual evolution of the business model is supported by non-routine managerial interventions. Thus, building on Teece (2018), the argument could be made that the managerial competencies for devising and refining business models are a key part of what is replicated in dynamic environments. To realize the replicated business model at the local site, our findings suggest a need to develop local transformation capabilities. This might require a trust-based management approach in which those working at a local site can build in-depth understanding of how the business model should be composed to create the highest possible value.

Summing up, we argue that an important part of what is replicated in the case of digital business models is a digital business model logic and architecture and the organizational and managerial underpinnings the business model realization requires. Digital business model replication is supported by a dynamic replication approach that supports transfer of emerging knowledge and allows for managerial discretion to understand what needs to be locally adapted versus what can be standardised. Such managerial discretion is supported by dynamic capabilities. The threat from born global actors highlights the importance of a rapid replication process, but also the possibility to differentiate through locally based innovation. Hence, we argue for the continued relevance of a locally adopted, flexible and dynamic replication approach. While digital business model components can be replicated at a low cost, local know-how is needed to know what digital services will work for the local consumers and how to position the service within the local ecosystem. Figure 2 illustrates key components of a framework for replication of digital business models.

----- Insert Figure 2 about here -----

The value of replication-as-strategy in a digital context

One of the key objectives of this research was to analyse how a replication strategy can add value in the context of digital business models. Companies in the telecommunications industry are threatened by rapid disruption and swift imitation as new digital companies rapidly launch competing products and services. Consumers' spending patterns change with the ever-expanding reach of the digital economy. Our case company applied an explorative strategy of developing new

digital capabilities by rapidly replicating digital business models in new markets. The decision to use a replication strategy in the context of accelerated internationalization can be seen as reflecting a belief that replicating the business model in new markets will contribute value in the form of new knowledge and innovation.

The decision to use a replication strategy opposed to instant scaling can be seen in light of the resources available to the company. Due to the well-known constraints of path dependency, multi-domestic firms do not have the resources (technological or otherwise) to instantaneously scale up digital services globally. Legacy IT systems, built up differently in different markets, is an example of possible constraints here. Path-dependent behaviour might also cognitively constrain established firms attempting to find new ways to scale up their business models, as they tend to stay in their comfort zone and rely on the continuation of past successes. For instance, if the replication approach has been used for scaling the traditional services, it might also seem like an obvious choice for digital services. Although not being able to instantly scale new digital services might seem to be a competitive disadvantage for multi-domestic MNEs, it can also be an advantage in the case of digital services that require localized business models due to local regulations or specific local demands. Therefore, multinational companies with local infrastructure may have an advantage over born-global players when it comes to replicating digital business models.

Thus, the two business models described here point to the relevance of local adaptation even in the digital context. Telenor used differences between country markets as opportunities to develop localized business models and to replicate those models in new markets instead of attempting to

compete directly with global digital service providers. In addition, our findings suggest that the replication of digital business models *benefits* from localization (i.e. adaptations made for the local market). As such, the freezing of a template seems to be one part of the replication-as-strategy theory that is not applicable in the case of digital business models. Other recent studies of replication in cases of rapid internationalization support this suggestion (e.g Cavallo et al., 2019; Dunford et al., 2010).

Together, these findings indicate that the meaning of replication has changed in today's digital context. Instead of viewing change and learning as part of a "freeze-unfreeze" paradigm in which a new equilibrium is within reach, change is now seen as a continuous phenomenon. In this context, the freezing of an Arrow core (Winter & Szulanski, 2001) and the argument for a phase of exploration followed by a phase of exploitation seem less relevant. In contrast, there is a need for a focus on replication to be integrated from the start, in parallel with exploration. This suggests that replication can be a part of BMI. For MNEs pursuing growth with digital business models, our analyses of the Telenor cases also suggests that replication can be a distinct form of innovation, with a specific set of capabilities, activities and knowledge transfer tools. However, as this is a single (embedded) case study, we encourage additional studies of how replication is practiced for digital business models to establish boundary conditions and to derive more longitudinal insights into the replication process and the continued relevance of that process in a digital context. Further on, we see a need for more studies with a process-focus on digital business model replication, as

well as studies that focus on the development of tools for replication of digital business models, to help assist managers in ensuring knowledge transfer for digital business models.

CONCLUDING DISCUSSION

This study asks the question of how and to what extent the replication-as-strategy perspective can illuminate the replication of digital business models across countries. A recent discussion suggests that replication as a practice might have become obsolete (e.g. Dunford et al., 2010; Cavalli et al., 2019), given the speed of change that many businesses are increasingly subject to: Once a business model has been replicated, it has already become obsolete!

Our findings suggest instead that in the setting of multi-domestic MNEs, replication-as-strategy may still have substantial merit even in the case of digital business models. However, our findings also suggest that replication of digital business models differs from the replication of traditional business models that centre on physical production. Moreover, our analysis of the replication of two digital business models shows the co-existence of different forms of business model replication within the same corporate context, suggesting that characteristics related to the business models in question might affect the choice of replication practice. We argue that overall, to successfully replicate digital business models, an adapted and flexible dynamic replication approach is useful. We suggest that in-depth knowledge on the digital business model logic and architecture, including how to organize the value creation within the firm and the ecosystem, are central aspects of the knowledge that must be replicated. We further suggest that replication of digital business models should build on a replication format allowing for managerial discretion. We also suggest

that the traditional role of the “centre” is changed, and that it should function in close collaboration with local sensing and seizing capabilities. We argue that replication of digital business models can be seen as a specific form of business model innovation, containing a process where replication is made a consideration from the start, and illustrate a link between dynamic capabilities and business model replication.

Our research makes several key contributions. Our main contribution is to the business model innovation literature by suggesting that business model replication can be both seen as a sub-process in “ordinary” BMI processes (for digital business models) and as a distinct form of BMI, supported by distinct managerial practices, capabilities, activities and knowledge transfer mechanisms. We further argue that to successfully replicate digital business models, a flexible and dynamic replication approach is needed, that is underpinned by dynamic capabilities.

In a related manner, we contribute to the business model literature by highlighting the link between business model characteristics and organizational implications of such as a replication approach. The transition from physical to digital implies both a change in the business model components that are applied, as well as a change in the business model logic or architecture, including changes in management style, motivation, incentives, forms of control and coordination. This affects the way an organization builds, organizes, and transfers knowledge.

Our third contribution is to the internationalisation literature, discussing explicitly the continued relevance of a replication strategy for MNEs in a digital era. As our case study illustrates, there may be a need to align the replication approach to the business model

characteristics, and an adapted, flexible and dynamic replication approach is called for. Instead of a focus on the replication of a strict format of routines, replication of digital business models might benefit from a focus on replicating digital business model logic including ways of creating and capturing value. However, our study also lends support to the continued relevance of a theory of a replication strategy in an era of digital business models and accelerated internationalization. We contribute by identifying key aspects of an emerging framework for replication of digital business models, and by empirical scrutiny of different approaches to replication of digital business models.

We also contribute to managerial practice by illustrating characteristics of digital business models that separates these from business models with physical production and that has implications for organization and management of digital business models, as well as for the replication practice.

REFERENCES

- Alberts, D. S. (2007). Agility, focus, and convergence: The future of command and control. *Int C2 J* 1(1):1–30.
- Amit, R. and C. Zott (2001). ‘Value creation in e-business’, *Strategic Management Journal*, 22/6-7, pp. 493-520.
- Argote, L. (2012). *Organizational learning: Creating, retaining and transferring knowledge*. Springer Science & Business Media.
- Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, 33(1), 1-4.
- Baden-Fuller, C. and S. Winter (2007). ‘Replicating knowledge practices: principles or templates’, Working paper, Cass Business School, City University, London, UK.
- Balogun, J., and G. Johnson (2004). ‘Organizational restructuring and middle manager sensemaking’, *Academy of management journal*, 47/44, pp. 523-549.
- Bartlett, C. A. and S. Ghoshal (1989). *Managing Across Borders: The Transnational Solution*. Boston, MA: Harvard Business School Press.
- Capgemini Consulting (2016). ‘The digital strategy imperative: steady long-term vision, nimble execution.’ *Digital Transformation Review*, 9 (Summer 2016). Available at https://www.capgemini-consulting.com/sites/default/files/experience-page/1475686/pdf/Digital_Transformation_Review_9.pdf.

- Cavalcante, S., Kesting, P., and Ulhøi, J. (2011). Business model dynamics and innovation: (Re)Establishing the missing linkages. *Management Decision*, 49, 1327-1342.
- Cavallo, A., Ghezzi, A., & Guzmán, B. V. R. (2019). Driving internationalization through business model innovation: evidences from an AgTech company. *Multinational Business Review*.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative research*. London: SagePublications Ltd.
- Chesbrough, H. (2010). 'Business model innovation: opportunities and barriers', *Long Range Planning*, 43/2, pp. 354-363.
- Chesbrough, H. and R. S. Rosenbloom (2002). 'The role of the business model in capturing value from innovation: evidence from Xerox corporation's technology spin-off companies', *Industrial and Corporate Change*, 11/3, pp. 529-555.
- Choudary, S., P. Sangeet, M. W. Van Alstyne and G. G. Parker (2016). *Platform Revolution: How Networked Markets are Transforming the Economy—and How to Make Them Work For You*. New York: W. W. Norton & Co.
- Corbin, J., and A. Strauss (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. California: SagePublications.
- Corley, K. G., and D.A. Gioia (2004). 'Identity ambiguity and change in the wake of a corporate spin-off', *Administrative science quarterly*, 49/2, pp. 173-208.
- Dasí, À., F. Elter, P. N. Gooderham and T. Pedersen (2017). 'New business models in-the making in extant MNCs: digital transformation in a telco'. In T. Pedersen, T. M. Devinney, L.

- Tihanyi, and A. Camuffo (eds), *Breaking up the Global Value Chain: Opportunities and Consequences*, vol. 30, pp. 29-53. Emerald.
- Dong, A., Garbuio, M., & Lovallo, D. (2016). Generative sensing: A design perspective on the microfoundations of sensing capabilities. *California Management Review*, 58(4), 97-117.
- Dosi, G., Pavitt, K., & Soete, L. (1990). The economics of technical change and international trade. *LEM Book Series*.
- Doz, Y. and M. Kosonen (2010). 'Embedding strategic agility: a leadership agenda for accelerating business model renewal', *Long Range Planning*, 43/2, pp. 371.
- Dunford, R, I. Palmer and J. Benveniste (2010). 'Business model replication for early and rapid internationalisation: the ING direct experience', *Long Range Planning*, 43(5), pp. 655-674.
- Dunning, J. H. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International business review*, 9(2), 163-190.
- Eisenhardt, K. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Eisenhardt, K. M., and M. E. Graebner (2007). 'Theory building from cases: Opportunities and challenges', *Academy of management journal*, 50(1), pp. 25-32.
- Elter F. (2004). *Strategizing in Complex Contexts*. VDM Verlag.
- Elter, F. and M. G. Jacobides (unpublished). 'Telenor: manoeuvring in a changing industry landscape', *The Case Centre: London Business School*.

- Elter, F. and Ulset, S. (2017). 'Toward a multi-path theory of diversified international expansion: the case of multinational mobile network operators. In T. Pedersen, T. M. Devinney, L. Tihanyi and A. Camuffo (eds), *Breaking up the Global Value Chain: Opportunities and Consequences*, Vol. 30, pp. 189-213. Emerald.
- Elter, F., Gooderham, P. N., & Ulset, S. (2014). Functional-level transformation in multi-domestic MNCs: Transforming local purchasing into globally integrated purchasing. In *Orchestration of the global network organization*. Emerald Group Publishing Limited.
- Elter, F., Gooderham, P. N., and Stensaker, I.G. (2021). Successful and Unsuccessful Radical Transformation of Multinational Mobile Telephony Companies: The Role of Institutional Context. In *The Multiple Dimensions of Institutional Complexity in International Business Research*. Emerald Publishing Limited.
- Feldman, M. S. (2000). Organizational routines as a source of continuous change. *Organization science*, 11(6), 611-629.
- Flyvbjerg, B. (2006). 'Five misunderstandings about case-study research', *Qualitative inquiry*, 12/2, pp. 219-245.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT sloan management review*, 55(2), 1.
- Fjeldstad, Ø. D., Snow, C. C., Miles, R. E., & Lettl, C. (2012). The architecture of collaboration. *Strategic management journal*, 33(6), 734-750.
- Foss, N. J. and T. Saebi (2017). 'Fifteen years of research on business model innovation: how far have we come, and where should we go?', *Journal of Management*, 43/1, pp. 200-227.

- George, A. L., and A. Bennett (2005). Case studies and theory development in the social sciences. Cambridge: mit Press.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31.
- Heij, C. V., Volberda, H. W., & Van den Bosch, F. A. (2014). How does business model innovation influence firm performance: the effect of environmental dynamism. In *Academy of Management Proceedings* (Vol. 2014, No. 1, p. 16500). Briarcliff Manor, NY 10510: Academy of Management.
- Hennart, J. F. (2014). The accidental internationalists: a theory of born globals. *Entrepreneurship Theory and Practice*, 38(1), 117-135.
- Hennart, J. F. (2019). Digitalized service multinationals and international business theory. *Journal of International Business Studies*, 50(8), 1388-1400.
- Huang, H. C., L. Mei-Chi, L. Lee-Hsuan and C. Chien-Tsai (2013). ‘Overcoming organizational inertia to strengthen business model innovation: an open innovation perspective’, *Journal of Organizational Change Management*, 26/6, pp. 977-1002.
- Jonsson, A. and N. J. Foss (2011). ‘International expansion through flexible replication: learning from the internationalization experience of IKEA’, *Journal of International Business Studies*, 42/9, pp. 1079-1102.
- Kirkpatrick, D. (2011). *The Facebook Effect: The Inside Story of the Company That Is Connecting the World*. New York: Simon and Schuster.

