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What are the Effects of Digitalization on Service-Based Business Models?

- *An Exploratory Study Into the Concept of Digitalization, and its Impacts on Business Models*

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Preface

This master thesis is one of a series of papers and reports published by the Center for Service Innovation (CSI). Centre for Service Innovation (CSI) is a coordinated effort by NHH to focus on the innovation challenges facing the service sector and involves 15 business and academic partners. It aims to increase the quality, efficiency and commercial success of service innovations and to enhance the innovation capabilities of its business and academic partners. CSI is funded through a significant eight year grant from the Research Council of Norway and has recently obtained status as a Centre for Research-based Innovation (SFI).

Abstract

Digitalization, in the form of new digital technologies, is disrupting various service-based industries, such as the traditional music industry. However, it is not always clear what impact digitalization has on the business model of service companies. In our review of the literature, we find that the term digitalization is often used as a buzzword, without a clear definition of delineation of the impact it has on the elements of a firm's business models. Further, the extant literature provides little insight into how firms can shift towards more digital business models. Thus, in our study we aim to answer the questions (1) how is digitalization impacting service-based business models, (2) and what facilitates or hinders firms to shift towards more digital business models.

To address these questions, we developed a framework that helps to categorize the different effects of digitalization on the elements of a firm's business model. We draw on a sample of 6 retail banks, where we conducted in-depth interviews to explore how digitalization has impacted their business models and to identify the barriers and facilitators in their shift towards digitalized business models. We chose the retail banking industry as our research context, because few industries have been more impacted by digitalization the recent years. Our sample consisted of three traditional savings banks and three digital niche banks that are all impacted by new technological innovations in their business models.

Key findings in our study indicate that it is not that digitalization itself that directly impact the components of a business model. We uncovered that changes in customers' expectations and preferences as a result of new technological innovations are the main drivers for change. Hereby, our thesis contributes with a more fine-grained understanding of the effects of digitalization on firms' business models. Furthermore, we contribute to a better, practical understanding on how practitioners can manage the transformation process to a more digitalized business model.

Acknowledgments

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1. Introduction

Digitalization has gained an increased interest among scholars and practitioners since the emergence of the internet around year 2000. In the form of new digital technologies, the concept has been found to have a far-reaching effect on businesses, consumers, employees and the society in general (Hagberg et al., 2016). For companies, digitalization can bring new value creating opportunities such as new markets, services and applications (Zott & Amit, 2017). For example, the ridesharing app Uber has transformed transportation services by digitalizing all aspects of reservations, billing, customer service, driver performance, and ratings (Iansiti & Lakhani, 2014). For consumers, digitalization introduces more convenient ways of interacting with businesses, and enable a wide range of services and products with just a tap on their smartphone (Manenti, 2017). However, the simplicity of using apps, such as Uber for transportation, has created an expectation of a global supply chain capable of delivering what the customers want immediately. Consequently, the expectations of how firms deliver value to the customers digitally, is changing rapidly as new technologies emerge. Thus, Hagberg et al., (2016) argue that digitalization empowers the demand-side to direct the development of the supply-side. The rapid change in consumer preferences due to new technology is particularly sensitive for services-firms, as they must tailor their offering to changing customer preferences (Vargo & Lusch, 2004).

To successfully meet the rapid changes inflicted by new technology, firms must adapt their business model (Bleicher & Stanley, 2016). A business model defines how firms create, deliver and capture value (Zott et al., 2011; Magretta, 2002). However, the exponential adoption of new digital technologies can be a threat to traditional business models. Porter & Heppelmann (2014) argue that digital technologies lead to new business models in almost every industry, by introducing new ways of value creation, delivery and capture. For example, in the traditional music industry, digitalization has been found to be a disruptive force (Moreau, 2013). With the introduction of online music distribution, through streaming and subscriptions, the traditional business model in the music industry based on distribution of physical CDs required a radical change. Another famous example is Kodak, the successful film company which failed to recognize the disruptive potential of the digital camera, and failed to regained its position in the industry. These examples illustrate the importance of understanding the concept of digitalization, and how it can disrupt industries. Knowing when and how to change the business model, is one of the hardest decisions an executive must make

(Bertolini et al.,2015). The organizational inertia of the existing structures and processes in an established firm can complicate the adoption of a business model, especially as employees are exposed to the risk of failure and uncertainty (Doz & Kosonen, 2010). Thus, there are two pressing needs for companies facing industry changes due to digitalization; 1) to understand how digitalization impacts their business model, and 2) how the business model can be adapted to take advantage of the opportunities new technologies create. We aim to address these problems in this thesis.

In our literature review, we found that although the field of digitalization have received an increasing interest in recent years, current contributions on the topic are mostly non-academic, such as consultancy reports (e.g. Microsoft, 2017; KPMG, 2017; McKinsey, 2014). Among scholars, the scope of research is limited to exploring how digitalization is transforming a particular industry, or the impact of specific digital technologies in an industry. For example, Hagberg et al., (2016) explore how digitalization has transformed the customer-to-business interface in the retail industry, while Moreau (2013) researches why dominant firms in the music industry were slow to adapt to digitalization. Other scholars have pointed to the role of new (digital) technologies as a driver of business model change (e.g. Bleicher & Stanley, 2016; Baden-Fuller & Haefliger, 2013). However, in these studies "new digital technologies" are treated in merely abstract terms and it does not become clear how exactly digitalization is affecting incumbents' business models.

Furthermore, extant literature has not yet addressed the issue of how companies can manage the process of shifting towards more digital-based business models. What we found are studies that discuss, in *general terms,* the facilitators and barriers of business model change, such as the role of capabilities (e.g., Achtenhagen et al., 2013), dynamic strategic processes (e.g. Doz & Kosonen, 2010) or conflicts between existing assets and business model (Chesbrough, 2010). Thus, we find that there is a gap in the literature regarding studies that specify organizational facilitators and barriers that can arise in the process of shifting towards a more digitalized business model. As the exponential adoption of new digital technologies can lead to new business models in virtually all industries, we argue that it is highly relevant to explore the effects and adoption process of digitalization from a business model perspective - as we aim to offer here in this thesis.

Reviewing the literature, we further found a significant lack of definitional clarity of digitalization. The concept is a buzzword and is rarely defined. Furthermore, we found that digitalization is used interchangeably with "digitization" and "digital transformation" in both consultancy reports and by scholars. The lack of a clear definition poses problems for both scholars and practitioners. In this thesis, we aim to clarify the concept by identifying how digitalization can impact a business model, and provide a definition of the concept. We define digitalization as;

"Digitalization refers to the use of new technologies that standardize processes that have previously been carried out by individuals, and the organizational transformation a business must undergo to take advantage of the opportunities created by these technologies."
Recent examples of digitalization include the adoption of new technologies such as the Internet of Things, Artificial Intelligence, cloud and social media.

In sum, the research on digitalization is mostly non-academic and there is a lack of definitional clarity of the concept. To our knowledge, there are no academic studies that explore the effects of digitalization from a business model perspective and specify organizational facilitators or barriers that can arise in the process of shifting towards a more digitalized business model. In the following, we will formulate our research question based on the addressed issues and presented gaps in the literature.

1.1 Research Question and Outline of the Thesis

Based on the presented information and to address the mentioned gap, we intend to answer the following research question:

How is digitalization impacting service-based business models, and what facilitates or hinders firms to shift towards more digitalized business models?

In order to answer our research question, we have structured our thesis as outlined in figure 1. We will first clarify the concepts of business models and digitalization, as there are no commonly agreed upon definitions of either of the concepts. We will further provide an understanding of how digitalization can be a driver for business model change. Contingent on our understanding of business models and digitalization, we will develop a framework that

structures the impact of digitalization on the four business model components; the customer, value proposition, value delivery and value capture.

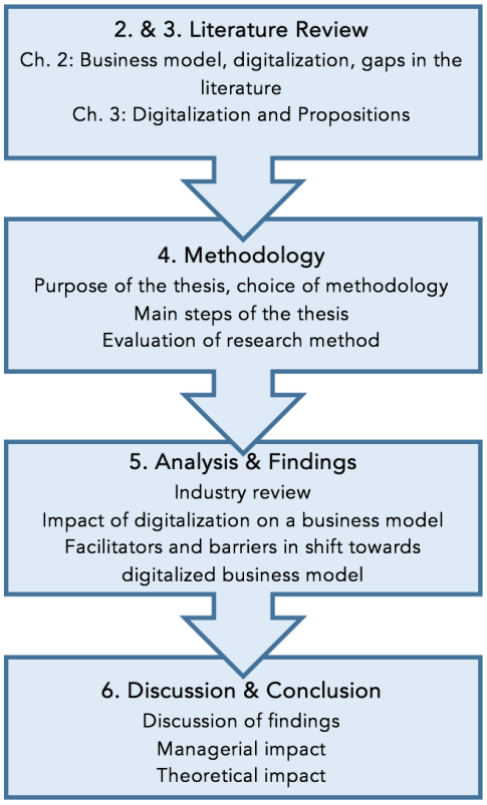

Figure 1: Overview of the Thesis

To answer the first part of our research question ("*How is digitalization impacting service- based business models")*, this framework will be used to categorize the findings from in-depth interviews with six Norwegian banks in our analysis section. We have chosen the retail banking industry as our practical case, as few industries have been more impacted by digitalization the recent years (Microsoft, 2017). With the adoption of the internet around year 2000, digital banks introduced new ways for the customer to interact and transact with the banks. These banks offered internet banking, and operated with lower costs than the traditional banks. To be able to compete with these new banks, the traditional banks had to go through a comprehensive process of shifting towards a more digitalized business model. Today, consumers are turning to computers, tablets and smartphones to interact and transact with the banks. Digitalization is further changing the competitive landscape for banks all over the world, and the Norwegian banking industry is no exception.

To answer the second part of our research question ("*what facilitates or hinders firms to shift towards a more digitalized business models")*, we will review existing business model literature and propose which factors are likely to play a role and why. We then explore these proposition by means of our in-depth interviews with six Norwegian banks, highlighting what factors have facilitated or hindered these banks to adopt a more digitalized business model.

Our findings offer several contributions to existing literature and practitioners. Firstly, we contribute to research on digitalization by clarifying and defining the core constructs (digitalization, digitization, and digital transformation). In fact, these terms are often mistakenly used interchangeably in extant literature. Instead, we argue that digitization and digital transformation present distinct stages in the digitalization process. This distinction and

concept clarification contributes to a more fine-grained understanding of the effects of digitalization on firms' business models.

Second, we contribute to the business model literature by exploring and discussing the effects of digitalization as an important antecedent of business model change. The literature on business models has mostly adopted a static view, thus little is known about what are the drivers, facilitators and barriers of business model change (Saebi, Lien & Foss, 2106; Foss & Saebi, 2017) To address this gap, we have derived a framework that categorizes the impact of digitalization on four business model components; the customers, the value proposition, value delivery and the value capture of a firm. We identified that the banks in our sample could be classified into two different business models; the savings banks business model and the digital bank business model. Our findings show that digitalization have multiple different impacts on each of the components in the two respective business models. The framework was a useful tool to gain a holistic view of the effect of digitalization on the business model components. Hence, the framework is not only valuable in the context of retail banking, but can be similarly valuable in other research context to assess the impact of digitalization on firms' business model.

Third, our findings provide hands-on recommendation for managers. Based on our in-depth interviews, we shed light on what facilitates shifting towards a more digitalized business model and detail the barriers that potentially can be challenging to overcome. Hereby, we contribute to a better, practical understanding on how practitioners can manage the transformation process.

1.2 Boundaries of the Thesis

We limit the scope of our thesis by using the Norwegian retail banking industry as our practical example of a service firm. In our thesis, we define the retail banking industry as a service for the private consumer that provide payments-, savings-, lending- and investment services. The Norwegian banking industry is particularly interesting, as both traditional and new banks provide digitalized banking services and products. In addition, we purposefully limit the scope of our thesis to only include service-based business models. One of the main impacts of digitalization is constantly changing consumer preferences due the emergence of new devices, applications and services. This implication of digitalization is highly relevant for services-

firms, as they must tailor their offering to the changing customer preferences (Vargo & Lusch, 2004). Thus, we find it interesting in relation to our research question. Due to time constraint, we have a limited the number of interview objects. Hence, our focus is limited to small-and medium sized banks, and two types of banking business models; savings banks and digital banks. Furthermore, by using business models as a systematic tool, we are only looking into strategic and organizational impacts of digitalization. We do not research the potential economic impact of new technologies, and how it affects the profitability of the business models.

2. Business Models & Digitalization

In order to explore how digitalization affects the business models of service firms, a thorough understanding of these concepts is essential. However, existing literature does not give a clear definition of business models, nor digitalization. Hence, we will first review existing literature on business models, and clarify the concepts of business models and business model innovation. Second, we will provide a definition of digitalization based on existing literature that will be used later on to describe the impact of digitalization on a business model. Lastly, the gaps we have found in the literature will be presented.

2.1 Business Model

There has been an increasing interest in the term "business model" the last decades. The field has gained its popularity due to factors as the growth of the internet and the restructuring of the financial services industry (Teece, 2010). As pointed out by many, researchers have not commonly agreed upon one definition of what business models are (Zott et al., 2011; Foss & Saebi, 2017). Still, extant literature has converged on the understanding of business models as a management tool for organizations to structure its value chain, including how the company create, deliver and capture value (Zott et al., 2011; Magretta, 2002). According to Chesbrough (2007) every organization has a business model, even though it might not be articulated. Teece (2010) argues that a well-architectured business model can result in a sustainable competitive advantage that can be profitable for the organization. In this section we will first present and review the term business model, before we will use the existing definitions to derive our own definitions. Some of the definitions and their key components are presented in table 1, on the next page:

Authors (Year and page)	Definition of Business Models	Components
Amit and Zott (2001 p. 511)	"A business model depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities".	Transaction content, transaction structure, transaction governance, create value
Teece (2010, p. 173)	"A business model define how the enterprise creates and delivers value to customers and then converts payments received to profits"	Value creation, value delivery, value capture
Magretta (2002, p. 4)	"Business models are stories that explains how enterprises work, who is the customer, what does the customer value, how to make money and how can the enterprise deliver value to customers at appropriate cost"	Target customer, value proposition, value delivery, value capture
Chesbrough and Rosenbloom (2002, p. 533)	"Business models articulate the value proposition, identify the market segment, define the structure of the value chain, estimate the cost structure and profit potential, describe the position of the firm within the value network, formulate the competitive strategy"	Value proposition, target segment, value chain, cost and revenue structure, value network, competitive strategy
Wirtz et al (2016, p. 41)	"A business model is a simplified and aggregated representation of the relevant activities of a company"	Strategy, resources, network, customer, market offer, revenue, cost manufacturing, procurement
Osterwalder and Pigneur (2010, p. 14)	"A business model describes the rationale of how an organization creates, delivers, and captures value, and can best be described through nine basic building blocks that show the logic of how a company intends to make money"	Creates value, delivers value, capture value

Table 1: Definitions of Business Models

As can be seen in table 1, there are multiple ways of defining a business model. Many scholars include how the organization creates, delivers and capture value in their interactions with their customers in their definition of a business model (Wirtz et al., 2016; Teece, 2010; Osterwalder & Pigneur, 2010; Magretta, 2002). Teece & Linden (2017) further argues that it is necessary to manage a right balance between creation, delivery and capture of value for the model to endure for a long period of time. In their research, Amit & Zott (2001) explore business model as a holistic perspective on how the transaction content, transaction structure and transaction governance are conducted. This perspective includes a focus on how information and goods are exchanged and who is involved in these flows. In his study, Magretta (2002) emphasize the importance of understanding the preferences of the customer, what products and services the customers prefer, how it is delivered to them, while it also have to pass the numbers test. In their study, Wirtz et al. (2016) includes that business models are the more than the architecture of the value creation, it also has to take into account the internal and external components that will affect the business model. In our thesis, we will use Magretta's (2010) definition of business models, as it accentuates the role of the customer:

"Business models are stories that explains how enterprises work, who is the customer, what does the customer value, how to make money and how can the enterprise deliver value to customers at appropriate cost"

As mentioned, researchers include different number of components and what a business model include in their definitions. There are still some components that are commonly used. As table 1 shows, we can summarize these as value proposition, the customer for the firm, value delivery and value capture. This conceptualization will be used later on to explore the impact of digitalization on the four components, and we will use these four components to derive our own digital business model framework. Based on this, and our own understanding of the business model concept, we propose the following four main components of a business model:

The customer

An important component of business models is knowing who the target customer is, and what kind of relationship the organization has with the customer (Osterwalder & Pigneur, 2002). Furthermore, it is important to know what the customer value and what benefits it will deliver (Casadesus-Masanell & Ricart, 2010).

Value propositions

A business model "seeks to solve customer problems and satisfy customer needs with value propositions" (p.16) (Osterwalder & Pigneur, 2010). It contains of the products or services that creates value for the customer, hence the reason why the customers prefer one organization over its competition.

Value delivery

Value delivery describes how an organization can deliver its value proposition. In their studies, Amit & Zott (2012) include how the offering is made available to the customers and what impact the organization will have on the offering. It can also include the distribution channels used, key resources, activities and key partnership (Osterwalder & Pigneur, 2009).

