

Saint-Petersburg University

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Final bachelor thesis

THE CHALLENGES OF DIGITAL TRANSFORMATION IN BANKING INDUSTRY

Уровень образования: бакалавриат

Направление 38.03.02 «Менеджмент»

Основная образовательная программа СВ.5087 Международный менеджмент

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2020

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ABSTRACT

Bachelor Student's Name	Katerina Ttikou
Bachelor Thesis Title	The challenges of digital transformation in banking industry
Faculty	Graduate School of Management
Main Field of Study	International Management
Year	2020
Academic Advisor	Associate Professor, Olga R. Verkhovskaya
Description of the goal, tasks and results	<p>The main aim of the paper is to determine the challenges banks face in their attempt to transform digitally. In order to narrow down the research and make the study more specific, the challenges will be identified by looking into banks' practices and actions in three aspects; strategic management, customer journey, and IT infrastructure. The literature review allows to view recent trends in the banking industry that urge banks to integrate digital technologies into their business operations. The theory makes it possible to develop assumptions regarding the challenges that occur in banks in different levels of digital maturity (categories). The analytical part utilizes the assumptions of an existing paper and, based on its limitations, is possible to develop the research using a case study approach. Data are pooled from both primary – interviews – and secondary sources – online sources, annual reports, etc.</p> <p>The main results of the research show that traditional and transforming banks do, indeed, face struggles in integrating digital technologies in their IT architecture. Both of the categories, when operationalized their digital transformation plan, did not receive a supportive response from the members of the internal organization. On the contrary, banks in the third category, digital natives, show that their actions have strategic alignment between the three perspectives. Based on the results, several recommendations were formed addressing managers in traditional and transforming banks.</p>
Keywords	Digital transformation, digitalization, banking industry, digital maturity, financial services, technologies, fintech, incumbents

INTRODUCTION

Companies nowadays are operating in a fast-changing environment where technology shapes the way customers behave, perceive, and interact with the product and services (Cascio, Wayne, & R., 2016). Digitalization seems to have a significant impact on how firms conduct their businesses. The phenomenon of digitalization allows firms to integrate digital technologies into the business model and create additional revenue streams and improve interactivity with the end-customer. For companies to be successful and to obtain stability in performance, they should not only seek for new opportunities but also be highly innovative (Tajeddini, Trueman, & Larsen, 2006). The latest industry trends highlight the importance of reformation from the traditional norm of business operations towards modern and technology-oriented business models (Meola, 2019). This shift can be characterized by the phenomenon known as the digital transformation of businesses (Rashid, 2017). Digital transformation suggests that the integration of digital technologies provide opportunities for business to be more cost-efficient and to increase customer satisfaction (Trabrizi, Lam, Girand, & Irvin, 2019). The goal is to achieve a successful alignment between the two objectives when investing in the digitization of the firm.

In this paper, the banking sector has been chosen to be the subject of analysis. The focus will lie on how banks integrate digital initiatives into their current digital strategy and what particular challenges they face. Throughout time, banks and financial institutions have been exhibiting an increasing affinity towards the use of IT technologies (Gartner, 2012; Berger, 2003; Dawes & Rowley, 1998). Over the past two decades, people from academia try to explain the behavior behind the aggressive utilization of these technologies; shall it be improvements in operational efficiency or competitive position in the market (Tam & Teo, 2000; Liao, Shao, Wang, & Chen, 1999; Aliyu & Tasmin, 2012). Given current market conditions, digitalization has become imperative for firms operating in the banking industry. Leading banks have been putting substantial investment in IT in order to create additional touchpoints that link their financial services to the end-customer and increase customer experience (Maechler, Michael, Schiff, & Smith, 2018). However, despite the enormous benefits of digitized solutions, some financial institutions still perceive the process of digitization as problematic and risky (Carbó-Valverde, 2017).

Digitalization in the banking sector significantly enhanced the importance of developing digital channels. For instance, internet banking and mobile banking that help to reach out to customers in an easier and faster manner. Also, customers benefit from these developments as they can seek out financial errands, just as signed users of the particular banking application (Forest & Rose, 2015). In addition to the customer changes, banking firms also tackle the new norms of the industry they are competing in. The traditional framework of the industry has been reshaped, with

tech start-ups fiercely entering the market and trying to capture the audience that banks failed to invest in so as to satisfy their unmet needs (Meola, 2019). Leveraging digital technologies allowed emerging start-ups and third parties to integrate into the financial ecosystem and complement existing service with additional offerings (Chuen & Teo, 2015; Kim, Park, Choi, & Yeon, 2016).

Moreover, the analysis of whether a technology is relevant or not for an organization should depend on both internal and external factors. More precisely, banks should widen the depth of their analysis as to how their business strategy, organizational structure, and IT systems can support an increase in the scale of digitalization (Ross, Sebastian, & Fonstad, 2015; Venkatraman, Henderson, & Oldash, 1993). However, it is not an easy task to find the perfect fit between the prior mentioned aspects. Given the current advancement of both front-end and back-end technologies, it increases the importance of finding the silver lining not only within the company's capabilities but also between the customers' needs and network opportunities (Bygstad, 2015; Hanelt & Krüp, 2015).

Academic papers have been developed around digital transformation and its importance on the business level in the banking sector (see Part 1). Academics and business analysts argue that it is essential for financial firms to employ digital solutions into their business models to secure their place in the competitive environment (see Part 1). Reasons why banks should transition to the digital infrastructure, have been evident in many papers and studies, showing improvements in operational performance and customer relationship management (see Part 1). Proving "why" digital transformation is an inescapable phenomenon, banks come to ask the "how," which is the development of feasible actions that can be embodied in their digital strategy and what can be the possible challenges. However, there has been little empirical research as to how banks can find the silver lining between digital initiatives and business strategy. This thesis paper utilizes the assumptions and limitations of an existing research paper. It intends to embody them with how different categories of banks tend to approach their steps for digital transformation strategy building and identify challenges.

The relevance of the bachelor thesis for incumbent banks is that it highlights digital transformation as a necessity for future survival in the market and determines the challenges that could occur in their effort to integrate digital technologies into their existing business structure. The thesis supports the urgency of digital transformation in the banking industry with evidence from academia, statistical, and empirical studies undertaken by the consulting companies. Albeit many arguments have been developed regarding the inevitability of digital transformation in the banking industry, it is not yet an easy task for many firms in the market. The thesis takes a step forward to investigate the challenges that occur in banks in their effort to introduce new digital technologies in their organization by looking into the customer journey, strategy, and IT infrastructure. An existent model and case analysis will help view these three perspectives and

draw conclusions regarding the types of challenges for banks of different degree of digitalization. The final findings will specifically address digital transformation and/or innovation managers' needs to understand whether there is a strategic misfit in any of the perspectives.

This research focuses on the challenges that might arise during the operationalization of a digital transformation strategy by different categories of banks. Thus, the following research question can be postulated as follows:

"What are the challenges of digital transformation efforts for banks in different levels of digital maturity?"

The goal of the research is to determine the challenges in terms of three perspectives of the customer journey, strategic management, and IT infrastructure for incumbent banks under different degrees of digital maturity.

The objectives of the paper are the following (still under modification):

- Define digitalization and digital transformation;
- View the role of digital transformation in the banking industry;
- View the industry trends and determine the ones that urge banks to integrate technologies the most;
- Compare incumbent banks as to their different levels of digital maturity and determine their digital transformation approaches;
- Form assumptions upon what challenges occur for the different levels of digital maturity in banks;
- Create a comparative case study analysis to test assumptions.

The object of this thesis paper is the banking firms, and **the subject** is digital transformation employed by banks.

International relevance

The case companies have been chosen according to some predefined criteria. In order to avoid biased results, it was considered wise to choose from a bundle of companies that follow the same regulatory framework. However, in the category of digital natives, the banks selected are primarily big market players not only in the EU but also in other regions. The research shows that the companies take advantage of their international footprint in order to develop a unified digital platform that transmits customers' data across the subsidiaries. Consequently, their strategic actions have bigger impact across global markets rather than solely domestic.

Structure

This work is divided into two main parts, Part 1 and Part 2, which strive to achieve all the objectives mentioned above. The first part focuses on a literature review regarding the topic of digital transformation and digs into a detailed analysis to support the analytical part. It aims to provide sufficient information on the changes in the banking industry with the introduction of the term digital transformation and why the banks have been fiercely taking action towards achieving it. The second part is devoted to the analysis of banking firms' cases that are being used to "customize" an already existent model to the banking industry specifics.

PART 1. LITERATURE REVIEW

In this part of the paper, several terms are going to be explained, and relevant literature will be introduced. It is essential to dig into some previously conducted researches and studies in order to get a broader view of the following terms; "digitalization" and "digital transformation." After that, viewing their role and impact on the banking industry. This part consists primarily of five sections, which focus on digitalization, digital transformation, digital transformation in banking, trends in the banking industry, and finally, the digital maturity among incumbent banks. Additionally, the model, which the study is based on, will be introduced and explained. At the end of the section, several assumptions will be listed in order to support the research that follows in Part 2.

1.1. Defining Digitalization

Before digging into digital transformation in detail, it is essential to articulate the difference between digitization and digitalization. Two terms that are often used as synonyms. Unlike digitization, digitalization has not yet been clearly and completely defined. Thus, it is essential to present several perspectives of the term. For instance, Gartner's glossary defines digitalization as "...the use of digital technologies to change a business model and provide new revenue and value-producing opportunities."¹ Scott Brennen and Daniel Kreiss – doctoral candidate and associated professor at the University of North Carolina School of Media and Journalism – refer to digitalization "as the way in which many domains of social life are restructured around digital communication and media infrastructures" (Bloomberg, 2018). Another perspective of digitalization is its impact on industry frameworks and competitiveness. Digitalization, according to Gimpel et al. (2018), "erodes traditional industry structures. It promotes winner takes-it-all effects while simultaneously offering huge potential for niche players and micro-businesses to prosper in the ecosystem of digital platforms". The authors also shed light on the customer relationship aspect of digitalization effect on businesses. Digitalization allowed to "empower" customer connectivity and enhance customer interactivity with the businesses' services (Gimpel, et al., 2018). While digitization refers to the conversion of analog data into a digital form, digitalization refers to the social and business phenomena of adopting and utilizing digital technologies (Schumacher, Sihn, & Erol, 2016).

Emerging digital technologies have a significant impact on how customers perceive, utilize, and interact with products and services (Cascio, Wayne, & R., 2016). Together with the

¹ Gartner Glossary. Retrieved from: <https://www.gartner.com/en/information-technology/glossary/digitalization>

changes in customer preferences and needs, there are additional driving forces in the marketplaces that urge firms to modernize, such as (competitive) high-tech start-ups, digital substitutes to services, et cetera. When emerging technologies are used correctly, it allows firms to reinvent the way they conduct their business activities and deliver value to customers. Firms that fail to innovate and keep up with the high level of the competition face the fear of losing market share (Wall, 2014). However, finding the technology that provides the best fit in a particular organizational culture and business model is not an easy task. Executives are challenged mostly by the errand of creating a seamless alignment between an organization's capabilities, resources, and the right technologies that will allow them to not only enhance customer intimacy but also minimize operational costs (Habryn, 2014). The latter can be characterized as the successful integration of digital technologies into business practices, which in turn is linked to the concept of digital transformation.

1.2. Defining Digital Transformation

Digital Transformation has drawn the attention of the academic community as well as business analysts and practitioners during the past two decades. In generic terms, **digital transformation refers to the view of digital technologies as a strategic competence rather than a functional one.** Two KPMG strategists introduced one of the first notions of the digital transformation in their book "Digital Transformation: The essential of business leadership." What the authors particularly emphasized was that businesses utilized the internet in order to modernize their value chains and introduce the idea of e-commerce (Patel & McCarthy, 2000). Another study conducted by IBM viewed digital transformation as the impact of digital technologies on economic prosperity and global connectivity. The authors focused on the economic impact of these technologies during the period of 1990s and 2010s. One could see that digital technologies and e-commerce activities were the foundations for significant modifications to business models, which were powered with the utilization of big data, mobile applications, and social media. Their study concludes that business models are expected to go through a series of modifications to support digital transformation. Most importantly, a firm should view the way digital technologies affect the value proposition for end-customers and the business processes (Berman & Bell, 2011).

Albeit the adoption of digital practices is a necessity for long-term success, firms need to be ready to recognize their organizational flaws to identify areas of improvement. Hereby, executives' mindset plays an essential role in proactively executing digital transformation plans. There ought to be an established and well-articulated vision and strategy when it comes to digital shift. According to a survey conducted by Forrester Consulting, 48 percent (majority) of business decision-makers respondents stated that the CEO establishes their company's vision and strategy.

Interestingly, when the respondents were asked "who *should* own and drive digital vision and strategy," answers were almost equally spread amongst CEO, CIO, and Chief Digital Officer; 26%, 27%, and 20%, respectively. Consequently, the findings suggested that for a company to go through a successful digital transformation, it needs cross-functional collaboration and communication between leaders from different areas of expertise (Forrester, 2015).

Traditionally, the development of a strategic plan for an IT project can be described as continuous planning, hundreds of specification documents and endless meeting hours required till its realization can take place (Cooke, 2012). The rationale behind this conventional planning procedure is that the more time it takes, the more detailed the strategic plan will be, and hence the more responsive it is to future disruptions. The truth, however, is that regardless of the amount of data and information a strategic plan contains, it is nearly impossible to foresee every possible pitfall or opportunity. Firms could avoid wasting valuable resources by implementing agile methodologies. Compared to the traditional approach in planning, agile methods encourage the use of incremental planning. According to Jamie Cooke, incremental planning, "...includes the regular review, confirmation, and adjustment of plans at each iteration to reflect the most current information available to the team." Agile methodologies can be successfully achieved only when there is a collaborative relationship between the executives and the IT project team (Cooke, 2012). When leaders develop strong day-to-day skills in working with their teams, digital starts to become part of the solution (Dawson, Hirt, & Scanlan, 2016). Indeed, rapid changes in organizations at the same time have a lot of barriers, but the crucial challenge for leaders and managers in establishing and nurturing the organizational structure, which is agile, flexible, responsive, open, and innovative (Worley, Williams, & Lawler, 2014). A collaborative working environment and open communication links allow firms to formulate their digital transformation plan based on a clear digital strategy (Özbebek & Aslan, 2019). The development of a digital strategy consists of objectives that primarily focus on transforming an organization into a data-driven entity (Kane, Palmer, Phillips, Kiron, & Buckley, 2015).

Digital transformation is also considered as a disruptive force. When a disruptive technology is being introduced to the market, it follows a path by which it gradually grows to an industry trend, and sooner or later, it reaches the ultimate stage of being an industrial norm. This norm forces the industry players to either adopt or exit the playing field. However, not all players face the same degree of risk. It is argued that well-established firms and incumbents do have higher possibilities to be disrupted, given their passive reaction to potential threats in the external environment (Bradley & O'Toole, 2016). Albeit, hard to understand how to employ the disruptive technology into the business model, it is essential for firms to redesign product/service offering according to market changes by executing a well-planned digital strategy (Dawson, Hirt, &

Scanlan, 2016). Digital technologies trends spread through industries faster than some others, and firms that operate in environments where technology becomes the new norm, are urged to adopt a network-centric view and co-create value with third-parties (Koch & Windspenger, 2017). In a recent study, more than a quarter - 27% - of executives indicated that their competitive advantage is not determined internally, but by the strength of partners and ecosystems, they choose to work with (Accenture, 2017).