- Langley, A. (1999). 'Strategies for theorizing from process data', *Academy of Management review*, 24/4, pp. 691-710.
- Langley, A. (2007). Process thinking in strategic organization. *Strategic organization*, 5(3), 271-282.
- Langley, A. N. N., Smallman, C., Tsoukas, H., & Van de Ven, A. H. (2013). Process studies of change in organization and management: Unveiling temporality, activity, and flow. *Academy of management journal*, 56(1), 1-13.
- Leech, B. L. (2002). 'Asking questions: Techniques for semistructured interviews', *PS: Political Science & Politics*, 35/4, pp. 665-668.
- Magretta, J. (2002). 'Why business models matter', *Harvard Business Review*, May 2002, pp. 86-92.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization science*, 2(1), 71-87.
- Markides, C. C (2013). 'Business model innovation: what can the ambidexterity literature teach us?', *The Academy of Management Perspectives*, 27/4, pp. 313-323.
- Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the hidden value of concepts: A cognitive approach to business model innovation. *Strategic Entrepreneurship Journal*, 9(1), 99-117.
- Miles, M. B. and A. M. Huberman (1994). *Qualitative data analysis: An expanded sourcebook*. London: SagePublications.

- Nelson, R. and, S. Winter (1982), *An Evolutionary Theory of Economic Change*. Belknap Press of Harvard University Press: Cambridge, MA.
- Pettigrew, A.M (1990). 'Longitudinal field research on change: Theory and practice', *Organization science*, 1/3, pp.267-292.
- Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Currency.
- Ringvold, Saebi & Foss (2021a). *Developing sustainable business models: a microfoundational perspective*. Unpublished.
- Ritter, T., & Pedersen, C. L. (2020). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, 86, 180-190.
- Rugman, Alan, and Joseph R. D'Cruz. *Multinationals as flagship firms: Regional business networks*. Oup Oxford, 2003.
- Rugman, A. M., & Verbeke, A. (2001). Location, competitiveness, and the multinational enterprise. *The Oxford handbook of international business*, 150177.
- Schwarz, G., & Stensaker, I. (2014). Time to take off the theoretical straightjacket and (re-) introduce phenomenon-driven research. *The Journal of Applied Behavioral Science*, 50(4), 478-501.
- Sebastian, I., Ross, J., Beath, C., Mocker, M., Moloney, K., & Fonstad, N. (2017). *How big old companies navigate digital transformation*.

Shapiro C, Varian H.R. (1999). *Information Rules: A Strategic Guide to the Network Economy*.
Harvard Business School Press, Boston.

Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. *International Journal of industrial ergonomics*, 37(5), 445-460.

Sinkovics, R. & Alfoldi, E.A. (2012). Facilitating the interaction between theory and data in qualitative research using CAQDAS. In G. Simon and C Cassell (eds), *Qualitative organizational research: Core methods and current challenges*, pp.109-131. London: SagePublications.

Snow, C. C., Fjeldstad, Ø. D., & Langer, A. M. (2017). Designing the digital organization. *Journal of Organization Design*, 6(1), 7.

Szulanski, G. 2000. The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational Behavior and Human Decision Processes*, 82: 9-27.

Szulanski, G., & Jensen, R. J. (2006). Presumptive adaptation and the effectiveness of knowledge transfer. *Strategic management journal*, 27(10), 937-957.

Szulanski, G., & Jensen, R. J. (2008). Growing through copying: The negative consequences of innovation on franchise network growth. *Research Policy*, 37(10), 1732-1741.

Teece, D. J. (2007). 'Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance', *Strategic Management Journal*, 28(13), pp. 1319-1350.

- Teece, D. J. (2010). 'Business models, business strategy and innovation', *Long Range Planning*, 43(2), pp. 172-194.
- Teece, D. J. (2014). A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of international business studies*, 45(1), 8-37.
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long range planning*, 51(1), 40-49.
- Teece, D. J., & Linden, G. (2017). Business models, value capture, and the digital enterprise. *Journal of organization design*, 6(1), 1-14.
- Van Maanen, J., J. B. Sørensen and T. R. Mitchell (2007). 'The interplay between theory and method', *Academy of management review*, 32(4), pp. 1145-1154.
- Volberda, H., Van Den Bosch, F. A., & Heij, K. (2018). *Reinventing business models: How firms cope with disruption*. Oxford University Press.
- Watson, J. L. (1997). *Golden Arches East: McDonald's in East Asia*. Stanford, CA: Stanford University Press.
- Watson, A., Stanworth, J., Heales, S., Purdy, D., & Stanworth, C. (2005). Retail franchising: an intellectual capital perspective. *Journal of Retailing and Consumer Services*, 12(1), 25-34.
- Weick, K. E. (2007). 'The generative properties of richness', *The Academy of Management Journal*, 50(1), pp.14-19.
- Weill, P., & Woerner, S. L. (2013). Optimizing your digital business model. *MIT Sloan Management Review*, 54(3), 71.

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press, Boston.

Winter, S. G. and G. Szulanski (2001). 'Replication as strategy', *Organization Science*, 12(6), 730-743.

Winter, S. G. (2010). The replication perspective on productive knowledge. In *Dynamics of knowledge, corporate systems and innovation* (pp. 95-121). Springer, Berlin, Heidelberg.

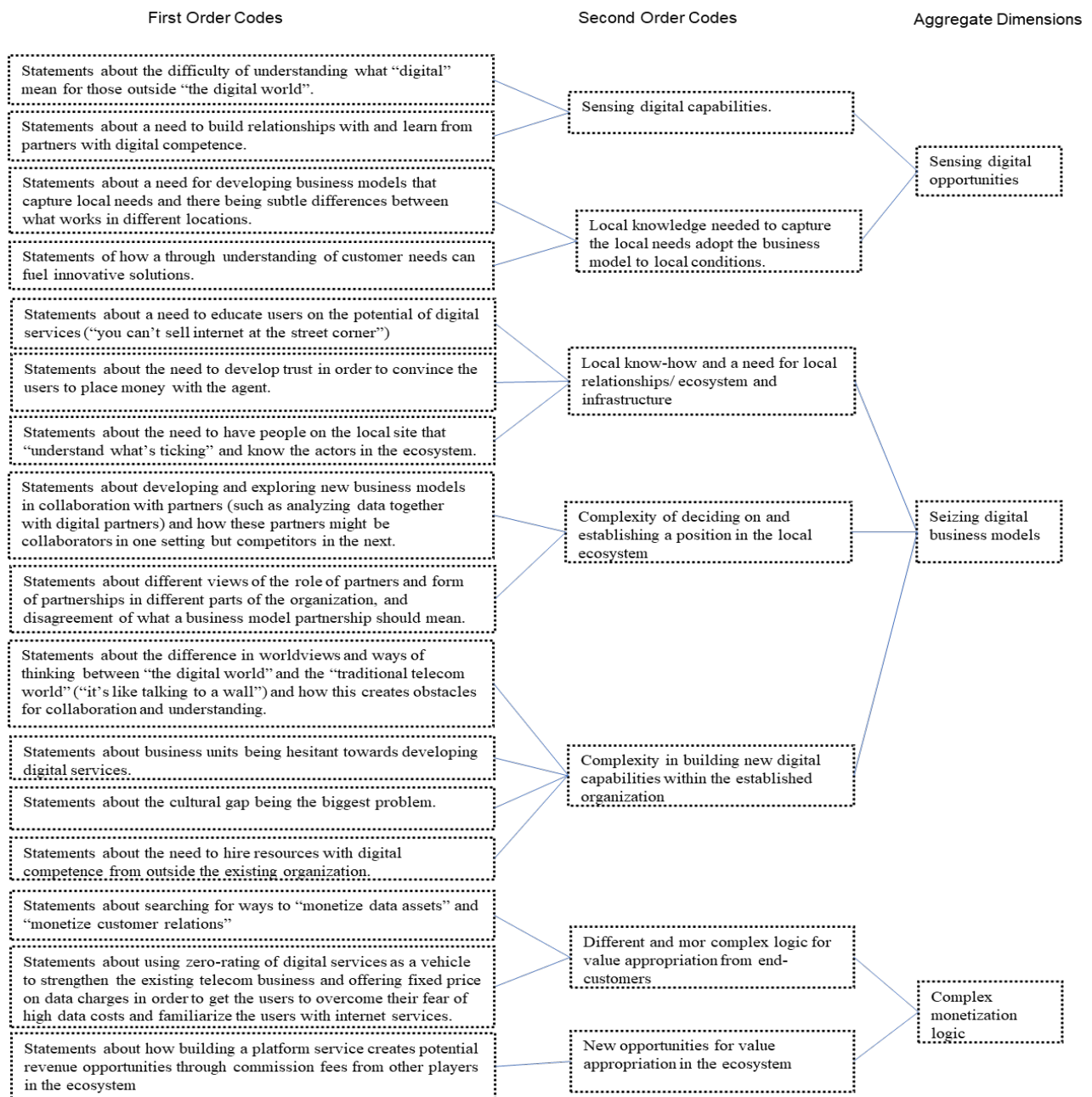
Wirtz, B. W. (2019). *Digital business models*. Cham: Springer International Publishing.

Yin, R. K. (2014). *Case study research: Design and methods (applied social research methods)*. Thousand Oaks, CA: Sage Publications.

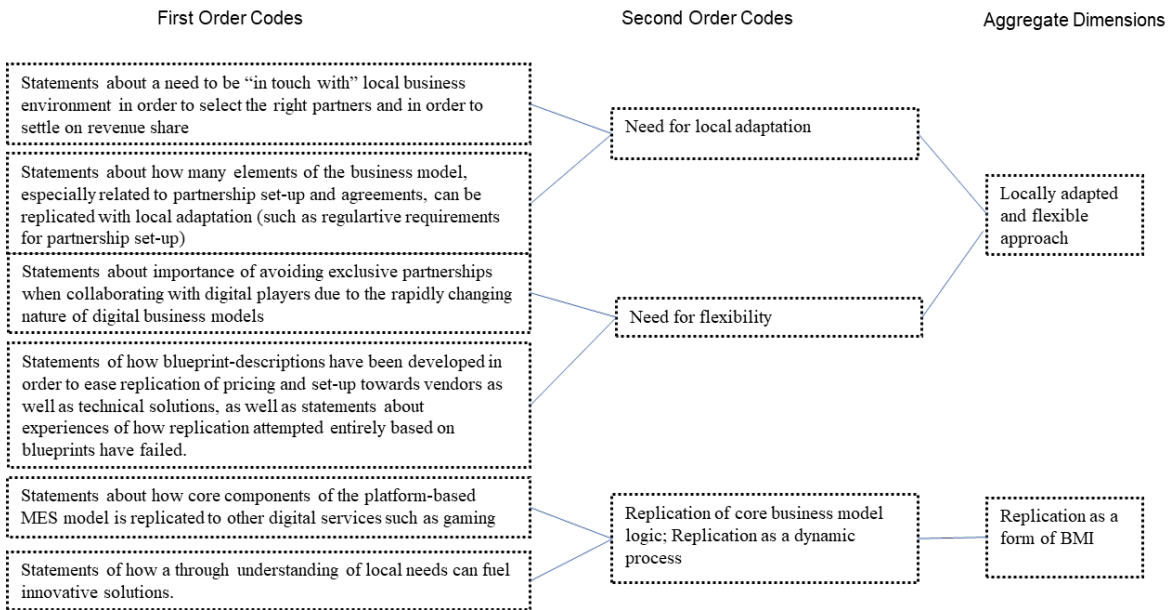
Zott, C. and R. Amit (2010). Business model design: an activity system perspective', *Long Range Planning*, 43/2 pp. 216-226.