Value Capture

The value capture component includes how the organization will capture the value the business model deliver, which includes how their cost and revenue models are designed to find the profit potential (Teece, 2010; Chesbrough, 2010). Teece & Linden (2017) argue that a successful business model will provide a value proposition that can support a price high enough to cover all costs and yield profit that is at least sufficient to support the business and its growth.

Business models should be dynamic to stay profitable, and sometimes be completely innovated to enable increased profit (Wirtz et al., 2016; Saebi et al., 2016). Especially in time of change, Amit & Zott (2010) argue that firms should innovate their business models to achieve revenue growth, and maintain or improve their profit. These changes can either be internal or external for the firm, and be experienced either as threats or opportunities, and can affect the firm's performance of it is not correctly handled (Foss & Saebi, 2017). As we will see later, digitalization can be a power driver of change and innovation in business models.

2.1.1 Business Model Innovation

The world has become increasingly more digital in the past decades, with new technology that enables the possibility to contain data that can be analyzed and controlled (Teece, 2010). To stay relevant, companies need to adapt and innovate their way of doing business. While the term "business model" was introduced decades ago, the term business model innovation is a relatively young and non-cumulative research field (Foss & Saebi, 2017). It was first introduced during the 1990's as the internet became an important part of society. Similar to the definition of business models, there are no consensus around one definition of what business model innovation is.

Casadesus- Masanell & Zhu (2013) define business model innovation as the search for new logics of the firm and new ways to create and capture value for its stakeholders. In their studies Saebi et al. (2016) further explain business model innovation as a process where business models are innovated to actively disrupt the market or industries. The management is the driver behind these disruptive innovations. Business model innovation can also be considered as a holistic multi-dimensional framework based on a system level design where the focus is on how the organization is conducting their business (Amit & Zott, 2010).

Zott et al. (2011) argue that there is an increasing consensus that business model innovation is an important factor when it comes to organization's firm performance. Teece (2010) argues that new technological innovations allow lower cost provisions of information and customer solutions, that leads to firms being more customer-centric. Innovating the business model can increase profitability through reduced costs, optimized processes and the firms need to re-evaluate the value propositions that they offer to their customers as new communication and computing technology emerge (Foss & Saebi, 2017; Teece 2010). The most successful companies are the ones who manage both strong and dynamic strategies, while also maintaining frequent innovation of their business model (Mitchell & Coles, 2003).

Furthermore, Chesbrough (2010) highlight the need to experiment with new business models as a success factor. Mitchell & Coles (2003) found that those who had continuing business model innovation, had higher cost reductions and became more efficient. Therefore, by focusing only on ways to reduce costs in the innovation process, and increase value capture, will not be sufficient and result in less business model innovation. With an unsatisfying

business model, the organizations will not be able to deliver or capture the value produced by their innovations (Teece, 2010). Teece & Linden (2017) further argues that start-up organizations will have a greater possibility to innovate the business model than well-established firms, since the organizational and managerial inertia will be less manifested in the organization.

Recent studies show that new technological developments have changed the competitive landscape (Teece & Linden, 2017). Instead of competing based on quantity and manufacturing process, organizations need to innovate how they interact with their partners and competitors (Saebi, 2016). With open global trading and new technological innovations, the customers have more choices and possible suppliers to meet their needs, and as a result the firms have to change their value propositions as well as how they deliver and capture value (Teece, 2010). Amit & Zott (2010) find that new delivery technologies create an opportunity to innovate a business model by changing the value chain by combining digital and physical infrastructures. New delivery technologies can also turn products into services which can change the competition. Therefore, digitalization is an important driver for business model innovation.

2.2 Deriving a Working Definition of Digitalization

Companies must have an understanding of the phenomenon of digitalization, as it has a far-reaching effect on businesses, consumers, employees, and the society in general (Hagberg et al., 2016). The concept has gained an increased interest the last few years. However, digitalization is a buzzword and is used differently by scholars, consultancy firms and companies. Without a clear definition of the concept, it can be challenging to understand what digitalization will entail for a company. In our review of the literature, we found that only one study, Hagberg et al., (2016), define digitalization. The focus among scholars tends to be on the specific digital technologies that are transforming a particular industry. For example, Fuentes et al. (2017) examine how the integration of smartphones into the activities of in-store shopping is reconfiguring how store space is enacted. To gain a more general understanding of digitalization in a business context, we also reviewed consultancy reports. However, neither of the reviewed reports provide a clear definition or understanding of the concept. The focus of the reports is directed towards how specific companies or industries address changes and the fear of disruption, due to digitalization (e.g. Microsoft, 2017; KPMG, 2017). In addition to the lack of a definition of the concept, we found that "digitalization" is used interchangeably

with "digitization" and "digital transformation" in both consultancy reports and in the literature. The inconsistent use of the term and unclear definition can create confusion for businesses to how they should address digitalization. Thus, in the following, we aim to first provide a clear understanding of how the digitalization has been treated in extant literature. Second, we will derive a definition of the concept that lends itself to conducting meaningful academic research into this field.

2.2.1 The Relevance of Digitalization for Businesses

"Digitalization is one of the most significant on-going transformations of contemporary society and encompasses many elements of business and everyday life" (p.694) (Hagberg et al., 2016). Thus, companies should have an understanding of the concept, and how it impacts their business model. According to Zott & Amit (2017), digitalization has emerged hand in hand with product innovation, from the introduction of faster personal computers and smartphones, to wearable technology. On the one hand, digitalization brings new value creation opportunities for companies, through new markets, services and applications. For example, Iansiti & Lakhani (2014) points to how Uber has transformed transportation services by digitalizing all aspects of reservations, billing, customer service, driver performance, and ratings. Other value enhancing opportunities can be offering self-service via digital tools and replacing in-person interactions with digital interactions (McAFee & Westermann, 2014). On the other hand, existing business models, organizational processes and systems can become obsolete, as they do no longer create value (Zott & Amit, 2017).

Digitalization is found to especially impact consumer behavior; as digital technologies have introduced the consumers to more convenient ways of interacting with businesses (EY, 2011). Digital transactions have substituted physical interactions, and customers can get access to a wide range of services and products with just a tap on their smartphone (Manenti, 2017). Vijayendran (2016) argues that customers are quick to adopt new digital technologies in their private lives, and firms must provide their customers with simple digital solutions to stay competitive. The rapid change in consumer preferences is particularly sensitive for services-firms, as they must tailor their offering to changing customer preferences (Vargo & Lusch, 2004). In order to stay competitive, managers must understand how digitalization is impacting their target customers, and their business models.

Knowing when to undertake a digital transformation and change a business model, is one of the hardest decisions an executive must make (Bertolini et al., 2015). The transformation might include disrupting a company with currently strong performance, and introduce the risk of failure and uncertainty among the employees. Zott & Amit (2017) argue that traditional retailers, banks, travel agencies, print media and other traditional industries are experiencing hard times to adapt to new digital technologies, and are fighting to survive. However, the alternative to adapting to the changes initiated by digitalization is to risk obsoleting. Teece & Linden (2017) points to the famous example of Kodak, the film company which failed to recognize the disruptive potential of the digital camera. Although a Kodak engineer were the first to introduce a digital camera prototype in 1975, the managers' did not have an urgency to explore the potential of this technology as the company's film business were very profitable. Consequently, the digital camera was commercialized by competitors more effectively and came to market in the 1990s. Kodak struggled to respond to the competitors, and finally declared bankruptcy in 2012 (Teece & Linden, 2017).

Another example is the introduction of digital content, in the music industry (Moreau, 2013). The traditional business model was based on value capture and delivery of physical means as CDs, and the incumbents found it extremely difficult to accept the need to change their business model. This resulted is new online distributors, as Apple Music, capturing a great share of the market. These examples illustrate the importance of understanding how digitalization might impact a company. McAfee & Westermann (2014) argue that the disruption of traditional industries in the past decade have made executives realize that they need to pay attention to changes in their industries to avoid the same fate. Hence, in the following, we will provide an understanding of the underlying processes of digitalization, and define the concept.

2.2.2 Defining digitalization

In our literature review, we found that there is not one commonly accepted definition of digitalization. The concept "digitalization" is used interchangeably with "digitization" and "digital transformation". Furthermore, the definitions are often general, and do not describe the actual digitalization processes. For example, Zott & Amit (2017) refer broadly to digitalization as a facilitator of new forms of value creation, and as a transformation process from analog to digital. The transition of paying with cash to electronic transactions is used as

an example of the transformation from analog to digital. Similarly, Bleicher & Stanley (2016) refer to the process of "converting data from an analogue to a digital format" (p. 63) as 'digitization'. Thus, the same process is referred to as both digitalization and digitization in the literature.

The provided definitions do not create an understanding of what the process from analog to digital entails. Hence, we will supplement the presented definitions with descriptions of the digitization processes found in consultancy reports. Ross (2017) describe digitization in a business context as standardizing processes that have previously been carried out by individuals. The author further argues that integrated software packages, such as SAP and PeopleSoft, "burst into the scene in the 1990s and helped lead the way into more digitizing" (Ross, 2017). In line with this, McKinsey (2014) describes digitization as the procedure of reinventing entire business processes by cutting the number of steps required, reducing the number of documents and developing automated decision making. Furthermore, the process includes redesigning the organizational structure, roles, skills and operating models to match the reinvented process (McKinsey, 2014).

While reviewing the literature, we found that the wording 'digital transformation' is also used in the same context as 'digitalization'. Gartner (2017) defines digitalization as the use of digital technologies to change a business model and provide new revenue and value-producing opportunities. Similarly, Singh & Hess (2017) argues that "a company undergoing a digital transformation use digital technologies such as social media, mobile access, analytics or embedded devices to enable major business improvements like enhancing customer experience, streamlining operations and creating new business models" (p.1). According to Ross (2017), it is important for companies to have an understanding of both digitization and digital transformation, as digital transformation is a new and different type of digitalization. Digital transformation includes both adoption of new technologies, and the organizational transformation a business must undergo to take advantage of the opportunities these technologies create. Examples of these new technologies are Internet of Things, Artificial Intelligence, cloud and social media. Digital transformation further involves rethinking the company's business model, not just its operations. These new technologies that are relevant in our analysis section are further described in Appendix E.

As this brief literature review illustrates, there are various definitions and descriptions of digitalization, and the concepts remains unclear. Furthermore, the use of digitalization, digitization and digital transformation interchangeably, can lead to confusion. Based on the reviewed literature and consultancy reports, we argue that digitalization is a collective term for both digitization and digitalization. While digitization points towards optimizing the business by digitizing processes that were previously analog and redesigning the organizational structure, digital transformation points towards the ongoing process of adapting the business model to take advantage of the opportunities new technologies create. In line with Ross (2017), we argue that companies should have an understanding of both digitization and digital transformation as the concepts are different types of digitalization. Hence, both terms are integrated in the common term of digitalization. Our definition of digitalization is:
Digitalization refers to the use of new technologies that standardize processes that have previously been carried out by individuals, and the organizational transformation a business must undergo to take advantage of the opportunities created by these technologies.
Recent examples of digitalization include the adoption of new technologies such as the Internet of Things, Artificial Intelligence, cloud and social media.

We will mainly use the term digitalization throughout the thesis. However, in the analysis section, the terms digitization and digital transformation will be used independently, to reflect two separate phases of digitalization in the Norwegian retail banking industry. We will therefore in the following present our working definitions of these two terms.

Digitization	Digital Transformation
"Digitization is standardizing processes that have previously been carried out by individuals, and redesigning the organizational structure, roles, skills and operating models to match the reinvented processes." (adapted from McKinsey, 2014; Ross, 2017)	*"Digital transformation is both adoption of new technologies such as Internet of Things, Artificial Intelligence, cloud and social media and the organizational transformation a business must undergo to take advantage of the opportunities these technologies create."* (adapted from Ross 2017)

Table 2: Definition Digitization and Digital Transformation

2.3 Research Gaps: The Intersection Between Digitalization and Business Models

In order to understand the effect of digitalization on business models, we reviewed the literature on the intersection between digitalization and business models. However, we found that no prior study has been conducted on the impact of digitalization on service firms from a business model perspective. What we did find were studies that described the effects of digitalization in general (e.g. Fuentes et al., 2017; Hagberg et al., 2016; Moreau, 2013). Others, only pointed to the role of new (digital) technologies as a driver of business model change (e.g. Bleicher & Stanley, 2016; Baden-Fuller & Haefliger, 2013), however without specifying how exactly digitalization might impact the various elements of a firm's business model. Below, we briefly review the state of this fragmented literature, before we proceed to develop our propositions and framework on the effects of digitalization on business models.

Current contributions on the topic of digitalization are mostly non-academic, such as consultancy reports (e.g. Microsoft, 2017; KPMG, 2017). Academic studies that deal with the effects of digitalization is limited to exploring how digitalization is transforming a particular industry, or the impact of specific digital technologies in an industry. For example, Hagberg et al., (2016) explore how digitalization has transformed the customer-to-business interface in the retail industry, while Moreau (2013) researches why dominant firms in the music industry were slow to adapt to digitalization.

In the business model literature, there are only vague descriptions of how new (digital) technologies can act as a driver for business model change. There are several scholars that points to the need of adapting the business model of a firm to monetize the value of a new technology. However, in these studies "new digital technologies" are treated in merely abstract terms and it does not become clear how exactly digitalization is affecting incumbents' business models. For example, Chesbrough (2010) underlines the importance of finding the appropriate business model in order to capture value from a potential new technology. The author highlights that a “mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model” (p. 354). In line with this, Bleicher & Stanley (2016) point to the necessity of transforming the business model to integrate the rapidly developing digital technologies into value and economic success. Teece

(2010) also points to the importance of adapting the business model to a new technology by arguing that the realized profit from a new digital technology will not be the same with two different business models. On the same notion as the mentioned scholars, Baden-Fuller & Haefliger (2013) highlight the importance of changing the business model in order to appropriate features of a technology that create customer value. They also point out that the business model will frame how the right technology is developed in the firm through the structure of decisions-making and employees. Thus, elements of the model may need to be changed in order to develop the technology that fits customer needs.

In sum, the literature review reveals several gaps in research. We find it highly relevant to explore the effects and adoption process of digitalization from a business model perspective, as the exponential adoption of new digital technologies result in new business models in all industries. The gaps presented in this section show that our thesis will be a valuable contribution to existing literature.

3. Digitalization and Propositions

While reviewing the literature, we found that no studies have been conducted on the impact of digitalization on service firms from a business model perspective. To address this gap, we will first derive a framework to gain an understanding on the impact of digitalization on service-based business models by synthesizing insights drawn from existing literature. Second, as the concept of digitalization is relatively new, and there are no commonly agreed upon definitions of the term, we have not found any literature that specify the facilitators and barriers in the shift towards a more digitalized business model. Extant literature on business models has only pointed towards general challenges and facilitators of business model change (e.g. Chesbrough, 2010; Doz & Kosonen, 2010). We use this insight to develop our proposition on what factors are likely to facilitate or hinder the process of shifting towards a more digitalized business model.

3.1 The Impact of Digitalization on a Service-Based Business Model: A Framework

To be able to identify and categorize the impact of digitalization on the underlying activities in a service-based business model, we have created our own framework. We will use the framework to analyze the data we find in the analysis part of the thesis. The four components in our framework are based on our business model definition and categorize the impact of digitalization on the following components; the customers, the value proposition, value delivery and the value offering of a firm.

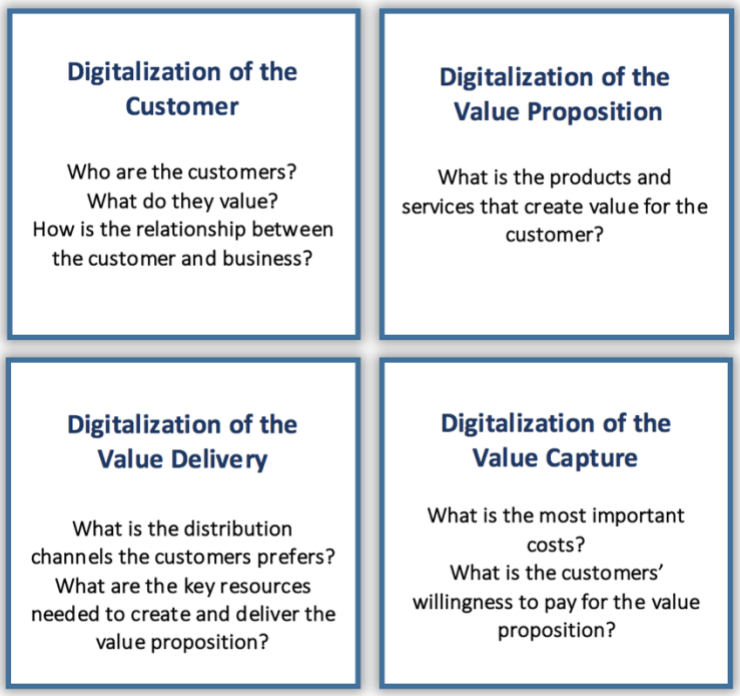

Figure 2: Impact of Digitalization

In the following, we will present the components of our framework and propose how digitalization is likely to impact each business model component.

Digitalization of the Customer

The customer component includes who the customers are, what the customers value and the interaction between the customer and the business. This element let us explore how digitalization can change who the firm create value for and who the most important customers are, what the customer value and the relationship between the customer and the business.