Digital transformation is particularly relevant for incumbent firms. Incumbents will face challenges and barriers when searching and implementing business model innovation for digital transformation, given their legacy. They are often forced to deal with conflicts and trade-offs between existing and new ways of doing business (Christenses, T., & D., 2016; Markides, 2006). Executives must view digital transformation as a strategic process and commit to digital progress by seeking new levels of competitive advantage. According to the MIT Sloan Management Review, less digitally mature organizations tend to perceive new technologies as an individual investment, which is supposed to provide a functional and/or operational improvement. However, in digitally mature organizations, digital transformation strategies have a broader effect, which results in the modification of business as a whole. The primary goal of these strategies is to align technologies with organizational capabilities (Kane, Palmer, Philips, Kiron, & Buckley, 2015).

1.3.Digital Transformation in Banking

The status quo of traditional banking operations has been challenged mainly by the ability of innovators and disruptors – Fintech start-ups and tech companies - to re-engineer the execution of financial services. Fintech's often cite Bill Gate's quote as a testimony to their business model logic, which is "We need banking, but we don't need banks anymore" (Hill, 2018). The introduction of Fintech has disrupted the way traditional banks addressed the needs of their customers and optimized it by implementing a customer-centric approach. The majority of fintech start-ups take the form of digital-platform, which eliminates the formalities and complexities of traditional banking procedures. With the right use of technology-driven payment processes, digital applications, and maximum leverage of data analytics fintech has successfully filled the gap in areas where the banking sector was struggling to excel. PwC Global Fintech Survey (2016) summarizes these areas into the following four categories; satisfying unmet needs of end customers, finding value in data, providing an interactive experience, and "lock" customer's trust, and making use of sophisticated operational capabilities (M. Kashyap, 2016). Consequently, fintech's success lies behind the fact that "consumers are drawn to fintech services because propositions are more straightforward, more convenient, more transparent and more readily personalized" (Bedford, Bellens, & Sclich, 2018). But even though the playing field in the banking

industry seems more in favor of rising fintech and start-ups, traditional banks have not yet lost the war.

To show that existing banks still have a fighting chance against the aggressiveness of the digital era, John Hill rephrased Bill Gate's quote into the following phrase "We need the services and products banks offer, but they don't have to be delivered in traditional formats." Hence, banks that are faithful supporters of old-school techniques should consider eliminating the practices that were based on those techniques and look after solutions that will bring them closer to understanding the behavior of the digital-native audience. Traditional banks that shall embark toward their digital endeavors are the ones to win the fintech takeover (Hill, 2018).

With digital transformation in primary business operations, banks made a big step toward optimization of its core business. Although the optimization and modernization of business in banks are bearing different kinds of risks - some of them are already recognized, like cybersecurity – and new types of challenges will arise as a consequence of digital transformation. Digital transformation will significantly change the perception of risk and operational realization of business processes in banks. For instance, reporting requirements make banking business slow and complicated due to more formalization and paperwork instead of establishing a more efficient business (Mirković, Lukić, & Martin, 2019).

In his article, "The process of the digital transformation of a classic bank," Dimitry Yurin highlights that the trend towards digital transformation is due to some "objective reasons." He indicated the factors that influence the decision of a bank to transform digitally. These are (Yurin, 2018):

1. From the customer's perspective, the digital bank is a much easier and faster alternative to the services they will get at the front desk of a traditional bank,
2. There is the significant potential of an unexplored customer segment that has not been reached given current resources and capabilities of banks,
3. Possibility to exploit unique functions in their business, which are considered to be the most promising technological trends in the market.

Digital disruption is not a new term in banking. Banks have been putting effort and resources to update their operation, especially at the front-end. Significant improvements have been made to increase customer satisfaction and engagement, shall it be via a web interface or a physical branch. However, what the sector has been adopting at a slower rate are technologies that upgrade banking operations. A qualitative survey conducted by BCG in 2017 targeted corporate banking executives with the primary goal to investigate their views on digitalization. Results have found that up to 86 percent of executives believe that digitalization will reshape the economic and

competitive framework in corporate banking. However, the number drop to half (43 percent) when the statement was, "I consider my organization to be market-leading concerning digital capabilities." Consequently, BCG translates the latter statement as the inadequacy of explicit digital strategies in corporate banking (Baumgärtner, et al., 2018).

BCG concluded that most banks do not possess a clear vision in terms of the industry's direction, and thus they lack the necessary information to start developing a concrete strategy. According to the authors, a strategy is the first step of an organization towards the realization of changes. The same principle implies to the adaption of digital transformation; a firm cannot pursue a digital future without articulating a clear digital strategy. After the aforementioned survey was conducted, BCG concluded four initiatives that should be taken into account by executives in order to guide their way towards digital progress. The initiatives have as follows:

1. Rethink of the customer's experience and design a journey that meets customers' needs
2. Leverage data to build a detailed persona identification of end customer
3. Reshaping the business model of the bank to be more responsive to customers' needs
4. Articulate a proper digital strategy and support it with the necessary recourses and capabilities (e.g., funding, talent recruitment, modernized working methods, and risk-taking mindset)

The digital strategy should be in line with the right technologies that will make it successful. It is hard to define which technology provides the perfect fit for an organization, given that every organization is equipped with a different set of core capabilities and resources (Richards, Evoy, & Kimberly, 2017). Each bank that seeks to reshape their business model should always keep in mind the twofold objective of digital transformation, that is to achieve cost efficiency and increase customer satisfaction. Moreover, while it is tempting to benchmark the steps of the digitalization of a firm's competitors, the firm's digital strategy must be tailored to its needs and capabilities. In their paper "Bank to the future: Finding the right path to digital transformation," PwC points out the three most common approaches followed by banks in their attempt to respond to the digital era, and these are the following:

Front-end digital transformation

This approach is considered a "cosmetic fix," according to the authors, since its primary objective is to enhance interaction with customers. Under this approach lie the development of a modern web interface or a mobile application. In 2018, it was estimated that banks (globally) planned to invest about 9.7 billion US dollars in front-end technologies alone (Ross V. S., 2018). It is not a question that this step could help to improve customer engagement and communication

flow; however, the bank is still limited in terms of what it can deliver and how fast. Banks remain dependent on their legacy systems to help them execute functions necessary for effective, yet not efficient, performance.

Back-end digital transformation

This approach suggests that the bank has successfully integrated digital technologies at the front-office, and it is continuously investing in back-office technologies, supporting corporate digital transformation. For instance, the bank starts replacing its legacy system into a more modernized infrastructure that can pool data from different functions and transform them into useful information. The integration provides the employees with a holistic view concerning their customer needs and overall purchasing behavior. Moreover, what makes this approach attractive is that it benefits both the customers and the bank. Bank opens up its customer information and exposes its customers to necessary insights regarding their financial activity. With that in mind, the bank can advise their customer more accurately and in real-time.

Furthermore, what makes back-end technologies more appealing for implementation in their positive effect on cost. According to the banking leader Roxane Haas, "Digital banking can give a swift kick to your bank's bottom line. When done on a mobile app instead of inside a branch, the cost of a typical transaction shrinks dramatically" (PwC, 2018).

Digital native

Last but not least, this is the approach considered as an "all in" move from the banks (Richards, Evoy, & Kimberly, 2017). It is the maximum digital transformation starting from front-office service until back-office activities. Banks are required to rethink their general value proposition and redesign their business models according to the trends, adopting IT solutions, moving to cloud computing, etc. (Sandbaek, Tölkes, & André-Leruste, 2017). Moreover, digital natives do not make individual investments on a project, but rather design a meaningful strategic plan for investment in technologies that bring sustainable efficiencies. For that, it is important to acknowledge the capabilities of each technology and what benefits can it bring to the value chain (Bedford, Bellens, & Sclich, 2018). Becoming a digital native allows banks to be more receptive to experimentation since their corporate norm is data-driven. Data provides an essential tool for banks to respond quickly to sudden behavioral changes of their customers and overall volatilities in the ecosystem (Brady, 2018).

The transformation process in banks often leads to the redefinition and reassessment of their existing strategies. It is essential that the transformation takes place in stages of repeatable

procedures and techniques so as to allow the organizational architecture to enable re-engineering like the construction of enterprises (Möwes, Puschmann, & Alt, 2011). Thus, banks need a strategy that clearly articulates the operating model under digital capabilities, how will customers and markets benefit from the transformation, and what products can there be developed. Banks should not rush in implementing transformation strategy, but rather assess its validity and relevance according to the pace of technological change. (Bedford, Bellens, & Sclich, 2018).

1.4. Banking Industry Trends

The impact of industry trends and the global competitive environment are argued to have a vital role in the development of a sustainable strategy. The latter has been supported by research in the fields of strategic management, information systems, and industrial economics (Dess & Beard, 1984; Keats & Hitt, 1988; Milliken, 1987; Scherer & Ross, 1990; Smith, Ferrier, & Ndofor, 2001). In the specific example of banking, financial firms do face challenges and threats from emerging technologies, regulatory frameworks, customer behavioral changes, and innovators (Sandbaek, Tölkes, & André-Leruste, 2017). This section digs into the industry trends, specific to the banking sector, that can be viewed both as a threat and an opportunity. A significant part of the discussion will focus on customer behavioral changes, rising competition from Fintech's specialists, and technological trends.

1.4.1. Customer Behavioral Changes

An essential factor for a company's survival is the loyalty of its customer. Companies pay close attention to their target audience's purchasing behavior to be able to adjust their offers to any sudden changes that may occur. These changes could appear for various reasons, from a sudden decrease in prices for substitute products to disruptive technology. The latter seems to be more accurate in describing the current market situation banks are involved in. The sudden growth of fintech has been witnessed ever since the financial crisis of 2008, primarily because banks had lost the trust of their customers. The lack of confidence toward banks resulted in the increasing need for fintech services (Hornuff & Haddad, 2016). Incumbent banking players have been aggressively capitalizing on solutions that foster digital transformation. The global retail banking research director at IDC has stated that the percentage of the IT budget that has been invested in digital transformation exceeds 40 percent for some of the most prominent banking players (Dolan, 2019).

People become more and more familiar with digital technologies. Especially with the existence of digital natives, i.e., future customers, this trend will continue. Digital natives are a term that describes people that are born after 1980 and show an affinity towards technology (Prensky, 2001). "With the growing recognition of the customer's role in service creation and

delivery, there is an increased impetus on building customer-centric organizations" (Setia, Setia, Venkatesh, & Joglekar, 2013). It becomes inevitable for financial service providers to co-create value with customers to respond to the change in customer behavior and needs, which is the topic in the customer relationship category.

Technologically enabled products and services provided via digital channels allow expanding the touchpoints between end-customers and business. The construction of such products and services is built around digital technologies that enable enterprises to leverage user data and respond to requests in real-time (Hoong, 2013). The introduction of digital products has urged modern society to become more and more digitally savvy. Customers crafted the necessary skills needed to operate digital products and services. Banks, sooner or later, witness the effects of changing customer behavior and are required to redesign their value offerings around the rising needs of their customers.

Technological advancements allowed fintech start-ups to enter the market and capture the future customer of banking. Prospective customers are more likely to have a different set of preferences, needs, and capabilities than the customers of the present. The banking sector has been receiving negative signals from the younger generations, known as Millennials and Gen Z's. The latter two customer categories represent the future customer base of financial institutions, with which banks already struggle to acquire. In 2015, PWC conducted a survey that showed the following results: 24% of millennials have basic financial knowledge, and even so, only 27% of that group seek financial advice on saving and investing. From the words of a millennial business owner and investor, "... we're more engaged than any previous generation as technology keeps us connected 24 hours a day and work. The most significant innovation over the last 20 years has come from people that have broken from the traditional work structure." (Conway, 2017). The Millennial Disruption Index reports 71% of millennials would instead go to the dentist than listen to what banks tell them. In contrast, these generations are seeking alternative providers that not only provide what they need in the way they need it but also reflect their mindset. Such alternative providers include Google, Amazon, Apple, PayPal, Square, etc. (Conway, 2017).

Millennials are highly driven by digital social networks and interactions within them. Their connectivity and digital skills require special attention by companies that want to address their needs directly with their products and services. Banks can respond by creating their services with algorithm-based data analysis instruments that take into consideration all client data, synchronize their information on a real-time base. Furthermore, they should make it comfortable, simple in use, and intuitive (Thomas, 2015). Non-bank players, which offer original or traditional financial products via new channels, understand what their clients need the most. On the contrary, many financial services providers offer different services that are not convenient for clients. From this

point of view, banks have a new challenge – to become a new banking ecosystem providing "smart everything" for their clients on a digital base.

The trend of financial technology service affinity has not been solely a result of a smart business model, but more likely a switch in consumer behavior. Digital native consumers search for a way to avoid the complexity of legacy institutions and would instead satisfy their financial needs via digital channels. The latter has elevated the shift toward online, mobile, and digital banking. Thus, players equipped with IT knowledge and skills provided the solution that was missing from the classic banking value proposition.

In a recent study conducted by Accenture, data of approximately 32000 end-customers across 18 markets have been gathered, reflecting their views and opinions on financial services. The study was able to identify three customer categories that banks should keep an eye on. These categories were defined according to similarities in behavioral patterns and preferences. The study is essential for incumbent banks as it provides valuable insights as to how banks should pursue customer relationship management and how they can use technology in a way that benefits both parties. The categories bring into light three distinct customer personas that align with industry-specific (Accenture, 2017). The following table comprehensively puts together a detailed description of these personas.

Table 1.Customer personas for financial services (Accenture, 2017)

Nomads	Hunters	Quality Seekers
Digitally active customers that seek out innovative approaches	Price sensitive customers	Seek for top quality, excellent customer service and protection over private data
Are not tied up to traditional financial service providers. They are happy to utilize offerings from tech giants such as Amazon and Google	Value for money is the key motivator for the Hunters.	Quality seekers value the financial service provider who puts its customer benefits over the organization's. Quality and the maximum value is the key motivator.
Have high standards when it comes to innovation and seeks unconventional ways to run financial errands	For Hunters personal interaction and assistance are crucial. They value human advisors over software-based advisors.	It is essential for them that the provider takes into account the safety and security of its customers

Nomads are fond of the idea of software-based relationships with their financial advisor	Hunters are fond of the traditional banking system and incumbent firms.	Quality Seekers are fond of the quality of service and security rather than the cost of products/services.
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According to the Global Findex Database 2017, 56 percent of account owners had reported that they had executed at least one financial transaction with the use of digital payments. In developed economies, where disposable income is higher, the share of adults that used digital payments was close to 91 percent, whereas in developing economies dropped down to 44 percent. The use of digital payments has seen a dramatic rise. The share of adults around the world making or receiving digital payments increased by 11 percentage points between 2014 and 2017. Mobile phones and the internet represent an alternative to debit and credit cards for making direct payments from an account. Account owners from both developed and developing countries have reported that they have made use of a mobile device or the internet to complete at least one financial transaction; 55 and 30 percent, respectively (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2018).

As it was previously mentioned, native digital customers seek to eliminate complexity when seeking financial services, thus very often, they turn to online solutions, such as shifting to online stores, digital touchpoints, etc. (Kannan & Li, 2017). Studying and assessing customer behavioral shifts are essential for developing a product that is suited to their current needs. Indeed, in order to study these particular patterns, a large pool of data is required and thereby sophisticated IT infrastructure that can carry out programs like this. Fintechs and tech giants have been taking advantage of their vast data pool by investing resources in carrying out rigorous analyses regarding user behavior.