Figure 1. Data structure

(a) Data Structure: Challenges developing digital business models



(b) Data Structure: Replication of digital business models



(c) Data Structure: Knowledge transfer digital business models

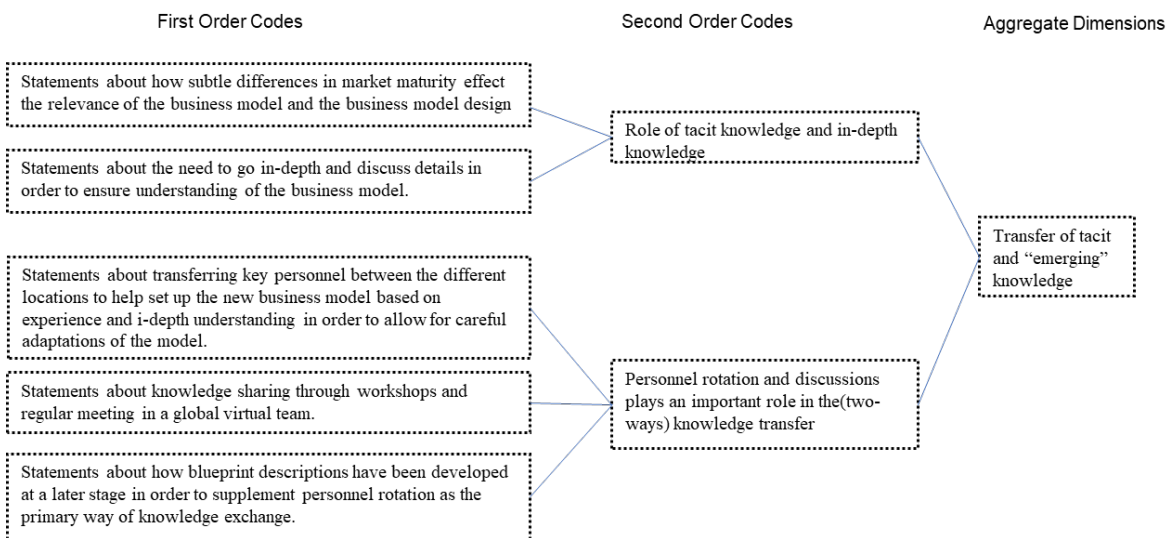
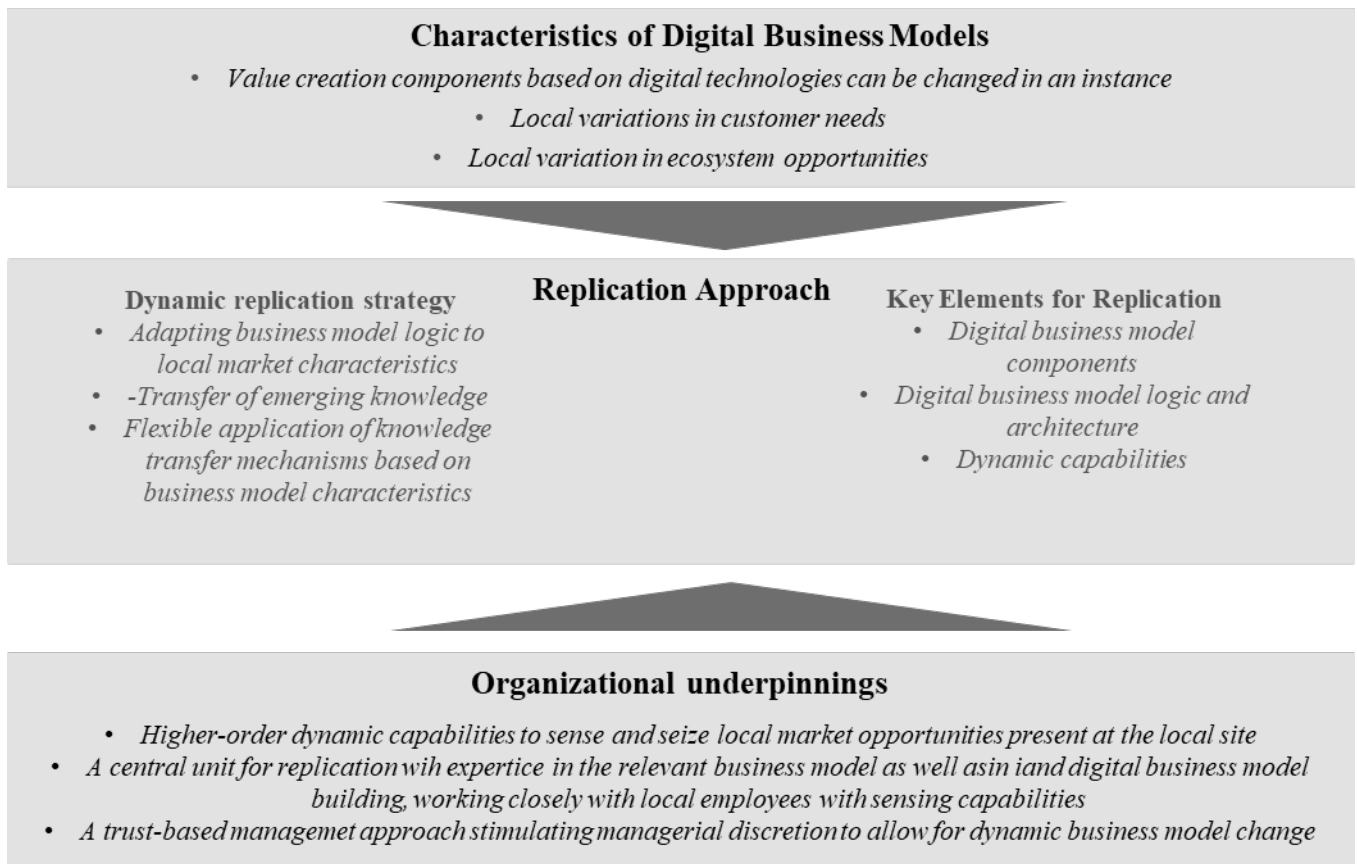


Figure 2: An emerging framework for digital business model replication.



Box 1. Mobile Financial Services (MFS)

MFS was one of the first digital services Telenor developed. Today, it is established as a separate business area within the Telenor Group. The value creation logic builds on the recognition that in emerging markets, more people have mobile subscriptions than bank accounts. Lacking access to formal financial services, the unbanked make use of informal channels (such as borrowing money from, or saving money with, friends and family or the use of informal saving clubs or illegal money lenders). These are often costly, non-transparent, and risky, creating a market potential for safer and more efficient solutions. Through the Easypaisa model, customers are able to have their basic financial needs met by their local telecommunications agent. As regulators only allow banks to maintain control of the actual cash accounts, Telenor Pakistan entered into a joint venture with (microfinanciers) Tameer Bank in 2008. By utilizing Telenor Pakistan’s pre-existing nationwide network of 120,000 retailers as bank branches, Easypaisa is able to provide basic over-the-counter

financial services. The transactions take place via mobile accounts accessed over Telenor Pakistan's mobile network. Telenor Pakistan's 252 franchised "sales and service centres" manage cash collection and distribution.

Box 2. Mobile Entertainment Services (MES)

The MES service Music Freedom is delivered through an app and Telenor has assumed a mediating role in an ecosystem occupied by music providers (e.g. Deezer, Spotify, and local providers), record labels (e.g. Universal, Sony, Warner, who license music providers), artists, and end-users. As of May 2015, Music Freedom had about 25 different music service providers as partners in their portfolio for the Malaysian market, including international as well as local providers. This multi-partner approach is non-exclusive and intended to give the music providers incentives to keep improving their offer to stay competitive and attractive to consumers, which also contributes to increasing the total value of the Music Freedom service.

Table 1: Data sources

Data source	Type of data	Use in analysis
42 Interviews	Interviews with employees at corporate level with senior employees within the strategy unit, human resources and organization experts and the legal unit	Understand the digital service provider strategy and how the organization worked to develop new digital business models. Real-time data covering the current challenges and activities, and retrospective data on the long-term development of the company.
	Interviews with employees at corporate level working with designing a diverse set of new digital business models	Understanding characteristics of digital business models and the specific challenges of crafting and replicating such models.
	Interviews with employees working with designing and replicating the MFS business model	Understand the specifics of the case of developing the MFS model and how replication has played a role. Focus on real-time data and retrospective data for the last 2-3 years.
	Interviews with employees working with designing and replicating the MES business model	Understand the specifics of the case of developing the MES model and how replication has played a role. Focus on real-time data and retrospective data for the last 2-3 years.
Archival data	Case-specific documents illustrating how the business models had been replicated. Board documents illustrating specific strategic discussions related to characteristics of digital business models and strategic choices. Company presentations, strategy documents, annual reports. Newspaper articles.	Provide information about the challenges of crafting digital business models for organization and management, and about the specific business models and the replication practice utilized. Used to support and triangulate the interview data.
Observations	Informal conversations with managers and employees. Workshops where we were present and observed the discussion on business model challenges and implications in real time. Internal presentations of findings to employees and their reactions and reflections to this.	Provide insights into ongoing events that could be further probed for in interviews. Provide access to informants. Used to support and triangulate the interview data.

Table 2: Core business model components

Case	Objective	Value Proposition and Customer Segment	How value is created	Value appropriation
Music Freedom	Stimulate active daily use of internet through providing engaging music services Build a stronger brand as a digital content and service provider	The customer can choose freely from high-quality music services at affordable costs Available to all mobile internet users in Malaysia, but only DiGi customers get the fixed fee offer	Multi-partner approach with non-exclusive agreements Links end-users and music streaming providers through taking on a “mediating” role Utilizes Telenor’s local knowledge to attract the right network actors	Zero-rated or freemium model
Easypaisa	Mobile Financial Services is seen as a potentially substantial new business area	Providing banking services to the unbanked. Starts with basic services such as bill payments and remittances. Later on, more advanced services are added	Local partnerships with banks and others, conditioned on local regulations. A distribution network of retailers is key to reach the unbanked segment	Pay per services (for basic services)

ARTICLE 3

TOP MANAGEMENT TEAMS AND BUSINESS MODEL TRANSFORMATION: IDENTIFYING NECESSARY MANAGERIAL COGNITION AND BEHAVIORS

Kristin Ringvold, Nicolai J. Foss and Frank Elter

*NHH – Norwegian School of Economics; CBS – Copenhagen Business School; Telenor
Research*

Abstract

Digital technologies are changing the business landscape, disrupting many traditional business models in the process. However, organizations are struggling to shift their business models towards a more digital reality. Over time, established business models become deeply ingrained in managerial and organizational cognition, as they represent the dominant logic of a business, and this may hinder adopting more digital business models. Thus, managerial cognition must be central for the understanding of how managers bring about digital business models. This study explores the role of the top management team (TMT) in transforming business models from a cognitive perspective. We build on data from a longitudinal case-study and investigate how TMT members facing pressure to engage in digitalization identify business model problems and search for new solutions in a traditional telecommunications company. Our study offers a process perspective that illustrates how digitalization can trigger a cognitive change with regards to the way the TMT identifies business model problems, search for solutions and introduces change. As our key contribution, we decompose the concept of business model

transformation into concepts that explain the cognition and behaviour needed at the TMT level to accelerate business model transformation processes.

Keywords: top management team, business model transformation, managerial cognition, problemistic search, problem identification, solution search, mobilization, digitalization

INTRODUCTION

In the face of increasingly frequent disruptions, the convergence of industries and intense global competition, companies need to transform their business models in a more rapid, frequent and far-reaching manner than ever before (Doz & Kosonen, 2010). A business model refers to the “design or architecture of the value creation, delivery, and capture mechanisms” of a firm (Teece, 2010:172). Digitalization is one of the main forces behind the increased need for business model change and innovation (Foss & Saebi, 2017; Gartner, 2019) that give rise to what we call “business model problems.” A problem may, in line with Newell and Simon (1972), be abstractly defined as a deviation from a set of desired conditions as perceived by a decision maker and/or relevant individuals who are affected by the problem. A *business model problem* then occurs when the current business model deviates from a set of “desired conditions”, such as the overall performance associated with the business model or from a preferred configuration of the business model.

Digitalization gives rise to business model problems, as it enables and triggers new and different types of value creation, customer interactions, partnerships and value appropriation —

which may call for new business models or renewal of the existing ones. For instance, digitalization can introduce unanticipated changes to the customer interface that make it more difficult for the focal company to remain in control of the customer relationship. Reacting to these problems involves making (possibly radical) changes to the way firms do business. Solutions to business problem models may, however, be associated with improved performance. In this article, we discuss how top management teams perceive, address, and try to solve business model problems.

Digitalization can expose a firm to business model problems that require changes in mindsets and behaviours, including changes at the TMT level. The managerial cognition literature suggests that top managers' abilities to identify and solve major problems are constrained by bounded rationality but that top managers adopt heuristics to cope with such bounded rationality (Bogner & Barr, 2000; Daft & Weick, 1984; Fiol & O'Connor, 2003; Nadkarni & Barr, 2008). In this context, Doz and Kosonen (2010:370) argue that the business model may function as top management's subjective representation of the "structured and interdependent operational relationships between a firm and its customers, suppliers, partners and other stakeholders". Thus, business models represent cognitive structures that provide managers with a theory relevant for setting boundaries for the firm, creating value, and organizing the firm's internal structure and governance. Over time, business models become path-dependent and represent the dominant logic of value creation (Bettis & Prahalad, 1995). As the business model reflects the underlying dominant logic of the firm (Teece, 2010), managers are cognitively bounded by that logic. Consequently, their cognitive schemas act as funnels that filter information, favouring information that conforms

to the dominant logic and disregarding other information (Tripsas & Gavetti, 2000). Thus, while non-trivial business model change arguably requires a change in managerial cognition and the dominant logic of the firm, cognitive barriers might obstruct the identification and resolution of problems related to the digital transformation of business models (Kurti, 2015).

The behavioural theory of the firm (Cyert & March, 1963) holds that the top management team (TMT) engages in problemistic search to address a problem (Greve, 2018). The traditional model of problemistic search posits that a firm's recognition that performance has failed to meet aspirations triggers a search for solutions, which results in a behavioural change intended to restore performance to the aspired level (Cyert & March, 1963; Posen et al., 2017). A key claim of this model is that every change in a firm's strategy builds on some form of search process. However, Posen et al. (2017: 209) criticize conceptualizations of problemistic search for being "overly routinized, assuming a high degree of automaticity in managerial decision-making", and for leaving little room for the more deliberative cognition that may be required in the case of a deep-seated disruption. In this case, the problem faced by the company is not necessarily given but must be cognitively represented. Still, little research focuses on behaviours oriented toward identifying the latent problem underlying a performance shortfall (Posen et al., 2017). In addition, we know little about how digitalization affects the ways in which TMTs identify business model problems, search for solutions and lead the related digital business model transformation. Digitalization might also lead to a change in aspirations, and a need to search for solutions in more distant knowledge landscapes.

Many companies and TMTs need to transform their business models as a result of digitalization-related opportunities and challenges. However, research has yet to more comprehensively address the role of top management in digital-driven business model transformation. This is a problem as the impact of digitalization on business models is a major challenge that is being neglected by many companies (e.g. Anderson and van der Heyden, 2017). To fill this gap in the literature, we therefore pose the following research question: What is the role of the TMT in the digital transformation of business models from a cognitive and behavioral perspective? To address this question, we investigate how the TMT identifies relevant business model problems caused by digitalization, decides on a new strategic direction, searches for solution alternatives and engages the rest of the organization in the business model's transformation.

We address our research question by combining elements from the literature on business model transformation and the “problem-finding and problem-solving” (PFPS) perspective (Nickerson et al., 2012). We focus on problem identification, the organization of the search for alternative solutions and how top management can best lead the necessary business model transformation. We use the business model problem as the unit of analysis. In particular, we explore how digitalization affects the way TMTs work to identify and solve business model problems, including a focus on the cognitive and behavioural mechanisms underpinning the search process. To build theory, we draw from a single in-depth case study in which we carefully examine how the members of the TMT experience and manage the ongoing digital transformation of the company's business model.

Relying on an abductive approach, we show that digitalization can change the dominant logic of the business model, and that this can trigger a need for cognitive and behavioural changes in the TMT that affect the way problems are identified and formulated by the TMT, the search for solutions, the push for change, and the role and composition of the TMT. In our discussion section, we develop a model illustrating how the TMT can enable business model transformation and identify related propositions. We integrate key concepts from the PFPS literature with theory related to business model transformation. Moreover, we theoretically elaborate on how the TMT identifies business model problems, the search for business model solutions, and mobilizes the organization through its leadership of the process of business model transformation.

Our research contributes to the business model literature by enhancing our understanding of how the TMT can drive business model transformations and overcome related cognitive and organizational hurdles. We also contribute to the behavioural theory of the firm by detailing the process of problemistic search in the context of digitalization, focusing on the role of managerial cognition and highlighting the important roles of problem formulation, recombination capabilities and agile practices. As our key contribution to practice, we propose mechanisms through which the TMT can accelerate business model transformation, a key area of concern for TMTs in numerous industries.