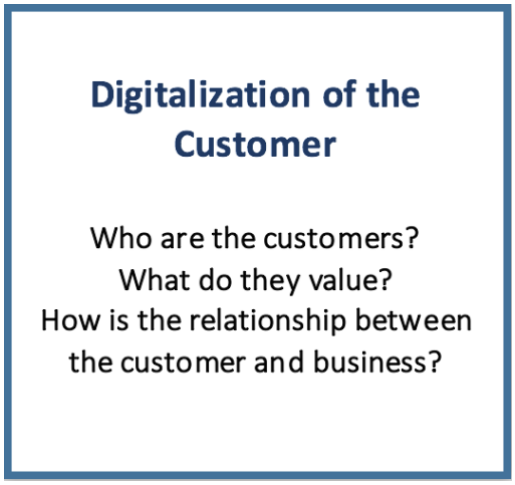

Figure 3: Digitalization of the Customer

The customers are quick to adopt digital technologies in their private lives, and accustomed to a wide range of choices available with just a tap on the smartphone (Manenti, 2017). The simplicity of using apps as Uber (for easy and accessible transportation) and Amazon (where you can buy a wide range of products whenever you want) have created an expectation of a global supply chain capable of delivering what they want immediately. In line with this, Vijayendran (2016) points to the fact that customers prefer to make purchases online, and thus firms need to develop digital services to have the ability to meet the customer's preferences. Hence, it is no longer a choice for the firms to create digital solutions, but a necessity if they want to stay competitive.

Digital technology has transformed firms' conception of a customer from a physical human body with emotions and feelings, to a source of data that can be analyzed for the benefit of the business (Hagberg et al., 2016). Furthermore, the Hagberg et al., (2016) argue that digitalization brings new opportunities to link the customer and business. Through self-service, collaborative co-production and personal marketing, the customers are included in the value-creation process and perform activities previously performed by the business.

When it comes to the business-to-consumer interface, Hagberg et al., (2016) argue that digitalization empowers the demand-side to direct the development of the supply-side.

Through social media, the customer is experiencing increased transparency, and the possibility to easily group together with other consumers. In line with this, Weill and Woerner (2013) argue that the customers are empowered through third-party product ratings and search engines, such as TripAdvisor. These online platforms make it easier for the customers to compare products and services from different companies through shared experiences, and ratings of products and services.

Hence, we expect that the digitalization will impact 'the customer' component by resulting in an increased demand for applicable digital services and products. Furthermore, we expect that digitalization will open up for an increased customer-engagement in the value-creation process. As a result of social media and online platforms, we expect that the customers will have more information about the offerings of different firms.

Digitalization of the Value Proposition

The component of the value proposition consists of the value the firm deliver to the customers. This component let us explore how digitalization impacts the products or services that creates value for the customer. The digitalization of 'the customer' have a direct impact on the value proposition of the firm, as the customers are the recipients of the created value. Hence, the value proposition must be adapted to the customer's preferences. This is particularly essential for a service firm, as the customer value both the delivery and offering of the value proposition.

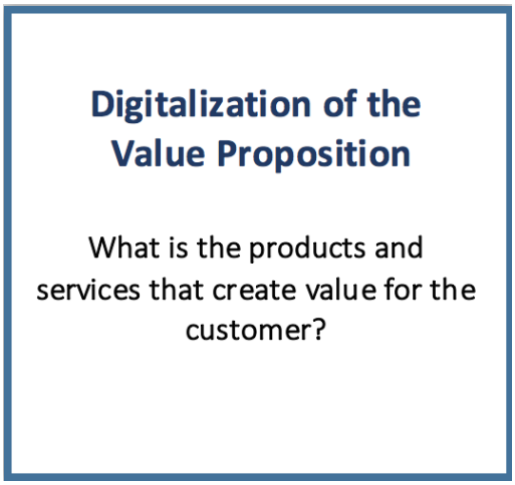

Figure 4: Digitalization of the Value Proposition

As mentioned in the 'the customer'-component, third party platforms make it easier for the customer to compare the value proposition of different firms. Weill and Woerner (2013) argue that this creates lower switching costs for the customers. The increased transparency of product and service quality makes the customer well-informed before a potential 'switch'. This is in line with Teece & Linden (2017), who points to the "difficulty of differentiating a product in a digital marketplace where potential customers can easily make detailed feature

and price comparisons" (p. 2). Hence, to be able to keep the customers, firms must pay attention to the perception of their value proposition online, and try to adapt to the customers' preferences. On the other hand, Slywotzky & Morrison (2001) argue that as a result of digitalization, the value proposition firms offer the customer can shift towards a perfect fit. Through analyzing the data provided by the customers, such as reviews online and customer behavior, the firm can adapt their value proposition to meet the expectations of the customer.

Hence, we expect that digitalization will impact the 'value proposition'- component of firms by resulting in an increased visibility of product quality and specifications. Furthermore, as the digitalization of 'the customer' have a direct impact on the 'value proposition'-component, we expect that the firms' value proposition will have to change more rapidly to meet new customer expectations.

Digitalization of the Value Delivery

The value delivery element consists of the distribution channels, the key resources of a firm, the key activities to deliver value and the business' key partnerships. This component let us research how digitalization impacts the distribution channels the customers prefers to be reached, and the key resources needed to create and deliver the value proposition. Furthermore, it let us explore the impact of digitalization on which key activities and key partnerships that are essential for the value proposition.

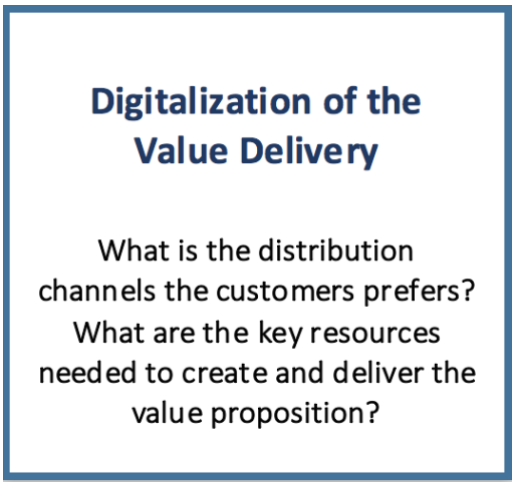

Figure 5: Digitalization of the Value Delivery

As far as the distribution channels, Hagberg et al., (2016) argue that digitalization have created new forms of distribution, such as the possibility to conduct an entire purchasing process online or on a digital device. Weill & Woerner (2013) points to the importance of firms strengthening how they engage their customers digitally via mechanisms such as websites and mobile devices. The authors argue that if a firm does not offer a great digital experience, customers may move to industry competitors.

Digitalization and networking are connecting formerly separate industries as banking, IT and insurance, according to Teece & Linden (2017). As the competitive forces have changed, firms engage in business ecosystems consisting of a technological leader providing a platform, and ecosystem members providing inputs, complementary goods and strategies. Remane et al., (2017) points to the challenge of balancing the benefits of all the participants in these ecosystems. From a firm's perspective, it can be difficult to balance own profits and the profit of the ecosystem partners.

Hence, we expect that digitalization will push businesses to improve the quality of the digital experiences they deliver to their customers. In addition, we predict that digitalization will result in an increased engagement in partnerships with other firms and suppliers.

Digitalization of the Value Capture

The value capture component consists of the cost and revenue streams of the firm. This component let us explore how digitalization impact the most important costs for the business, and how the revenue streams change due to the customers' willingness to pay for the value proposition.

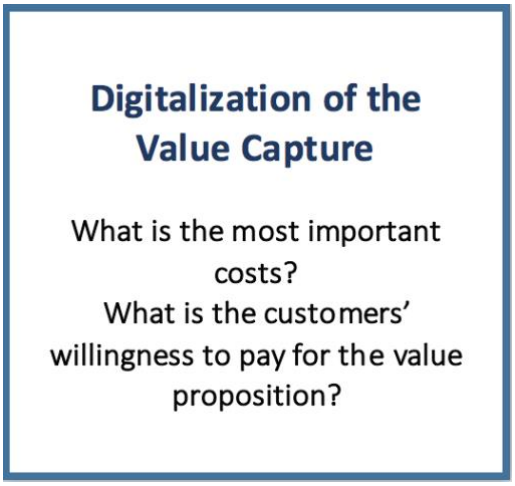

Figure 6: Digitalization of the Value Capture

Digitalization can increase the value capture of a firm through costs reduction. Slywotzky & Morrison (2001) argue that digitalization reduce cost by reallocating the employees more efficiently. By digitizing routine and repetitive work, the employees can focus on more productive and customer-oriented tasks. As far as the cost of production and services, Remane et al., (2017) argue that digital services and product, such as smartphone apps, can be produced for almost zero marginal cost. Hence, digitalization can potentially limit the costs of a firm.

As mentioned in the context of digitalization of the value delivery, Teece & Linden (2017) points to the increased engagement in digital ecosystems. The engagement in partnerships will have an impact on the value capture component of a firm, as it can be a challenge to balance

the profit of all the participants in the ecosystem. Furthermore, the authors argue that the firms must also counter a wider range of expected and unexpected competitors, than ever before.

Hence, we expect that digitalization will impact 'the value capture'- component by reducing costs, through digitalizing repetitive tasks, relocating the employees more efficiently and producing digital services and products to a lower cost than physical offerings.

3.2 Barriers and Facilitators to Successful Business Model Innovation

To our knowledge, there are no academic literature that discuss the barriers and facilitators of business model innovation due to digitalization for a service firm. Yet, there are several studies that look at general barriers and facilitators to successful business model innovation (e.g. Chesbrough 2010; Achtenhagen et al., 2013). In this chapter, we will present the hinders and facilitators to business model innovation we believe are relevant for the understanding of our research question. We expect that these hinders and facilitators will be relevant for some of the firms in our case study, while others may experience difficulties that are not yet addressed in the literature.

While many new business models are introduced by start-up firms, established firms experiment with new business models to stay relevant and respond to the new competitive threats (Markides, 2000). Even though it is obvious that business model innovation is important for a firm's vitality, it is very difficult to successfully achieve (Chesbrough, 2010). Innovating the business model is a risky process, and established firms can experience challenges as path dependencies, organizational constraints, and conflicts with the existing business model (Birkinshaw & Ansari, 2015). In the following, we will present facilitators and hinders we believe is relevant for the understanding of our research question.

3.2.1 Barriers to Successful Business Model Innovation

Conflicts with the Existing Business Model

The organizational inertia of the prevailing structures and processes in an established firm can complicate change in an organization (Doz & Kosonen, 2010). Thus, the introduction of a new business model can conflict with the existing business model and its underlying assets. Chesbrough & Rosenbloom (2002) argue that the discovery of alternative business models will be more challenging for established firms than start-up firms, as the task will be '*constrained by its dominant logic, which is derived from its extant business model'* (p. 550). The dominant logic of a firm develops over time and defines how the company create and capture value. If a new business model differs substantially from the current, the dominant logic of the firm can act as a cognitive barrier and dismiss a more profitable business model (Chesbrough & Rosenbloom, 2002). In a more recent study, Chesbrough (2007) highlights that if organizational inertia and dominant logic make the current business model unchallengeable, business model innovation will be impossible.

We find this barrier particularly relevant for incumbent firms in the process of shifting towards a more digitalized business model, as they already have a well-functioning business model. Furthermore, digitalization will challenge their organizational structure by automating processes, changing relevant roles and operating models. Moreover, we expect the digitalization process to be a greater challenge for the larger firms, as they are more hierarchical and rigid than the smaller firms.

Managerial Challenges

Managers are an important driver for business model innovation. Chesbrough (2007) argue that it is necessary that the managers have knowledge concerning business model innovation, to enable experimentation and development of an alternative business model. In line with this, Doz & Kosonen (2010) points to the importance of a top management team that is *willing* to experiment with and adopt new business models. However, Chesbrough (2010) emphasis that the top managers have gained their position with the current business model, and thus have a tendency to prefer the existing model. Cavalcante et al. (2011) further highlights the possible challenge of managers who feel threatened by an alternative business model, and hence are resilient to experiment with new business models.

Furthermore, a managerial challenge is the ability to perform exploitation and exploration simultaneously (Smith et al., 2010). Exploitation includes refining and improving products and services in an existing marketplace, while exploration seek to introduce products and services that can define new marketplaces. In the context of business model innovation, exploitation and exploration is the act of simultaneously searching for a new business model, while ensuring co-existence between the current and new business model (Chesbrough, 2010). This process is challenging for the manager, as it involves balancing resources between the current and the new business model.

In the context of digitalization, we find it particularly relevant with a manager that is willing to innovate the business model. Digitalization is a comprehensive transformation of the entire organization, and if the manager is unwilling to digitalize the business model, we predict that this process will not be initiated in the first place. We further expect that firms will have difficulties with balancing resources between the current business model and the development of the new business model.

3.2.2 Facilitating Capabilities to Business Model Innovation

The Capability to Predict Change

There are numerous organizational capabilities proposed as facilitators to implementing a new business model (Foss & Saebi, 2017). Demil and Lecocq (2010) argue for the importance of the capability they label *'dynamic consistency'*. This capability allows a firm to transform its business model, while at the same time build and maintain sustainable performance. '*Dynamic consistency'* reflects the ability to predict change and implement incremental or radical modifications to the business model, to maintain or improve performance (Demil & Lecocq, 2010). Teece & Linden (2017) also argue that the capability to *sense the need for change proactively* must be cultivated and built into the organization's structure. Furthermore, this is in line with Wirtz et al. (2010), who points out that firms need to possess *strong sensing capabilities* to identify the relevant changes in their environments to successfully innovate the business model.

In the context of shifting towards a more digitalized business model, we expect that all the presented capabilities will facilitate the transformation process. The ability to adapt the business model, while maintaining the firms' performance, will be important for the profitability of the business and to meet customer demands. To have an understanding of which elements of the business model that must be changed, we expect that it is essential to have the ability to identify the relevant changes.

The Capability of Involvement in All Firm Levels

A critical capability is the *coherence between leadership, culture, and employee commitment* for successful business model innovation (Achtenhagen et al., 2013). The authors argue that this capability is essential to create an environment where the employees can question current ways of generating revenue and experiment with new value creation opportunities. This include focusing on creating a strong culture with shared norms and values, and without group thinking and autocratic management. Wirtz et al. (2016) also emphasize the importance of the involvement in developing the business model in all levels in the firm. Through involvement in environmental scanning by the entire firm, the business will develop the understanding of customer needs and new technological possibilities (Wirtz et al., 2016). Sosna et al. (2010) argue that the top managers will initiate the change, but in order to encourage individual and organizational learning, all firm levels must be included in the process.

As the digitalization process involves all layers of the organization, from streamlining operations to introducing new roles and skills, we expect that the involvement of all firm levels in the development of the business will be a critical capability.

The Capability to Experimenting with New Business Models

Being highly entrepreneurial is a common feature for companies that are successful at creating value over time through changing their business model (Achtenhagen et al., 2013). Thus, Achtenhagen et al. (2013) argues that achieving an orientation towards identifying and experimenting with new business opportunities is an important capability for successful business model innovation. O'Reilly & Tushman (2004) points to the importance of the capability they label '*ambidexterity.'* This capability enables an established firm to experiment with new business model, while at the same time maintain the profitability of the existing

revenue sources. In line with this, Khanagha et. al (2014) points to the relationship between strategy, learning and experimentation when developing a new business model. When a firm want to explore new business models, there are several opportunities to choose from, as to when and how, which incorporates different strategic decisions. Khanagha et al. (2014) finds that through experimentation, the uncertainty can be reduced, learning enabled and the business model innovation process improved. Chesbrough (2010) also find in his studies that experimentation will reveal new business models, which enable the organization to overcome the barriers concerning the rigidity of the existing business model. Sosna et al. (2010) further emphasize experimentation as a facilitating activity to achieve successful business model innovation. The authors argue that business model innovation takes place through a trial-and-error learning approach from 'constant adaptation and low-cost experimentation', involving all firm levels and activities.

In the process of shifting towards a more digitalized business model, we expect that experimenting with new digitalized business models in an isolated test-environment before the transformation is initiated, can be a facilitator. As the transformation process is extensive and resource-intensive, we foresee that a trial-and-learn approach can be useful to find the new suitable business model.

4. Methodology

In this chapter, we will first explain the purpose of this thesis and why we chose a qualitative approach, with an exploratory design. Next, we will present the thesis' main steps; the research and writing of the literature review, the data collection process and the analysis of the collected data. Lastly, we will evaluate the credibility, transferability and reliability of the chosen research method.

4.1 Purpose of the Thesis and Choice of Methodology

The purpose of this thesis is twofold. Firstly, we aim to explore *how digitalization impacts a service-based business model.* This have been done by exploring and categorizing the findings from six in-depth interviews with Norwegian banks, in terms of our framework. Secondly, we want to identify *hinders and facilitators in the process of shifting towards a more digitalized business model.* This was done by exploring which factors that have facilitated or hindered the banks in our sample, to adopt to a more digitalized business model. By addressing these issues, this study provides an understanding of how digitalization can impact the components of a business model. Furthermore, we will identify organizational barriers and facilitators that can arise in the process of shifting towards a more digitalized business model.