Digital native customers are exposed to a large pool of available applications that offer specific financial services, often created by tech companies or fintech start-ups. These tech companies and start-ups strive to provide a unique value proposition focusing solely on the needs of their target audience, which often are to simplify transactions, minimize cost and time, and privacy (M. Kashyap, 2016). The latter statement can be exemplified with the case of Financeit, from the lending services. This company uses its direct-to-customer application to provide instant point-of-sale (POS) loan, allowing the customer to choose the loan plan that best suits their needs via a customer-friendly, transparent, and safe interface (Financeit, 2020).

A study developed by Setia, Venkatesh, and Jobekar (2013) has shown that digital technologies can affect customer service performance. Their paper is focused primarily on the local banking sector of the Indian market and introduces a theory that explains the effectiveness

of digital strategy on customer service. In order to evaluate customer service performance, the authors have looked into perspectives that are assumed to be essential when addressing and responding to customer inquiries; a. customer orientation capability, and b. customer response capabilities. The former is defined as the ability to observe behavioral patterns, identify needs, and alter the business strategy so as it revolves around these needs (Slater & Narver, 1994). The latter is defined as the ability to resolve customer inquiries in a fast and efficient manner (Jayachandran, Hewett, & Kaufman, 2004). Besides the direct impact of digital technologies on those two perspectives, the results have also shown their relationship can grow more reliable with a more sophisticated customer service process (Setia, Setia, Venkatesh, & Joglekar, 2013).

1.4.2. Rising Competition

The critical trend related to the digitalization of the core banking, however, is the digital banking and financial technology (fintech) service offerings. Companies such as Google and Alibaba have been expanding their offerings with complementary financial services. Tech players seem to have realized the benefits that lie behind the concept of digitalized financial services, and their existing infrastructure allows them to include them into their model more efficiently. For instance, payments, traditionally a quarter of banks' revenues, present the most common service to be digitalized by the tech giants and fintech start-ups (Busch & Moreno, 2014). In their attempt to meet market requirements and satisfy customers' expectations, banks are also striving to increase efficiency at the same time. Banking firms exploit the use of digital gadgets and mobile devices that increase the interaction touchpoints with end customers. This way, banks manage to improve their information flow, and it is used to move their bottom line upwards (Kamra, 2014).

Due to the rapid development of digital payments – for instance, mobile and cloud-based payment – players that traditionally were not considered rivals to banks, now it is imperative to view them as potential candidates for banks' competitor analysis. For instance, banks have seen such activities from telecom, Tech companies, and fintech start-ups trying to capture a share from the banking industry. Innovators such as Google with Google Wallet, Alibaba with Alipay, Uber with Uber Money, and MTN with MTN Mobile Money are some of the examples of banks' new rivalry (Accenture, 2014; Son, 2019; MTN, 2019). The role of the above-mentioned new market players is of increasing importance because they not only have the appropriate infrastructure but also access to a vast pool of user data. The latter allows firms to determine consumer behavior and introduce new features that eliminate the struggle of addressing another brand for a product or service. Ignoring the power of these potential entrances in financial services could drive traditional banks into significant losses. Accenture analysts estimated that by 2020 traditional banks could lose about 35 percent of their market share to innovators (Accenture, 2013)

To be able to respond to changes in the market, it is crucial to possess a clear view of industry direction. Executives are urged to familiarize themselves with the market trends and their impact in the organization, in order to alter their digital strategy accordingly (PwC, 2014). However, in PwC Banking 2020 survey, the percentage of bank executives that felt confident and well-equipped for the future was nearly 20%. PwC also separates executives from the ones that perceive competition from non-traditional players as a threat to the ones who view them as potential partners for future collaboration; these are 55 percent and 31 percent, respectively.

Given that their advantage to apply sophisticated analytics and the ability to leverage big data, fintech companies minimize the cost of initial capital investment and maintenance significantly. In addition, fintech disruptors make use of sophisticated business models that allow them to enter the market much faster and easier than what would otherwise be considered as "years of planning" successful banking model (Courbe, Carvey, & Lyons, 2016).

As it was previously mentioned, the banking industry environment is still under modification, mostly due to the regulatory frameworks that are introduced in favor of sustainable collaboration between incumbent banks and fintech companies. Such regulatory frameworks are quite visible in Europe with PSD2 (explained in Part 2), that support "innovation-friendly" regulatory reforms and put consumer protection at the center of attention (Cortet, Rijks, & Nijland, 2016).

Opportunities for potential collaboration and partnership agreements start to trend in the financial industry within peers, but also internet platforms and niche fintech operators. The two latter – we shall refer to them as innovators - operate in the market of digital, internet and mobile banking and have mastered the use of algorithms and data when it comes to building a sustainable value proposition for their customers. Incumbent banks are set back due to lack of skills and know-how in the particular area of data- and algorithm-based banking. It is conceivable that incumbent banks seek to collaborate with fintech innovators as an investment strategy to their own digital and mobile financial services with complementary offerings (Thomas, 2015). The following table summarizes the most important factors when a bank and a fintech form a partnership.

Table 2. Factors for successful bank-fintech partnership (Mehta, Bandyopadhyay, & Shan)

Factor	Method
Scalability	Leveraging network effects can result in a significant reduction of the time needed to develop solutions and offerings.
Vision	The visionary statement of fintech companies and start-ups, often include elements that describe their ability and desire to change the nature of financial operations. By developing a digital ecosystem that eliminates

	complexities, fintechs can realize their vision. Banks should be able to recognize themselves as "enablers" in the partnership.
Synergy	Banks and fintechs should learn from each other's experience and capabilities. Sharing knowledge is an essential factor for fostering sustainable partnership conditions.
Trust	Banks have to go through a multi-year timeframe to secure the trust of their customers. Thus, to eliminate any reputational damage, their strategic partner should be carefully chosen. The selection of the right party is such a reciprocal agreement is imperative to ensure that none will jeopardize the business.
Product-Life cycles	The partnership generates a product that embodies knowledge features from both parties. Banks and fintechs are addressing different needs and customer spectrum when combining their marketing capabilities into a joint development, the result can show its impact of unexplored areas of the market. For instance, non-tech savvy customers.
Collectiveness	Both banks and fintechs should view the regulatory system and its limitations, of the market in which they operate, as a collective entity.

1.4.3. Technological Trends

Technological advancements are being used as tools by banks to enhance delivery and improve efficiency on an operational level. Emerging technologies have played a significant role in the banking sector as it drives organizational change (Ameme & Wireko, 2016; Devlin, 1995; Hoehle, Scornavacca, & Huff, 2012). Banker et al. (2009) have studied the effect of IT-based service channels on banks' performance. Their results show that with the adoption of internet banking, a firm can see an increase in cost efficiency, but not in revenues. In other words, the gains from investing in internet banking do not compensate for the loss of initial investment, which results in an overall negative effect (Banker, Chen, Liu, & Ou, 2009).

On the contrary, traditional channels - like physical branches - even though they have higher operating costs, lead to higher revenues for a bank. As a result, the revenues documented from the physical branches can cover the extra costs, thus resulting in an overall positive effect. The authors have also found that internet banking channel and branch-based channels have a positive correlation with a market share in loans and deposits business. Finally, confirming that internet banking is an essential driver for long-term competitive advantage (Banker, Chen, Liu, & Ou, 2009).

The following list presents the latest technological trends in the banking industry (Marr, 2019; Hales, 2019; Meola, 2019):

Table 3.Technological trends in banking

Technology	Description
Artificial Intelligence (AI)	Artificial intelligence in the banking sectors has been gaining more and more attention over the years. A recent survey has identified that about 80 percent of professionals in the financial industry acknowledges the benefits of AI technology. In addition, a report conducted by the UBS Evidence Lad has stated that about 75 percent of bank respondents from big market players have said that their organization has been embracing AI solutions. AI technology is predominantly present in the front office operations with the development of chatbots that allows digital agents to take over financial inquiries from customers. Its utilization will enable firms to create a seamless customer experience with 24/7 availability to respond to financial errands (Digalaki, 2019).
Cloud	Cloud is allowing banking firms to be innovative not only in terms of their business processes but also in interacting with end-customers. Regarding business processes, banks can utilize cloud computing in order to manage their information flow and data storage more efficiently, eliminating in this way, infrastructure costs. In addition to the latter, the cloud supports inter-departmental collaboration and frictionless communication with third-parties service providers (Lakshminarayanan, 2019).
Big Data	A recent study conducted by IDC has estimated that the expected reach in revenue for big data solutions is \$260 in 2022. Banking is amongst the industries have been investing heavily in big data solution and business analytics technologies. Big data solutions provide a 360-degree view of the business and help banks to detect not only behavioral patterns of end-customers but also external anomalies. Consequently, a bank can act rapidly to sudden changes and take action in addressing threats or exploit opportunities. Also, big data in banking allows to identify malpractices regarding fraud activities (Aleksandrovna, 2019).
E-banking	E-banking allows banks to make use of the internet and e-commerce models to deliver their products and services. Besides withdrawing cash, e-banking enables customers to execute a variety of financial needs whenever

and wherever they are. E-banking consists of forms such as internet banking and mobile banking. Whether the customer is utilizing a mobile application or an internet browser, these channels strive to increase customer satisfaction at minimal cost (Ahmad & Al-Zu'bi, 2011). Mobile banking is being used as an additional touchpoint between banks and end-customers. Customers can seek financial errands in a mobile application where the possibility to execute financial practices is made easier and faster. Mobile banking for banks is not only an additional channel to interact with customers, but it is also an additional revenue stream. In addition, it can result in significant reductions in operational costs since a mobile application can offer paperless solutions and save time in serving a client in physical venues.

Blockchain

Blockchain technology has been a buzzword across the industry sector for most of the recent years. The technology provides exceptional capabilities regarding transaction processing while minimizing processing costs. Albeit a high trend among the peers in the industry, the technology requires significant alterations in the organizational infrastructure. Consequently, a considerable amount of capital shall be invested in these changes in order to exploit every possible benefit of this technology. Accenture defines the creation of a “global network” as the main element for the success of implementing blockchain in the bank’s infrastructure (Meszaros, Adachi, Dharamsi, Yetiskin, & Thomas, 2016).

Source of information: (Marr, 2019; Hales, 2019; Meola, 2019), Table made by the author

All the above-mentioned trends in technology are being divided into two categories according to their most efficient used in banking operations: these are; a. frontend and b. backend technologies (see fig. 1). In the previous section, it was discussed that banks following different methods when it comes to digital transformation, and that highly depends on their strategic objectives and available resources.

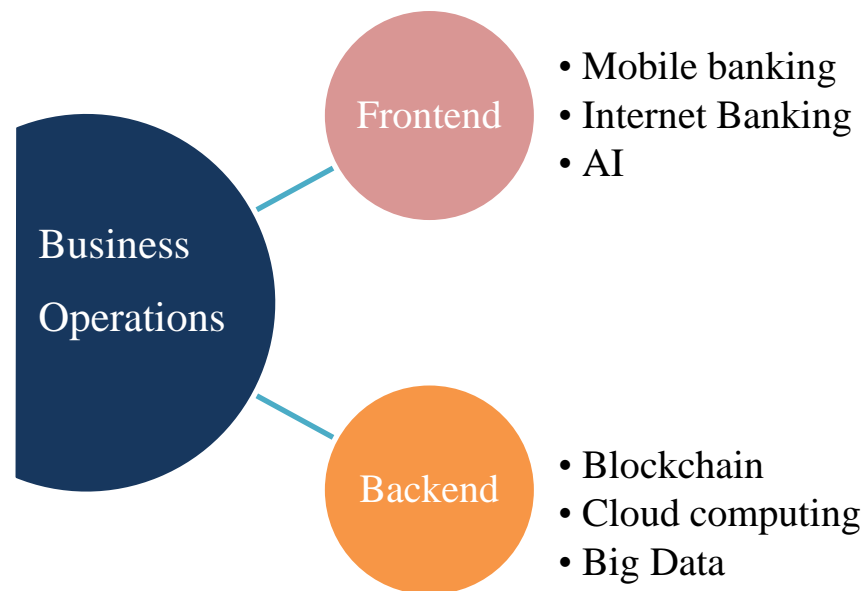


Fig. 1. Categorization of Digital Technologies (source: made by the author)

1.5. Digital maturity across incumbent banks

Just as it was mentioned in the previous subchapters, each firm can allow a certain level of digitalization in its organization, given its current resources and capabilities. Banking firms are no exemption to this rule, and some examples were mentioned above as to how banks choose to approach digital transformation, solely front-end, upgrade of the back-end, and a harmonious combination of both. Having said that, the available resources and capabilities restrict each bank in benchmarking rivals' strategic actions; there are specific categories that are being formed that characterize the degree of digital maturity. These categories will be mentioned a bit later in this subchapter, as it is imperative to first look into the patterns of transformation.

Most often, incumbents seek to level up their digital maturity stage by following specific strategic methods. Many large players have benchmarked these methods in the industry, and it wise to assume their size allows them extent their practices by capitalizing on M&A (often fintechs) and partnerships with tech companies (IBM, 2015; Quesada, 2016; Ryan, 2016).

Table 4. Methods by which incumbent banks digitally transform

Methods	Description
M&As	It allows the incumbent bank to combine their existing processes, technologies, and know-how with those of the fintech start-up and/or digitally mature firm.
Offshoring services	It allows the incumbent bank to introduce additional channels, such as mobile applications, that a third party has developed, but yet it is being used under the name of the bank.

New Business Units	It allows the incumbent banks to have more brands under its name that specifically focus on a potential market to overcome the competition from fintechs.
In-House development	It allows the incumbent bank to grow from within by investing in digital projects and allocating capital for the development and execution of that project. It is achieved by cross-functional teams and the employment of IT experts.

Information is taken from (IBM, 2015; Quesada, 2016; Ryan, 2016)

The speed of adaptation of new digital technologies into a bank's business systems does not follow the same rates from bank to bank. Interestingly enough, each bank has been responding to the changes in the environment in a different way. Given their traditional operating systems and IT infrastructure, some of the banks struggle to commit to the digital norm and transform sustainable according to customer expectations. BBVA Research has generalized the process of this adoption and commitment into three phases (Cuesta, Ruesta, Tuesta, & Urbiola, 2015):

1. Responding to the new competition
2. Technological adaptation
3. Strategic positioning

When one refers to "maturity," it usually implies a state of ultimate readiness, perfection, and completion that has been resulted after gradual development (Lahrmann, Marx, Winter, & Wortmann, 2011). The term can also be used to describe the organizational development and how they progress over time in order to reach an ultimate desired state. In terms of digital transformation, it has been mentioned many times before in this paper, that organizations follow a different rate of progress in their attempt to become digital natives. The latter explains in simple words the phenomena of digital maturity, the speed by which organizations utilize digital technologies to systematically shift their business models to platform-based (Chanas & Hess, 2016). It is important to note, that the two terms "digital transformation" and "digital maturity" do not refer to the same phenomena, albeit very often used interchangeably (Leipzig, et al., 2017). Digital maturity is used to describe to which a stage a company finds itself when it comes to ultimate digital transformation. The companies that already find themselves at the highest level of digital maturity are the ones who can exploit their digital ecosystem and infrastructure as strategic competence (Shahiduzzaman, Kowalkiewicz, Barrett, & McNaughton, 2017).