BUSINESS MODEL TRANSFORMATION THROUGH PROBLEMISTIC SEARCH:

BACKGROUND

Business Model Transformation and the Role of Top Management

The business model concept focuses on how firms create and appropriate value. Business models reflect a company's strategic choices (Magretta, 2002; Zott & Amit, 2008). As "strategy" refers to the comprehensive pattern of actions and intents that binds all the business model's components together (Mintzberg & Waters, 1982; Tikkanen et al., 2005), business model transformation is a complex, strategic issue and, thus, a matter for the TMT. However, we know little about how the TMT identifies or solves such business model problems, or how it can succeed with business model transformation. Indeed, most research on business model innovation (BMI) is focused on designing a business model from scratch, while we know relatively little about transformations of established firms' business models (Björkdahl et al., 2016; Demil & Lecocq, 2015; Massa et al., 2017) or the TMT's role in this regard.

Massa et al. (2017) identify three interpretations of business models: 1) business models as attributes of real firms with a real impact on business operations, 2) business models as cognitive or linguistic schema, and 3) business models as formal conceptual representations or descriptions of how an organization function. The interpretation of business models as cognitive schemas builds on the idea that managers hold images of real systems in their minds when making decisions and that these images are shaped by the managers' own cognitive frames (Chesbrough & Rosenbloom, 2002; March & Simon:1958; Massa et al., 2017; Tripsas & Gavetti, 2000). Along these lines, Tikkanen et al. (2005: 790) conceptualize a business model as "the sum of material, objectively existing structures and processes as well as intangible, cognitive meaning structures at the level of a business organization". We suggest that this "sum" reflects the fact that managers have a cognitive

model that mirrors the “objective” business model and its ideal development (Penrose, 1959). When the same business model has been in place for an extended period of time, the “cognitive mirrors” of top managers might be similar. However, in times of business model transition, changes in the cognitive models of different TMT members can come at different points in time and occur to varying degrees, which might result in different understandings of the business model. Thus, business model transitions are likely to be characterized by uncertainty and confusion.

Managers transform business models in response to threats (e.g. changes in customers’ behaviours, new competitors, reduced performance) or opportunities (e.g. new markets, new technologies) (Björkdahl et al., 2016; Saebi et al., 2017) that challenge the existing business model. Digital technology is one factor that might create business model problems by, for instance, triggering the personalization and automation of customer processes through transforming data from analog to digital. This process is referred to as digitization (Ritter & Pedersen, 2020). The mere application of digital technologies (that is, digitalization (Ritter & Pedersen, 2020)) can also lead to business model problems through e.g. changing the ways in which firms handle sales and customer relations. Another example is the introduction of cloud computing, which allows collaborative information and communication technology services to be produced and distributed globally in an instant. With standardized software interfaces, services from different companies can be interconnected in real time and into new ecosystems (e.g. Google maps are now integrated into a multitude of services). While such digitalization may imply unprecedented opportunities for learning and innovation, it also poses challenges (e.g. increased competition for attention, risk of

information overload, higher costs of collecting and filtering relevant information, and risk of paying too much attention to the wrong information) (Van Knippenberg et al., 2015). Thus, digitalization goes way beyond digitization or encoding, and could for instance involve a need to bring in new organizational capabilities (Troilo et al., 2017) and a need to establish new organizational structures (Misuraca et al., 2018).

The business model problems caused by digitalization might be hard to detect because they do not fit managers' existing cognitive schemas and, thus, require search in new and more distant knowledge landscapes (Nickerson & Zenger, 2004). Business model solutions likely require changes with regards to both the *operation* of the business model (i.e. how a firm creates and operates value) and the internal structures, processes and behaviour that support the business model's *dynamics* (i.e. how elements of the business model are modified over time). Changes in the value propositions offered to customers or partners are examples of the first type of change, while the introduction of the potential for continuous change through more agile work practices is an example of the latter. Business models are configurations of multiple processes and capabilities, such as the way customers are segmented, the pricing system, the way the organization interact to create and distribute value to the customers, and its approach to partners and distributors. As such, they represent complex systems in which the possibilities for interactions among their components increase the number of effects that must be addressed when identifying business model problems and searching for solutions (Gavetti & Levinthal, 2000). The underlying interactions among business model components may further complicate the process of identifying business model

problems and searching for solutions, as these interactions may be hard to predict and difficult to change (Demil & Lecocq, 2010).

Additional uncertainty arises with regard to the effectiveness of new business models relative to old business models (Andries & Debackere, 2007) as well as the effects of possible interactions with existing business models (Mezger, 2014). For established firms pursuing a business model change or the development of a new business model, the existing business model's components may not only have synergies with the new business model but also challenge the creation of that business model (Berends et al., 2016). For instance, synergies might arise if the old and the new models share some common capabilities (Kim & Min, 2015; Markides & Charitou, 2004; Sabatier et al., 2010). However, the existing business model's configuration may create cognitive inertia by shaping and restraining management thinking. As Chesbrough (2010: 358-359) states, the "success of established business models strongly influences the information that subsequently gets routed into or filtered out of corporate decision processes". This builds on Bettis and Prahalad's (1995) notion that a "dominant logic" underlies how a firm creates and then captures value, and that this logic aids the firm in assessing the importance of information. Due to confirmation bias, the firm seeks information that fits with its dominant logic and eschews information that conflicts with that logic. While the dominant logic assists firms operating in chaotic environments, it can act as a double-edged sword because firms may not recognize potentially valuable uses of their technology that do not fit with their current business models (Chesbrough, 2010).

Overcoming the rigidity of established business models might require a comprehensive change, including different work practices, processes, culture and structure. In this context, Doz and Kosonen (2010) propose that three meta-capabilities can help make companies more agile: strategic sensitivity, leadership unity, and resource flexibility. Smith et al. (2010: 448) highlight how the effective management of complex business models “depend[s] on leadership that can make dynamic decisions, build commitment to both overarching visions and agenda specific goals, [and] learn actively at multiple levels”. Zott et al. (2011) emphasize the importance of managers focusing on relational dynamics at the informal organization level. However, few studies focus on the role and challenges faced by the TMT throughout the phases of the business model transformation processes.

In fact, studies of BMI processes in existing firms are in an early stage (Andreini et al., 2021; Arend, 2013; Berends et al., 2016; Bjorkdahl et al., 2016; Demil & Lecocq, 2010; Demil & Lecocq, 2015; Massa et al., 2017; Sosna et al., 2010). According to Berends (2016), the current business model literature characterizes BMI processes in two ways: as forward-looking processes of cognitive search (e.g. Frankenberger et al., 2013; Gavetti & Levinthal, 2000) or as backward-oriented, experiential learning processes involving trial and error in terms of designing, evaluating and implementing alternative business models (e.g. McGrath 2010; Sosna et al., 2010). In the former, action follows cognition, while the relationship is reversed in the latter. Research on the forward-looking, cognitive process has been criticized for lacking rigorous theorizing and tending to be based on predefined business model design stages or frameworks instead of reality (Berends

et al., 2016; Björkdahl et al., 2016). The backward-looking, trial-and-error literature has been criticized for not providing explanations of the BMI process (Björkdahl et al., 2016). Sosna et al. (2010) explain the BMI process through the use of first- and second-order learning mechanisms. Berends et al. (2016) contribute to this literature by showing how firms may use both types of search to achieve BMI, and by highlighting two process patterns in which the search mode is triggered by the business model going into operation or by scaling up the search. Björkdahl et al. (2016:11) explicitly shift the unit of analysis to problems, and states that “the question that remains is under what circumstances firms start to search, what causes the changes in search mode and when they stop searching”. In this context, three main dimensions of search guide the BMI process: whether the search is backward or forward oriented, whether alternatives are evaluated online or offline, and the extent to which the problems can be decomposed. According to these authors, established firms overcome hurdles related to BMI by changing their modes of cognition and action. They find that firms shift from backward-oriented to forward-oriented search to create or discover new business model options, and that firms need to move in the opposite direction to test their business models on the market.

We follow Björkdahl et al.’s (2016) view of business model problems as a BMI process mechanism, as we see BMI as a process consisting of one or several shifts between forward-looking and backward-looking search. We currently lack an understanding of the hurdles the TMT must overcome in the process of identifying, formulating and solving business model problems and leading the organization towards a new business model. Top management plays a central role in

creating organizational change in general (see e.g. the significant stream of literature starting with Hambrick and Mason's (1984) "upper echelons" perspective). While many employees may participate in scanning activities and in data processing, information is presumed to be synthesized and interpreted for organization-level action by the TMT (Daft & Weick, 1984; Nadkarni & Barr, 2008; Prahalad & Bettic, 1986; Thomas et al., 1993). In this regard, we draw on the theoretical starting point of problemistic search (Cyert & March, 1963).

Problemistic Search and the "Problem-Finding and Problem-Solving" Perspective

Most of the extant knowledge about the TMT and other influential organizational actors and groups is grounded in the behavioural theory of the firm (Argote & Greve, 2007; Cyert & March, 1963; Gavetti et al., 2012; March & Simon, 1958). This work, which describes a behavioural process in which organizations learn from performance feedback, postulates that dominant coalitions in large organizations engage in "problemistic search" to address problems. When an organization recognizes that performance is below aspirations, a search process is initiated to identify a solution to the problem. This then results in behavioural changes that aim to restore performance to the aspired level (Posen et al., 2017).

In its original form, the theory of problemistic search was constructed as a highly simplified theory with a basic assumption of boundedly rational decision makers and a simple mapping of a performance shortfall, a problem and an organization pursuing clear goals (Greve, 2003). In this view, actions are evaluated solely based on their ability to solve the problem and organizations are assumed to prefer local search near their existing knowledge (Posen et al., 2017). However,

according to Posen et al. (2017: 2), the development of the theory underlying the concept of problemistic search “has not kept pace with the breadth of the unfolding literature”. That review identifies six problems with the extant research on problemistic search, including a limited role for managerial cognition, a lack of focus on explorative activities, a limited focus on problem identification and the black boxing of the process of searching among potential solutions. With relevance to the latter two, a stream of literature has emerged that refers to the problem-finding and problem-solving (PFPS) approach (Nickerson et al., 2012). This research provides cues as to how problem identification should and could be assigned a more central role in the problemistic search process as well as insights into how to search among alternative solutions.

The PFPS literature revolves around the identification of problem characteristics and related impediments (e.g. “anchoring, perceptual bias, information distortion, dominance, groupthink”, Nickerson et al., 2012:59) that hinder activities directed at identifying and solving problems. Defining a (strategic) problem as “a deviation from a desired set of specific or a range of acceptable conditions resulting in a symptom or a web of symptoms recognized as needing to be addressed” (Baer et al., 2013:199), the PFPS approach asks three questions:

- (1) how can leaders find, frame and formulate problems and opportunities, the resolution of which enable their organizations to create and capture value;
 - (2) how can leaders organize knowledge sets to search for and efficiently create valuable solutions to chosen problems;
 - and (3) how can leaders efficiently implement solutions to create and capture value?”
- (Nickerson et al., 2012:58).

These questions reflect interrelated activities that are seen as necessary steps in a process for creating and capturing value. By describing the problemistic search process in this way, the PFPS literature takes a step toward demystifying the black-boxed process.

The first activity in PFPS theory – finding, framing and formulating a problem – addresses the need recognized by Posen et al. (2017) and Björkdahl et al. (2016) to pay attention to “problem definition”.⁸ Examples of information that is important in the identification of problems or problem formulation are deviations in profit or turnover, customer feedback regarding quality deviations, and shareholder reactions (Björkdahl, 2016). Problem formulation depends on the aspirations of the individual or the firm as well as the actors’ perceptions of objective reality (Landry, 1997, as referred to in Björkdahl, 2016).

The second step in the PFPS process is organizing the search for solutions to identified problems (Hsieh et al., 2007; Nickerson and Zenger, 2004). Using the metaphor of knowledge landscapes from applications of the NK model (Levinthal, 1997), solving a problem involves search on a largely unknown knowledge landscape with peaks and valleys. Key questions that might arise are where to start the search, how wide or narrow to search, what mechanisms to use for the search, and when to stop the search. The literature distinguishes between forward-oriented and backward-oriented search (Gavetti, 2000) and between offline and online evaluations (Gavetti & Levinthal, 2000). Cognitive search in the form of theorizing is assumed to be superior in highly complex

⁸ Nickerson et al. (2004) refer to the attention-based theory of the firm (Ocasio, 1997) and to Weick’s concepts of sensemaking (e.g. Weick, 1997) in this regard.

settings (Hsieh et al., 2007; Levinthal, 1997; Nickerson & Zenger, 2004). Furthermore, in settings involving highly complex problem-solving, consensus-based hierarchies that facilitate knowledge transfer are presumed to be the most efficient way to govern the search. As such, they are preferred over markets and authority-based hierarchies (Hsieh et al., 2007; Nickerson & Zenger, 2004).

The above ideas are also valuable for understanding how business model change processes can be successfully managed. Indeed, finding, framing and formulating a complex problem is often the result of learning processes at the TMT level. TMTs are teams with a high degree of role differentiation associated with a high level of specialization that can often lead to relatively little task interdependency (Levesque et al., 2001; as referred in Edmondson et al., 2007:16). However, prior research suggests that teams that train or discuss together develop shared understandings of members' expertise (Edmondson et al., 2007; Haas & Mortensen, 2016; Wiese & Burke, 2019) and that teams that know each other are more likely to include uniquely held tacit knowledge into the conversation (Gruenfeld et al., 1996). Given this tension, how can TMTs develop the shared mental models (Converse et al., 1993) needed for successfully leading business model transformation processes?

We aspire to close some gaps in the extant theory by addressing TMT behaviour and cognition throughout the BMI process, and to enhance our understanding of the problem-identification stage and the role of cognition throughout the process. In our effort to integrate the business model literature with behavioural theory and PFPS research, we take the business model

problem as our unit of analysis and investigate how problem identification, problem search and organizational mobilization can drive business model change processes.

RESEARCH DESIGN

To understand how a TMT identifies business model problems caused by digitalization and searches for relevant solutions, we needed a method that would provide rich and reliable longitudinal data as well as access to a TMT. Qualitative, longitudinal data are well suited for understanding the emergence and development of a phenomenon over time (Langley, 1999; Van de Ven, 2007). We were fortunate enough to gain access to an organization that granted us the opportunity to interview the members of the TMT as well as several layers of senior managers. The organization also provided access to highly relevant archival data, such as board documents and internal strategy presentations as well as observational access to workshops and meetings involving senior managers. Thus, we relied on interviews, direct observations and secondary (archival) sources in our data-collection process. As the organization was on the verge of digital transformation, it presented itself as the perfect research context for the questions in our study.