4.1.1 Research Approach and Methodological Choice

As illustrated in the literature review, there are gaps in the literature regarding the intersection between digitalization and business models. Our aim is to address these gaps, and contribute with new knowledge based on the collected data. Thus, we found it suitable to use an inductive approach (Yin, 2009).

Our research demanded an understanding of the concepts of business models and digitalization to be able to explore how digitalization is a driver for business model change, and organizational barriers or facilitators that can arise in a digitalization process. We aim to contribute to this research field by exploring the impact of digitalization on business models. Thus, we will use an exploratory research design. This choice of design was advantageous, as it facilitated flexibility in the research process when new data were collected (Saunders et al.,

2012). Furthermore, a qualitative research method is needed to obtain and present the depth and understanding of digitalization and business models, and the combination of these concepts (Saunders et al., 2012). The nature of our research questions with the phrasings of "*How is digitalization impacting (...)"* and "*What facilitates or hinders (...)"* further gave a push toward a qualitative approach, as this implied that there is not one correct answer to the questions, and a need for exploring the findings.

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4.2 The Thesis' Main Steps

We will in the following describe each step of the research process of our thesis. The study was conducted in three steps, as illustrated in figure 7. In the first step, we reviewed the existing literature on business models and digitalization, and general facilitators and barriers to successful business model innovation (as shown in chapter 2 and 3). The second step was the data collection process, where we interviewed six Norwegian banks. In the third step of the process, we analyzed the findings from the data collection.

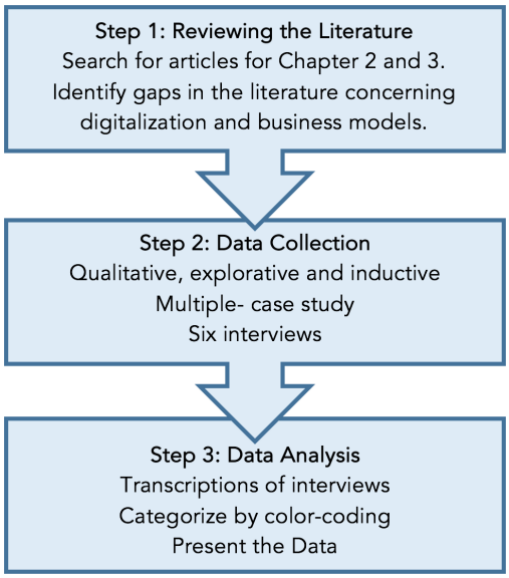

Figure 7: The Thesis' Main Steps

Step 1: Literature Review

The aim of reviewing the existing literature was to gain insight into the concept of business models and digitalization, and how digitalization can be a driver for changes in the business model. Furthermore, we aimed to gain an understanding of facilitators and barriers in the process of shifting towards a more digitalized business model. Through this procedure, we got an overview of the topics that were not thoroughly covered in the literature. We found that there was no clear definition of digitalization, and used existing literature and consultancy reports to derive our own definition. While reviewing the literature, we found that no academic studies explore the effects of digitalization from a business model perspective and specify organizational facilitators or barriers that can arise in the process of shifting towards a more digitalized business model.

We used the *EBSCO Business Source Complete* database, *Emerald Insight* database and *Science Direct* database to search for relevant literature. To limit the search, we only included articles that were related to our research question and focused on reviewing articles written by acknowledged researchers in the field. We began searching for general terms such as "business models" and "digitalization". The search on "business model" gave us thousands of hits, while "digitalization" yielded more than 1,700 articles hits, proving that it was necessary to further specify the searches. To narrow our search, we combined different terms, such as "digitalization + business model". This search yielded 17 articles, and we found two of these articles relevant for our thesis. When we combined "Digitalization + definition", no relevant articles were found. Given the weak academic research outcome of the search, we found it necessary to review consultancy reports to gain an understanding of digitalization. While these reports are not academic, they provide an understanding of underlying organizational processes of digitalization, digitization and digital transformation. This was valuable in the clarification of the concept of digitalization.

Step 2: Data Collection

Sampling technique

To understand and be able to answer our research question, we collected our research data through semi-structured individual interviews. During the sampling process for our case study, we used a non-probability sampling technique that was both heterogeneous and purposive to choose the interview objects (Saunders et al., 2012). We decided to interview six different Norwegian banks in our thesis, to obtain a representative selection. The banks were selected based on their total assets, revenue in 2016, human capital, geographical presence and when they were established shown in table 3. For our purpose, we found this technique to be the best way to choose which banks to interview, to ensure variation within the sample. Furthermore, we pursued to interview managers in each bank that had experience with business development and an understanding of how digitalization has impacted the business model of their firm.

Company	Revenue 2016 (In NOK 1000)	Human Capital	Geographical Scope	Established
BN Banks ASA (Proff a., n.d.)	NOK 1.442.000	119 employees	Norway	1961
Fana Sparebank (Proff b., n.d.)	NOK 366.800	124 employees	Bergen & close-by regions	1878
Monobank ASA (Proff c., n.d.)	NOK 52.300	39 employees	Norway	2015
Sbanken ASA (Proff d., n.d.)	NOK 1.477.744	312 employees	Norway	2000
Sparebanken Vest (Proff e., n.d.)	NOK 3.409.000	695 employees	Hordaland, Sogn & Fjordane, Rogaland	1823
Skue Sparebank (Proff f., n.d.)	NOK 237.797	75 employees	Buskerud	1842

Table 3: Mapping of our Interviews

The interview process and documentary analysis

The majority of the data collected were primary data, obtained through in-depth interviews with six Norwegian banks. An overview of the interviewees can be found in Appendix A. By using the method of semi-structured interviews, we were able to ask standardized questions, and include more specific questions based on the bank we were talking to (Yin, 2009). In the following are some examples of the interview questions; "How does the digitalization affect the products and services of your company?" and "What efforts have the company made to meet these challenges?". The answers to these questions gave us an understanding of the impact of digitalization on the bank's business model, and how they are managing these implications. Before we conducted the interviews, we made an interview guide (presented in

Appendix B). This was used to ensure that certain topics were covered in each interview. Furthermore, we recorded the interviews and took notes of the main points, to ensure that we did not overlook valuable information. The interviews were conducted one-to-one. This gave the respondent the opportunity to provide their point of view, and we had the possibility to "probe" answers during the interview. Having these interviews in person, further allowed us to connect with the respondent, and make the respondent less reluctant to provide sensitive and confidential information. It also gave us the possibility to observe the non-verbal communication. We conducted five interviews face-to-face, while the last interview was a video-interview.

Step 3: Data Analysis

In order to build a theory based on the data collected through our interviews, we needed a systematic method to analyze the findings (Yin, 2009). We organized and analyzed the data based on themes, and in two steps.

Processing the data

The first step in the data analysis was to transcribe our interviews from the interview recordings'. The transcribing process was a time-consuming process, but it provided a holistic overview of the data collected from the interviews (Saunders et al., 2012). The next step was to comprise the interviews, and connect the findings to our research question. To organize the data, we used different codes on frequent findings in the interviews. For this purpose, we used a color-coding method. Each analysis element, as for instance barriers and facilitators, were marked in different colors. An example of this can be found in appendix D. After coding the data, we categorized the codes that were relevant to answer the research question. Some examples of the used categories were *"digitalization of the value delivery", "digitalization of the role of the customer"* or *"involving the employees in the change process"*.

Presenting the data

The final step of the data analysis was to present the findings in a structural manner (presented in chapter 5). Based on our framework developed in chapter 3, the effect of digitalization was categorized and linked to the impacted business model component. During our analysis, we found that the interviewed banks had experienced two different organizational change

processes due to digitalization; 'the digitization phase' and 'the digital transformation phase'. Thus, we identified different organizational facilitators and barriers linked to each of these stages, and presented the findings in two different tables.

4.3 Evaluation of the Research Method

4.3.1 Credibility (internal validity)

The credibility of the study refers to whereas our presentation of the respondents' knowledge and reality is aligned with what the interview objects intends (Saunders et al., 2012). To achieve a high degree of credibility, during the preparation process of creating the questions for the interviews, we worked hard to gain an understanding of the research topic and our interview object. We also used the transcribed interviews when we wrote the analysis and findings, to make sure that we captured the intended meaning of our interviewees. However, our interviews were conducted in Norwegian, while the master thesis is written in English. Even though we have tried to translate the interviews to the best of our ability, some of the intended meaning can have been altered. To reduce this effect on the credibility, we have had some of our interviewees approve the quotes we used about their firms.

4.3.2 Transferability (external validity)

Transferability refers to the possibility that the results from the study can be generalized, which means that our findings of impact of digitalization on the banks' business models can be transferred to other industries. Transferability is a known weakness of qualitative studies, as they are based on a small and non-representative selection (Saunders et al., 2012). In our thesis, we interviewed six different Norwegian banks, which can be considered a low number of respondents. We tried to book interviews with three financial institutions such, but they did not respond to our requests in time to be included in this thesis. To increase the transferability, we chose to include the observations that are common for the banks that we interviewed, and decided to include a narrow geographical scope. Furthermore, as we are able to compare our findings against existing theory, which is what we have done throughout the analysis, Saunders et al. (2012) argue that this can increase the theoretical significance of our research project. In chapter 3, we have discussed general facilitators and barriers when innovating a business model, and compared our findings against the existing theory.

Another factor that weakens the transferability of this study, is that it is a cross-sectional study, and we therefore only had time to conduct one interview with each bank. Thus, we miss the opportunity to measure developments over time. However, it can be argued that a satisfactory level of transferability can be achieved, as the results and findings are held against existing theory.

4.3.3 Reliability

With the research design we have chosen, it will be difficult to assess reliability as the findings will be affected by us, as the researcher of this thesis, and our interviewees (Saunders et al., 2012). In a qualitative study, reliability is defined by whether other researchers will find the same results as we did, if they redo the study. We have attempted to work as transparent as possible and documented the steps during our thesis, so other researchers can try to understand our processes and re-analyze our findings.

Furthermore, there are three biases that can occur during interviews and impact the reliability of the study; interview bias, interviewee bias and participations bias. With interview bias, the tone, comments and nonverbal communication by us, the interviewer, could affect how the interviewee respond (Saunders et al., 2012). If we have an idea or belief of the answers, we might lead the interviewee in a direction that confirm what we thought in advance. To avoid this bias, we used our interview guide and aimed to stay as neutral as possible during the interviews. Interviewee bias occur when the interviewee experience insecurities and therefore withhold important information from the interviewer, us. To avoid this bias, we introduced our project, and how we would use their contributions before we conducted the interviews. This was helpful to gain our interviewee's trust. Furthermore, we went to the interviewees offices to conduct the interviews, to make them feel comfortable in the environment. The third bias, the participation bias, is based on which banks that agreed to participate in our study. To reduce this bias, we first sent an e-mail to the banks we wanted to interview. If they did not respond within reasonable time, we sent another e-mail, before we tried to call the banks to set up an interview. Our participation bias could have been reduced if we had been able to interview some of the financial institutions that we contacted for an interview, to have a larger variety of banks in our sample.

4.4 Ethical Implications

Anonymity and confidentiality are important issues when conducting a research strategy. As we made sure to get an approval from the interviews to use their name and which bank they worked for as a source of our findings, this is not a concern in this thesis. Furthermore, we have not been collecting any personal information, that would lead to restrictions of the data collection and data presentation. However, before conducting the interviews, we sent in an application to the Norwegian Centre for Research Data (NSD), who permitted us to proceed with our interviews.

Another ethical issue to consider, is the accuracy and honesty of the data we collected. After we had transcribed the interviews, we sent it to those who wanted to approve our findings before we used them in the thesis. The interviews were conducted in Norwegian and then translated to English, hence this was necessary to make sure we captured the essence of our data. By adding the interview guide, interview transcript and a table with findings in our appendix, we actively worked to avoid these problems.

5. Analysis and Findings

In this chapter, we will present and analyze our findings from the interviews with six Norwegian banks. The chapter consist of three parts. In the first part, we aim to provide the reader with an understanding of the Norwegian retail banking industry. Based on information from the interviews, we will present how the Norwegian banking industry has changed due to digitalization. In the second part of the chapter, we will categorize the findings on the impact of digitalization on the bank's business model using the framework presented in chapter 3.1. Finally, we will present the findings of facilitators and barriers to shifting towards a more digitalized business model.

5.1 Industry Overview: The Norwegian Retail Bank Industry

Based on information from our interviews with six Norwegian retail banks, we will in the following present how the Norwegian banking industry has changed due to digitalization. We aim to provide the reader with background information on the industry, and how new technologies have changed the competitive landscape. Furthermore, we aim to provide the reader with an understanding of the drivers for business model change, that will be further analyzed in 5.2.

Our findings indicate that the Norwegian retail banking industry has traditionally been a profitable industry, with loyal customers and limited exposure to changes in demands and international competitors. In Norway, there have mainly been two types of business models in the competitive landscape; commercial banks and savings banks. Both types of business models have traditionally offered the private consumer payments-, savings-, lending- and investment services at their physical bank branches. While the commercial banks are organized as corporations owned by its shareholders, the savings banks are owned by its members and have local affiliations. The savings banks' purpose was initially to provide all levels of the society in their geographical scope an opportunity to invest their savings and receive loans at a competitive interest rate. As the savings banks are owned by its members, the bank has a social responsibility to develop the local area by investing the bank's profit in local initiatives and businesses.

However, the emerging adoption of the internet around year 2000, introduced new business models in the industry. These new businesses were not restricted by a rigid organizational structure, with physical bank branches and existing customer demands. Sbanken (named Skandiabanken at that time) was the first bank to offer internet banking in Norway. With internet banking, the bank introduced the possibility to interact and transact with the bank without approaching the physical bank branches. Since then, new digital niche banks have emerged in the Norwegian banking market.

After Sbanken's introduction of the digital bank, the savings bank also experienced an increasing demand to provide banking services online from their customers. To be able to meet these new customer demands, the savings banks had to go through a comprehensive process of shifting from a traditional business model, to a more digitalized business model. Some of the activities that were included in the transition were digitizing internal processes, reorganizing the organizational structure and developing digital offerings, such as the mobile banking apps. In chapter 2.2.2, we argued that digitization and digital transformation present distinct stages in the digitalization process. The savings banks process of shifting towards a more digitalized business model can be linked to our definition of digitization. Thus, we will refer to this stage of digitalization as 'the digitization phase' in the analysis.

The savings banks have worked towards shifting to a more digitalized business model the last few years. Consequently, most of their services and products are now digital, and they have closed down almost all of their physical bank branches. Currently, both the savings banks and the digital banks are in the ongoing process of adapting their business models to take advantage of the opportunities new technologies create. This ongoing process will be referred to as 'the digital transformation phase' in our analysis. The phases will be used independently to reflect the impacts of two separate phases of digitalization on the banking business models, in section 5.2 and 5.3. The two phases are described in table 4.

'Digitization phase'	'Digital Transformation Phase'
The process of digitizing internal processes, reorganizing the organizational structure and developing digital offerings	The continuous process of adapting the business model to take advantage of the opportunities new technologies create

Table 4: Description of the Two Phases of Digitalization

In the following, we will present the current drivers for business model change in the ongoing 'digital transformation phase'. Our findings indicate that the 'digitalization-drivers' that impacts the banks' business models are new technologies, regulatory and competitive drivers enabled by technology, shown in table 5. The technological drivers change the business model by streamlining services and processes. The banks pointed to Machine Learning, Blockchain and Artificial Intelligence as technological drivers. The mentioned regulatory driver is a new EU directive, PSD2, that aims to increase competition and transparency in the payment markets in between the member countries. As a result of this directive, the Norwegian market for payments services will open up for new competitors in January 2018. This opens up the banking space for big techs (the biggest technological firms), such as Facebook, Apple and Google. These firms are predicted to be big threats, as they are highly profitable and have accumulated a massive amount of Norwegian daily users. Fintechs (financial technology firms) are also considered to be a competitive driver for business model change, as these firms specialize in making more accessible financial services and solutions. The presented drivers are more thoroughly explained in Appendix E.

Technological drivers	Regulatory drivers	Competetive drivers
⇒ Artifical Intelligence ⇒ Machine Learning ⇒ Blockchain	⇒ PSD2: The second Payment Service Directive	⇒ Big techs ⇒ Fintechs

Table 5: Drivers for Change in Norwegian Banking Industry

In sum, with the adoption of the internet around year 2000, digital banks introduced new ways for the customer to interact and transact with the banks. To be able to compete with these new competitors, the traditional banks went through a comprehensive process of shifting towards a more digitalized business model (referred to as 'the digitization phase'). Today, technological-, regulatory- and competitive drivers are forcing both the savings banks and the digital banks to continuously transform their business models (referred to as 'the digital transformation phase'). Next, we will further describe how each of the components in the 'savings banks business model' and the 'digital bank business model' are impacted by digitalization.

5.2 The Impact of Digitalization on Service-Based Business Models

In this part of the chapter, we will analyze how each of the components in the 'savings banks business model' and the 'digital bank business model' are impacted by digitalization. We have structured and categorized the findings, based on the framework developed in Chapter 3.1. The framework consists of the four business model elements; *The customer, Value proposition, Value Delivery and Value Capture*. We will first present an overview of the impacts of digitalization on each of the business model elements in figure 8, based on the findings from both types of banks. Second, we will in detail discuss how the components are impacted in the two different banking business models, and provide real-life examples from the interviews.