The banking industry also consists of companies from different levels of digital maturity. An initiative was taken by Deloitte Digital to investigate the problems and opportunities of 248

financial institutions in 38 countries, covering Europe, Africa, and the Middle East Market. The study identified the subjects' digital maturity in accordance with the market they are based on. Consequently, Deloitte found that there are four categories of markets that can be distinguished by their level of digital maturity (Deloitte, 2018). The following figure illustrates their results.

Benchmarked markets can be divided in 4 groups in terms of digital banking maturity

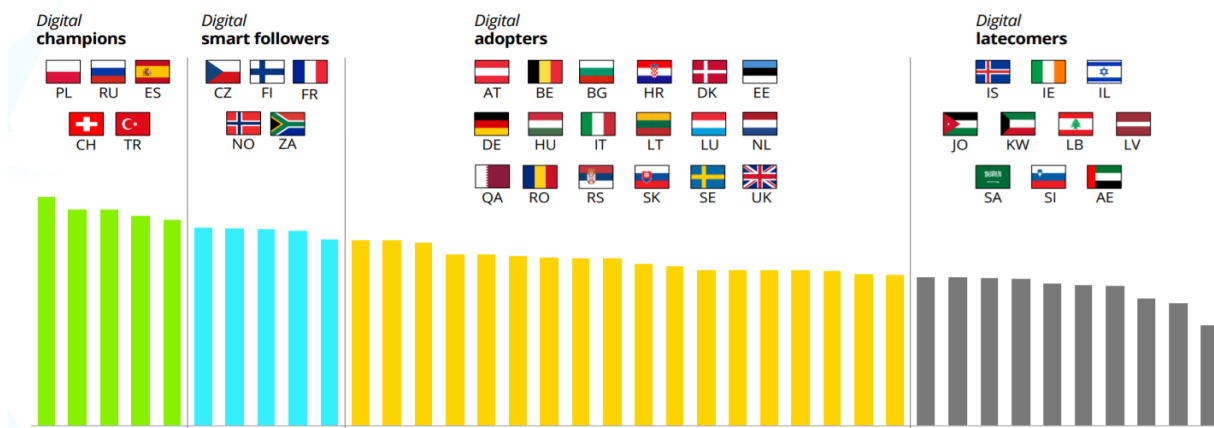


Fig. 2. Deloitte Digital study on bank's Digital Maturity (Deloitte, 2018)

Their research is based primarily on the largest market players (by assets) and thus not clarifying the position of smaller players. The scale of the largest players allows them to exploit their resources and invest heavily in solutions that will ease their objective to become digital leaders. Smaller-scale banks face challenges on both the internal and external layers of the organization. Some of these banks are managing to transform by utilizing the offerings from third parties service providers. Thus, making their transformation less costly than it would have been when investing in in-house development. But some others are still somewhere on the first level of digital maturity.

Based on the findings from the literature review, one could categorize the levels of digital maturity according to three dimensions; customers, technology management and strategic management. The three dimensions have been in-depth studied throughout the previous sub-chapters; thus, it is safe to assume that their criteria that were formed can be used to support the categorization. The following table puts together graphically the assumptions for support the categorization of banks:

Table 5. Categorization of banks based on three dimensions (Source: created by author)

Dimensions	Criteria	Traditional banking	Transforming banking	Digital Dative

Customers	End-to-end service	The relationship between the end customer and the bank is succeeded by physical interaction	The relationship between the customer and the bank is hybrid. Supported by digital and physical channels	Relationship between customer and bank is software-based
	Available channels	Physical venues	Multi-channel. Use of mobile and internet banking	Combination of automated and personal contact
	Responsiveness to financial errands	NOT real-time responsiveness	Real-time response	Data allows to identify behavioral changes and respond to volatilities in the ecosystem
Technology Management	Front-end	Executed through physical venues	Combination of physical and digital branches. (Multichannel)	Customer-tailored
	Back-end	Legacy systems mostly in use.	Upgrade of legacy systems to state-of-art technologies	Standardized across the network
	End-users	No extra skills are required to run the systems	Training is required.	Agile organization
Strategic Management	Organizational Culture	They approach digital as a premium feature to the company's offering	Digital is been integrated into the strategic plan as an investable channel for interaction but also for the	An agile approach to developing a strategic plan.

			modernization of systems	
	Technology Integration	Not essential in order to run the business. Mostly at the front end.	Supported by third parties, mostly tech companies	Core banking and digital are finding a strategic fit
	Ecosystem development	Contractual relationships between IT provides and bank.	Strategic alliances and integration of third parties into the value chain.	Network effect.

The table above represents a distinction of incumbent banks in terms of the level of their digital maturity. Filling in the above table would allow us to assume the features of the transformation.

I compare the types of banks in terms of how they contact their business operation in the three dimensions, which are a. customer journey, b. technology management, and c. strategic management. In this way, one is not only to identify the key differences but also to define several challenges that occur under each category of banks. However, in this paper, it is assumed that banks that fall under the category of “digital natives” present an example of the desired state for the other two categories; “traditional banks” and “transforming banks.”

According to the table, traditional banks are stuck in an outdated mindset and do not consider the new potential for development. They do not consider customer behavior change for digital transformation. Possibly the banks that are operating in this mode are located in markets in which customers are not tech-savvy. Or the demographics of the particular bank is the one that could be satisfied by traditional means, mostly “hunters” (see part 1). In terms of technology management, the bank's processes are being supported by legacy systems that are making communication flow much slower and inefficient. The bank, in this way, cannot respond to financial errands on the real-time framework because its systems cannot support such function. Consequently, The IT architecture is not aligned with customers’ needs and expectations for quicker service and complementary offerings.

Transforming banking firms are still not agile enough to develop ideas and projects using internal capabilities and resources. Transforming banks still do not put enough emphasis on attracting the right talent in order to encourage in-house development. It is more preferable to collaborate with external partners due to the ability to market new products faster. However, with

that comes a missing opportunity to upskill staff and expand their capabilities. Due to the fact that the internal organization is still in the transition of the front-end digital transformation, the bank may face difficulties when attempts to upgrade its legacy systems. The integration of new technologies at the back end, will have to complement some existing legacy systems and for that the selection of the right technology is highly important.

1.6. Model base for research analysis

Digital technologies, customer journey, and existent IT architecture should be aligned in order to create a harmonized ecosystem. Given the established culture and legacy systems of incumbent banks, their transition to digital has a different degree of difficulty. In order to identify the root of this difficulty, one should take a look at the broader picture and uncover the pitfalls when integrating digital technologies in a particular section of the organization. There ought to be strategic reasoning in the investment of a specific technology. Each area of business that could be affected by the utilization of new technologies should be thoroughly studied beforehand to determine whether the investment provides a strategic fit and synergy across functions.

To my knowledge, the number of researches that strive to combine these areas into a single unified framework was limited. Thus, narrowing down the bundle of possible options for this research. However, the research conducted by Drews et al. (2017) seems to fit the goal and requirements for supporting the case study of this research (Drews, Schmidt, & Schirmer, 2017). The authors utilized an already proposed strategic alignment model that was described by Avison et al. (2004) and created an extension of it by introducing three additional dimensions; a. customer requirements, b. end-users of internal organization and IT, and c. strategic management (Avison, Jones, Powell, & Wilson, 2004).

Their paper focused on highlighting the strategic gaps and misfits between the three former mentioned dimensions. Their empirical results were the following:

1. Banks' often do not align their digital strategy and customers' journey with the IT organization and infrastructure,
2. The internal business structure of the banks should be carefully assessed so as with the integration of new technology it can respond to the external domains
3. IT systems do not fit the requirements of the employees to enable an effective and efficient way of processing their daily work

Their research was limited as it was only focusing on banks from Germany. The authors underlined that future research might seek to explore the status and plans of digitalization in the banking industry by taking a case study approach and by exploring the different perspectives they

have introduced. There is an unexplored opportunity to look into the three perspectives the authors have identified and compare them with banks from different digital maturity stages. Henceforth, the research will be utilizing the assumptions and models in order to extend the level of analysis.

Conclusion for Part 1

The literature review helps to view the digital transformation in the banking industry in-depth and provides a solid foundation in determining the main challenges of this novel phenomenon. The main outcomes one should take from Part 1 are the following:

- ✓ Fintech start-ups and Tech companies in their attempt to expand their offerings are disrupting the banking industry and its competitive forces. New entrants from the technology sector introduce products and services that satisfy the unmet needs of end-customers. Consequently, customers' expectations for banks to offer digital solutions and complimentary services are rising at a gradual speed. Business Analysts particularly see this trend among millennials and gen Z customers. However, the demographic expands as customers are being more and more tech-savvy, introducing thus the term "digital native" customers.
- ✓ The expectations of digital natives' customers are urging banks to digitally transform and adapt to the new norms of the industry. Banks are expected to become more customer-centric and focus on redesigning customer journey with the help of emerging digital technologies. Fast processes and innovative products should support the new journey to enable the bank to provide real-time service to customers' financial inquiries.
- ✓ Technologies such as AI, big data, blockchain, cloud, mobile, and internet banking are the buzzwords among the banking industry. To compete with emerging rivals, banks are benchmarking their practices in an attempt to secure their market share and keep their customers satisfied. However, many banks struggle to understand the role of each technology in the value chain and its input in value creation. It is imperative to identify the problematic areas of an organization and assess the potential benefits of a particular technology can bring.
- ✓ Organizational resources and capabilities should be strategically aligned with the technologies a firm plans to integrate. Thus, a clearly articulated strategic plan should be developed in order to create synergy among existing IT architecture and integrated technologies.

Evidence from the literature review allows to safely assume that digital transformation in the banking industry is considered as one of the vital components for the survival of majority players in the banking industry. The challenges that seem to occur predominantly in the areas of customer relationship management, strategic management, and IT infrastructure. Given that each firm is composed but its own designed structure, which presents the best fit for its capabilities and available resources, it is not wise to conclude that every bank should follow one specific path for digital transformation. However, there is a path that each bank can articulate by conducting a

thorough digital strategy that aligns the attributes of its IT architecture, internal culture, and customer journey.

Based on the evidence from Part 1, one can formulate assumptions regarding the challenges a bank from the first levels of digital maturity may encounter in their effort to digitally transform. Digital natives provide an example of the desired state that each organization strives to achieve. Thus, comparing to practices of banks from earlier stages with those to digital natives can allow presuming challenges but also ways to tackle them. Since digital natives are considered to be large incumbents that are at the top of their digital maturity process, it is safe to assume that they have overcome some preliminary challenges. These challenges are expected to be faced currently by the traditional and transforming banks.

Table 6. Assumptions based on the literature review (Source: Created by author)

First Assumption	Traditional banks struggle in integrating digital technologies into their existing IT architecture. Legacy systems prevent the implementation and application of modern practices and thus, slowing down their transformation development.
Second Assumption	Traditional banks and transforming banks struggle to communicate the benefits of digital transformation internally (employees) and externally (customers).
Third Assumption	Transforming banks lack the necessary skills and know-how to further their development from within. The strategy does not specify the required skills needed from human capital to facilitate digital transformation even further.
Fourth Assumption	Traditional banks' lack of agility creates communication barriers between departments and does not encourage interdepartmental collaboration on a specific project.

The assumptions mentioned above will be used as a base for the research that follows in Part 2.

PART 2. RESEARCH METHODOLOGY

Part two is dedicated to the research that is developed with the sole purpose of examining whether the predefined assumptions hold true. The research will primarily focus on a case analysis with the study of five individual companies from the banking industry. First, the design of the research will be established in order to provide a more in-depth understanding of how the analysis will be pursued. Thereafter, the data collection process will be explained followed by the analysis of individual cases.

2.1. Research Design

Research design provides a sub-chapter that explains the need for the particular research and outlines the goals of the methodology implied. It is essential to articulate the purpose of the research by matching it with the appropriate theoretical reasoning. This section, elaborates on the theoretical data sampling and data collection techniques.

The research methodology is based on qualitative methods and, more specifically, a case analysis of individual banks. Detailed analysis of each case and comparison of their results will help to highlight the predominant challenges that incumbent banks encounter in their effort to digitally transform. Data has been retrieved from two types of sources; primary and secondary sources. The primary sources include interviews with bank representatives, and secondary sources are considered to be publicly available information such as annual reports, press releases, and online sources. The interviews helped to acquire additional valuable information regarding the topic of this paper and will be used to support the research process as well as the formulation of conclusions.

The thesis is revolved around the challenges brought upon banks when trying to integrate digital technologies into their core systems and business operations. Given limited publications on the topic, the case study approach is highly applicable for the development of new assumptions and ideas on the topic. The case study approach allows for an in-depth analysis in the industry regarding different business approaches, organizational behaviors, and strategies. Moreover, the case study aims to investigate a contemporary phenomenon in detail – in this case, digital transformation in the banking industry – and its influence in real-life events (Saunders, Lewis, & Thornhill, 2009). Thus, during the analysis of cases, it is important to reflect to the “industry analysis” sector so as to connect the findings with external factors.

As it was mentioned in the part 1, this thesis will be utilizing the assumptions of existent research. The authors analyzed the gap of strategic alignment between three particular perspectives, and these are; a. strategic management, b. customer requirements, and c. internal

organization and IT. However, the limitations of the paper allow for further exploration in the area of digital transformation. Thus, the research of this thesis paper will be based on the main assumptions of the three perspectives, albeit extending their view with case study analysis. The five case companies

2.2.Data collection

Data collection is divided between primary and secondary sources. Due to the in-depth analysis of the case study approach, it is wise to consider an array of informational sources. Such sources may include useful insights via interview conduction, development of questionnaires, external observations, documents, and archives, etc. (Eisenhardt, 1989). Any of the types may represent a sole source of data collection. However, such an approach is not recommended for the case study research design (Yin, 2009). The recommended principle follows the data triangulation idea. Any case study conclusion tends to be more accurate and convincing if the fact was found in several sources. As a method of in-depth, detailed investigation case study approach allows getting more information from different sources than any other design. This study follows the principle of data acquisition from various sources and provides for a multiple-sided analysis for each case company.

The first three companies' primary sources of information are published information such as annual reports, interviews given by banks' representatives to third parties, journals, etc. Given the scale of their businesses (publicly traded), secondary sources are considered adequate in order to develop conclusive assumptions. However, for the other two companies that represent smaller-scale companies in the banking industry, public information is not sufficient to draw conclusions. Thus, interviews have been conducted with the representatives of the respective banks. The interviewee's profile is necessary so as to acquire internal insights. For this reason, both interviewees have experience in the field of digital transformation in the banking industry. The following table concisely describes their personas, bank they represent as well as information regarding the interview format. Anonymity has been requested by the interviewees, and will be fully respected in this thesis paper.

Table 7. Interview information (Source: created by author)

Bank represented	Job position	Number of interviews	Interview format
Hellenic Bank	Manager of Electronic channels	2	Via email
Bank of Cyprus	Business Development and Transformation Manager	2	Via email and phone

2.3. Case Analysis

The Deloitte research has estimated the digital maturity of the largest banks (by assets) in specific markets. This research follows a similar logic in terms of identifying the case of companies for the strategic alignment analysis. However, it is important to specify that Deloitte’s research was mostly based on market benchmarking. Following this approach could affect the comparative analysis if the chosen companies will be based in different geographical areas with a different regulatory framework. Thus, in this research, I have chosen to focus on banks that are based in European area. Europe provides a good example of a market that is being control by a regulatory framework that is shall be respected by all member states.