Our research aim is to build and refine existing theory (Eisenhardt & Graebner, 2007) that explains how the TMT identifies business model problems, searches for business model solutions and mobilizes for business model transformation. We therefore selected a case study design in order to generate rich field-based data on the actions and cognitions of the TMT, its approach to problem identification, its search for solutions, and its leadership of the change. Qualitative theory development is an appropriate way to develop insights about theoretically novel phenomena, such

as how TMTs identify and solve business model problems in the context of digitalization, and about how a process unfolds (Edmondson & MacManus, 2007; Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Langley et al., 2013). We relied on “systematic combining” and abductive reasoning in our theory development (Dubois & Gadde, 2001).

Research Setting

The focal organization was a large multinational telecommunications company with operations in Europe and Asia, henceforth referred to as *Axiom*. In the years leading up to our study, the company experienced a series of changes and strategic reorientations in response to increased competition, changing regulations and opportunities emerging from new technologies. We conducted our interviews from 2015 to 2018 with the aim of exploring the process within the TMT, starting with the emergence of the first triggers of digitalization in about 2010. We also focused on the challenges the TMT faced in identifying and formulating the related business model problems, organizing the search for solutions, and mobilizing the rest of the organization

Axiom had a history of major organizational change long before digitalization became an issue. When the deregulation of national telecom monopolies opened up for national and international competition in the 1990s, Axiom went from being a provider of telecom services with a national monopoly to a primary focus on building international activities. By 2015, the company operated in 13 countries and had sales revenue of more than USD 18 billion. At the time of our study, it operated as a decentralised company with autonomous BUs, and its culture was characterised as entrepreneurial, both centrally and locally.

In 2015, a new internally recruited CEO with experience from the Asian part of the business took office, and he held that position throughout our study. Given his extensive experience in the company, he knew the telecom business well. Shortly after entering office, the new CEO made substantial changes to both the strategy and the composition of the TMT. Members of the TMT changed several times during our research period.

Data Collection

We build our study on several data sources, with in-depth, qualitative interviews with managers as the main source. By following the organization for a period of almost four years, we were able to gather real-time data for a large part of the business model transformation process. We conducted several rounds of interviews with managers at both the headquarters and the business units (BU)s and with members of the TMT. This provided us with a variety of viewpoints on the business model transformation process. In total, we conducted 42 interviews. The last round of interviews (10) focused on TMT members and was undertaken in late 2017 and early 2018.

We developed an interview guide that covered our main topics of interest while allowing for the exploration of new topics that arose during the conversation (Charmaz, 2006). The interview guide was tailored to the interviewees and focused on capturing their specific cognitions and behaviours. For example, for top managers working with technology, we took a deep-dive into specific search processes for technology trends, which differed from the search processes used by top managers dealing with daily operations. The main topics were always addressed, including the

drivers and processes of business model transformation. Questions about problem identification and solution search were added to the TMT interviews.

One of the researchers held main responsibility for the data collection and participated in all the interviews. Another researcher was present during most of the interviews. Both researchers participated in all the interviews with members of the TMT. We transcribed all interviews verbatim and analysed them using NVivo to ensure a rigid data analysis structure.

In addition, we gathered firm-level data from internal documents (e.g. board documents, internal strategy presentations, video meetings, workshop material) as well as externally available company reports (see Table 1). The archival data were used to verify and cross-check information retrieved from interviews, to add data, and to confirm event timelines. In this manner, the data were triangulated, thereby contributing to the trustworthiness of our study.

----- *Insert table 1 here* -----

We used the data to develop insights into the change process from the perspective of the TMT. Our initial approach was a first-order analysis that gave voice to the individuals experiencing the events (Van Maanen, 1979) so that the insider's point of view was the foundation of our analysis. Based on these first-order views, we formulated deeper, more theoretical second-order interpretations (Gioia et al., 2013; Van Maanen, 1979). In this stage, we used key concepts from the PFPS perspective (i.e. problem identification, solution search and change leadership) as theoretical lenses.

The deductive reasoning phase was followed by a return to the data to derive an inductive understanding of the temporal sequencing in our case. We developed a process description of the ongoing business model transformation in the case company, which we used as the foundation for a more general process model with related propositions on how TMTs can accelerate business model transformation in the case of digitalization.

----- *Insert figure 1 here* -----

FINDINGS

In the following, we describe our key findings. First, we discuss the pressures for change leading up to Axioms transformation of its core telecommunication business model. Second, we describe the initiation of the business model transformation through first a leap towards a new strategic position as a digital service provider (DSP), the reactions fuelled by this leap, and the following process of problem reorientation and formulation, the build-up of recombination capabilities and the search for solutions and mobilization for change. We also look at the changing requirements this process posed for the TMT and the mechanisms the TMT utilized to facilitate the change process.

Pressures for Change

Axiom faced an increasing number of threats from players outside the telecom industry, such as internet service companies, that were developing new, engaging digital solutions for customers, including communication and messaging applications. In particular, the voice and messaging services offered by global internet players disrupted the revenue potential for mobile voice and messaging, leaving connectivity as the telecom operators' core service. With the

introduction of the smartphone, consumers' needs and habits changed, creating demand for a multitude of digital services. Consumers began expecting real-time and personalized experiences as well as ever-increasing data-transmission speeds. In sum, Axiom's business model was at risk. These internet-based actors brought a different "industry recipe" – a new logic for value creation and value capture (Spender, 1989) – and they challenged traditional customer relationships.

----- *Insert figure 2 here* -----

Axiom's TMT experienced the technological opportunities, industry divergence and changing customer needs as pervasive and complex uncertainties to the viability of their current business model. They were pervasive because they affected all aspects of the business model and complex because they interconnected in ways that were not obvious. Uncertainties arose with regards to who the actors in the field were, when they would make their moves and in what direction, what the technological opportunities would be, which solutions and payment methods customers would favour, and how value could best be appropriated. The TMT faced a three-pronged challenge: 1) the need to identify, frame and formulate the latent business model problems posed by digitalization; 2) the need to search for new business model(s) that could create and appropriate value in uncertain and changing times; and 3) the need mobilize the organization and build the skillset necessary to implement the change.

The Process of Business Model Transformation

Leaping towards the future

In 2015, Axiom launched a new strategy to become a digital service provider (DSP),

which represented a disruptive leap in the company's strategic development. By becoming a DSP, Axiom aimed to foster digital growth by strengthening existing digital service areas (e.g. financial services and online classifieds) and to explore new areas by building a company portfolio around five to six new business areas. At the end of 2015, the Board endorsed the new strategy.

The DSP strategy was championed by the new CEO. He was officially appointed in May 2015, but he was released from his other duties already about six months earlier. Therefore, he could devote time to reflect and learn before taking office. He used that time on extensive traveling and visits to companies in other industries to get first-hand knowledge about industrial trends. Axiom was a strong player in the consumer market in all its country operations. Most customers had already switched to smartphone and were active users of digital services offered by the internet companies. With the considerable growth in digital services he saw this as promising opportunities for Axiom. Driven by the fear of Axiom becoming a utility of connectivity services, the CEO worked intensively together with a team of strategy experts to make strategic changes that leveraged the expected growth opportunities caused by digitalization of business processes and service

The new CEO saw the need to make changes in the TMT to be able to realize the DSP strategy. To involve and hold responsible the strong business unit (BU) CEOs, he removed the regional managers and included all the BU CEOs into the TMT. As a result, the TMT was extended from eight to 21 members. The team's extension was intended to ensure a global presence in the TMT, and to ease information flow and coordination by including the country

CEOs in the arena where the strategy was first communicated. Several of our TMT informants indicated that they believed that enlarging the TMT group for a period of time was a smart move and that it served its purpose in terms of allowing for more effective communication and uniting the organization. As a top manager expressed it: “We achieved a type of involvement in the organization that was necessary.” However, as another top manager commented: “Obviously, the CEOs have the responsibility. But that does not mean that they have the necessary competence.”

The TMT’s expanded size also resulted in less time for strategy making and detailed discussions. Thus, a new forum for deeper discussions was established – a separate weekly meeting with narrower participation. This “corporate committee” consisted of eight of the most central corporate directors, including the director of finance, the market director, the technology director, and the CEOs of two important country markets.

In 2017, the number of TMT members was reduced to 12. Instead of including all country managers, all operative units were grouped in four clusters: Scandinavia, Central and Eastern Europe, Asia (emerging markets), and Asia (mature markets). Each cluster was led by a corporate director. Notably, by the autumn of 2018, the TMT had no members who had been on the team prior to May 2015. The CEO explained:

I deliberately recruited new people. Quite frankly, this was because we need people in place with subject-matter expertise, even at the top. Far too many people talk about digitalization and not enough of them know what it is about.

To strengthen the digital competence in the TMT, a separate chief digital officer (CDO) position was established in 2015. The CDO was made responsible for the company's digital portfolio, including the Internet of Things, financial services, online classifieds, data analytics and digital distribution. The same year, the CEO referred to digitization as a "revolution" in his letter to shareholders.

Critique and a need to detail the business model change

When the DSP strategy was launched, it was soon criticised both among employees and shareholders for being too vague. The message that Axiom communicated did not detail the digital services that would be provided, the capabilities that would be needed, or how the new digital services would be prioritized relative to the existing business. The lack of clarity on these important issues created significant uncertainty in the organization, especially in the part of the organization occupied with the traditional telecom services. This lack of clarity in the strategy left room for interpretation, and a variety of stories about Axiom's future began to circulate. There was also a lack of consistency between Axiom's strategic ambitions and what the investors would allow. According to one member of the TMT, "the shareholders did not believe in the story".

Thus, the debate over the DSP strategy continued with regard to whether it was the right move and what it would entail. Radical ideas emerged driven by the fear that Axiom would end up as a utility only selling connectivity. Many were eager to pursue a pure digital service provider position taking up the competition with Google, Facebook and the likes. Others argued that a connectivity position was a more realistic future.

In April 2016, the CEO publicly described Axiom's situation and ambition as follows:

We are faced with the need to change rapidly. We will see a dramatic reduction in income from voice. [Therefore,] we need to embark on a journey *from being a traditional mobile operator to being the preferred deliverer of digital services*. (Newspaper article, 2016; author's translation, emphasis added)

In other words, the CEO signalled that a significant change was to come – a shift away from the existing business.

In the spring of 2016, the TMT continued its work on detailing the strategy. In particular, it specified ambitions related to digitalizing the network (the core business), building global software platforms that could be scaled (including digitizing and automating distribution and customer journeys), and providing customers in existing and new verticals with access to independent digital services, content and applications. In a problem statement distributed throughout the organization, the TMT acknowledged that Axiom had yet to succeed in translating its DSP strategy into clear implications at the business-unit level. Some BUs had started developing local frameworks to define their business model, and a process to define a common business model framework and language was started. Based on a vision of becoming “our customers' favourite partner in digital life”, each BU was asked to revise its business model, focusing on how to deliver simple, digitized customer experiences.

For an extended period of time, there was uncertainty regarding the strategic implications of the DSP strategy. Members of the organisation stated to question what steps that were required

maintain the core business and to make required changes on the “journey from being a traditional mobile operator to being the preferred deliverer of digital services”. As explained by a member of the top management:

The discussions we have had in [the top management team] shows that we lack a clear understanding of what the target really is. We have a strategy: we know that we are not to be a dumb bit provider, we will be a digital service provider, which means that we will digitalize a lot more of our core business, and in addition we will develop digital services that supports our core business. But exactly which cloud product should we target for our business services? No, we don't have a detailed strategy. And the customer value proposition? Yes, we lack a business model...

In addition to the lack of a detailed strategy and a business model, the TMT also experienced a lack of a common language to describe the strategy and the related changes which turned out to be a source of confusion. Concepts like “digitalization” and “digital service provider” were wide enough for different interpretations to emerge both within the TMT and within the organization in general. In the autumn of 2016, the DSP strategy was clarified:

The majority of the Axiom workforce will drive the digitization of the core telco [telecommunication] operation (70% focus) where Axiom provides new services to customers through digital channels that are developed in-house and with partners (20% focus). The organization also needs to address new digital verticals (10% focus).

Reorientation: Focusing and deciding what not to do

In 2017, a new strategy process was initiated, which led to the launch of a new and more focused strategy in January 2018. In this phase, the TMT began working in a new way. Instead of discussing the ultimate goal (“end state”), the discussions revolved around key beliefs about the future. A major challenge was the need to achieve a balance between wanting to be concrete and being unable to be specific about the desired end state. The result was a formulation of a strategic direction through the identification of focal areas. As the CEO stated:

Strategy today is not about the “end state”. Rather, it is about trying to make some bets based on your key beliefs. Therefore, when I discuss our strategy with the board, the foundation is our key beliefs. Then we try to use those key beliefs to build a direction. It is a lot more demanding than it used to be.

To establish a direction for the future, the TMT had to search cognitively and develop foresight as well as a capability to frame digitalization-related issues. The need for new capabilities required new competences also in the TMT. This led the CEO to make changes to the TMT composition. Furthermore, the TMT members began to play different roles in problem identification. Some TMT members, such as the CDO, assumed roles as change agents. The increase in actors crossing traditional industry boundaries to become potential and real competitors required the TMT members to conduct wider scans in order to better orient the firm towards the external environment (i.e. beyond the traditional competitors) and to look for inspiration from other industries. As expressed by one TMT member:

Today, [strategy] is much more about pointing out a direction and hoping that it is right.

To be able to do that, I need to spend a lot of time outside the organization. I need to spend time in Silicon Valley and China.

The data in our case suggests that the TMT did not have a unified view on the business model problems. To a great extent, the scanning process was informal, inexplicit and tacit. Each TMT member developed his or her own approach. However, scanning efforts were also shared among TMT members through TMT meetings and other common arenas, creating opportunities for common problem framing. Due to the lack of time to discuss potential problems and challenges during the ordinary TMT meetings, the meeting structure was changed. At the end of our study period, a new “evening forum” (a longer meeting with the opportunity for more in-depth discussions) was being tested. The TMT also started taking “scanning” trips as a group, such as a trip to San Francisco. Two such trips had been taken and the plan was to make this type of trip a yearly event. After each trip, the TMT members were asked to identify ways in which newly uncovered information could be integrated into the organization’s practices.