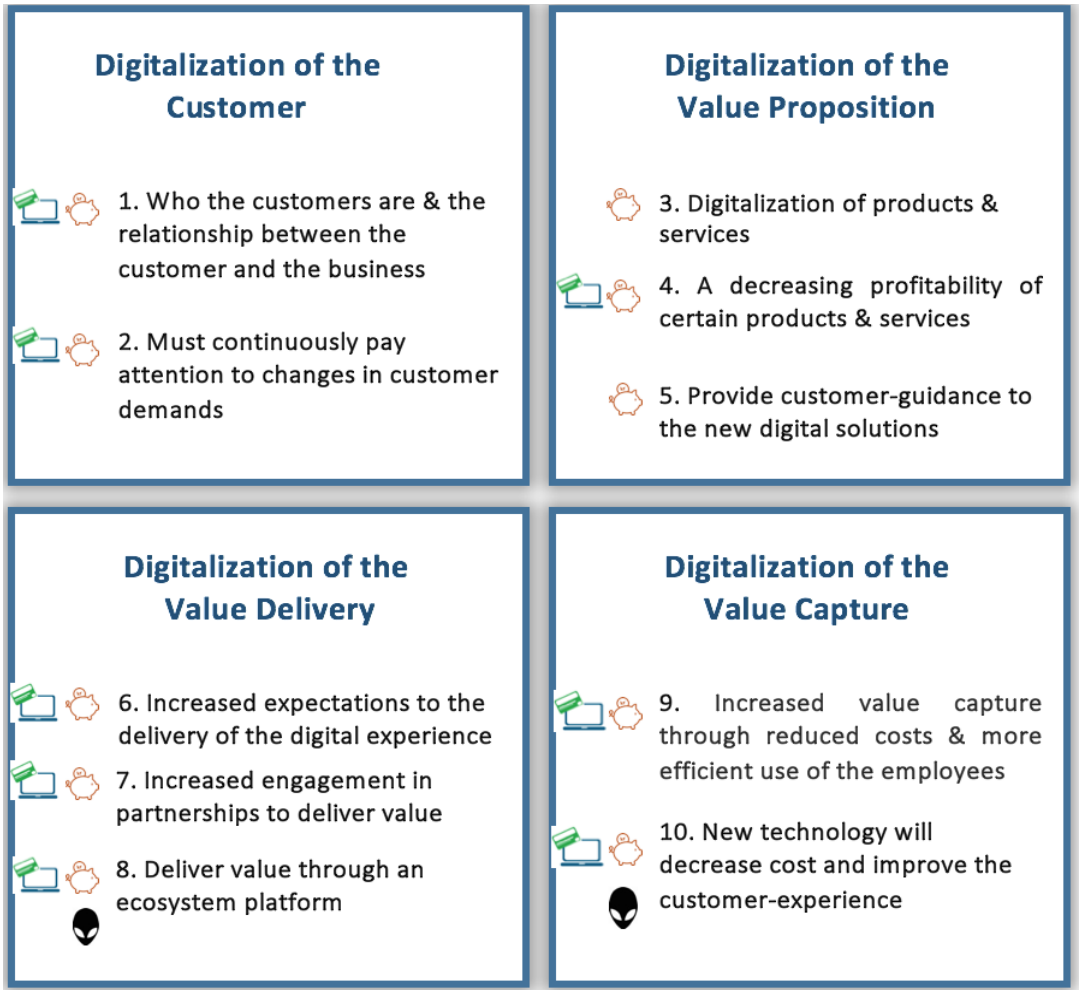

Figure 8: Impact of Digitalization on the Business Model

	The piggybank symbol indicates the impacts of digitalization that are relevant for the savings bank's business models.
	The computer symbol indicates the impacts of digitalization that are relevant for the digital banks' business models.
	The alian symbol indicate potential future impacts on both business models.

Figure 9: Explanation to the Framework for Categorization of Impacts

Our findings are based on interviews with the three 'savings banks'; Fana Sparebank, Skue Sparebank and Sparebanken Vest, and the three 'digital banks'; Sbanken, Monobank and BN Bank. In the following, we will describe how digitalization has impacted each of the business model components, in the two different business models. Furthermore, we will present examples from the interviews.

Digitalization of the Customer

1. Who the customers are & the relationship between the customer and the business

Digitalization impacts 'the customer'-component of both types of banks analyzed in this thesis. However, as the business models target different customer segments, digitalization of the respective banks has impacted their customers differently.

The savings bank customer: Prefer a simple digital use of the daily bank, and are willing to pay more for personal advisory in times of uncertainty

The savings banks operate in the family segment and have to meet the expectations of many different customers. Historically, the primary focus of this business model has been to provide personal customer service in local bank branches. However, digitalization has changed customer preferences. Our findings indicate a shift from physical attendance at the local bank branches, to a digital execution of daily banking activities. The latter include using internet banking to check their accounts, mobile services to conduct payments and communicating with banking personnel through interactive chat-services. Although the customers prefer digital solutions in the daily use of the bank, a personal relationship with a given banking

advisor is highly valued in times of uncertainty. An example of such a case, is when a young customer applies for a home mortgage for the first time, or when a customer need financial guidance during a divorce. Hence, digitalization has contributed to the savings banks having to find a balance between user-friendly digital solutions for daily banking activities, as well as personal advisory in complex situations. Skue Sparebank points out that the personal dimension of their offerings must be compelling, as it is the personal advisory that, to a large extent, differentiate the savings banks from their digital competitors.

As the savings banks targets the family segment, they must adapt to a variety of customer preferences. Sparebanken Vest points out that one would assume that the millennials are the most demanding customer segment, as they more easily adopt new technology. However, they find that this segment value a combination of digital solutions and the ability to contact a personal advisor. Surprisingly, the bank's most demanding customers are the 40-year-old males, who wants to get a home mortgage and other services with a single click on their computers and smartphones. When it comes to the elderly customer segment, Fana Sparebank argue that the digitalization of the banks offerings is limiting the non-technical customers use of the bank. Many of these customers have been loyal to the bank for years. Thus, the bank argues that *"We have a social responsibility to bring with us the generation that is not born and raised with smartphones and iPads "*.

> "We have a social responsibility to bring with us the generation that is not born and raised with smartphones and iPads"
>
> - Fana Sparebank

The digital bank customer: Value easy solutions & minimal contact with the bank

The 'digital bank business model' is a result of the digitalization of the banking industry, and targets the customers who wants simple and effective digital solutions. The digital banks differentiate their offerings from the traditional savings banks by solely having a digital presence, and no physical bank branches. Consequently, the customers' points of contact with the bank is via telephone, email, interactive chat-services and social media. BN bank refers to the digital bank customers as minimalistic. *"Our customers value efficient services and understands their own needs"*. In general, the customers that choose a digital bank

> "Our customers value efficient services and understands their own needs"
>
> - BN Bank

are fast at adopting to digital solutions, and are familiar with the processes of applying for a home mortgage, or car and consumer loans.

2. Must continuously pay attention to changes in customer demands

> "Nothing except bad customer experiences can disrupt the local bank"
>
> - Skue Sparebank

Both 'the digital business model' and the 'savings banks business model' are to a large extent controlled by the customers, as it is their preferences that directs the profitability of the banks' offerings. Hence, one of the main impacts of digitalization on both business models is that new technology continuously change the customer's preferences and attitude towards digital solutions. Skue Sparebank aims to operate in line with the following saying; *"Nothing except bad customer experiences can disrupt the local bank"*. The saying implies that only Skue Sparebank itself can be blamed if the bank goes bankrupt, as they will then have failed to meet the customer's needs and expectations.

Both the savings banks and digital banks interact with their customers through different channels, to ensure that they are meeting customer expectations. Sparebanken Vest arrange user-tests, panels, surveys, and interviews with customers, to assure that new product developments are user-friendly and desired in the market. Fana Sparebank on the other hand, use their Facebook-page actively to increase awareness of new product offerings and to receive feedback. Moreover, BN Bank argue that they should use customer feedback and user-testing more actively in their product development, as they have launched some products and services that the customers were not yet mature to embrace.

Digitalization of the Value Proposition

3. Digitalization of products & services

The 'value proposition'-component of 'the savings bank business model' have been greatly impacted by digitalization. Traditionally, the savings banks have offered the customer payments-, lending- and investment services at their physical bank branches. However, as a result of digitalization, a majority of the savings banks' offerings have become digitalized. The customer can apply for loans and mortgages, open accounts and invest in funds without going

to the bank. The exception of a digital service is customer-service, as the advisor is a human being. However, it can be argued that this is a partly-digital service as well, as the customers can choose to interact with the bank through chat-services, telephone or web meetings.

We find that this impact is specific to 'the digitization phase'. Thus, the impact is not relevant for the 'digital business model' as these digital banks were 'born digital'.

4. A decreasing profitability of certain products and services

A common impact of digitalization on the 'value proposition'-component of both business models, is the decreasing profitability of certain products and services. New regulations in the banking industry will open up the payment-service market for new competitors, such as big techs and fintechs. These new competitors have access to great technology and do not need to follow the same banking regulations as the banks. Hence, they have the ability to provide easy and accessible payment-solutions for the customers. After PSD2 is implemented in January 2018, big techs as Facebook and Apple can launch payment services as a part of their existing platforms. As these platforms already have a large user-base of Norwegian customers, the banks fear that the big techs will capture a large share of the market for payment services. To compete with the fintechs and big techs, Norwegian banks are collaborating on the payment-service 'Vipps'. Vipps is a mobile app where you can transfer money by only using the telephone number of the receiver. The service was initially launched by DNB, but is now a collaboration consisting of 130 Norwegian Banks. Skue Sparebank points out that "*the biggest challenge with customers turning to competitors for payment services is not the loss of income, but the fact that the banks will lose the daily interaction with the customer* ".

> "The biggest challenge with customers turning to competitors for payment services is not the loss of income, but the fact that the banks will lose the daily interaction with the customer"
>
> - Skue Sparebank

5. Provide customer-guidance to the new digitalized solutions

The digitalization of the 'value proposition'-component of the savings banks have created a new need among some of the savings banks customers; to learn how to use the digital products

and services. As mentioned in 'the customer'-section of the analysis, the savings banks target the family segment. This segment includes customers' groups that need assistance to use internet and smartphones. To educate these customers in digital banking, the savings bank has extended their services to include 'help-events' and other assistance-services.

In Skue Sparebank, they held workshops and 'help-events' before they closed down most of their physical bank branches. Previous to this transition, there were both employees and customers that were skeptical to digital banking. However, their customers are now very satisfied with the new solutions, and the ability to transact and interact with the bank without leaving the house. Fana Sparebank aim to assist customers by providing the 'not-digital mobile bank'. The service consists of an employee that drives home to elderly and disabled customers and help them with transactions and problems with the digital bank.

Digitalization of the Value Delivery

6. Increased expectations to the delivery of the digital experience

An impact of digitalization on the 'value delivery'-component of both business models is the increased expectations to the bank's delivery of the digital experience. Sbanken argues that the customers' expectations to the bank's digital offerings has become more demanding, due to recent technological developments in other industries. They have to provide easy and accessible solutions to different devices, such as smartphones, tablets and computers. Furthermore, the digital value proposition must be adapted to different solutions as Android and Apple's iOS, which is a demanding process.

7. Increased engagements in partnerships to deliver value

Another common impact of digitalization on both types of business models is an increased engagement in partnerships, to meet the rapid changes in the industry. This includes collaboration with other banks or IT-suppliers, to be able to deliver sufficient offerings to the customers. Sbanken points out that what kind of network and partnerships each bank engage in will become more and more important, as new technologies and customer need are introduced.

Sparebanken Vest have taken the initiative to create a fintech cluster in Bergen, consisting of banks, insurance companies and tech-companies. The aim of the cluster is to share knowledge to be able to compete with international big techs and fintechs. The mentioned payment service Vipps, is another collaboration made to fight these competitors. Sparebanken Vest argue that "*PSD2 push the banks to step out and really offer something, and the banks who stand alone will struggle".*

> "PSD2 push the banks to step out and really offer something, and the banks who stand alone will struggle".
>
> - Sparebanken Vest

8. Deliver value through an ecosystem platform

The Norwegian banking industry is facing new competitors and rapid changes, due to an exponential growth of new technological possibilities and changing customer preferences. Thus, the sustainability of the 'digital business model' and 'savings bank business model' is uncertain. In the near future, the interviewed banks predict that they will deliver value through a platform service, consisting of different service-providers. Sbanken argue that the future banks will have two structures, a standard bank with its core products and services that we have today, and another part that will focus on the platforms and build this business model with partners. *"In the beginning, you will not make money on the new platform, until you find the right business model. Until then, you will need the money-making machine that is the traditional bank."*

> "In the beginning, you will not make money on the new platform, until you find the right business model"
>
> - Sbanken

Digitalization of the Value Capture

9. Increased value capture through reduced costs & more efficient use of the employees

Digitalization have impacted the 'Value capture'-component of both business models. Standardizing task and routine work have had a cost-saving impact on the 'savings bank business model' and the 'digital bank business model'. The cost of using technology to carry out a simple task, is less than the cost of having an employee doing the same task. Furthermore, the employees can be used more efficiently in tasks that technology cannot do better.

In the 'digitizing phase', the savings banks reduced costs by decreasing the number of employees as certain task were digitized. In Skue Sparebank, they offered the employees with jobs impacted by digitalization a severance package. Some employees accepted the offer, while those who wanted to remain in the bank was either trained to become general advisors or relocated to other positions within the bank. BN Bank has reduced employee-costs by introducing the virtual assistant 'Ida'. Ida is a chat robot (also known as a chatbot) that answers questions from the customers. A chatbot is a computer program that are designed to simulate how a human would behave, and can answer questions 24-hours a day.

10. Blockchain, Machine learning, and AI is predicted to impact costs and improve the customer-experience

The impact of Blockchain is still unknown for the new technologies, such as Blockchain, Artificial Intelligence (AI) and Machine Learning, are predicted to impact the 'value capture'-component of both business models in the following years. These technologies can potentially save the banks days of work by providing a more efficient service to the customers than humanly possible. In the following, some predictions of the impact of these technologies is presented.

Blockchain

> "It takes longer time to transfer money to Hong Kong, then to fly there"
>
> - BN Bank

The impact of Blockchain is still unknown for the banks, as the technology is not yet properly developed. However, Sbanken explained that the technology is predicted to reduce transaction costs, particularly in transactions across borders and between businesses. Today, these are costly and time-consuming processes for all parties involved. In line with this, BN Bank predicts that Blockchain will have the biggest impact on payments to other countries, as it now *"takes longer time to transfer money to Hong Kong, then to fly there"*.

Machine Learning & AI

The technologies of Machine Learning and Artificial Intelligence (AI) is predicted to enable a more tailor-made service to each customer. These technologies can for instance help the bank to predict which product a customer will buy next, and analyze if the customer prefers to be approached with a personal phone call or by e-mail. Monobank pointes to Artificial Intelligence as a great impactor for the industry. The bank predicts that AI will particularly make credits scoring easier and better, as they today depend on statistical regression and analyzing historical data.

5.3 Barriers and Facilitators to Shifting Towards a More Digitalized Business Model

Digitalization: a Driver for Business Model Change for the Savings Banks and the Digital Banks

Our findings indicate that digitalization is a driver for business model change, for the both the savings banks and the digital banks. The incumbent savings banks were profitable for a long time, and had a loyal customers base. However, due to the impact of digitalization, their customers demanded more accessible digital products and services. To be able to meet these new customer demands, the savings banks had to go through a comprehensive process of shifting from a traditional business model, to a more digitalized business model. As elaborated in 5.1, we refer to this stage of digitalization as ‘the digitization phase’. Firstly, we will present the barriers and facilitators the savings banks have experienced in this phase of shifting from a traditional bank to a more digitalized bank. Secondly, we will present barriers and facilitators in the process of continuously developing the business model to become more digitalized, with examples from all the interviewed banks. The banking industry are facing rapid changes due to the exponential adoption of new digital technologies, new competitors and new regulation. Consequently, both the savings banks and the digital banks are in the ongoing process of adapting their business models to take advantage of the opportunities new technologies create. This stage of digitalization is referred to as ‘the digital transformation phase’.