A regulation that has been recently imposed is PSD2 (Revised Directive on Payments Services) is intended to make more secure and increasingly inventive European payments. PSD2 exemplifies the fact that digital disruption is not only entering discrete industries via the free market economy but that it is also being regulated into effect. PSD2 is having an exceptionally problematic impact on the monetary administration industry since it expects banks to open up access to client's online records and installment administrations to outside suppliers. Because of reasons like these, banks are being compelled to re-evaluate their business model and their very own ecosystem in which they work on a daily basis (Cortet, Rijks, & Nijland, 2016).

The 5 case companies I have chosen to analyze are divided among the following categories; a. traditional bank, b. transforming bank, and c. digital native bank. For the latter, the research will be analyzing three banks instead of one, given that incumbents in this category come from markets that report different degrees of digital maturity (According to Deloitte’s research). The rationale behind the choice of the bank will be illustrated below in the case analysis subchapter.

The case companies will be analyzed according to the three perspectives introduced above. Each category has specific indicators that will help to form the final comparative analysis (Table 6). To identify the weak and strong points, there was the need for a measurement system that would show whether a pair of cross-perspective indicators show alignment. Drews et al. made use of the following symbols in order to determine strategic alignments:

- “-”: indicates negative alignment
- “+”: indicates positive alignment
- “o”: indicates neutral alignment

Table 8.Explanation of indications used in the research (Drews, Schmidt, & Schirmer, 2017)

Perspective	Criteria	Indications	Explanation
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Strategic Management	Omni-channel approach	StratDir1	Improve customer experience by integrating co-existing communications channels.
	Individual products	StratDir2	Banks often use two core segments: “economy” and “premium.” Within these segments, fine-grained customer segments are necessary.
	Innovative products	StratDir3	Banks should maintain and enhance customer loyalty by investing in innovations and exceptional service.
	Reinvention of partnerships	StratDir4	Digital technologies allow for network development with potential partners.
	Digitalized Business Processes	StratDir5	Banks should modernize their processes and structure and redesign it into a responsive model.
	Organizational Culture	StratDir6	View employees as valuable asset and create an innovation-friendly environment.
	Digital Technology	StratDir7	High innovation affinity. Physical and digital should complement each other.
Customer Requirements	Fast processes	CustReq1	The demand for fast service that requires minimum effort and low cost.
	Transparent Products	CustReq2	The demand for easy-to-use product design with limited complexity.
	Anywhere Products	CustReq3	Real-time availability at any place the customer may be.
	Preserve Branches	CustReq4	Ensure personal service is well delivered via physical branches.
	Mobile Banking	CustReq5	The need for online channels and digital touchpoints to exercise financial actions.
Internal organization and IT	IT integration	OrgIT1	The current integration of IT technologies in existing infrastructure is low within banks.
	Process Optimization	OrgIT2	Sufficient degree of process optimization due to digital technologies.
	Automation Potential	OrgIT3	Non-realized potential for automating the processes of work-orders.
	Training	OrgIT4	Additional Training is necessary in order for employees to be able to work effectively

For the third category of banks – digital natives – I have decided to study the largest banks in terms of total assets. Deloitte’s research stressed the division of markets in terms of the speed of their digital maturity. It is interesting to investigate whether banks coming from different

categories execute similar practices or not. Albeit, the fourth category – digital latecomers – consists of banks mostly located in the Middle East. Keeping the above-mentioned condition of having banks from the same regulatory framework, the fourth group will be eliminated for this research study.

The table below showcase the reasoning behind the selection of the final three case companies, which are:

1. Banco Santander
2. BNP Paribas
3. HSBC Holdings

Table 9. Selection of case companies (Source: created by the author based on Deloitte research)

Groups	Countries	Largest Bank (by assets)	Total Assets in USD (bln)
Digital Champions	Poland	PKO BP	92
	Russia	Sberbank	484
	Spain	Banco Santander	1,711
	Switzerland	UBS Group	972
	Turkey	Ziraat Bank	91.6
Digital Smart Followers	Czech Republic	Ceskoslovenska Obchodni Banka	72
	Finland	OP Corporate Bank PLC	78
	France	BNP Paribas SA	2,431
	Norway	Bank Norwegian AS	7
Digital Adopters	Austria	Erste Bank	252
	Belgium	Argenta	8
	Italy	Unicredit SpA	961
	Hungary	OTP Bank	34
	Germany	Deutsche Bank	1,458
	Romania	Banca Comerciala Romana (BCR)	18
	UK	HSBC Holdings	2,715
	Bulgaria	UniCredit Bulbank	n/a
	Netherlands	ING Bank NV	1,002
	Denmark	Daske Bank A/S	563
	Lithuania	Swedbank Lithuania	12
	Croatia	Privedna Banka (PBZ)	18
	Estonia	Swedbank	13
	Serbia	Banca Intesa – Beograd	6
	Slovakia	Slovenska Sporitelna	20

2.3.1. Case One

For the first case, Banco Santander has been selected for further analysis. The bank has been fiercely striving to compete with the new industry norms by introducing better ways to address customers' needs while keeping high levels of cost-efficiency. According to the bank's

four-year strategic plan, in which an estimated amount of 20 billion euros was invested in new technologies, it strives to transform into an entirely data-driven organization. In addition, the bank has placed the maximization of customer experience at the core of each of its strategic actions. Consequently, to support the latter statement, a couple of initiatives have been developed and are being used as a foundation of the bank's strategic plan. The initiatives have as follows (Santander, 2018):

1. Make all products and services available throughout existing digital channels
2. Offer fast and efficient product and service delivery

To assess whether the bank's strategic decisions are fruitful enough to sustain ultimate transformation to becoming a digital native, it is essential to view the alignment between the three perspectives of strategic management, customer requirements, and internal organization and IT.

Strategic Management

Even though at the beginning of the paper it was highlighted that the sample had been chosen in accordance to European requirements, it is yet important to consider that Banco Santander has a vast international footprint, and operating in three regions, Europe (47%), North America (16%) and South America (37%) (Santander, n.d.). The geographic diversification of the bank and its subsidiaries provides a healthy balance for exponential growth in both developed and developing markets. It has three customer segments; individuals, SMEs, and large corporates. To support seamless and frictionless digital transformation among the members of Bank Santander's Group, a digital platform has been developed called the Santander Global Platform.

The bank's strategy is aligned with digitalizing its core banking and enhancing the customer experience with the help of the Santander Global Platform. As a result, Santander is striving to utilize the platform for simpler, faster, and better services. Banco Santander identified the core technological pillars that have to work together in order to respond to changing external and internal needs (Santander, n.d.). These are:

1. Agility
2. Cloud
3. Core systems evolution
4. Deep technology skills
5. Data

Besides minimizing internal costs and creating an efficient enterprise architecture, the pillars also help the bank to meet customer expectations. The need for faster processes, innovative products and service quality are among the top priorities which the bank strives to achieve

(Santander, n.d.). Bank's collaboration with Cloudera, a software company for data analytics and management, exemplifies one of the actions that has been taken in order to operationalize its objectives. On its way to becoming a data-driven organization, the bank has worked with Cloudera for the implementation of the latest cloud technologies that enable a more efficient process of an ocean of customer data across the Group. According to Javier Nieto Centento, Architecture & Innovation IT expert at Santander Group, "Cloudera professional services has been instrumental as we began our cloud journey. By setting up brand new interfaces and extending already existing ones, the team has been able to address all the various requirements needed for the data lake to run on our IaaS²" (Cloudera). The technologies have reduced infrastructure costs by approximately 20 times and increased the time of introducing new products into the market by 10 times. In addition, the new data architecture provides a substantial advantage to respond faster to business as well as customer inquiries (Cloudera).

The bank aims to satisfy different customer segments by developing products that meet their specific needs. Bank's products address the demands of "business" and "individual" customers. In the category of "business" customers, the bank has been investing in the development of products that satisfy the needs for secure trading practices. Consequently, Getnet and Ebury have been introduced that provide global merchant and trade services. In the category of "individual" customers, the bank has developed products that meet the expectation for faster and more accessible banking. As a result, Superdigital and Openbank have been introduced that provide frictionless digital banking (Santander, 2019). The following list contains the main incentives for the developments of innovative products:

1. Digital payment solutions impact customer engagement and loyalty
2. Banco Santander's large scale helps to create products in an efficient manner
3. The products satisfy several customer segments including B2C and B2B2C
4. The product is a blend of tech and banking talent

The bank has set out strategic objectives to pursue digital transformation successfully. Banco Santander is transforming its core banking operations into five concrete ways (Santander, 2018):

1. *Transformation at the front end*

On this level, the bank is utilizing digital channels in order to make products and services widely available to end-customers.

2. *Transformation at the back end*

² Infrastructure-as-a-Service

On this level, the bank is striving to redesign its business processes that can be supported by digital technologies and result in a more automated and optimized business model.

3. Upgrading IT systems

On this level, the bank considers significant changes in IT architecture. Systems and operations are expected to be updated and replaced to respond to the requirements of the frontend and backend transformation.

4. Integration of new technologies

Fondly adapting new technologies and utilize them to optimize daily operations, both at the frontend and backend.

5. Grow into a data-driven organization

The bank has been taking steps and negotiating partnerships with cloud providers in order to create a more agile organization and be more responsive to real-time market needs – an example is a collaboration with Cloudera.

Digitalization has encouraged the collaboration between market leaders in banking and fintech start-ups or tech companies. Santander, in 2018, launched a professional development program that invites emerging leaders in the technology sector to collaborate with top management from Santander Group. The objective is to create a pool of fresh ideas from young leaders of the future. Their proposed ideas and perspectives on how banking can be improved contribute to adjustments that enhance strategy execution.

The ambitions and objectives of Banco Santander to deliver seamless customer service, are being achieved with the implementation of the omnichannel approach, NeoCRM. NeoCRM enables employees at the customer services to take over a conversation with a customer from where they left off, via any digital channel. For instance, let's imagine that a customer was having a conversation with one of the bank's agents via the website, and then due to some circumstances, he/she decided to reach out via telephone. The agent that picks up the line with the particular customer will have access to the previous conversation of the customer with the bank via the website and will be able to proceed with the inquiry without wasting additional time. This approach benefits the Banco Santander, as its customer service department can provide meaningful and more relevant support. During 2017, NeoCRM was used across the Santander's branches, contact centers, and business managers. As a result, by the end of 2017, about 14,000 people across the Santander Group were making use of this approach (Santander, 2018).

Santander puts customers' need at the core of its existence. In order to deliver exceptional customer service and develop innovative financial solutions, Santander understands that it needs motivated and encouraged human capital. Thus, making personnel one of its most valuable assets.

New regulations and laws have brought upon the challenge of creating a modern business environment in which the organization will have to operate under agile methods and a collaborative mindset.

Customer Requirements

For Banco Santander, the technologies and digital channels are not only used to enhance customer experience but also used in re-designing the end-to-end relationship and building long-term loyalty. The bank is adopting several methods in order to increase customer satisfaction and deliver unique experiences. It is achieved in the following ways (Santander, 2019):

1. Simplification of products by making them readable and easy to use for end customers;
2. Improvements in customer services by establishing a standard protocol for employees;
3. Creating a better customer experience by going bringing digital journey into the physical world.

Santander in Mexico and Portugal perfectly exemplify the actions taken in improving customer service. In Mexico, the bank has introduced a protocol to refresh and strengthen employees' human skills, such as; how to welcome customers, how to takeover customer inquiries, and how to "lock" their customer's loyalty. Similarly, in Portugal, the bank has introduced the so-called Service Attitude Program, which aims to train employees on how to deliver exceptional customer service (Santander, 2019).

The bank achieved to transfer its digital experience into its physical venues by significantly modifying the layout and functionality of its branches. The bank operationalized such branches models as Work Café and Smart Red. The bank's Work Café's, brings together the idea of a bank, working space, and coffee place within the same area. Customers and non-customers could use the space for various reasons, such as surf the internet, hold meetings, arrange events, and many more. The bank was striving to enhance customer experience and engagement. In addition, the Smart Red branches are highly innovative branches that allow personalized service. Another model that was introduced by the bank in order to reach more customers was the placement of retail kiosks across retail locations, such as malls. The idea was to increase the number of touchpoints and, thus, accessibility to end-customers (Santander, 2019).

The bank has highly prioritized the need of customers for unique banking experience when forming strategic actions for digital transformation. Together with capturing new audiences with the proposition of providing complementary offerings, Santander has also been focusing on increasing the customer intimacy and loyalty of its existing customer database. Both include individual and business clientele. According to the bank's statistics, loyal customers seem to show

more affinity in utilizing the bank's digital channels, mostly because they are already familiar with its products and services. During the years 2018-2019, the number of loyal customers increased by 9 percent and digital customers by 15 percent. Also, sales accounted for 36 percent of total sales (Santander, 2019).

Internal Organization and IT

The digital transformation plan also includes changing its infrastructure to make it more innovation-friendly and adaptable to new technologies such as cloud, machine learning, robotics, etc. Process re-engineering aimed at improving customer experience and being more efficient.

All new technological implementations require specific skills in order to be operated efficiently. Santander has recognized that the need for educating employees on how to work and communicate both during and after the digital transformation journey, is an essential element of the strategic plan. By 2019, employees across the Group have received specialized training, engaged in workshops, and participated in events that embrace the digital working environment. Employees have actively involved in online courses, received articles, and completed tests by which they can assess their skills with practical exercise (Group, 2019).

Continuous learning is key to helping the Group's employees adapt to a fast-paced, continuously changing work environment. A global policy has been formed that focuses on induction, knowledge, and development. In addition, it provides criteria for the design, review, implementation, and supervision of training to:

- ✓ Align internal capabilities with digital transformation objectives;
- ✓ Encourage global management;
- ✓ Encourage cross-functional collaboration that facilitates innovation, knowledge transfer and skill learning;
- ✓ Identify talented personnel in various business domains;
- ✓ Support transformation of business culture with the help of governance standards, such as Corporate Culture Policy and Code of Conduct.

Banco Santander identifies the requirements for current workforce upskilling and reskilling in the established Strategic Workforce Planning, which includes two major transformational projects; Skill Model and Dojo. The foundations of the two projects have been set to put into action in 2020. The former project - Skill Model - will enable the professionals of the Group to assess the capacity gap in the current workforce. That will provide the bank with information regarding the difference of what the employees know at the moment and the demands of the future. The latter project - Dojo - focuses on Santander's transformational challenges in terms of learning and

development in 4 levels; technology, content, operating model, and data. The program will not only focus on one specific market but instead strives to interconnect all Santander Group members in one global learner and development ecosystem in order to facilitate unified up-skilling and re-skilling procedures. It is believed that these projects will upgrade Santander's training methods by shifting them from course-based to skill-based approaches (Group, 2019).

The following table summarizes the results of the case study in a cross-pair comparison of the three perspectives. For Banco Santander, one can see that the three perspectives have a very good strategic alignment. One can assume the latter by looking at the number of “+” signs in the table. Throughout the case study of Banco Santander, it was highlighted that the bank’s strategy puts its customers' needs at the core and strives to meet them by leveraging the capabilities of digital technology. The bank ensures that its workforce is well equipped to make use of the new technologies, which not only helps the customers have an exceptional experience but also the increase workforce’s productivity.