Several TMT members stressed the importance of setting aside enough time to discuss business model problems, build knowledge and agree on a direction. The TMT members recognized that it would take time to change from a culture of “little kings” of a business domain (i.e. each member of the TMT represented his or her own “kingdom”) to a culture of working together as part of a global company. Some degree of friction was viewed as beneficial. However, the process of developing a few “key beliefs” – statements that everyone on the TMT agreed

represented the direction for the future, was seen as important for ensuring unity. According to the CEO:

There has to be unity with regard to our direction. However, I do not want unity on [the understanding of the desired end state]. ... If we were to succeed in this regard, I would be afraid that it was too much agreement. We need constant friction in discussions. ... If we do not have friction, I would worry that the choices we are making come too easy.

The CEO further stressed that a key challenge was figuring out what *not* to do.

Digitalization brought a wide set of opportunities and there was little need to limit the search given the annual growth target of 4-5%. However, determining the priorities was a major hurdle for successfully transforming the business model. While the DSP strategy was viewed to be too vague, the new strategy was more focused, including a much stronger focus on prioritization, and what not to do.

Building recombination capabilities

Many of the decisions that needed to be made to clarify the new business model required new competences, such as an ability to develop digital-centric customer journeys and extensive knowledge of data analytics. To build such capabilities and execute the digital transformation, a global transformation program was established that included a focus on agile work processes and a new operating model.

To train leaders in the digital way of thinking, academic partnerships were initiated, including a partnership with INSEAD. In addition, a learning program was developed for the top

levels of the organization (Dasi et al., 2017). Key topics included the introduction of agile cross-functional ways of working, how to think like an entrepreneur in a big company, and how to become more agile. In addition, an online education program called “Digital Awakening” was developed for lower-level managers. All employees (including TMT members) were encouraged to take 40 hours off per year for competence development and upskilling.

However, even though massive capability-building initiatives were introduced, our interviews reflected a belief that transforming existing capabilities into digital capabilities was difficult. One senior manager stated: “To make the changes needed to realize the DSP strategy, we would have to change some of the people we have in this organization in order to gain access to new expertise and new competences”. The capability-building initiatives were thus supplemented by external hiring of people with digital expertise, which was also expected to contribute to learning among the employees. Moreover, Axiom built capabilities by acquiring new entrepreneurial enterprises. A new unit, “Digital Business” was set up to manage acquisitions in new verticals. In one example, a marketing technology start-up was acquired, as explained by a member of the TMT:

The investment in [the start-up] was not about buying what they did within digital marketing in the US. It was about buying competences that we did not have.

Searching for solutions

While the search for new knowledge in the organization traditionally followed the “waterfall” technique (i.e. sequential distinct stages), the capability-building initiatives that were

underway as part of the business model transformation focused on agile working methods, such that a more experimental search approach gained a foothold. For Axiom – an organization unaccustomed to experiments – mastering this approach was challenging. Thus, many of the experiments tended to be too large and too costly, and often the search process was not stopped quickly enough. As expressed by a member of the TMT:

In an ideal world, experimentation should be, by far, the largest part of how we reach a solution. The ratio should be 90/10. Why are we unable to trust in that? I think it is because, as a traditional corporation [...], we are just not very good at [experiments]. Therefore, we cannot trust that the part of the job that should be 90% is happening, and we have to compensate through cognition.”.

Thus, in practice the use of cognitive/heuristic search and directional/local search are intertwined, at least until the experimentation process is mastered.

Projects were established to search for knowledge on different technical and regulatory subjects with significant strategic implications. One example is how the forthcoming shift from a physical to a digital (“embedded”) SIM card used in mobile phones has the potential to fundamentally change distribution of mobile services from physical retailing to digital channels. Another is development of mobile network technologies from 4G to 5G, that changes how mobile services are produced and opens multiple new use-cases. Such search projects are performed both in the business units close to the customers and on group level within the functional responsibilities of top managers.

Members of the TMT expressed that an increasing number of key strategic decisions became part of the informal strategy process. Our informants related this development to an imminent need to make strategic decisions quickly. Given the number of issues to be handled during TMT meetings, both strategic and operational, there was limited time for detailed discussions of the different business model problems, such as structures and practices in relation to partnering with new types of actors (e.g. Facebook and Google). There was also little time to work on ways to monetize the new digital services, or to examine how performance management and risk profiles should be addressed in the new business model. A key challenge at this point was that uncertainties regarding future business model components affected each other, making it difficult to isolate the decisions.

Members of the TMT also expressed a need to follow-up on radical new initiatives to overcome path dependencies and organizational legacies. The CEO explains:”:

Sometimes I go very deep into operational problems. ... This is the new thing that we are doing. [...] There are some projects that I get involved in myself, and I shortcut the whole bureaucratic line organization. (CEO)

Shortcutting decision lines in this manner also allowed top management to follow selected projects all the way and to work hands-on with selected challenges related to realizing new digital business model opportunities. One example was the establishment of a company based on the development of a software platform that could be added to the existing IT platforms. This platform allowed for individualised pricing plans and solutions without the need to involve the

large IT systems. As the CEO expressed it:

The company that we developed together with [partner] would never have seen the light of day if I had not been sitting on it the whole time. The whole initiative would have been killed a long time ago [if I had not taken such an active role].

Another mechanism used to build new digital capabilities was experiments of “self-disruption” – the introduction of separate business models in order to try to disrupt the core business model. A full-digital operator was established in two of Axiom’s markets, and a third was being set up at the time of our study. The new business models used the parent company’s network, but their prices were 25% lower than the parent company’s and they competed with the parent company. The CEO explained how this was intended to contribute with new learning:

We are setting up competitive businesses internally. If we do not do it ourselves, others will take that position. We also do so in order to build competence: How could we be doing things differently? Again, this creates a lot of tension and friction. On the other hand, we now see how we can learn and how we can take the “big dinosaur” in a certain direction, as we have already tried it.

Critical initiatives were chosen, and capital and people were allocated to those initiatives in order to explicitly test and potentially scale new business model elements that could affect the traditional business model from a short-term perspective and improve the organization’s ability to deal with future business model changes. However, although the direction was established from the top, most of the search were also driven from the bottom up (Barney, Foss and Lyngsie,

2018). As one of the TMT members expresses it:

For those that are close to the market ... that is where many of the bottom-up activities are happening. We try to not have overly strict control over this – just some degree of transparency so that learning can be transferred.

Mobilizing for business model transformation

The complexity, disruption and uncertainty involved in the business model transformation created a need for the TMT to spend more time on sensegiving (i.e. attempting to influence others' sensemaking or meaning construction; Gioia and Chittipeddi, 1991) and storytelling to ensure involvement. Axiom had been an international growth company for more than twenty years and it was still growing, which created a challenging context for implementing change. In addition, the company was cutting costs in parallel with digital transformation and the uncertainty regarding future roles in the organization created a great deal of frustration, especially among mid-level managers. There was a need to “take the employees on a journey” and the CEO found it necessary to speak directly to multiple organizational layers. He explains:

It starts with trying to create a burning platform [...] When that is accomplished, it revolves around storytelling about the direction you have chosen. And there I have not been clear enough the last couple of years. I should have been much clearer on this! [...] you just have to repeat the message time and time again.

While the business model transformation was complex and comprehensive, there were also aspects of the business that did not change. Even (or especially) when in transition, there was a

need to ensure good governance practices also for the part of the business that was stable (e.g. legal, HR). This created the challenge of combining different types of processes in the organization. With regards to the new business model, it was necessary to create a coherent operative model that fit the new value-creation and value-capture logic.

DISCUSSION

This study explores how the TMT identifies business model problems, searches for business model solutions, and leads the related business model change. By examining how the TMT in our case company work to identify and formulate business model problems, organize knowledge to search for new business model solutions, lead appurtenant change, and build an engaged and capable organization, we have identified key traits in TMT cognition and behaviour. Our analysis suggests that the TMT transforms the business model through a dynamic and complex process that unfolds over time. To identify the dynamics of the process we analyse data through a first and second order analysis (Figure 1) and synthesize the findings in a model (Figure 3). Our model shows how a TMT can develop the problem-understanding capabilities that allows it to mobilize the organization for change. In the following, we explain the relationships among the concepts in our model.

----- *Insert figure 3 here* -----

Based on our findings and illustrated by the top and bottom arrows in Figure 3, digitalization exposes the TMTs of established companies to the contradictory pressures of problems that require changes in existing business models and calls for preservation of old business models. *Calls for preservation of old business models* are related to organizational forces for

preservation and inertia, while *problems that require changes in existing business models* are related to how digitalization might trigger or even force a change in the existing business model. Together, these opposing forces require the TMT to combine the old and the new business model, and to mobilize the organization for change. In the case company, this involved an iterative process of problem identification, problem solving, problem reorientation, problem formulation, problem solving, and mobilization for change. Based on the findings from our case company, we identify four key capabilities that we suggest are needed for the TMT to accelerate the process of business model transformation: business model problem identification, business model formulation, business model recombination and business model search. As Figure 3 illustrates, these four capabilities are related but not necessarily in a linear manner. In the following, we elaborate on these capabilities and develop propositions for how the TMT can succeed in accelerating business model transformation in the face of complex and interconnected (strategic) business model problems in an uncertain and fast-moving context.

Business Model Problem Identification

Our findings show that a key hurdle for the business model transformation process was the task of identifying and formulating the business model problem. According to PFPS theory, a manager chooses valuable problems that, if successfully solved, will yield desirable knowledge or capabilities (Nickerson & Zenger, 2004). However, the rapid changes associated with digitalization force managers to manoeuvre strategically in unknown landscapes. Therefore, the TMT first needs to create a cognitive map of the new digital landscape in order to understand possible business

model problems as well as the related opportunities and challenges. Our findings confirm Björkdahl et al.'s (2018) argument that in settings of radical change, *identifying* the business model problem might be a challenge in itself due to the complexity and interconnectedness of potential problems as well as the uncertainty regarding the future. As the actors within the corporation's boundaries have limited knowledge of the new landscape, problem identification might require the use of externally oriented sensors (such as to acquire new employees with background from digital service development) to identify possible changes in customer value propositions, the dynamics of the value-creation ecosystem and the ways in which value is appropriated. Our findings further suggest a need for offline (cognitively demanding) search in this phase, and that the identification of business model problems related to digitalization is supported by the build-up of cognitive content and structures within the TMT that will guide the TMT's attention (i.e. the noticing, interpretation and focusing of time and effort; Li et al., 2013) in the search for digital business model problems. This build-up of new cognitive maps will also require the ability to unlearn established truths and cognitive frames that does not work in the new context (Kaplan, 2008). Given our findings and this reasoning, we present the following proposition:

Proposition 1: *The likelihood of identifying digitalization-related business model problems for TMTs of established (non-digital) companies is enhanced by setting existing cognitive maps aside and developing (the content and structure of) new cognitive maps that might replace existing maps.*

Business Model Problem Formulation

Our findings highlight that the complexity and uncertainty associated with digitalization-related opportunities makes problem *formulation* an important part of the business model change process, especially in terms of ensuring a common understanding of the problem within the TMT. In order to formulate the problem, the TMT must understand and be able to make sense of new types of information; see how the business model problem might play out in new and different knowledge landscapes; and (as a team) decide on a future direction. Our data indicate that this capability is supported by subject-matter expertise on related business model problems (even) at the TMT level, as well as TMT diversity, including experience from outside the industry. For existing companies (and internally recruited top management), our data further indicates that it may be beneficial to first create distance from the existing operations in order to reflect, gather inspiration and prepare to unlearn some of the “established truths” that might be deeply ingrained in existing practice and in the minds of managers. It might also be beneficial if, at least in the transition period, some TMT members (e.g. chief digital officers) are assigned responsibility for cognitively searching for problems for which the solutions may entail higher value creation. This contributes to ensuring that the right knowledge is in place within the TMT.

A key challenge for the TMTs of established companies in formulating the business model problem lies in establishing how (selected parts of) existing knowledge can be merged with new knowledge so that the past, present and future are interlinked in terms of both behaviour and cognition. This is important, as “strategic choice and agency involve simultaneously operating in three time-horizons ... through distinct cognitive capabilities and organizational processes that

support them” (Rindova & Martins, 2018: 168). By balancing these time horizons, the company’s uniqueness may truly stand out, laying the ground for a sustainable competitive advantage.

In addition to building cognitive frames that contain the needed knowledge on digitalization, the TMT need to decide on a future direction. The TMT in total represents the unity of the corporation, but each TMT member also represents distinct parts of the corporation. Kaplan (2008:729) suggest that actors engage in “highly political framing practices to make their frames resonate and to mobilize action in their favour”. Even from a strictly rational perspective, the digitalization challenge may look different in different parts of the corporation. Therefore, establishing a common view of the overall direction may not be easy. Also, as TMT members are likely to have different concerns and be driven by different agendas, reaching agreement requires decision-making processes that ensure that friction in the TMT is balanced. As such, creating a common direction might mean moving past each TMT member’s focus on the interests of his or her areas to focus on the joint interests of the corporation. Rentsch and Klimoski (2001) suggest that schema agreement, or sharedness, is critical for team performance. In our study, we found that the TMT benefited from agreeing on key overall beliefs about the future while accepting that the end state was uncertain. In other words, our study suggests that unity on the desired end state is not required (or even necessarily a good thing). Our findings confirm Hsieh et al.’s (2007: 1265) notion that “with non-decomposable, complex problems, often large amounts of knowledge must be *shared* in order to pursue an effective search”. This favours the engagement of multiple actors in knowledge transfer and discussions in order to collectively develop a map of the solution landscape.