Barriers and facilitators in the process of shifting from a 'traditional savings bank business model' to a more digitalized business model

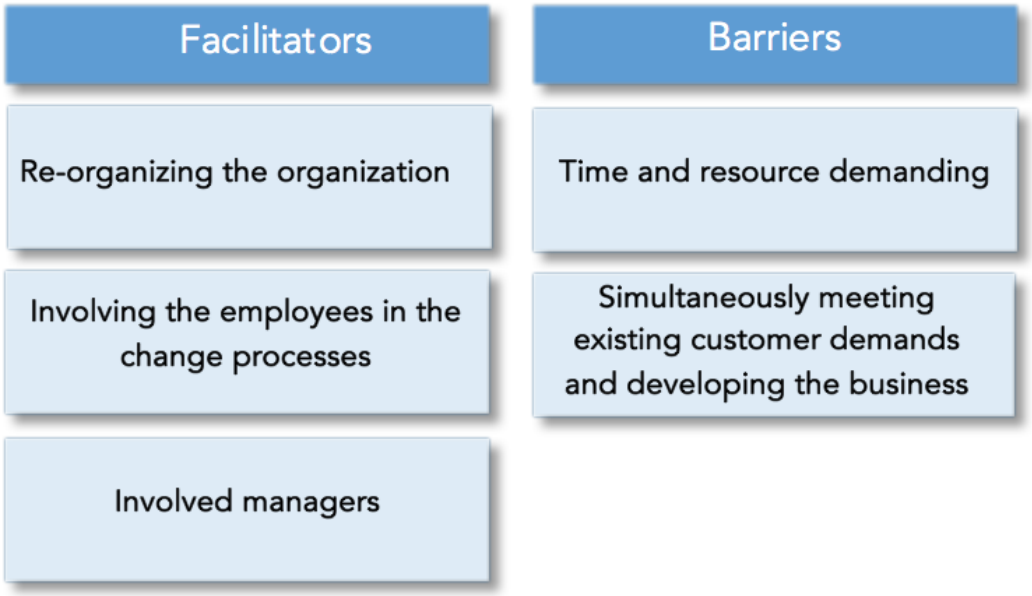

Figure 10: Facilitators & Barriers for Traditional Savings Bank

Barrier: Time and resource demanding to shift towards a more digitalized business model

The three savings banks; Skue Sparebank, Sparebanken Vest and Fana Sparebank, have used a lot of time and resources the last few years on digitalizing the business model. Sparebanken Vest explained that the 'digitization phase' included everything from reducing the number of steps required in tasks previously carried out manually to optimize the process flow, to the launch of internet banking and mobile apps for the customers. Furthermore, the digital offerings had to be compatible with different operating systems, such as Android and IoS. Thus, the process was very time-consuming and resource-demanding.

Barrier: Simultaneously meeting existing customer demands and developing the business

In addition to organizing the digitalization of internal processes and external offerings, the banks had to make sure to meet the existing customer demands to maintain profitability. The three savings banks argued that it was a very difficult balance to obtain. Skue Sparebank began preparing the process of shifting towards a more digitalized bank in 2013. Henceforth, the bank has worked towards being what they refer to as a 'binomic bank'. This implies providing

the customer with the personal customer-relationships that is typical for a local savings bank, combined with providing of easy digital solutions for the daily use of the bank. The goal is to be as good as the competitors on digital offerings, and even better than the competitors at the personal advisory and customer relations.

Facilitator: Re-organizing the organization

In Fana Sparebank, they experienced that reorganizing the organizational structure was a facilitator in the process of shifting towards a more digitalized business model. The bank has used the last 2,5 years to adapt their traditional organizational structure. The process included making the organization less hierarchical, and having fewer middle managers. Furthermore, the different departments as IT, marketing and customer-service are now working closer together to meet the customer's needs.

Facilitator: Involving the employees in the change processes

The savings banks have traditionally had many employees working in the physical banking branches, and performing repetitive tasks. As digitalization automated more and more processes and tasks, there were a growing resistance toward the digitalization among the employees. However, the savings banks learned that involving the employees in the change processes and taking time to thoroughly explain the reason for the digital change within the organization, facilitated the transformation.

To give the employees an understanding of the importance of the digitalization, Fana Sparebank involved the employees in the process of remodeling their old jobs. Thus, they gained an understanding of how digitalization improved the job and why the digitalization process would benefit the bank. Furthermore, as the bank only consists of around 100 employees, the management were able to communicate and explain why the changes were necessary to every employee.

Facilitator: Involved managers

All the savings banks pointed to the importance of the involvement and motivation of the management team, as a facilitator when organizational changes are introduced in the organization. In Sparebanken Vest, their new CEO managed to create a common

understanding of why the bank's business model had to change to meet the demand of the customers. After the management got involved in the change processes, the bank experienced a significant change in attitude among the employees towards the digitalization process, and those who worked with these projects in Sparebanken Vest. In line with this, the other savings banks presented similar experiences, and pointed to the importance of a motivated management team to be able to successfully transform the business model.

Barriers and Facilitators to Continuously Shifting Towards a more Digitalized Business Model

As a result of the drivers discussed in 5.1, our findings indicate that both the savings banks and digital banks are in an ongoing process of adapting their business models, to be able to meet the rapid changes in the industry. This barriers and facilitators are presented in figure 11. In the following, the banks' experienced facilitators and barriers in the process of continuously shifting towards a more digitalized business model will be presented.

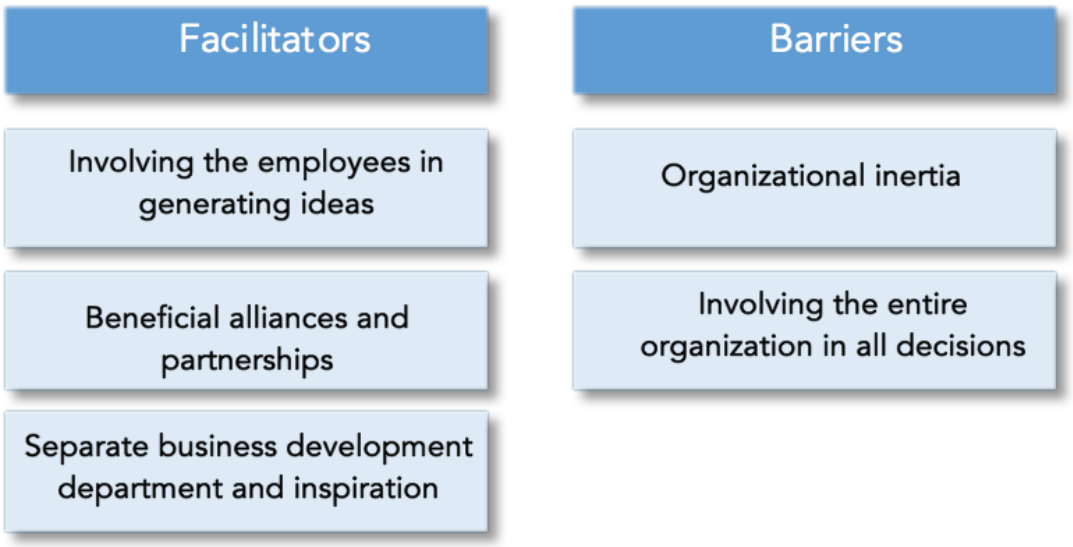

Figure 11: Facilitators & Barriers for Digitalized Business Model

Barrier: Organizational inertia

The savings banks and Sbanken pointed to the rigidity of existing organizational structures as a barrier in change processes. Sbanken was established in 2000, and are currently experiencing that the weight of a bigger customer base and compliance claims have created a rigidity in the organization. The first few years after its startup, the digital bank had an entrepreneurial spirit and all levels of the organization focused on improving the business. Even though Sbanken is

'born digital', the bank acknowledge that it is easy to get stuck in one way of thinking, and not see the opportunities that new technology facilitates. "Why should we try a new business model, when we still have not optimized our revenues from the old structure?". This line of thought is an issue in the bank. Thus, it can be difficult to convince managers to adapt the business model with uncertain outcomes, when the existing business model is still sustainable.

Barrier: Involving the entire organization in all decisions

Involving the employees in the business development can be helpful to engage the entire organization in the change processes, but it can also create difficulties in the decision-making processes. Sbanken has experienced both benefits and challenges of involving the employees in change processes. The bank has had a culture for submitting propositions for continuing improvements at Sbanken. However, it can be challenging and time-consuming to sort through all the ideas. Furthermore, when new innovations are introduced, there are a lot of opinions to consider. This makes it difficult to be agile and act with necessary speed. As a result of this, the bank has experienced that brainstorming and involvement is good in incremental improvements, while the big innovations need a closed-off decision processes.

Facilitator: Involving the employees in generating ideas

Our findings indicate that involving the employees in the process of finding new ideas for products, services and how to best organize the business is found to be a facilitator for several of the banks. To include the employees in the forthcoming developments of the bank, Fana Sparebank have organized groups consisting of employees in different positions and ages. In these groups, they are encouraged to come up with new ideas to improve the future strategy of the bank and their position in the market. In Sparebanken Vest, they have created a 'proposal box' on their intranet where employees present ideas and vote on the submissions they find good. The 'proposal box' has been a successful initiative for the bank. In Monobank, to engage the employees and give them an incentive to improve their competencies, each employee gets 30 000 NOK (or 40,000 if they travel to the United States) to attend relevant conferences. Thus, it is expected that the employees pay attention to the changes in the industry and return to the bank with new information. The employees in BN Bank also attends technology conferences to gain new inspiration and knowledge. However, the bank aims to avoid banking conferences, as it is "old news there", and rather pursue to learn from other industries.

Facilitator: Beneficial alliances and partnerships

To be able to meet the rapid industry changes, all the banks argue that it is a facilitator to engage in alliances and partnerships. With the exponential emergence of new technologies, it will be costly to develop and attain all the new relevant competences and resources in-house. Thus, the networks and partnerships each bank take part of, is predicted to become more important. Fana Sparebank argued that as a small bank with limited resources, they are dependent on beneficial partnerships to be able to shift towards a more digitalized business model. To provide their customers with sufficient digital offerings, the bank works closely with the IT-services and software provider, EVRY. Fana Sparebank highlighted that it is important to look at the changes in the industry as new opportunities, as it opens up for collaboration with new partners. Monobank also argued that they do not have the resources to experiment as the bigger banks. Thus, to be able to use Artificial Intelligence (AI) solutions to improve credit scoring, Monobank subscribe to Microsoft Azure. This is a cloud service consisting of many different services developed by Microsoft (e.g. analytics and storage).

Facilitator: separate business development department and inspiration from external sources

The mid-sized banks find experimentation with new technologies and business models in a separate department, as a facilitator. Due to less resources, the smaller banks are more dependent on partners that can experiment and provide sufficient solutions, such as Microsoft and EVRY. In Sparebanken Vest, they have developed a separate department that are working with business development. This department consists of business developers, project managers, tech-specialists and employees that work with customer analysis and customer insight. In addition to this department, the bank has a separate department that works with IT architecture and new technology. The bank has aimed to create a very strong environment for these competencies, to make sure they are up-to- date on the right trends and technologies. Furthermore, Sparebanken Vest has taken the initiative to develop the fintech cluster; Finance Innovation. The aim of the cluster is to share knowledge and strengthen the cooperation between actors in finance and in technology. The bank has also held a Hackathon event for students, where the task was to create the future bank in 24 hours. This event resulted in a lot of new ideas and inspiration for the bank. Sbanken also have a separate department that works with experimenting. The department is situated in the same building as the regular operations,

but on a separate floor. Sbanken pointed out that; “If you work too close up to the old structure and old operations, it is difficult to free yourself from the old way of doing things and think new”.

Skue Sparebank is part of the Eika alliance, which is an alliance consisting of around 70 Norwegian local banks. The development of new products and solutions is the responsibility of Eika, which is one of the benefits of being part of the alliance. At Eika they have departments for product development and digital solutions, and works actively to find and develop new ideas. Each savings bank in the alliance take part in forums, and in Skue Sparebank they have an employee who is deeply involved in the business developments at Eika.

6. Discussion & Conclusion

Digitalization, in the form of new technologies, have been found to have a far reaching effect on businesses, consumers and the society in general. However, it is not always clear what impact digitalization has on the business model of service companies, or how a firm can successfully shift towards a more digitalizes business model. The purpose of this thesis have been to explore the effects of digitalization from a business model perspective, and specify organizational facilitators or barriers that can arise in the process of shifting towards a more digitalized business model. In the following, we will discuss our findings from Chapter 5. Furthermore, we will present the managerial and theoretical implications of our findings.

6.1 How is Digitalization Impacting Service-Based Business Models?

Based on our in-depth interviews and the framework developed in chapter 3.l, we have identified multiple impacts of digitalization on two different business models in the Norwegian retail banking industry; the 'savings bank business model' and 'the digital business model'. The analysis is based on the four business model components in our developed framework; the customer, value proposition, value delivery and value capture. A summary of our findings are presented in table 6. In the following, we will discuss our main findings.

Business Model Components	The Digital Transformation Phase (Both types of banks)	The Digitization Phase (Savings banks)
The Customer	♦ Must continuously pay attention to changes in customer demands	♦ Change in customer preferences: value to engage in daily banking activities
Value Proposition	♦ A decreasing profitability of certain products and services	♦ Digitalization of products & services ♦ Provide customer-guidance to the new digitalized solutions
Value Delivery	♦ Increased expectations to the digital experience ♦ Increased engagements in partnerships to deliver value	
Value Capture	♦ Increased value capture through reduced costs & more efficient use of the employees ♦ New technologies are predicted to impact costs and improve the customer-experience	

Table 6: Summary Impact of Digitalization

The savings banks have experienced two different stages of digitalization; 'the digitization phase' and 'the digital transformation' phase. In 'the digitization phase', the traditional savings banks transformed their services provided at their physical banking branches, to the digitalized offerings of e.g. internet banking and chat-services for the customers. In this phase, we found the following three impacts of digitalization; *change in customer preferences, digitalization of products and services* and *providing customer-guidance to the new digitalized solutions*. As the digital banks were 'born digital', it can be argued that digitalization has not fundamentally changed the products and delivery channels, because they were initially digital. Today, both the savings banks and the digital banks are in the digitalization stage we refer to as 'digital transformation'. This stage is characterized by rapid changes in the industry initiated by new technologies, that impacts customer preferences and the competitive landscape.

Our findings indicate that digitalization have impacted '*the customer'*-component of the savings banks by changing the customers' preferences and attitude towards daily banking activities. Although the savings banks customers' value personal financial advisory in certain life events, e.g. in divorce settlements and home mortgage applications, they generally prefer to engage in daily banking activities digitally. Thus, as a result of digitalization, the customers of both business models have converged on preferring computers and smartphones to carry out transactions, apply for loans and interact with their respective banks. Moreover, the adoption of new technologies is continuously changing the customer's preferences and attitude towards digital solutions. To align the offerings with customer preferences, the banks must adjust their offerings based on the feedback from the customers, panels and user-tests.

Digitalization has impacted the *'value proposition'*-component of both business models by opening up the Norwegian payment market for new competitors. The emergence of the internet and new technologies have facilitated new retail banking business models, such as fintechs, that specialize in making accessible financial services. In addition, the forthcoming EU-directive PSD2 will, in January 2018, open the Norwegian payment market for global big techs, such as Facebook and Apple. These players are expected to capture a large share of the payment market, due to their existing customer base and technological capabilities. These competitors could potentially replace the retail banks position as a payment provider, and reduce the traditional value proposition of the banks.

A result of the impact of digitalization on the *'value delivery'*-component in both types of business models is an increased engagement in partnerships. In order to meet the rapid changes in the banking industry and customer preferences, the banks collaborate with IT-suppliers and other banks to share knowledge and compete with the international fintechs and tech giants. The banks predict that digitalization will force retail banks to take a position in an ecosystem of suppliers, to stay relevant in the market. Furthermore, the rapid development and adoption of new technological offerings in other industries influence the customer's expectations towards the digital offerings in the banking industry. Thus, digitalization is increasing the expectations to the delivery of the bank's digital offerings.

Lastly, digitalization has impacted the *'value capture'*-component in the two business models in question, by reducing costs and enabling more efficient use of the employees. Digitizing analog tasks previously carried out by employees allows the banks to reallocate the employees' efforts to more value-enhancing activities, such as customer-related tasks. Moreover, the banks predict that new technologies, such as blockchain, machine learning and AI, will further decrease costs by providing a more efficient service to the customers than humanly possible.

Overall, we found that the main impact of digitalization on the 'savings bank business model' and 'the digital business model' is the change in customers' preferences and expectations. Our findings indicate that it is not digitalization that directly impacts most of the components of the two business models, but the changing customer preferences as a result of digitalization. For example, the potential impact of new international competitors after PSD2 is initiated, will be dependent on customer preferences. The banks predict that Facebook and Apple can attain a large share of the banking customers when they expand their platforms to include payment-services. However, their success as a payment provider will depend on the Norwegian banking customers' willingness to trust such actors with their banking information. In sum, most of the identified impacts of digitalization on 'the savings banks business model' and 'the digital bank business model' could be linked to 'the customer'-component. However, we found the framework as a useful tool to get a holistic overview of the effects of digitalization on the banks' customers, value proposition, value delivery and value capture.

6.2 What facilitates or hinders firms to shift towards a more digitalized business model?

To identify *what facilitates or hinders firms to shift towards a more digitalized business model*, we have by means of our in-depth interviews with six Norwegian banks, explored which factors have facilitated or hindered these banks to adopt a more digitalized business model.

Our findings indicate that digitalization are a driver for business model change in the six interviewed banks. We uncovered three facilitators and two barriers that were specific for the savings banks, in the process of shifting towards a more digitalized business model. We have referred to this stage of digitalization as 'the digitization phase'. As a result of the exponential adoption of new technologies, both types of banks must be able to change their business model in line with the rapid industry changes. The interviewed banks have pointed to three facilitators and two barriers in this current transition process. This stage of digitalization is referred to as the 'digital transformation phase'. A summary of the facilitators and barriers is shown in table 7. In the following, the findings will be further discussed and compared with our expectations presented in chapter 3.2.