Table 10. Strategic Alignment assessment for Banco Santander

ID	Cust Req1	Cust Req2	Cust Req3	Cust Req4	Cust Req5		Strat Dir1	Strat Dir2	Strat Dir3	Strat Dir4	Strat Dir5	Strat Dir6	Strat Dir7
StratDir1	+	o	o	+	+								
StratDir2	+	+	o	o	+								
StratDir3	+	+	+	o	+								
StratDir4	+	o	o	o	+								
StratDir5	+	o	+	o	+								
StratDir6	+	o	o	o	o								
StratDir7	+	o	+	+	+								
OrgIT1	+	o	+	o	+		+	o	+	+	+	o	+
OrgIT2	o	o	+	+	+		+	o	+	o	+	o	+
OrgIT3	o	o	+	o	+		o	o	+	o	+	o	+
OrgIT4	+	o	o	o	o		o	o	o	o	+	+	+

Source: Table format by Drews et al. (2017), adjustments made by author

2.3.2. Case Two

For the second case, BNP Paribas has been chosen for the analysis. BNP Paribas is the largest bank in France and among the largest in the area of EU in terms of assets (as shown on the Table 8). Its size and market share illustrate a suitable fit for an incumbent bank in the European region. The bank has been striving to enhance the customer experience by following a concrete digital transformation strategy. Several initiatives have been clearly articulated in order to carry out a successful and fruitful long-term plan. The initiatives are stated as follows:

- Redesigning existing and crafting new customer journeys with the help of digital channels
- Leveraging data in a secure manner
- Altering and modernizing the mode of business operations

- Upgrading IT systems
- Developing more digital working methods
- Deploying a positive-impact culture

Concerning the organizational objectives and digital initiatives, the BNP Paribas has invested approximately 2.7 billion euros in digital transformation. The plan was initiated in 2017 and the goals are expected to be met by the year 2020. The bank's transformation has been based on several external factors, including economic, technological, environmental, and social. Albeit, these factors present threats, the bank is viewing them as opportunities for further growth based on market trends. The development of digital technologies is one of the opportunities that the bank seeks to exploit. The bank investigates the possibilities for testing new business models that can combine strong economic performance and deliver solutions that have a positive impact not only on individual customers but on the society as a whole (Paribas, 2018).

Strategic Management

BNP Paribas considers strategic alignment between the internal organization and new technologies extremely important. Agility becomes a central concept across the organizational units, and all work together for long-term success. According to the bank, "Our strategy is a long-term one, and we are steering a steady course concerning the direction we have decided, even if, in a fast-changing environment, we need to remain agile." (Paribas, 2018) . In addition, the success of the bank's digital transformation plan is supported by the required skills and the way employees execute their daily tasks. According to the bank, "Transformation means developing new skills and new working methods that are more collaborative and more agile." To realize the latter statement, the main business units of the BNP Paribas have been working closely with the human resources department to anticipate the skills that will be necessary for the foreseeable future.

BNP Paribas continually seeks to strengthen the relationship it has with its clients by complying with the higher standards in terms of regulations and laws. This mindset is spread across its 72 countries, in which the bank operates in. The bank strives to maintain its strong financial position whilst achieving optimal economic performance by ensuring higher quality and security. For security, the bank takes action in protecting customer's data and providing customers with the highest levels of transparency and protection. New technologies are viewed as an enabler of developing and continually improving financial offerings either through leveraging in-house capabilities or collaboration with startups and fintechs.

As new fintech players emerged and technological innovations arose, the group's value chain changed. The cost of low value-added processes has decreased, and this is one of their

primary competitive advantages. As the value chains evolve, the information system of the group must be maintained. Proactive strategy means that the Group only develops a plan by adapting its ideas to current technological changes and thus cooperating with other players in the fintech sector.

When initiating collaboration with potential partners, BNP Paribas ensures that their contractual relationship stands on four pillars; a. access to banking services, b. co-creation, c. acceleration, and d. investment. According to Jacques d'Estais, Deputy COO of BNP Paribas, "This collaborative model is built around a win-win philosophy and is expected to continue developing over the coming years, generating value for the fintech, our Group and the overall banking sector" (Paribas). BNP Paribas has announced several partnerships with fintech startups, most recently with the leading specialist in risk management solutions, Kantox. Kantox is the developer of Dynamic Hedging – a software solution that allows for automation of foreign exchange workflows and risk management. The partnership enables BNP Paribas to offer specialized solutions to corporate clients across countries in Europe, the Middle East, and Africa (EMEA). According to Xavier Gallant, "When it comes to managing foreign currency risk, we are seeing a real need for our corporate clients to improve efficiencies in forecasting their future cash flows, formalizing hedging practices and optimizing execution through automation. BNP Paribas' partnership with Kantox will offer corporate treasurers in EMEA the opportunity to access a fully automated hedging solution and ultimately improve their treasury processes. We look forward to a successful partnership." Consequently, the partnership allows the bank to build upon its initiative to transform and grow digitally, by combining its strength as a leading global bank and third-party's mastery of fintech solutions (Paribas, 2019).

When it comes to M&A practices, the bank has acquired the company Compte Nickel (now known as Nickel), one of the leading fintech startups in France, in 2017. The acquisition is believed to benefit both parties, as Nickel could have access to a wider customer database and BNP Paribas could leverage the fintech's expertise on other digital projects. What made this deal appealing to BNP Paribas, is the significant growth rate of Nickle. The fintech startup managed to attract over 500,000 customers with its straightforward value proposition. Nickle offers financial services that make banking experience much simpler and faster. In 2018, BNP Paribas recorded over 1.1 million Nickel accounts – an increase of 44 percent from 2017. BNP Paribas strives to bring that number up to 2 million by 2020 (Reuters, 2018).

In terms of the omnichannel approach, it seems that the bank's subsidiaries have been taken individual decisions toward integrated and streamlined customer experience. Few examples are the Polish subsidiary and the Belgium subsidiary, which has partnered with the company Backbase and Selligent, respectively (Muhn, 2018; Selligent).

Customer's Requirements

According to the bank, “Digitalization opens up new possibilities between the bank and its clients and is transforming the nature of services and the relationship.” The new digital trends and changing customer preferences are no news for BNP Paribas. The bank has been following the latest fluctuations in customers' habits and behavioral patterns in order to understand what adjustments are crucial for the banks' customer base. The bank responded to these changes by investing in novel mobile applications that make banking experience easier and enjoyable. Customers are able to make daily transactions via simple movements on their mobile devices.

Customers that desire fully digital experience and easy access to their accounts, BNP Paribas developed an online bank called “Hello Bank!” – over 3 million registered users. It enables users to create an account and request a loan by solely utilizing the functions of the online bank platform. Shall it be that a user finds difficulties in operating the platforms or have specific questions regarding the services, a remote advisor is available to take over the inquiries at any time. Customers that desire personalized digital experience; an application has been launched by the bank called Didid. The application helps customers to identify objectives that will allow them to manage their savings effectively in order to fulfill a desire or dream that is being predefined on the interface. For its part, BGL BNP Paribas, the Group's Luxembourg subsidiary, has developed a 100% digital personal assistant based on artificial intelligence intended to help customers better manage their bank accounts on a daily basis.

For customers wishing to make their purchases in a secure and automated fashion, BNP Paribas has launched Lyf Pay. This free and safe mobile application uses the QR Code system to make instant payments to a third party: connected to a bank account, it enables, for example, customers to pay for shopping or pay back their friends. Another service proposed by BNP Paribas, Paylib allows payments to be made online, in-store, or to a loved one by smartphone much more quickly than with a card or bank transfer.

The customization of services offers numerous benefits to BNP Paribas. The list below provides a brief overview of these benefits, which follow a quotation from the COO for retail banking and services at BNP Paribas, Sophie Heller (Paribas, 2019). The list has as follows:

1. Enhances the ability of all customers to get in touch with the bank through different digital and physical channels;

“Simplicity consists of offering a fluid experience on all supports and in particular on mobile, which is becoming the cornerstone of the customer relationship, placed at the center of omnichannel interactions.”

2. Provides customers with greater transparency as they can better monitor their transactions and activities;

“...faced with greater demand for transparency, we must explain our rates and give every customer the possibility to monitor their affairs on a continuous basis”.

3. Enables faster response rate to customer inquiries.

“Immediacy is crucial: digital technology has made people used to getting rapid responses, whatever the request”.

BNP Paribas puts digital technologies at the core of its digital transformation plan, which during 2018 have accelerated the development of novel customers' experiences and introduced modern solutions. Digital technologies enhanced the operational effectiveness of business lines and allowed to improve not only digital but also human interactivity. In 2018, the bank recorded over 8 million customers who were making use of digital banking services. According to Thierry Laborde, Deputy COO for domestic markets, “We are developing a new client experience based on choice, transparency, simplicity, personalization, and autonomy, and we are convinced that this will make us more highly recommended. We are also transforming our employees' experience to reach this goal.” The latter statement also shows that the bank values employees' working experience and anticipates the use of technology in order to ease daily tasks for employees.

Internal Organization and IT

During the previous section, it was mentioned that the BNP Paribas is viewing digital capabilities in two ways, which are; a. how the technology can help to improve customer experience and b. how technology can help to improve the working environment. For instance, robotics, together with state-of-art software, is being used across business lines to help automate specific repetitive processes. BNP Paribas is utilizing more than 500 operating robotics throughout its Group, which have a primary role in increasing productivity and operational efficiency (Paribas, 2018).

As Jacques D'Estais – deputy COO; International Financial services – stated, “BNP Paribas' digital transformation goes hand in hand with the strong demand for change in our business culture. Employees want to give meaning to their daily life. They feel the need to create, act, and engage”. BNP Paribas views digital transformation as not only the integration of new technologies but also the development of new skills and capabilities that are more agile and collaborative. Thus, BNP Paribas takes the upskilling of its employee very seriously and urges business lines to work together with the Human Resources Department so as to determine which skills are the most sought out by the banking of the future. As a result, the BNP Paribas Group introduced a list of roles that are deemed to be priorities and, further, it established the Digital, Data & Agile Academy. The academy offers upskilling and reskilling programs in up to 30 novel

roles. These programs are believed to guide employees in developing the skills related to these new jobs and to provide managers with the levers to speed up the transformation of the BNP Paribas Group. An example could be considered the subsidiary BNP Paribas Cardiff, that has set the goal of training 1,000 employees by 2022 on subjects such as user experience and data. This academy also aims to let entities pool training courses in these fields and limit the need to call on outside experts on these topics. It is also meant to help streamline internal mobility.

On a broader scale, BNP Paribas attempts to deploy new working methods in its internal organization. These methods intend to encourage more agility and collaborative spirit within the business functions in order to facilitate innovation, productivity, and efficiency. For instance, in Italy, employees of BNP Paribas are making use of an application that offers them new ways to interact with each other (Paribas, 2018).

The following table summarizes the results from the case study of BNP Paribas. One can see that the bank achieves the strategic alignment of all three perspectives by implementing a well-designed strategy. BNP Paribas’s strategy considered digital technologies as an enabler for its growth and for bringing value-added services to end-customers. It also invests in upskilling and re-skilling of its workforce so as to ensure the bank possesses the right capabilities to meet the demands of the future. The only “-” signs one can see on the table is IT integration and automation potential in physical branches. There was no significant information – to my knowledge – regarding the reconfiguration of branches and bringing digital experience in the physical branches (like in the case of Banco Santander). The bank may consider investing in re-designing of physical venues alongside with its digital projects.

Table 11. Strategic Alignment Assessment BNP Paribas

ID	Cust Req1	Cust Req2	Cust Req3	Cust Req4	Cust Req5		Strat Dir1	Strat Dir2	Strat Dir3	Strat Dir4	Strat Dir5	Strat Dir6	Strat Dir7
StratDir1	o	o	+	+	+								
StratDir2	o	+	o	o	o								
StratDir3	+	+	+	o	+								
StratDir4	+	o	+	o	+								
StratDir5	+	+	+	o	+								
StratDir6	+	o	+	o	+								
StratDir7	+	+	+	+	+								
OrgIT1	o	o	+	-	+		o	o	o	+	+	+	+
OrgIT2	+	o	+	o	o		+	o	+	+	+	o	+
OrgIT3	+	o	o	-	o		+	o	+	o	+	+	+
OrgIT4	+	o	+	+	o		o	o	o	o	+	+	+

Source: Table format by Drews et al. (2017), adjustments made by author

2.3.3. Case three

For the third case, HSBC has been chosen for further analysis. HSBC is one of the leading banks in the financial services industry, with operations across 64 countries and regions such as

Europe, Asia, North and Latin America, the Middle East, and North Africa. The banks' customer base exceeds the number of 40 million individual, corporate, and institutional customers. HSBC views digitalization as a way to utilize digital techniques to improve customer experiences, enhance digital channel functionalities, and make the front-end more responsive to the fluctuating needs of the customers. Additionally, digital transformation is viewed by the bank as a way to create a data-driven business model, and technologies are integrated at both front and back-end (HSBC, 2020).

Strategic Management

HSBC's success in digital transformation has been supported by significant technological advancements such as blockchain technology, robotics, and artificial intelligence. The usage of these technologies helped to speed up business operations and create a unique experience to end-customers in a rather short period of time. Most of the investments began in July 2015, intending to improve the quality of services at both the branch and digital channels (Herbet, 2019). Albeit the bank made remarkable changes in a short space of time, it will continue to create large-scale digital investments and trust that agile innovation will be fast and efficient. Thus, the bank has been looking into ways to transform its infrastructure based on a cloud-based architectural plan. Together with the initiatives to implement physical changes, the bank has taken steps into transforming their organizational culture; from waterfall-based strategic planning to a more agile working environment. These investments are believed to not only improve the experience of the end-customers but also of the internal users – personnel.

The bank is prioritizing artificial intelligence and robotics investments in order to improve efficiency further. In 2018, HSBC had installed over about 1,600 robotic devices across its subsidiaries around the world, enabling the increase of processed global transactions. HSBC has recorded around 11.5 million transactions in 2018, a tenfold increase from the year before. There are two specific cases that showcase the tremendous impact of this robotic integration had on banking operations; Canada and Hong Kong. HSBC Bank Canada managed to speed up the mortgage loan application process from 22 days down to just one day. Similarly, HSBC Hong Kong managed to speed up the credit card approval processes from 6 days down to only one day! Andrew Connell, who is HSBC's Global Head of Partnership for Development and Innovation, says, "AI is an important area for us to invest in. Banking services [that] adopt AI technology can be quicker and more accurate than through traditional processes" (Yiu, 2019). During 2018 and 2019, HSBC has invested approximately \$8.6 billion in improving customer experience by utilizing digital capabilities. Given its vast international footprint, the bank put global connectivity as one of the main priorities. Customers across regions need to be able to connect HSBC bank's

services whenever and wherever they are. This is achieved by frictionless business operations between members of the HSBC Group, as well as a seamless service customersupport that addresses the financial needs of the end-customers in real-time.

In previous years, programs and applications had to be developed in-house, but that has now changed. Fintechs from all around the world develops tools and software that make customer administration easier. Examples are face recognition or fingerprint recognition, which are called biometric identifiers. It is a huge help to use Fintech's mostly because solutions can be developed at a much faster rate and contain the right design for more comfortable use. HSBC utilizes its scale to make sure that these solutions are being delivered to end-customers (HSBC, 2019). An example of such is the recent partnership with UK-based fintech, Bud. Bud helps banks to build a financial ecosystem where financial companies and third parties can seamlessly communicate and connect with each other. Thus, supporting banks in their mission to stay competitive and relevant in the Open Banking/PSD2 market environment (O'Hear, 2019). According to Josh Bottomley, head of digital, retail banking & wealth management at HSBC, "By integrating Bud's technology, we will be able to make HSBC's digital banking even more helpful for our customers. It's aggregation, marketplace and AI services will provide the intelligence to underpin a host of exciting new customer features that we will be exploring over the course of 2020 and beyond" (Banking, 2019).