It also highlights the difficulties established companies face in determining the right direction and doing so quickly enough. This discussion leads to our second proposition:

Proposition 2: *The ability to formulate business model problems increases if the TMT can establish “team” collaboration and balance a common understanding of key beliefs about the future direction with frictions related to the preferred end state.*

Preparing for Business Model Recombination

Organizational impediments (e.g. vagueness in problem understanding, inertia in established practices) may slow down and constrain attempts to transform the business model (c.f. Chesborough, 2010). Based on the insight from our case study we suggest that these impediments can be limited by a preliminary process step aimed at preparing the organization for business model change through the development of business model recombination capabilities. As digital business model transformation arguably requires a cognitive shift. A period of confusion, uncertainty and even fear – as our data illustrated – might be expected. One hurdle to avoid is the TMT “bottleneck”. In other words, steps should be taken to ensure that the organization is not waiting for TMT decisions by, for instance, ensuring that business model direction is detailed enough to allow for action, and that the TMT sets aside time to discuss and work through remaining business model issues.

In line with earlier business model theory (e.g. Osterwalder & Pigneur, 2010), our findings also suggest that a common language and common tools are important for accelerating the cognitive shift. Business model templates, such as the business model canvas or similar vehicles, could be

useful for ensuring that all business model aspects are taken into consideration. They can also assist in the communication of new business model aspects. This is illustrated in our case study, where we observed how the use of the business model canvas facilitated communication about business model problems and business model solutions related to digitalization. We therefore suggest the following:

Proposition 3: *Communication of business model transformation is enhanced by a clear direction and common “language” for key terms relevant for the business model transformation process and by explicitly addressing the necessary cognitive and objective business model changes as well as the interlinkages between the components.*

The problems posed by digitalization require the build-up of new capabilities in the organization, preferably through some combination of learning initiatives, external hiring, and acquisitions. Our observations highlight the importance of ensuring unified communication for radical business model transformation. For instance, the TMT needs to directly communicate with multiple levels of the organization, spend time on sensegiving activities (Gioia & Chittipedi, 1991), and focus on the creation of business model narratives (Kaplan & Orlikowski, 2014) to adjure to cognitive and emotional aspects that are central for business model mobilization. This suggest that a strong CEO and a united TMT must address the organization. The above reasoning leads us to the following proposition:

Proposition 4: *The likelihood of success with mobilizing the organization increases when the TMT can present a coherent story that explains the new business model logic and how the various parts of the organization fit into the new story.*

Organizing the Search for Business Model Solutions

Due to the newness and complexity of strategic issues related to digitalization, the uncertainty regarding the future and the rapid pace of change, cognitive search (and related strategic discussions) can become an ongoing part of management work. Our findings suggest that managers start the search within new knowledge landscapes using a widened, forward-oriented search. Thereafter, the search is focused by online evaluation based on data analyses and performance indicators in order to decide what to do and what not to do. In this regard, our findings confirm that the search for solutions requires cognitive or heuristic search (Nickerson & Zenger, 2004) as well as efforts that include backward-oriented search (Berends, 2016; Björkdahl et al., 2017). Our findings show that backward-oriented search might represent a new way of working and be difficult for existing firms to master at first. Therefore, a combination of backward-oriented and forward-oriented search is still required. We propose the following:

Proposition 5: *The search for new business model solutions for established companies is supported by combining cognitive search with backward-oriented search and online testing.*

Our case study illustrates that the search for solutions can be both a top-down and bottom-up process, which can be strengthened through a build-up of digital capabilities and flexible (i.e. agile) work practices. Our findings also indicate that digital business model transformation requires

changes in structure and capabilities that encourage cognitive flexibility. A loosely coupled organizational structure supports organizational change (Nickerson & Zenger, 2004), and searches can be organized through project organization and matrices. Techniques to combat inertia and shortcuts around decision lines, such as “hands-on” involvement by top management as seen in our case study, allow top management to become deeply intertwined with the new business model logic. The increased access to data facilitated by digitalization can be utilized to measure goal achievement, especially through the extended use of performance measures. As such, we propose:

Proposition 6: *The search for new business model solutions is strengthened by hands-on top management ensuring the use of agile work processes and the use of mechanisms that counteract inertia and shortcuts decision lines.*

CONCLUSION

The business landscape is undergoing major changes caused by digitalization-related factors such as blurring industry boundaries (e.g. Atluri et al., 2017), disaggregated value chains and threats from new entrants (e.g. Davis, 2016). These fundamental changes create a need to revisit existing knowledge and explore the phenomena of digital transformation in order to advance our understanding of the cognition and behaviour of TMTs and their potential effects. This paper addresses the current lack of research on the role and function of TMTs in business model transformations in the digital age. Through our explorative case study we aim to better understand how TMTs and influential individuals, such as CEOs, work to identify, frame and formulate business model problems; organize knowledge to search for new solutions; and implement solutions by leading change. Our findings add to the extant literature in two key areas.

First, we build on and contribute to the business model literature. In particular, we add to the BMI process literature focused on existing companies (e.g. Demil & Lecocq, 2010; Berends et al., 2016; Bjorkdahl et al., 2016) by analysing business model transformation from the TMT perspective. We do so by using behavioural theory and PFPS-related concepts of problem identification, solution search and mobilization for change as theoretical lenses. We identify four TMT capabilities as central for the business model transformation process: business model problem identification, business model problem formulation, business model recombination and business model search. We thus unbundle the concept of business model transformation into concepts that explain the cognition and behaviour needed to accelerate the transformation process.

We also show how digitalization changes the dominant logic of the business model by affecting the content of and interlinkages between key business model components. We argue that this triggers a cognitive change with regards to the way top management identifies business model problems and searches for solutions. We go beyond the extant literature (e.g. Berends et al., 2016) in detailing how both forward-oriented and backward-oriented cognition are relevant for organizational search processes in existing companies. More specifically, our findings suggest a key role for forward-oriented cognition in problem identification and formulation activities, and they suggest that forward-oriented and backward-oriented search should be combined in the search for solutions. This is because the costs related to learning new work practices in existing organizations necessitate a combination in which the search is initially forward-oriented (cognitively), after which testing can be used.

We add key observations on the role and function of the TMT in accelerating business model transformation to the literature on business model leadership. We confirm the importance of reaching unity on problem formulation in the TMT (see Doz & Kosonen, 2010). Our findings also add nuances in this regard, as upfront unity on the desired end state of business model transformation might signal that the decision has been reached too easily. In addition, our study suggests that the TMT needs to develop an ability to quickly make strategic decisions (see also Eisenhardt and Martin, 2000) while taking business model interconnections into consideration. Moreover, templates and processes that support the development of cognitive heuristics for business model transformation decisions should be developed. Finally, our findings suggest that

mechanisms to avoid inertia are important for established organizations in order to succeed with digitalization. Such mechanisms might include members of the TMT taking a direct role in selected projects. For instance, a TMT member can take on the role as the owner of a high-priority digitalization project and actively follow that project. In terms of mobilizing the organization for the business model transformation, our findings highlight the importance of creating a business model narrative (Kaplan & Orlikowski, 2014) that describes the new business model, and reflects the link between the old and the new business model logics.

Second, we contribute to the problemistic search and PFPS literature by applying concepts such as “problem”, “problem identification” and “solution search” in the context of the business model transformation, refining the meaning of the concepts, and adding meaning specific for the cognition and behaviour of the TMT in accelerating business model transformation. We include a focus on the problem identification and formulation phase, thereby addressing an identified research gap (see Posen et al., 2017). Moreover, we find that successful problem formulation places demands on the cognitive structure and capabilities of the TMT as well as the ability of its members to work as a team and develop a future direction that balances frictions as well as the level of specificity. Furthermore, our findings suggest that the leadership of digital business model transformations in existing organizations is supported by the inclusion of outsiders in the TMT, such as TMT members with digital industry experience, and by the inclusion of TMT members tasked with thinking cognitively about the future direction. The addition of outsiders to the TMT

can also be a way to create cognitive flexibility (Furr, 2009). However, the resulting increase in the TMT's diversity might increase friction – a balance is needed.

To address our research aims, we adopted a qualitative research approach with the intention of gathering rich, descriptive data and generalizing from that data to theory (not to populations; see e.g. Welch et al., 2011; Yin, 2017). We recognize that this approach is associated with certain boundary conditions for our findings and our model, most notably the risk that our findings may be idiosyncratic. We developed propositions based on the findings we considered likely be common among other companies facing pressures to engage in radical business model transformation. However, additional research is needed to test the propositions in other cases and settings.

Despite these limitations, we believe that our process model and related propositions can be highly relevant in practice and that they can help TMTs accelerate business model transformation processes. We suggest that in order for the TMTs of existing companies to succeed with digital business model transformation, they need to be able to identify and formulate problems with the existing business model and, thereby, to break out of their dominant logic in order to develop (fragments) of a new logic coherent enough to point to a direction for future work. In addition, they must find ways to search for new knowledge and solutions that are not inhibited by the inertia of the organization's old business model logic. Finally, they need to find ways to lead the organization through a change process that requires breaking out of the old business model dominant logic and starting a new "journey".

REFERENCES

- Andersson, L. and Van der Heyden, L. (2017). 11 leadership guidelines for the digital age. *INSEAD Knowledge*; <https://bit.ly/35kk6va>
- Andreini, D., Bettinelli, C., Foss, N. J., & Mismetti, M. (2021). Business model innovation: a review of the process-based literature. *Journal of Management and Governance*, 1-33.
- Andries, P. and Debackere, K. (2007). Adaptation and performance in new businesses: Understanding the moderating effects of independence and industry. *Small business economics*, 29(1-2), 81-99.
- Arend, R. J. (2013). The business model: Present and future—beyond a skeumorph. *Strategic Organization*, 11(4), 390-402.
- Argote, L. and Greve, H. R. (2007). A behavioral theory of the firm—40 years and counting: Introduction and impact. *Organization Science*, 18(3), 337-349.
- Atluri, V., Dietz, M. and Henke, N. (2017). Competing in a world of sectors without borders. *McKinsey Quarterly*, 3, 32-47.
- Baer, M., Dirks, K.T. and Nickerson, J.A., 2013. Microfoundations of strategic problem formulation. *Strategic Management Journal*, 34(2), pp.197-214.
- Barney, J. B., Foss, N. J., & Lyngsie, J. (2018). The role of senior management in opportunity formation: Direct involvement or reactive selection?. *Strategic Management Journal*, 39(5), 1325-1349.

- Berends, H., Smits, A., Reymen, I. and Podoyntsina, K. (2016). Learning while (re) configuring: Business model innovation processes in established firms. *Strategic Organization*, 14(3), 181-219.
- Bettis, R. A. and Prahalad, C. K. (1995). The dominant logic: Retrospective and extension. *Strategic management journal*, 16(1), 5-14.
- Björkdahl, J., Holmén, M. and Fallahi, S. (2016). Business model innovation processes: Looking forward and looking backward. In *Academy of Management Proceedings* (Vol. 2016, No. 1, p. 18279). Briarcliff Manor, NY 10510: Academy of Management.
- Bogner, W. C. and Barr, P. S. (2000). Making sense in hypercompetitive environments: A cognitive explanation for the persistence of high velocity competition. *Organization Science*, 11(2), 212-226.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. sage.
- Chesbrough, H. and Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. *Industrial and corporate change*, 11(3), 529-555.
- Chesbrough, H. (2010). Business model innovation: opportunities and barriers. *Long range planning*, 43(2-3), 354-363.

- Cyert, R. M., and March, J. G. (1963). A behavioral theory of the firm. *Englewood Cliffs, NJ*, 2(4), 169-187.
- Daft, R. L. and Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *Academy of management review*, 9(2), 284-295.
- Dasí, À., Elter, F., Gooderham, P. N. and Pedersen, T. (2017). New Business Models In-The-Making in Extant MNCs: Digital Transformation in a Telco. In *Breaking up the Global Value Chain: Opportunities and Consequences* (pp. 29-53). Emerald Publishing Limited.
- Davis, G. F. (2016). Can an economy survive without corporations? Technology and robust organizational alternatives. *Academy of Management Perspectives*, 30(2), 129-140.
- Demil, B. and Lecocq, X. (2010). Business model evolution: in search of dynamic consistency. *Long range planning*, 43(2-3), 227-246.
- Demil, B. and Lecocq, X. (2015). Crafting an innovative business model in an established company: The role of artifacts. In *Business models and modelling* (pp. 31-58). Emerald Group Publishing Limited.
- Dubois, A. and Gadde, L.E. 2002. Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55(7), 553-560.
- Doz, Y. L. and Kosonen, M. (2010). Embedding Strategic Agility: A Leadership Agenda for Accelerating Business Model Renewal. *Long Range Planning*, 43(2–3), 370-382.
doi:<https://doi.org/10.1016/j.lrp.2009.07.006>

- Edmondson, A. C., Dillon, J. R., & Roloff, K. S. (2007). Three perspectives on team learning: outcome improvement, task Mastery, and group process. *Academy of Management annals*, 1(1), 269-314.
- Edmondson, A. C. and McManus, S. E. (2007). Methodological fit in management field research. *Academy of management review*, 32(4), 1246-1264.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 14(4), 532-550.
- Eisenhardt, K. M. and Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of management journal*, 50(1), 25-32.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they?. *Strategic management journal*, 21(10-11), 1105-1121.
- Fiol, C. M., and O'Connor, E. J. (2003). Waking up! Mindfulness in the face of bandwagons. *Academy of management review*, 28(1), 54-70.
- Foss, N. J. and Saebi, T. (2017). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning*.
- Frankenberger, K., Weiblen, T., Csik, M. and Gassmann, O. (2013). The 4I-framework of business model innovation: A structured view on process phases and challenges. *International journal of product development*, 18(3/4), 249-273.

- Furr, N. R. (2009). *Cognitive flexibility: The adaptive reality of concrete organization change*. Stanford University.
- Gartner, 2019. The Gartner Glossary. Retrieved November 26, 2019, from <https://www.gartner.com/en/information-technology/glossary/digitalization>.
- Gavetti, G. and Levinthal, D. (2000). Looking forward and looking backward: Cognitive and experiential search. *Administrative science quarterly*, 45(1), 113-137.
- Gavetti, G., Greve, H. R., Levinthal, D. A. and Ocasio, W. (2012). The behavioral theory of the firm: Assessment and prospects. *The academy of management annals*, 6(1), 1-40.
- George, G., Haas, M. R. and Pentland, A. (2014). Big data and management. In: Academy of Management Briarcliff Manor, NY.
- Gioia, D.A. & Chittipeddi, K. Sensemaking and sensegiving in strategic change initiation. *Strategic Management Journal*, 1991, 12, 433–8.
- Gioia, D. A., Corley, K. G. and Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational research methods*, 16(1), 15-31.
- Greve, H. R. (2003). *Organizational learning from performance feedback: A behavioral perspective on innovation and change*. Cambridge University Press.
- Greve, H. R. (2018). Where to Search? In *Behavioral Strategy in Perspective* (pp. 91-100): Emerald Publishing Limited.