The Digitization Phase	
Facilitators	Barriers
Re-organizing the organization	Time and resource demanding
Involving the employees in the change process	Simultaneously meeting existing customer
Involved managers	
The Digital Transformation Phase	
Facilitators	Barriers
Involving the employees in generating ideas	Summary Impact of Digitalization
Beneficial alliances and partnerships	Involving the entire organization in all decisions
Separate business development department	

Table 7: Summary of Facilitators and Barriers

Our findings indicate that involving the employees in all firm levels are a facilitator in the process of shifting towards a more digitalized business model. In the 'digitization phase' the savings banks experienced that by including the employees in streamlining tasks through digitalization, they gained an understanding of the benefits of adapting the business model. The involvement of the employees in generating new ideas for business development, are also highlighted as a facilitator in the change process. By involving the employees, the banks generate more ideas for improvements, and the employees have an incentive to pay attention to the changes in the industry. These findings are in line with findings in Wirtz et al., (2016), and our presented expectations in chapter 3.2. However, Sbanken argue that too much employee involvement can also be a barrier. Being subject to rapid industry changes, it can be difficult to reach decisions at a necessary speed if the bank allows involvement from all firm levels in decision-making processes.

Based on extant literature by Doz & Kosonen (2010), conflicts with the existing business model and organizational inertia were expected to be barriers for the well-established firms in the digitalization process. Our expectations were met, as the traditional savings banks' and Sbanken pointed to the difficulty of initiating business model change, when the existing business model is not yet optimized. Furthermore, to undergo a comprehensive transformation of processes and organizational structures, while meeting existing customer needs, were also mentioned as a barrier.

Involved and motivated managers were highlighted as a facilitator in the process of adapting to a more digitalized business model, by all the banks. This finding is in line with our expectations, based on extant literature by Chesbrough (2010) and Doz & Kosonen (2010). The traditional savings banks' found this facilitator to be very valuable in 'the digitization phase', and pointed to the importance of a motivated management team to be able to successfully transform the business model.

The capability of experimenting with new business models have been pointed out as a facilitator to successful business model innovation by many scholars (Chesbrough, 2010; Sosna et al., 2010). Our findings indicate that the mid-sized banks facilitate for business model innovation by organizing their experimental efforts in a separate department. However, the smaller banks have difficulties acquiring similar capabilities, due to less resources. Thus, they are dependent on alliances with successful companies in complementary industries. Moreover,

beneficial alliances and partnerships were also pointed out as an important facilitator in the process of shifting towards a more digitalized business model by the other banks. As new technological developments are continuously emerging, it will be costly to develop and attain all the relevant resources and competencies in-house. Hence, partnerships and networks is predicted to become increasingly important in the continuous process of further digitalizing the business model. This facilitator was not found in our literature review. Consequently, we argue that this facilitator is particularly important to be aware of in the process of shifting towards a more digitalized business model.

To conclude, we have identified the facilitators and barriers of two different banking business models in the process of shifting towards a more digitalized business model. By including experiences related to the business models in question, and in two different stages of digitalization, we aim to provide guidance for businesses that is either in the initial phase of 'digitization' or 'digital transformation'.

6.3 Managerial and Theoretical Implications

6.3.1 Managerial Implications

Digitalization is changing industries at an increasing rate, and managers in virtually all industries must adapt their business models to take advantage of the opportunities new technologies create. Thus, our findings offer the following contributions.

First, the framework derived in this thesis, can be used as a tool for managers to understand and categorize how digitalization impact their business model. For each of the four business model components in the framework, we have provided general examples of possible effects in our literature review, and first-hand experiences from the banking industry in our analysis section. These examples can serve as guidance for managers to understand and manage impacts on their business model, initiated by digitalization. Moreover, managers can use the framework to structure the stream of information about new technologies and digitalization trends, and how it can potentially be relevant for their business. According to Chesbrough (2007) every organization has a business model; thus, the framework can be used as a tool by managers in a variety of industries.

Second, by adopting a process view, we provide managers with guidance how to shift towards a more digitalized business model, by detailing real-life experiences of barriers that can be challenging to overcome and facilitators in the change process. Our findings can be used as guidelines for managers in the process of digitalizing a traditional business model, and in the process of continuously adapting the business model to appropriate new technology that create value for the business and customers. Based on our findings, we point out that the facilitators and barriers in the change process can be different depending on the existing business model, organizational inertia of the prevailing structures and the size of the business. Moreover, we advise managers to pay attention to new technologies, new business models that emerge in their industry and how these two factors change their target customers' preferences.

6.3.2 Theoretical Implications

The concept of digitalization has gained a lot of interest in recent years, especially among practitioners. During our research, we realized that current contributions on the topic is mostly non-academic. The concept is in lack of a clear definition, and we found that digitalization is used interchangeably with 'digitization' and 'digital transformation' by practitioners and scholars. Thus, this thesis makes an important contribution by clarifying and defining the core constructs of digitalization. We further argue that digitization and digital transformation present two stages in the digitalization process. This distinction and clarification of the concept, contributes to future research on digitalization, and the understanding of how digitalization can impact a firm's business model.

In our literature review, we found that extant literature treats digitalization in abstract terms, and it is not clear how exactly new technologies is impacting the components of firm's business model. By deriving a theoretical framework to explore and categorize the impacts of digitalization on four business model components, we have made an important contribution to business model literature. We have further contributed to the literature by studying digitalization as an antecedent of business model change, as the extant literature on business model has mostly adopted a static view. Furthermore, our study contributes to existing literature on business model innovation by addressing how companies can manage the process of shifting towards a more digitalized business model. We found that there are several studies that look at general challenges and facilitators to successful business model innovation. However, to our knowledge, there are no academic literature that specify organizational

facilitators and barriers that can arise in the process of shifting towards a more digitalized business model. We argue that this is an important contribution to the literature, as the exponential adoption of new technologies leads to business model change in all industries.

7. Limitations and Future Research

Even though we have worked towards optimizing the methodological and practical choices in this thesis, there are some areas for improvement worth mentioning. These limitations can be used as ideas for future research, and will be discussed in the following paragraphs.

Firstly, we have a relatively *small sample size* with only six banks that we interviewed. The sample consisted of three savings banks and three digital banks. Ideally, we would have interviewed more Norwegian banks to generalized the findings to a larger sample. Furthermore, our sample banks are considered to be small or medium- sized banks. This can affect what facilitators or barrier that they find most important. We did not include large financial institutions, as those we approach did not respond in time to participate in this thesis. For future research, it would be interesting to include large commercial banks or financial institutions, to explore if these banks experience different impacts of digitalization.

We further limited our sample to Norwegian banks as our practical example, as there are different laws and regulations governing banks in different countries. For future research, it could be interesting to explore how digitalization impact banks' business models in other countries, especially after PSD2 is enforced in January 2018.

Another limitation of our study is that our data is based on interviews with the head of business development in each bank. Our research is therefore less transferable, as our interviewees have similar roles in their respective firms. Future research could therefore include multiple roles within a firm to gain a deeper insight in the facilitators and hinders in the shift towards a more digitalized business model.

Lastly, digitalization is an on-going process with rapid changes due to new technological innovations. Therefore, it is necessary with future research to gain a deeper understanding of how new technologies continuously impact the components of a firms' business model. Our presented framework can be used to identify and categorize new impacts of digitalization. However, it is necessary with more research to further clarify the concepts of digitalization, and how it impacts business models.

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Appendix

Appendix A Interview respondents

Below, we have provided information about our interviews and how they were completed. In total we interviewed five Norwegian banks.

Company	Type of Bank	Location	Date of Interview	Length of Interview	Type of Interview
BN Bank	Digital bank	Trondheim	23.11.2017	30 minutes	Video Interview
Fana Sparebank	Savings bank	Bergen	16.11.2017	48 minutes	Face-to-face
Monobank	Digital bank	Bergen	15.11.2017	1 hour 20 minutes	Face-to-face
Sbanken	Digital bank	Bergen	31.10.2017	1 hour	Face-to-face
Sparebanken Vest	Savings bank	Bergen	13.11.2017	45 minutes	Face-to-face
Skue Sparebank	Savings bank	Bergen	24.11.2017	50 minutes	Face-to-Face

Appendix B Interview Guide

First, we will give a brief explanation of the thesis and the purpose of why we are interviewing the banks. During our research we want to uncover what the banks consider as the impact of digitalization on their business model, what they have done so far to digitalize that bank, what they find as barriers or facilitators for this change and what their forecast the future of the banking industry. Then we will clarify what we define as digitalization and which components that we will include in our understanding of business model. The four components we will use are the customer, value proposition, value delivery and value capture.

Before we begin the interview

1. Ask if it is okay for them that we use the bank's name in the thesis.
2. Is it okay that we use direct quotes in the thesis?
3. Can we record the interview?

Opening Question

4. Can you please tell us about yourself, such as your role in the bank and how long you have been there?

Focus point

Digitalization:

5. How has and will your banks products and services change as a result of digitalization?
6. How has the role of the customer and the interaction with these customers changed as a result of technology?
7. How does new technology affect the value delivery for the customer?
    a. New partnerships?
    b. New distribution channels?
8. How has new technology changed how you capture value of the products or services you deliver?
    a. Robots and artificial intelligence?
    b. Reduction of employees or new competencies?

Barriers and facilitators:

9. How does your bank organize changes as a result of new technology within the organization?
    a. An own department that experiment or within existing business model?
    b. Who keep track of new technology?
    c. Entire organization included or just a limited amount?
10. Are there changes the bank do or have done to adapt to new technology?
    a. New structure, tasks, IT- systems?
    b. Changes in management?
    c. Specific challenges because of the changes?
11. Do you think your bank experience other challenges as a result of digitalization than other Norwegian banks?
    a. Any benefits?

Closing Question

12. Are there anything you want to add that we have not asked you about?

Appendix C Transcription of interviews

As our first step in the data analysis process, we transcribe our interviews. By doing so we had could go back to secure the accuracy of our data and be able to recap the interviews even after a while.

Transcription of interview with Sbanken

This transcription was translated from Norwegian.

1. How has and will Sbankens products and services change because of new technology?

Interviewee: Sbanken was founded as a completely digital bank for 17 years ago. A great change came in 2013/2014, where people went from using the bank services on computers to using apps at the phone. It has an expansive growth in use. People have to many apps, which makes it difficult to find the banking app among all the others. The customers' wish to have their bank easily accessible at the tablets, introduced a major change to how the channel was. It might not be a service itself, but includes a lot of services that had to change which makes this important. For a smaller bank like Sbanken, the need to differ the channels to suit different solutions for Android, iPhone IoS and PC was a lot. The need to create one common platform which looked the same for every solution, but was framed specifically to each solution, was a large and important change with greater significance for Sbanken. Now this is expected by the customers, but it was not a given for three to four years ago. Back then the apps were simplified with limited possible activities.

A consequence of moving to smaller platforms, is the claim for easier solutions. If you hand in a loan application on a tablet, you will not prefer 15 small boxes that has to be filled in. Instead there has to become more automatic information- collection and -transfer, automatic signing online and basically makes it easier to complete an application. We want our customer to complete their application, either it is for credit cards or loan application for our own bottom line, so the level of difficulty on the forms had to be reduced. The need to make it easier to get to the finish-line became more important. Still have to remember for example compliance claims and risk. Technological innovations and process in the public, with automatic information flows, data movement helps.

Interviewer: How will the payless and possibility to pay with phone affect Sbanken?

Interviewee: It will affect us, but if the effect is negative or positive for us is not known at this time. If Apple Pay comes to Norway it can move the power in the industry from banks to new

competitors. These new competitors that take control over how consumers pay, can have large consumer base that can force the banks to introduce new regulations. For the industry as a whole, it will be a major challenge. But for each bank, it is difficult to predict to what impact it will have. The commitment to develop Vipps is something Norwegian banks are doing to outcompete the new big techs. This competition will affect the strategy to banks in the future. The relation to the customers and the control over this relation is an important factor. Can be Amazon, Google or Apple that interfere in the relation between banks and consumers. Today this is licensed and therefore governed by rules, but they do need license to go into the relation and be the middleman. This is impacted by the consumers that use the new technology and the context will impact the use in the future. The battle among banks to avoid becoming just a product deliverer in the background are strong drivers as this can affect both cost and revenue structure.

Have you experienced that the customers have changed their preferences and changed their communication/interaction with their banks? Have the customers power increased?

Interviewee: It has sharpened, and the customers' expectations are increasing and have higher claims to the banks as the products and services after what they experience as "good service/products" in other industries and situations. Not necessarily in other banks, but in different situations. "Why cannot Sbankens mobile app have an equally sufficient economic presentation or coaching as that other app?". This kind of thing affects the bank. But the customers might not be that good at communication this kind of feedback to the bank. Customers are more active at social media than before, but it might not be true for our interaction with them.

Interviewer: Are the customers more disloyal than they were before?

Interviewee: In some ways. Loan customers are still extremely loyal. To move mortgages is not a common thing to do, therefore a lot of loyalty when it comes to loan customers. The banks have a few lock-in mechanisms that makes it more difficult for customers to move their money around. If you only have a bank account for credit or debit, then the loyalty is lower. We should believe that the disloyalty would be higher than it actually is.

Interviewer: How can Sbanken capture value when new technology is introduced, like blockchain, open banking and fintechs?

Interviewee: In these days we work with how to include robots and artificial intelligence in our processes. In this sense, this is an element of how we can handle a larger amount of

customers in a sufficient way as these are less expensive than human capital. Lower cost at larger customer volume, which is what banks are focusing on now.

Blockchain has not had any impact just yet, as it is relatively young idea. Still, there are beliefs that it will have a large impact in the future. There is hypothesis' that blockchain can reduce costs in the future, but it is not properly developed at this time. It will probably take a while before blockchain is relevant, and it will not be used digital currency in the public in near future. Instead it might be used for international money transactions, as this is a huge cost for every party included in these transactions today. In this process, virtual currency is introduced to reduce the complexity of the process. Blockchain will need ways to use it in real life, and having huge amounts of value in digital currency comes with some risks. It is here to stay, but to what extent is unsure. It is not clear if the private consumer will use digital currency in the near future, but it can be used to increased cost efficiency within and in between banks.

Open banking is here to stay, which will mean that there will become a more fluid line between the banks. Customers and technology together will change how banks work together, who they begin partnerships with, different technology suppliers and IT suppliers. There can come new technological solutions that will come on top of other solutions or products that Sbanken owns, and then Sbanken might use others data and products. New technology platforms will come, which will affect every product or service. This is something we recently began working on, together with the other banks, but how the final business model for this will look like is not clear. Everyone will try to capture a place in this ecosystem/platform, and everyone wants to own this platform in the beginning. After a while, most will find their place, but again it is difficult to say today what this will look like. What kind of network and partnerships one have will become more important, which are competencies that has not been favored up until now? Then, if you decide to start using data from other sources to deliver a better product to the customers (which has been strictly regulated before), the process of handling all this data will become more advanced. You still have to evaluate the quality of the data, what is relevant, one supplier against another. A result of this is that some competencies will disappear from the banks while others will become more important.

Interviewer: Have you imagined a way to organizing this process in regard of partnership, what will be the core competencies?

Interviewee: No, not yet. We are more in a testing phase, but we imagine you will have two structures, somebody that will be the standard bank with its core products and services that we have today. And then you will have one part of the bank that will focus on the platforms and build this business model with partners and resources. In the beginning you will not make

money on the new platform, until you find the right business model. Until then, you will need the money making machine that is the traditional banking part.

Interviewer: How do you organize this experimenting with the new business model?
Interviewee: We have a separate department that work with this experimenting, that is called innovation and development. In this department there are labs included to make sure it works, and these will work with the new structure. If you work to close with to the old structure and old operations, it is difficult to free yourself from the old way of doing things to think new. If this is the right way is hard to know today, but we will see in a few years. They are still situated in the same building as the regular operations, but in its own floor to create distance.

Interviewer: Do you think it is easier to have an innovation and development department to think new in Sbanken that has a more digital profile and are a digital bank from the beginning?
Interviewee: The fact that Sbanken was "born" digital makes it easier in the sense that every employee understands that it has to be like this since this was the business model from the beginning. Still, there were some operations that could not be digitalized because of their nature, e.g. loan processes where the papers needed a physical signature. At the same time, as much as possible was done digital. In regard of new technology and exploiting of this, as a smaller bank, is both a facilitator and a hinder. Everybody that works in Sbanken works with the operational management of development and innovations. Therefore, to see the usefulness of new technology you might benefit and need an external view on it. Then it can be challenging of being little, as nobody has the specific role of working solely with this. So even though Sbanken has had a digital strategy and philosophy, it is easy to lock yourself in one way of thinking and not see the possibilities given by new technology. Furthermore, it might be more difficult to see what these new technologies can be used for. On the other hand, since Sbanken is smaller and more flexible, it can be easier to implement the new business model as there are less political obstacles and maybe less resistance among employees as there are not as many that must be fired or relocated. As long as you see the possibilities and make decisions based on it, then Sbanken is very well equipped to complete these changes. The challenge in Sbanken, as a small bank, is to have the capacity to do the change. Larger banks have the possibility to have their own huge department that only works with the business model innovation and how to implement it, which Sbanken do not have the possibility to do as much. But the larger banks will meet more resistance when they want to implement these new fancy systems as there are more people that will be affected by the change.