Another partnership with a fintech company includes the one with Intetitii. This company addresses corporate clients and their needs for easier transactions with their own customers with the development of the Digital Accounts Receivable tool (DART). According to Nicholas Soo, head of payment products APAC at HSBC, "Developing HSBC DART with Identitii has helped us solve a key pain point in receivables by digitizing the client experience and creating an ecosystem where our clients and their customers connect to improve efficiency through the secure exchange of information." (Minnock, 2019). Furthermore, the bank has gone beyond solely partnering with big IT providers and comparatively small fintech companies, with the development of HSBC Hackathons, a program that is being held at the bank's technology centers across the globe. The program gives the opportunity to the members of the organization – HSBC – to participate in a competition where the best innovative ideas are funded and operationalized (HSBC, 2016).

The processing of credit cards and credit applications has been dramatically accelerated, thanks to the integration of technologies in the bank's value chain. Contemporary solutions at the front-end allow for faster decision-making processes when it comes to loan applications and credit cards. HSBC employees are able to make decisions in real-time rather than wait up to 22 days to confirm or reject a loan application. However, the improvements are not to keep customers on digital channels at the expense of branches or call centers, but to make it easy to switch channels

at any time. Furthermore, HSBC uses WiFi compatible tablets across the entire branch network; these have six new applications. The most useful application is Document Capture, which replaces the use of a scanner and makes it much easier to digitize documents (Yurkan, 2018; HSBC, 2019).

HSBC's Asian subsidiaries have introduced omnichannel solutions that not only help retailers gather various e-wallet payments but also provide them with a consolidated view of their collections from all modes of payments, both traditional and digital. This eliminates the complexity of relying on multiple connections, thus reducing operational costs and building sustainable efficiency into retailers' collections processes. According to Kee Joo, head of global liquidity and cash management for the Asia Pacific at HSBC, "Our initiative in China is part of our global effort to improve our clients' experience by adding value through digital transformation and innovation. In meeting our client's evolving needs, our one-stop collections solution can further strengthen our receivables product suite, covering clients' value chain needs by providing convenience, speed, and simplicity" (HSBC, 2017). Similarly, HSBC Bank Vietnam has introduced omnichannel collections solutions, a dynamic service that supports businesses, especially those who wish to develop e-commerce, to provide multiple payment options on one single platform. With this platform, businesses can enjoy benefits such as superior payment experience, real-time notification of payment confirmation, visibility on transaction flow, streamlined reconciliation process and cost efficiency (HSBC, 2019).

Customer Requirements

HSBC growth revolves around its customers and aims to accelerate its growth plan using digital capabilities that enable an increase in performance while maintaining the controls over financial frauds and crime. Judging by the numbers, HSBC's customers shift to internet banking and online banking at a rapid pace, with nearly half – 49 percent – of its retail customers being digital active in November 2019. That is an approximate seven-percent point increase – nearly 1.69 million customers – compared with December 2018. HSBC continually invests in making its banking experience better and easier not only through its physical venues but also via digital channels. Some examples of investments include; a. a voice recognition technology for people connecting with the bank via phone, and b. face and touch authentication technology in mobile devices (both Android and Apple). These features can be found already in 18 markets and are used by approximately half of the customer base in those markets (HSBC, 2019).

What has kept the bank evolving is its rapid reaction to customer feedback. HSBC feedback from the end-customer is highly valued, as it is one of the most effective techniques which can effectively assess the customers' views on the bank's efforts. With direct feedback from the customer, HSBC can identify the areas that were mistakenly perceived as sufficient and thus

implement changes to improve its solutions. Some of the actions that were taken in response to feedback have as follows (HSBC, 2019):

1. Increase accessibility to banking services

In 2019, HSBC had recorded over 89 percent of global customer transactions that were made via telephone or online channels. To break it down, this number includes more than 32 percent of card and deposit accounts sales and approximately 45 percent of loan sales. In addition, to help more people get access to financial services, HSBC has introduced new types of accounts that are no- or even low-cost accounts. Furthermore, HSBC managed to make its payments easier through its mobile app, PayMe, with the use of the Faster Payment System, and it offers the ability to top up with a non-HSBC bank account.

2. Simplifying features and processes

A more simplified mortgage application process has resulted in 75 percent of successful applications receiving an offer within 10 days in 2019, an increase of 27 percent in 2018. In addition, HSBC has simplified the mortgage application procedure for international customers in the UK by creating a new specialist team that solely focuses on providing guidance to those customers. In the UK and Canada, HSBC has introduced a new digital advice platform that offers tailored low-cost multi-asset solutions by taking into account customers' risk profiles. In Hong Kong, the mobile solution called FlexInvest was introduced, which simplifies the mobile journey for investment funds, and it is open for more people through a low-minimum investment amount and zero transaction fees.

3. Making products and services easier to understand

HSBC has received feedback that insurance products are quite hard to comprehend. Thus, the bank aims to simplify the way it presents its insurance products by using plain language to describe complicated concepts. For instance, in Hong Kong, the bank has launched an online platform that explains insurance language with the help of gamification techniques, videos and articles.

Furthermore, HSBC sees an opportunity to increase its presence in social media. The reason behind the decision to invest in social media capabilities is to improve customer support. With the help of technology partnerships, the bank can understand customers' feedback better and identify areas for improvements. In 2020, HSBC plans to expand its digital touchpoints by exploring the capabilities of messaging apps, such as WhatsApp (HSBC, 2019).

Internal Organization and IT

HSBC prioritizes human intelligence over an artificial one; thus, it has predicted six essential roles that are assumed to be highly valued in the banking of the future. According to

Andrew Connell, Global Head of Innovation and Partnerships, “Many of these roles are unknown to us today...One thing is certain; however – artificial intelligence will not replace human intelligence” (Innovation, 2018). An enormous weight has been put on employer’s and manager’s shoulders, as they are viewed as life mentors and coaches of their subordinates. From this point of view, HSBC is perceived as the mentor of its personnel. Thus, the facilitation of active training programs has been successfully operationalized, having already over 6000 employees being trained in Universal Banker roles. In addition, the bank has been recruiting talent from the market, in such roles as UI designers, digital product managers, software engineers, solutions architects, exploratory testers, and delivery managers. In a recently published report, the bank explains the six emerging roles that would be sought out, mainly, by retail banking, given the speed of technological change and the need for workforce upskilling. These roles include mixed reality experience designer, algorithm mechanic, conversational interface designer, universal service advisor, digital process engineers, and partnership gateway enabler (Hughes, 2018).

When it comes to the internal processes and their automatization, partnerships have helped to integrate new technologies into the IT infrastructure. The formation of such strategic partnerships with large IT providers and small fintech start-ups allows for the creation of digital capabilities that, in return, will enable the bank to deliver exceptional service and product solutions. In addition, the HSBC explores the opportunities of its partners’ offerings in order to modify its internal structure and discover ways to make processes more efficient. More specifically, the following list provides the areas where HSBC strives to leverage the potentials of the digital offerings (HSBC, 2016):

1. Improving customer service and reducing costs with the help of robotization
2. Improving customer journey via digital channel by optimizing digital interactions and touchpoints
3. Creating additional revenue streams and introducing best practices by leveraging data and advanced analytics
4. Better, faster, and accurate transactional activities with the help of third-party offerings

The following table summarizes the results for the case of HSBC bank. One can see that HSBC achieves full alignment between the three perspectives. Since the beginning of its digital transformation journey, HSBC has put customers' needs at the core and further its digital strategy with the help of alliances and partnerships. In the case content, it was mentioned that HSBC considers feedback as a valuable source of information for improvements. Thus, it has been investing it expanding its presence through digital channels in order to increase customer support and deliver better service. The technologies are used both at the frontend (branches) and backend

in order to achieve automation and higher levels of efficiency. The surplus of “+” signs indicate a positive impact of technologies on strategy management, internal organization and IT and customers’ requirements.

Table 12.Strategic Alignment Assessment for HSBC

ID	Cust Req1	Cust Req2	Cust Req3	Cust Req4	Cust Req5		Strat Dir1	Strat Dir2	Strat Dir3	Strat Dir4	Strat Dir5	Strat Dir6	Strat Dir7
StratDir1	+	+	o	o	+								
StratDir2	+	o	+	o	+								
StratDir3	o	o	+	o	+								
StratDir4	+	o	+	o	+								
StratDir5	+	o	o	o	+								
StratDir6	+	o	o	o	+								
StratDir7	+	o	+	+	+								
OrgIT1	+	o	+	o	+		+	o	o	+	o	+	+
OrgIT2	+	o	o	+	+		+	o	+	+	+	o	+
OrgIT3	+	o	+	o	+		o	o	+	o	+	o	+
OrgIT4	+	o	o	+	o		+	+	+	o	+	+	+

Source: Table format by Drews et al. (2017), adjustments made by author

2.3.4. Case four

For the fourth case, Hellenic Bank has been chosen for further analysis. Since the former three companies are considered to be among the most significant and largest players in the EU area, it is wise to assume that their scale supports tremendous investments in digital transformation strategies. Thus, it is wise to consider banks smaller of size to compare the differences in the categories of a. transforming banks and b. traditional banks. The table below provides a concise explanation as to why Hellenic Bank will be a suitable subject for study in the category of “transforming banks”.

Table 13. Criteria for choosing Hellenic Bank (Source: created by author)

Dimensions	Criteria	Transforming Bank	Hellenic Bank
Customers	End-to-end service	Hybrid	Personal and Automated
	Available channels	Multi-channel	Physical venues and digital channels
	Responsiveness	Rapid	“Banking where you want, when you want”
Technology Management	Front-end	Physical and digital touchpoints	Web banking, mobile banking branches, analytics

	Back-end	Software upgrade	Third-party software programs (e.g. Oracle)
	End-users	Training required	Creation of special departments
Strategic Management	Organizational Culture	Cross-functional	Project-based
	Technology Integration	Limited digital offering	Mobile and internet banking, products that concrete need for diversified customer group under development
	Ecosystem Development	Strategic Alliances and partnerships	Contractual relationship with Tech providers

Strategic Management

According to the Manager of Digital Channels, the digital strategy of the bank is “To become a digital bank and provide innovative products to our customers. Together with that, we are striving to decrease the number of branches and give options to our customers to be able securely to do all banking operations from the comfort of their house”. The journey of digital transformation for the Hellenic bank started a few years ago with the initiatives to enhance customer experience by leveraging emerging technological trends.

There are several touchpoints created by the bank in order to expand its accessibility to customers. Digital technologies enabled the creation of additional alternatives to physical and personal customer service. The development of web banking, mobile application, and ATMs have provided great satisfaction to the end-customers of the Hellenic bank as they can satisfy their needs faster regardless of the time and their location. The bank has taken in the new PSD2 regulations and invested capital in developing open banking APIs. Also, the bank can meet its strategic objectives when it comes to digital transformation with the formation of strategic alliances and partnerships with third-party service providers.

The Hellenic bank has partnered with BackBase, a leading company in omnichannel solutions, in order to bring together its separate digital channels into a unified platform (Maat, 2017). Another strategic partnership that allowed furthering the digital transformation strategy of the Hellenic bank was announced between the bank itself and the Fiserv – a leading global provider of fintech solutions. The Hellenic bank will utilize the payment platform developed by Fiserv,

called Dovetail Payments Platform, which will enable the bank to provide more customized capabilities to the end-customers. According to Hellenic Bank's COO, Phivos Leontiou, "Our diverse client base has a range of payment needs, and over time we have added a variety of payment systems to meet those needs." The payment platform by Fiserv supports the errand of the bank to execute more efficient operations while modernizing and simplifying its payments system. The COO also added, "By moving to a centralized payments platform, we have been able to streamline our payments operations while adding capabilities, such as support for new real-time payment schemes." (Futures, 2019). As a result, partnering with digital and fintech partners, have brought many advantages to smaller players, such as a Hellenic bank. Natasha Kyprianides, head of Omnichannel & Customer service at Hellenic Bank, has uncovered in which aspects has the bank benefitted from the establishments of partnerships (Mual, 2018). The benefits are:

1. The ability to become more agile during the digital transformation process;
2. The "head-start" advantage;
3. Leverage the best talent coming from more experienced markets;
4. The ability to introduce a new offering to the market in a rather short period;
5. Organizational members and staff are more focused on individual tasks rather than on projects where they lack the necessary knowledge and skills – digital projects.

However, the plan to digitally transform had both its advantages and flaws. Firstly, the plan was not quickly adopted by most of the members of the organization, and especially the front-line workers. To support the latter, during the interview with the Manager of Digital Channels, it was stated that "It was not easy to adopt the new culture of systems to the employees." Second, it was not easy to shift some operations from a traditional mode of practice to fully digital; additional training and skills were needed. Thirdly, there was a lot of risk for having the new systems work efficiently. Fourthly, the ability to work on time and stay within the budget limits so as to meet the deadlines and organizational objectives was challenging.

When it comes to organizational structure, the company follows a project-based agile approach. Cross-functional teams come together for the development and delivery of a project that is being rigorously assessed with a set of KPIs. The bank views the team-work dynamics as its most valuable asset. The agile methodologies and cross-functional teams open up links of communication within the departments and allow for ideas and information sharing. According to the manager of digital channels, this form of working environment has reinforced the capability of the personnel to deliver projects more efficiently and effectively. However, it was not easy to get the staff to embrace and adopt to the new digital technologies. The bank managed to change the

culture and say it was for the benefit of all to proceed with the latest technologies. Pieces of training, lectures, seminars helped the people to adapt to the new organizational culture.

Customer Requirements

The innovative products which were introduced consists of functionalities that made it easy for the customers to satisfy their financial needs. They can now apply for a new loan online, apply for web banking onboarding, all completed in five minutes, whereas before it was necessary to go through a long process – approximately fifteen days – consisting of dozens of papers. Users of the internet and mobile banking can view their personal financial information (such as IBAN), see their accounts, and transfer to any bank in real-time. The new mobile application of the bank displays information regarding spending habits and provides solutions for possible future spendings; it tells the budget the customer needs to stay within, alerts the customer at any time, and helps to identify fraud practices. This translates to transparency, flexibility, and agile practices provided by the digital channels.

Internal Organization and IT

To prepare for digital transformation, the bank had to adapt and modify internal processes and procedures. Staff training was at the core of the digital transformation strategy. Organizational thinking and mindset had to be altered. The business model had to become more customer-centric, derive all decisions, tasks, projects, and priorities based on customers' needs. In order to achieve a customer-centric approach, the bank had to be able to visualize the behavior of its customer base and react to sudden changes. The integration of digital technologies allows the bank to respond in real-time to financial inquiries and provide more personalized service. The following list includes the techniques that are currently being used by the Hellenic bank in their attempt to address customer expectations:

1. Omni-channel technology
2. Online real-time technology
3. Oracle Exadata technologies
4. Web services
5. Intelligent APIs

Hellenic bank achieved a lot of automation with the help of digital technologies. It has managed to minimize the manual work by 50%. Albeit it was not easy to get personnel familiar with the functionalities and capabilities of the new technologies, the Hellenic bank included personnel training in its digital transformation plan. Before a new system is set up, the personnel

are being trained to support the latest technologies and, if needed, follow seminars and are provided with documented manuals.