- Hambrick, D. C. and Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, 9(2), 193-206.
- Hilbert, M. and López, P. (2011). The world's technological capacity to store, communicate, and compute information. *science*, 332(6025), 60-65.
- Hsieh, C., Nickerson, J. A., and Zenger, T. R. (2007). Opportunity discovery, problem solving and a theory of the entrepreneurial firm. *Journal of Management Studies*, 44(7), 1255-1277.
- Kaplan, S. (2008). Framing contests: Strategy making under uncertainty. *Organization science*, 19(5), 729-752.
- Kaplan, S. and Orlikowski, W. (2014). Beyond forecasting: creating new strategic narratives. *MIT Sloan Management Review*, 56(1), 23.
- Kim, S. K. and Min, S. (2015). Business model innovation performance: when does adding a new business model benefit an incumbent?. *Strategic Entrepreneurship Journal*, 9(1), 34-57.
- Kurti, E. (2015). *Inherent Cognitive Dependencies in the Transformation of Business Models from Non-digital to Digital*. Paper presented at the International Conference on Advanced Information Systems Engineering.
- Langley, A. (1999). Strategies for theorizing from process data. *Academy of Management review*, 24(4), 691-710.

- Langley, A. N. N., Smallman, C., Tsoukas, H. and Van de Ven, A. H. (2013). Process studies of change in organization and management: Unveiling temporality, activity, and flow. *Academy of management journal*, 56(1), 1-13.
- Li, Q., Maggitti, P. G., Smith, K. G., Tesluk, P. E. and Katila, R. (2013). Top management attention to innovation: The role of search selection and intensity in new product introductions. *Academy of Management Journal*, 56(3), 893-916.
- Levesque, L. L., Wilson, J. M., & Wholey, D. R. (2001). Cognitive divergence and shared mental models in software development project teams. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 22(2), 135-144.
- Levinthal, D. A. (1997). Adaptation on rugged landscapes. *Management science*, 43(7), 934-950.
- Magretta, J. (2002). Why business models matter. *Harvard Business School*.
- March, J. G., and Simon, H. A. (1958). *Organizations*. Wiley, New York.
- Markides, C. and Charitou, C. D. (2004). Competing with dual business models: A contingency approach. *Academy of Management Perspectives*, 18(3), 22-36.
- Martin, J. A. and Eisenhardt, K. M. (2010). Rewiring: Cross-business-unit collaborations in multibusiness organizations. *Academy of Management Journal*, 53(2), 265-301.
- Massa, L., Tucci, C. L. and Afuah, A. (2017). A Critical Assessment of Business Model Research. *Academy of Management Annals*, 11 (1), 73-104.

- McGrath, R. G. (2010). Business models: A discovery driven approach. *Long range planning*, 43(2-3), 247-261.
- Mezger, F. (2014). Toward a capability-based conceptualization of business model innovation: insights from an explorative study. *RandD Management*, 44(5), 429-449.
- Mintzberg, H. and Waters, J. A. (1982). Tracking strategy in an entrepreneurial firm. *Academy of management journal*, 25(3), 465-499.
- Misuraca, G., Pasi, G., & Viscusi, G. (2018, April). Social Innovation and Resilience: exploring the dynamics and impacts on the digital transformation of governance & society. In *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance* (pp. 91-100). ACM.
- Nadkarni, S. and Barr, P. S. (2008). Environmental context, managerial cognition, and strategic action: An integrated view. *Strategic management journal*, 29(13), 1395-1427.
- Newell, A., & Simon, H. A. (1972). Human problem solving (Vol. 104, No. 9). Englewood Cliffs, NJ: Prentice-hall.
- Nickerson, J., Yen, C. J. and Mahoney, J. T. (2012). Exploring the problem-finding and problem-solving approach for designing organizations. In: *Academy of Management Perspectives*
- Nickerson, J. A. and Zenger, T. R. (2004). A knowledge-based theory of the firm—The problem-solving perspective. *Organization science*, 15(6), 617-632.

- Ocasio, W. (1997). Towards an attention-based view of the firm. *Strategic management journal*, 18(S1), 187-206.
- Penrose, E.T. 1959. *The Theory of the Growth of the Firm*. Oxford: Oxford University Press.
- Posen, H. E., Keil, T., Kim, S. and Meissner, F. D. (2018). Renewing research on problemistic search—A review and research agenda. *Academy of Management Annals*, 12(1), 208-251.
- Rentsch, J. R., and Klimoski, R. J. (2001). Why do ‘great minds’ think alike?: Antecedents of team member schema agreement. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 22(2), 107-120.
- Ritter, T., & Pedersen, C. L. (2020). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, 86, 180-190.
- Sabatier, V., Mangematin, V. and Rousselle, T. (2010). From recipe to dinner: business model portfolios in the European biopharmaceutical industry. *Long Range Planning*, 43(2-3), 431-447.
- Saebi, T., Lien, L. and Foss, N. J. (2017). What drives business model adaptation? The impact of opportunities, threats and strategic orientation. *Long range planning*, 50(5), 567-581.
- Smith, W. K., Binns, A. and Tushman, M. L. (2010). Complex business models: Managing strategic paradoxes simultaneously. *Long range planning*, 43(2-3), 448-461.

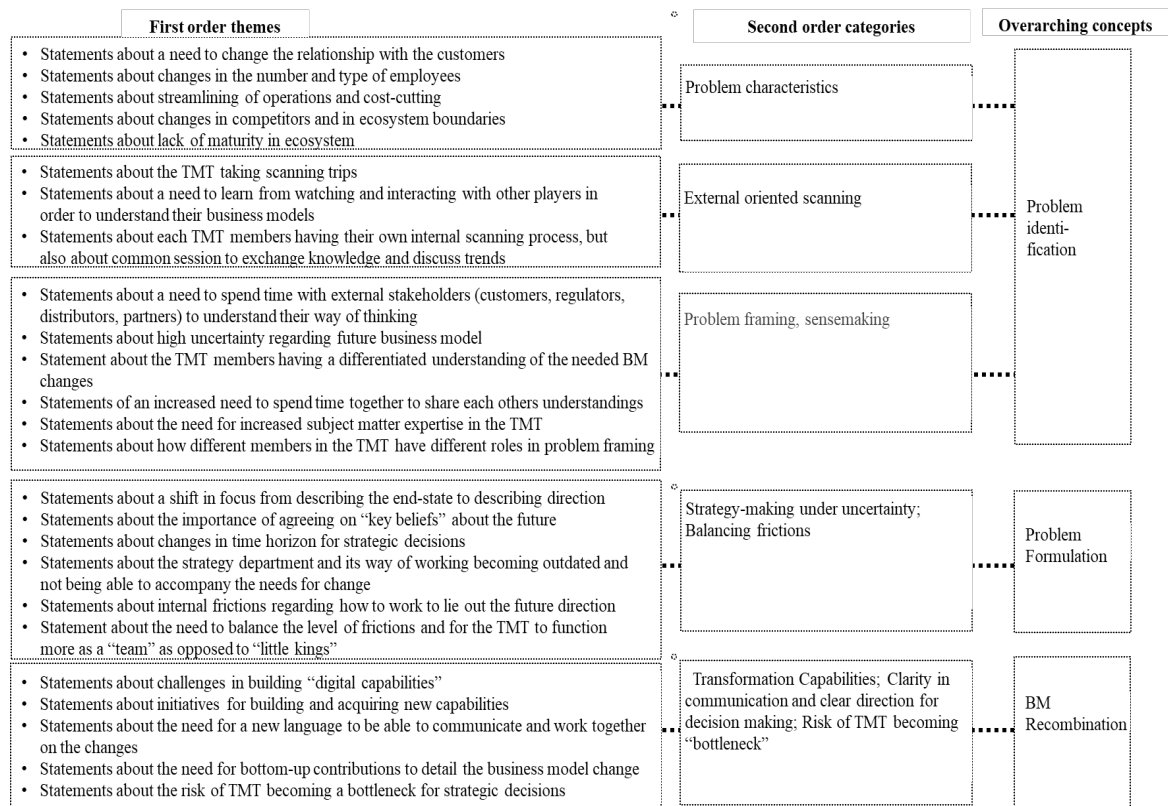
- Sosna, M., Trevinyo-Rodríguez, R. N. and Velamuri, S. R. (2010). Business model innovation through trial-and-error learning: The Naturhouse case. *Long range planning*, 43(2-3), 383-407.
- Teece, D. J. (2010). Business models, business strategy and innovation. *Long range planning*, 43(2), 172-194.
- Tikkanen, H., Lamberg, J. A., Parvinen, P. and Kallunki, J. P. (2005). Managerial cognition, action and the business model of the firm. *Management decision*, 43(6), 789-809.
- Tripsas, M. and Gavetti, G. (2000). Capabilities, cognition, and inertia: Evidence from digital imaging. *Strategic management journal*, 21(10-11), 1147-1161.
- Troilo, Gabriele, De Luca, Luigi and Guenzi, Paolo 2017. Linking data-rich environments with service innovation in incumbent firms: a conceptual framework and research propositions. *Journal of Product Innovation Management* 34 (5) , pp. 617-639. 10.1111/jpim.12395 file
- Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage publications.
- Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford University Press on Demand.
- Van Knippenberg, D., Dahlander, L., Haas, M. R. and George, G. (2015). Information, attention, and decision making. In: Academy of Management Briarcliff Manor, NY.
- Van Maanen, J. (1979). The fact of fiction in organizational ethnography. *Administrative science quarterly*, 24(4), 539-550.

- Weick, K. E. and Quinn, R. E. (1999). Organizational change and development. *Annual review of psychology*, 50(1), 361-386.
- Welch, C., Piekkari, R., Plakoyiannaki, E. and Paavilainen-Mäntymäki, E. (2011). Theorising from case studies: Towards a pluralist future for international business research. *Journal of International Business Studies*, 42(5), 740-762.
- Zott, C. and Amit, R. (2008). The fit between product market strategy and business model: implications for firm performance. *Strategic management journal*, 29(1), 1-26.
- Zott, C., Amit, R. and Massa, L. (2011). The business model: recent developments and future research. *Journal of management*, 37(4), 1019-1042.

Table 1. Data sources

Data source	Type of data	Use in analysis
42 Interviews	First phase interviews with employees at corporate level within digital services, legal services and business units	Understand the digital service provider strategy and how the organization worked to develop new digital business models. Real-time data covering the current challenges and activities, and retrospective data on the long-term development of the company.
	Second phase of interviews at corporate level within strategy, organisation	Understand the transformation program and the ongoing changes in the way the organization worked with business model innovation and strategy. Focus on real-time data and retrospective data for the last 2-3 years.
	Third phase of interviews with TMT	Understand the TMTs perceptions and experience of the strategy of the firm, of how the new business model was being created, on the pressures the organization and the TMT was confronted with, on the process of understanding the changes and creating alternatives for action. Focus on real-time data and retrospective data for the last 5 years.
Archival data	Board documents, company presentations, strategy documents, annual reports. Videos of internal meetings. Newspaper articles.	Provide information about the strategy of the firm, about the ongoing business model changes and the challenges this posed as well as the consequences for the TMT and the organization. Used to support and triangulate the interview data and provide support for timeline of events.
Observations	Informal conversations with managers and employees Workshops where we were present and observed the discussion on business model challenges and implications in real time.	Provide insights into ongoing events that could be further probed for in interviews. Provide access to informants. Used to support and triangulate the interview data.

Figure 1: First-order and second-order data analyses



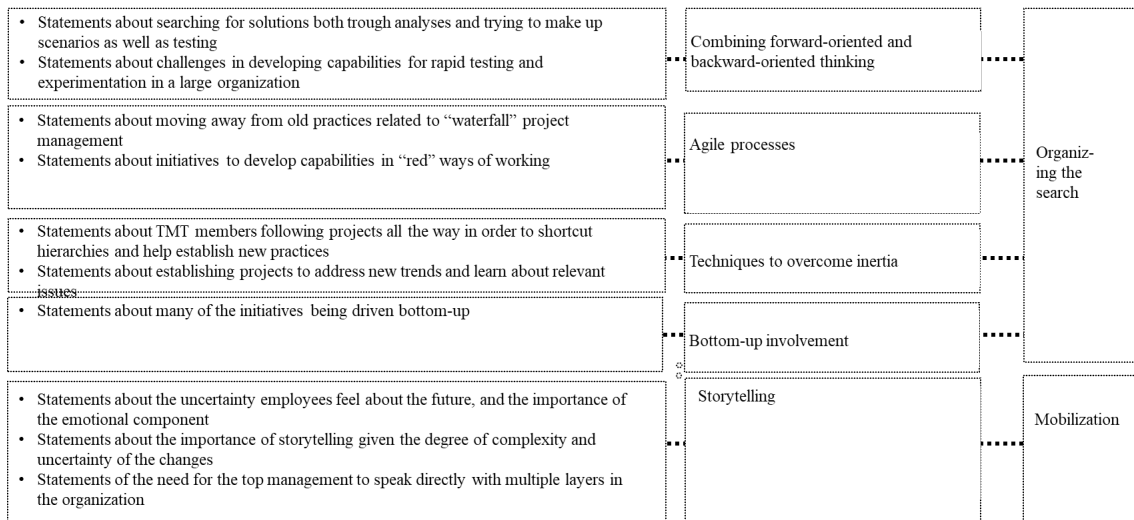


Figure 2: The traditional telecommunication business model

Key partnerships Telco vendors Shopdistributors Call-centre providers	Key activities Build/operate network Recruit customers Pricing & payment	What to offer Voice, Messages Broadband Connectivity	Customer relationships & Channels Distribute sim-cards & phones Marketing Call centre support	Customer segments Consumers Companies/ governments
	Key Resources IT-systems – BSS Mobile-Network Spectrum			
CAPEX network percountry OPEX salary & comissions Cost structure			Per voice minute & message sent Fixed monthly subscription Revenue streams	

Figure 3: Process Model of Business Model Transformation