Sbanken had the advantage as a completely digital bank when they started out, but is has decreased since every other bank has realized the importance of spending resources on finding the possibilities with the new technology than Sbanken. Then they can take over the lead for what Sbanken has done the past decade and capture new positions. One example of this is the introduction of Vipps, that found something the customers wanted. It is a simple and easy to use solution without much technological innovations behind it. But the idea and implementation of it gave DnB a lead position in this segment. Sbanken might not be equipped to take this lead position as it is a smaller bank with less resources.

Interviewer: Do you have processes for including the employers in the innovation and implementation processes?

Interviewee: It has been a culture for admitting propositions and commit continuing improvements at Sbanken. We have also had in increasing focus on LEAN and LEAN thinking lately in our processes to make them more efficient. Since it a small and flat organization, it is easy to come with new ideas to the top management. On the other, it is challenging to handle and have the capacity to sort through all the ideas. A lot of ideas are more difficult to handle, and do something with them. Another side of it, is innovation a good thing or not? If you have a lot of opinions about it and including everybody in the decision making process, as often is done in Sbanken, this inclusion might hinder or kill the new innovations. Lately, we have tried to have more closed- off decision processes. Then the decision making might be easier, but the implementation is made more difficult. For incremental improvements the involvement and common brainstorming works better than with the big changes and innovations. Going over to apps was for example was an internal driven innovation.

Interviewer: Do you have experience with the importance of managers being the driving force behind the experimenting with new business model innovations in Sbanken?

Interviewee: If it is the managers or the structure itself is a good question. Sbanken has been a bit slow to innovate themselves the last few years. If they have been too high on their own success is difficult to say, but they have huge potential to improve themselves. In the first few years it was an entrepreneurial spirit and everybody focused on improving their business. But as we now are 17 years old, the structures are more founded and grounded. The weight of bigger customer base, compliance claims, risks and overall more claims against your business creates slowness in the processes. Sbanken experience little resources to see new innovations and possibilities give a structure that works and therefore difficult to argue for the changes you want to implement, while also having little competencies to prove why this

change is needed. The changes are slow lately. *"Why should we try a new business model, when we still have not optimized our revenues from the old structure?".*

Banks have been profitable for a long time, loyal customers and up until recently the technology has not impacted the industry that much. Accumulation has not been a difficult task to do in the industry, and adapt to smaller changes. Now there are new regulations, competitors and changes in consumer preferences that creates a more emergent need to change within the banking industry to survive. IT is more changes in banks now than before, and they are experimenting even though some fail and some succeed. Before the consolidations within banking was because of compliance and capital claims, but now it is new challenges. (Eat instead of being eaten). Necessary to have visions to be in front.

Interviewer: Do you think Sbanken has some advantages in the years to come, based on what you do now?
Interviewee: Sbanken is smaller and informal, and pretty well prepared technology wise. Furthermore, we are flexible so it is not difficult to try out something new, and if it does not work, it is not so difficult to go back to the old way of doing so. As long as we remain flexible and keep our competent employees, either internal or external, then we should have an edge over multiple large banks. At the same time, we do not have that many millions of crowners to marketing of new solutions. Instead we can be first mover and a reputation for doing that, we can win a lot from that.

Interviewer: Anything else you want to include, that we have yet to ask you about?
Interviewee: I wonder how important marketing has to say. For example, now Sbanken is the name, but in a few days we will change to Sbanken. It will be interesting to see how it goes. The wish and need to be among the ten apps you regularly use will become important. Will bank channels manage to remain one of these ten apps. What should be done to become one of them and remain in their consumers conscious in the future? This is driven by both technology and consumer preferences. Banking is kind of boring, as it covers the wish to own something, then how will this play out in the future. People tend to not want to own that much these day, and we therefore see the emerging of sharing economy.

Appendix D Categorization Interviews

As our first step in the data analysis process, we transcribed our interviews. By doing so we had could go back to secure the accuracy of our data and be able to recap the interviews even after a while.

Transcription of interview with Sbanken

This transcription was translated from Norwegian.

The customer

The value capture

The value proposition

Facilitator

The value delivery

Hinder

1. How has and will Sbankens products and services change because of new technology?

Interviewee: Sbanken was founded as a completely digital bank for 17 years ago. A great change came in 2013/2014, where people went from using the bank services on computers to using apps at the phone. It has an expansive growth in use. People have to many apps, which makes it difficult to find the banking app among all the others. The wish to have their bank easily accessible at the tablets, introduced a major change to how the channel was. It might not be a service itself, but includes a lot of services that had to change which makes this important. For a smaller bank like Sbanken, the need to differ the channels to suit different solutions for Android, iPhone IoS and PC was a lot. The need to create one common platform which looked the same for every solution, but was framed specifically to each solution, was a large and important change with create significance for Sbanken. Now this is expected by the customers, but it was not a given for three to
four years ago. Back then the apps were simplified with limited possible activities.

A consequence of moving to smaller platforms, is the claim for easier solutions. If you hand in a loan application on a tablet, you will not prefer 15 small boxes that has to be filled in. Instead there has to become more automatic information- collection and -transfer, automatic signing online and basically makes it easier to complete an application. We want our customer to complete their application, either it is for credit cards or loan application for our own bottom line, so the level of difficulty on the forms had to be reduced. The need to make it easier to get to the finish-line became more important. Still have to remember for example compliance

claims and risk. Technological innovations and process in the public, with automatic information flows, data movement helps.

Payment solutions is moving towards contactless and with mobile phones. During the next year, most terminals will be contactless. Furthermore, with more mobile payments like with Vipps.

Interviewer: How will the payless and possibility to pay with phone affect Sbanken?
Interviewee: It will affect us, but if the effect is negative or positive for us is not known at this time. If Apple Pay comes to Norway it can move the power in the industry from banks to new competitors. These new competitors that take control over how consumers pay, can have large consumer base that can force the banks to introduce new regulations. For the industry as a whole, it will be a major challenge. But for each bank, it is difficult to predict to what impact it will have. The commitment to develop Vipps is something Norwegian banks are doing to outcompete the new big techs. This competition will affect the strategy to banks in the future. The relation to the customers and the control over this relation is an important factor. Can be Amazon, Google or Apple that interfere in the relation between banks and consumers. Today this is licensed and therefore governed by rules, but they do need license to go into the relation and be the middleman. This is impacted by the consumers that use the new technology and the context will impact the use in the future. The battle among banks to avoid becoming just a product deliverer in the background are strong drivers as this can affect both cost and revenue structure.

Have you experienced that the customers have changed their preferences and changed their communication/interaction with their banks? Have the customers power increased?
Interviewee: It has sharpened, and the customers' expectations are increasing and have higher claims to the banks as the products and services after what they experience as "good service/products" in other industries and situations. Not necessarily in other banks, but in different situations. "Why cannot Sbankens mobile app have an equally sufficient economic presentation or coaching as that other app?". This kind of thing affects the bank. But the customers might not be that good at communication this kind of feedback to the bank. Customers are more active at social media than before, but it might not be true for our interaction with them.

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Interviewee: In some ways. Loan customers are still extremely loyal. To move mortgages is not a common thing to do, therefore a lot of loyalty when it comes to loan customers. The banks have a few lock-in mechanisms that makes it more difficult for customers to move their money around. If you only have a bank account for credit or debit, then the loyalty is lower. We should believe that the disloyalty would be higher than it actually is.

Interviewer: How can Sbanken capture value when new technology is introduced, like blockchain, open banking and fintechs?

Interviewee: In these days we work with how to include robots and artificial intelligence in our processes. In this sense, this is an element of how we can handle a larger amount of customers in a sufficient way as these are less expensive than human capital. Lower cost at larger customer volume, which is what banks are focusing on now.

Blockchain has not had any impact just yet, as it is relatively young idea. Still, there are beliefs that it will have a large impact in the future. There is hypothesis' that blockchain can reduce costs in the future, but it is not properly developed at this time. It will probably take a while before blockchain is relevant, and it will not be used digital currency in the public in near future. Instead it might be used for international money transactions, as this is a huge cost for every party included in these transactions today. In this process, virtual currency is introduced to reduce the complexity of the process. Blockchain will need ways to use it in real life, and having huge amounts of value in digital currency comes with some risks. It is here to stay, but to what extent is unsure. It is not clear if the private consumer will use digital currency in the near future, but it can be used to increased cost efficiency within and in between banks.

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become more advanced. You still have to evaluate the quality of the data, what is relevant, one supplier against another. A result of this is that some competencies will disappear from the banks while others will become more important.

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Interviewee: No, not yet. We are more in a testing phase, but we imagine you will have two structures, somebody that will be the standard bank with its core products and services that we have today. And then you will have one part of the bank that will focus on the platforms and build this business model with partners and resources. In the beginning you will not make money on the new platform, until you find the right business model. Until then, you will need the money making machine that is the traditional banking part.

Interviewer: How do you organize this experimenting with the new business model?

Interviewee: We have a separate department that work with this experimenting, that is called innovation and development. In this department there are labs included to make sure it works, and these will work with the new structure. If you work to close with to the old structure and old operations, it is difficult to free yourself from the old way of doing things to think new. If this is the right way is hard to know today, but we will see in a few years. They are still situated in the same building as the regular operations, but in its own floor to create distance.

Interviewer: Do you think it is easier to have an innovation and development department to think new in Sbanken that has a more digital profile and are a digital bank from the beginning?

Interviewee: The fact that Sbanken was "born" digital makes it easier in the sense that every employee understands that it has to be like this since this was the business model from the beginning. Still, there were some operations that could not be digitalized because of their nature, e.g. loan processes where the papers needed a physical signature. At the same time, as much as possible was done digital. In regard of new technology and exploiting of this, as a smaller bank, is both a facilitator and a hinder. Everybody that works in Sbanken works with the operational management of development and innovations. Therefore, to see the usefulness of new technology you might benefit and need an external view on it. Then it can be challenging of being little, as nobody has the specific role of working solely with this. So even though Sbanken has had a digital strategy and philosophy, it is easy to lock yourself in one way of thinking and not see the possibilities given by new technology. Furthermore, it might be more difficult to see what these new technologies can be used for. On the other hand, since Sbanken is smaller and more flexible, it can be easier to implement the new

business model as there are less political obstacles and maybe less resistance among employees as there are not as many that must be fired or relocated. As long as you see the possibilities and make decisions based on it, then Sbanken is very well equipped to complete these changes. The challenge in Sbanken, as a small bank, is to have the capacity to do the change. Larger banks have the possibility to have their own huge department that only works with the business model innovation and how to implement it, which Sbanken do not have the possibility to do as much. But the larger banks will meet more resistance when they want to implement these new fancy systems as there are more people that will be affected by the change.

Sbanken had the advantage as a completely digital bank when they started out, but is has decreased since every other bank has realized the importance of spending resources on finding the possibilities with the new technology than Sbanken. Then they can take over the lead for what Sbanken has done the past decade and capture new positions. One example of this is the introduction of Vipps, that found something the customers wanted. It is a simple and easy to use solution without much technological innovations behind it. But the idea and implementation of it gave DnB a lead position in this segment. Sbanken might not be equipped to take this lead position as it is a smaller bank with less resources.

Interviewer: Do you have processes for including the employers in the innovation and implementation processes?

Interviewee: It has been a culture for admitting propositions and commit continuing improvements at Sbanken. We have also had in increasing focus on LEAN and LEAN thinking lately in our processes to make them more efficient. Since it a small and flat organization, it is easy to come with new ideas to the top management. On the other, it is challenging to handle and have the capacity to sort through all the ideas. A lot of ideas are more difficult to handle, and do something with them. Another side of it, is innovation a good thing or not? If you have a lot of opinions about it and including everybody in the decision making process, as often is done in Sbanken, this inclusion might hinder or kill the new innovations. Lately, we have tried to have more closed- off decision processes. Then the decision making might be easier, but the implementation is made more difficult. For incremental improvements the involvement and common brainstorming works better than with the big changes and innovations. Going over to apps was for example was an internal driven innovation.

Interviewer: Do you have experience with the importance of managers being the driving force behind the experimenting with new business model innovations in Sbanken?

Interviewee: If it is the managers or the structure itself is a good question. Sbanken has been a bit slow to innovate themselves the last few years. If they have been too high on their own success is difficult to say, but they have huge potential to improve themselves. In the first few years it was an entrepreneurial spirit and everybody focused on improving their business. But as we now are 17 years old, the structures are more founded and grounded. The weight of bigger customer base, compliance claims, risks and overall more claims against your business creates slowness in the processes. Sbanken experience little resources to see new innovations and possibilities give a structure that works and therefore difficult to argue for the changes you want to implement, while also having little competencies to prove why this change is needed. The changes are slow lately. *"Why should we try a new business model, when we still have not optimized our revenues from the old structure?".*

Banks have been profitable for a long time, loyal customers and up until recently the technology has not impacted the industry that much. Accumulation has not been a difficult task to do in the industry, and adapt to smaller changes. Now there are new regulations, competitors and changes in consumer preferences that creates a more emergent need to change within the banking industry to survive. It is more changes in banks now than before, and they are experimenting even though some fail and some succeed. Before the consolidations within banking was because of compliance and capital claims, but now it is new challenges. (Eat instead of being eaten). Necessary to have visions to be in front.

Interviewer: Do you think Sbanken has some advantages in the years to come, based on what you do now?

Interviewee: Sbanken is smaller and informal, and pretty well prepared technology wise. Furthermore, we are flexible so it is not difficult to try out something new, and if it does not work, it is not so difficult to go back to the old way of doing so. As long as we remain flexible and keep our competent employees, either internal or external, then we should have an edge over multiple large banks. At the same time, we do not have that many millions of crowners to marketing of new solutions. Instead we can be first mover and a reputation for doing that, we can win a lot from that.

Interviewer: Anything else you want to include, that we have yet to ask you about?

Interviewee: I wonder how important marketing has to say. For example, now Sbanken is the name, but in a few days we will change to Sbanken. It will be interesting to see how it goes. The wish and need to be among the ten apps you regularly use will become important. Will bank channels manage to remain one of these ten apps. What should be done to become one of them and remain in their consumers conscious in the future? This is driven by both

technology and consumer preferences. Banking is kind of boring, as it covers the wish to own something, then how will this play out in the future. People tend to not want to own that much these day, and we therefore see the emerging of sharing economy.

Appendix E Drivers for Change

In this part, we will elaborate the main drivers for business model change in the Norwegian banking industry, based on our findings from the interviews.

Technological drivers

Artificial Intelligence and Machine Learning

A disruptive technological change is artificial intelligence (AI). Even though it is not a new technology, it has evolved substantially in recent years (SAS, n.d.). AI can be defined as the theory and development of computer systems with the ability to perform tasks that usually are carried out by humans. These systems have the ability to work and react as if they were human, learn from experience and adjust their actions accordingly (Laurent et al., 2015).

Machine learning is a computer system's ability to improve performance from exposure to large amounts of data, and discover patterns in data automatically (Laurent et al., 2015). In the banking industry, machine learning can be used to detect patterns in customers' behavior. A result of this technology is that the credit scoring process can be made more efficient and precise, as all available customer data from different sources can be analyzed in a short amount of time.

Blockchain

Blockchain is a safe software platform to store digital assets (ICFAI, 2017). It is based on an idea of an open, fair and accessible financial services, where no single party controls the data or information. This platform makes it possible to transfer and pay by digital currency without including traditional banks in the transactions. An important feature of blockchain is its transparency for everyone that has access the system, and it is irreversible as soon as the transaction is approved. One version of a blockchain is Bitcoin, a cryptocurrency. This currency was invented after the financial crisis, as a result of the increasing distrust to banks.

Regulatory drivers

The Second Payment Service Directive (PSD2)

The Second Payment Service Directive from EU (PSD2) is a legal directive enforced by the European Union with the purpose of improving the existing rules for electronic payments within EU/EEA (EUR-Lex, 2017). It aims to increase competition, innovation and transparency in the payments markets between the member countries. Furthermore, the directive aims to make internet payments more efficient and safe. PSD2 builds on open banking require banks to grant the access of third-party providers to their customer's online account or payment services in a secure and regulated manner, through API's.

Competitive drivers

Big techs

As a result of PSD2, the biggest technological companies (big techs) such as Apple, Amazon, Google and Facebook are able to provide payment services to consumers as a part of their existing platforms (Cailly et al., n.d.). After PSD2 is enforced in January 2018, the big techs will have access to the bank accounts to Norwegian customers as long as they gain their approval. The big techs can be viable competitors for the banks, as they have a large established base of Norwegian customers using their platforms daily and have the possibility to spend resources on development of efficient and fast services to the consumer.

Fintechs

Financial technologies, or fintechs, are typically smaller, entrepreneurial firms emerging in the banking industry (Dietz et al., n.d.). They are a competitive threat for traditional banks, as they can provide the customers with innovative and easy solutions for payments, savings, loans and investments services. Compared to traditional banks, fintechs show a greater ability to innovate as they do not have the same processes, culture and regulatory systems as the banks. However, there are still strict regulations and a need for banking license to provide certain services and products in the Norwegian banking industry. Hence, to engage in alliances with partnerships is both an opportunity for the banks and the fintechs.