The following table summarizes the results for the case of Hellenic Bank. Compared to the previous three cases, Hellenic bank’s cross-pair comparison of the three perspectives signals more challenges. To be more specific, one should look at the “-” signs in order to identify in which areas does the bank faces struggles. The main problem area is the one regarding digitalized processes (StratDir5), organizational Culture (StratDir6) and internal organization, and IT. So, the main issue appears to be a not clear communication of new corporate culture and benefits of digital transformation – such as automation and optimization – with internal users of the bank. The introduction of digitalized business processes has resulted in concerned employees, fearing the possibility of being replaced or transferred. The automation of human tasks was not taken well by the employees when the plan was first initiated. In addition, it seems that Hellenic bank struggles in identifying customers' personas and creating products for niche-needs.

Table 14.Strategic Alignment Assessment for Hellenic Bank

ID	Cust Req1	Cust Req2	Cust Req3	Cust Req4	Cust Req5		Strat Dir1	Strat Dir2	Strat Dir3	Strat Dir4	Strat Dir5	Strat Dir6	Strat Dir7
StratDir1	+	o	+	+	+								
StratDir2	-	-	-	o	-								
StratDir3	+	-	+	+	+								
StratDir4	o	-	+	o	+								
StratDir5	+	o	+	o	+								
StratDir6	+	o	+	o	+								
StratDir7	+	o	+	+	+								
OrgIT1	+	o	+	o	+		o	-	+	+	-	-	o
OrgIT2	+	o	+	+	+		+	o	o	+	-	-	+
OrgIT3	+	o	+	o	+		+	o	+	o	-	-	+
OrgIT4	+	o	o	+	+		o	o	-	o	+	+	+

Source: Table format by Drews et al. (2017), adjustments made by author

2.3.5. Case Five

Bank of Cyprus is being taken for the analysis of the fifth case company. The bank is considered to be the largest in Cyprus. However, it belongs in the category of traditional banks since its characteristics lean toward the criteria of a traditional bank. In order to solidify the rationale behind the decision of this particular bank, a comparative approach has been conducted just as in the fourth case company (see table below).

Table 15.Criteria for choosing Bank of Cyprus (Source: created by author)

Dimensions	Criteria	Traditional Bank	Bank of Cyprus
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Customers	End-to-end service	Personal interaction	Personal assistance as a primary way to address inquiries
	Available channels	Dependence on physical venues, little reliance on digital channels	Shift to digital channels, yet high dependency on physical venues. Given old demographics.
	Responsiveness	Scheduled	The days of completing a financial errand are relatively higher.
Technology Management	Front-end	Physical touchpoints	People at the front end. Soon there are going to be self-service platforms.
	Back-end	Legacy systems	Slow transition and little upgrades
	End-users	Experts	Reluctance toward the integration of technologies as it is perceived as a reason for a higher turnover.
Strategic Management	Organizational Culture	Division-focused	One sole department dedicated to digital transformation
	Technology Integration	The legacy systems support core banking	Third parties provide the necessary software to process data and provide analytics
	Ecosystem Development	Primarily within the walls of the organization	Not a wide range of external partners.

Strategic Management

Bank of Cyprus embarked its digital transformation journey nearly three years ago, with the establishment of the Digital Transformation Programme. According to the bank's CEO, "Embracing modern ways of working and modernizing our IT environment is a must." Consequently, the program revolves around three main objectives:

1. The development of digital products and services that provide unique customer experience
2. Streamlining internal processes
3. Investing in a modern workplace environment

The Digital Transformation Programme, which started in 2017, is beginning to deliver an improved customer experience, and the branch network is half the size it was in 2013, translating into efficient use of physical assets and reduction in operational costs. Furthermore, the branch footprint rationalization continues, and it is expected that the number of branches will be further reduced by 8% by the year-end, also improving the Bank's operating model. The management remains focused on further improving efficiency levels. The Bank Digitalis Transformation Program has facilitated the establishment of an efficient IT platform for modernized processes. The purpose of this program is to enhance its customer relationship management by increasing interactivity and responsiveness.

The bank has divided its customer base into two categories; a. digitally engaged and unengaged customers. The current statistics show – according to the interviewee – that 68 percent of their client base are considered to be "digitally engaged," the ones that make use of digital channels, and the remaining fall upon the "unengaged" customer category, who seek personal assistance from physical branches. The bank's goal is to take the appropriate actions to increase the number of digitally engaged customers by approximately 9 percent as of the end of 2022. In order to increase the number from 68 to 77 percent, the bank has set the appropriate KPIs to track the progress of the strategic actions in meeting the final goal. Thus, the bank has taken severe steps in changing the way it views costumers' data, especially at the front-end.

Bank of Cyprus provides a wide range of financial products and services to individuals and businesses in Cyprus, holding significant market shares across all business segments. The Bank is committed to implementing a modernization plan that is designed to transform its business model to ensure that it can compete efficiently and better serve the needs of its customers. To facilitate momentum in delivering these changes through an accelerated multi-year Digital Transformation Program, Bank of Cyprus has selected IBM as a strategic partner. Collaboration with third-party service providers, such as IBM and SAS, made the implementation of state-of-art software easier and faster. For instance, the bank makes use of IBM's management system, which provides a 360-

degree view of customer profiles. It is a unified platform that offers high transparency of information and thus resulting inefficient response to financial inquiries from the front-line personnel. In addition, the bank makes use of SAS analytics that offers modelling of data, predicts customers' behaviors, and provides additional efficiency. When it comes to the back-end operations, the bank employs IT specialists that can run the legacy systems and support core banking functions. All in all, the integration of new software systems and technologies has helped the bank to meet customers' expectations and needs.

Ever since the digital transformation plan has been operationalized, the bank introduced new channels such as its mobile application and web banking. The digital channels allowed customers to perform financial activities regardless of their location and time, thus satisfying their need for fast processes and service. The bank views its mobile application as the most valuable asset the company possesses and continues to invest heavily in its optimization. The bank attempts to go through a physical transformation as well, by reconfiguring its branches and installing machines where customers serve themselves. Mobile and web banking includes features such as e-loans and e-savings, which were developed to satisfy the demands and meet the expectations of its customers. In addition to the initiatives mentioned above, to introduce new products and services, the bank has launched QuickPay for a safer and faster end-to-end money transform. To move customers to digital channels, the pricing/charges policy has been adjusted accordingly. Thus, making it more expensive for customers to utilize services via physical venues.

Also, various campaigns were carried out to all social media channels in the bank's effort to explain the time and money savings of using the digital channels. Another significant action was to increase the maximum amount of cash withdrawals. As a result, all the above-mentioned features of digital channels allow the customers to seek financial errands, with no limitations over time constraints nor location. Besides all the digital touchpoints that were introduced in addition to the physical branches and ATMs, the bank does not have a distinct omnichannel approach, which provides a place where all the digital channels can be controlled, managed, and adjusted at the same time.

The transition of certain business aspects into a digital mode was not embraced by all members of the organization the same way. Front-line workers expressed dislike toward the bank's digital transformation plan mostly due to their fear of being replaced. Along with personnel morale, the bank faces other challenges regarding the integration of new technologies to the existing legacy systems. During the interview, the bank representative had pointed out precisely what challenges had to be tackled during the execution of the digital transformation strategy. These are the following:

1. Compatibility of the new technologies with old existing legacy systems

2. Personnel might not be familiar with the technology used in the legacy systems
3. The support of vendors of legacy systems

Albeit Bank of Cyprus does not have various partnerships with fintech startups, it does, though, promote entrepreneurial activity with the set-up of an event called “boc hackathon #fintech.” The bank invites students, software engineers, analysts, designers, business consultants, executives, and professionals to take part in a competition where they can present their innovative ideas in the area of financial technologies. The best ideas are rewarded with a monetary prize, and the participants have the chance to collaborate with the Bank of Cyprus to bring their project to life. Through the bank’s upgraded Open Banking and Software Development Kit, Bank of Cyprus can assist in the development and marketing of innovative ideas (Hadjioannou, 2019).

Customer Requirements

Ever since the implementation of the Digital Transformation Programme, the bank saw an increase in digital channel traffic and interactivity. In 2019, the bank reported that up to 75 percent of its transactions – including deposits, cash withdrawals, and transfers – were made through digital channels. In addition, the bank has seen a 54 percent increase in active mobile banking users since June 2017.

During 2019, the bank has introduced several new features on its mobile banking application. For instance, the users of the app are now able to a. manage their standing orders and direct debits, b. transfer money through QuickPay with the use of Digipass, c. make use of biometric authentication for a more secure login process, and d. view accounts with UK banks (Cyprus, 2019). Bank of Cyprus plans to include the feature in which users can also view their accounts of other banks located in Cyprus, by only using their unique mobile application. Also, financial management tools have been introduced that allow clients to use the 1Bank – internet banking platform – service to manage their finances better. Furthermore, the Bank of Cyprus is planning to launch a novel Cards and Payments systems that will enable the development of customized and personalized solutions for end-customers. For instance, new features will be added in mobile banking that will allow customers to freeze their cards – debit or credit – in case of a loss or theft. If the card is being found after a certain period of time, then the customer will be able to unfreeze his/her card by just logging into the mobile application of the bank. The additional features will allow customers to set a maximum limit for a specific transaction – such as shopping – in order to help manage their finances.

As it was mentioned above, the bank is distinguishing its customer base into two categories – digitally engaged and unengaged customers. The ways it addresses the needs of the two

categories of customers are evident through the strategic actions and initiatives to upgrade existing channels with additional features. One of those upgrades was the reconfiguration of physical branches and the installment of self-service machines. The branch is considered by the bank, the channel by which it can serve the needs of non-tech savvy customers. Keeping in mind the goal of increasing the number of digitally engaged customers, the bank is taking steps in making the digital transition of elder demographics more manageable and much more comprehensible. Thus, by introducing state-of-art technology in a place where customers could get personal guidance, the bank expects to not only help customers familiarize themselves with technological capabilities but also to make its processes more accessible and more automated.

Internal Organization and IT

The bank has minimized manual work connecting with digital channels since all digital transactions are performed in real-time or straight-through processing without any staff intervention. New technologies help to decrease the complexity of some processes, such as KYC (Know your customer) and AML (anti-money laundering). Before the introduction of any technology, the bank prepares a detailed manual, and it is then tested in a few branches, and if integration is successful, the technology is implemented across all branches. Branches that show difficulties in optimally leveraging the technology are offered specialized training for the end-users.

Some time is needed for new technologies/processes to be adopted by the members of the internal organization. Significant factors are the commitment and acceptance from top management as well as from the branch managers – according to the interviewee. The benefits of the digital shift are being communicated and supported primarily by the CEO and senior managers. The first reaction of the employees toward new methods of business practices was not taken in the best way, as the fear of being replaced and transferred grew stronger. In order to eliminate such conflictive perceptions between the top management and front-line employees, the bank taken actions to encourage cohesive collaboration. For instance, significant action was the investment in training programs where staff would be given a chance to familiarize themselves with the technology prior its installment.

The following table illustrates the cross-pair comparison of the strategic alignments. One can identify the problematic areas by searching in which box the sign “-” appears. The area that finds the most minus signs is the one that is compared to strategic management, and the internal organization and IT alignment. As a result, one can see that Bank of Cyprus finds most of its challenges in its attempt to integrate new technologies into its existing legacy system as well as motivate internal users to adapt to new digital requirements. The absence of omnichannel causes

another problematic area to appear. One can see that it results in a negative impact on customer requirements.

Table 16.Strategic Alignment Assessment for Bank of Cyprus

ID	Cust Req1	Cust Req2	Cust Req3	Cust Req4	Cust Req5		Strat Dir1	Strat Dir2	Strat Dir3	Strat Dir4	Strat Dir5	Strat Dir6	Strat Dir7
StratDir1	-	o	o	o	-								
StratDir2	-	-	o	o	-								
StratDir3	+	+	+	+	+								
StratDir4	+	o	o	o	o								
StratDir5	+	o	+	o	+								
StratDir6	+	o	o	o	+								
StratDir7	+	+	+	o	+								
OrgIT1	-	o	+	o	+		-	-	+	+	+	-	-
OrgIT2	-	o	o	+	+		-	-	-	-	-	-	-
OrgIT3	-	o	+	+	+		-	o	-	o	-	-	-
OrgIT4	-	o	o	o	o		-	o	-	-	-	-	-

Source: Table format by Drews et al. (2017), adjustments made by the author

2.4. Research Results

The case study of the five companies allows to explore their business practices in terms of strategic management, customer requirements, and internal organization and IT. The research intended to investigate the problematic areas that occur with the attempt to integrate digital technologies. The cross-pair comparison provides a comprehensive view of how companies perceive technologies and whether they can align the three perspectives together to develop a harmonious digital transformation strategy. In this section, the main results of the research will be presented.

The results are being divided according to the categories of banks that were developed prior to the analysis. The construction of different categories of banks encouraged the formation of assumptions as to what challenges could appear mainly for “traditional banks” and “transforming banks” (see end of Part 1). **The results that are presented below confirm the solidity of the assumptions.**

Table 17. Results from the case analysis (Source: created by author)

<i>Category</i>	Results
<i>Digital Natives</i>	They seem to be succeeding in undertaking numerous digital projects parallel to one another and replacing their legacy systems at the same time. Actions have been taken in order to meet their objectives to become a data-driven organization, e.g., moving to the cloud, using blockchain technology, etc.

	Putting people – both customers and employees – at the core of their digital transformation plan and can formulate concrete initiatives that are widely understood across the organization.
	Their large scale and size (overseas subsidiaries) allow them to create significant synergies and leverage technologies across their groups. All three companies that have been analyzed are widely known groups of integrated subsidiaries not only in the EU but also internationally. It allows for further experimentation on a digital project.
	They formulate plans that are to show transforming results by the end of three-four years. These plans strive to meet strategic alignments between customer requirements, strategy, internal organization, and IT. To operationalize the strategic plan at the lowest cost possible, all elements shall complement each other.
<i>Transforming Bank</i>	Partnerships with third parties make the transformation possible. Third parties provide the solution for an inexpensive specialized solution, which would otherwise cost vast amounts of internal resources.
	Not so innovative when it comes to solutions for diversified groups of customers. Their products are not as customized to diversified groups of customers, as the products of digital natives.
	Getting front-line employees to support the transformation and integration of digital solutions was not an easy task. However, the bank had included training, seminar, and education of employees in the strategic plan.
<i>Traditional Bank</i>	Changes in IT and internal organization do not seem to align with the strategy. Several issues appear with integrating new technologies into legacy systems.
	No distinct omnichannel approach can result in static digital solutions.
	Getting front-line employees to support the transformation and integration of internal solutions was not an easy task for the bank.

The results show that the banks put high priority in their digital transformation as they understand the inevitability of this novel phenomenon in their industry. Understanding the market dynamics and skills that are needed for the future of the banking sector is essential, as it highlights what changes are vital for the long-term survival of an organization. Banks come to understand that viewing fintech innovators as a threat instead of an opportunity for growth can result in to slow reaction to market trends. Incumbent firms approach fintech innovators with the aim to form

a strategic alliance or partnerships. The theory suggests that incumbents apply different strategies such as alliances, partnerships, and M&A, which is later supported by the analysis of case companies. However, the analysis has also shown that banks support innovation by holding competitions and events where professionals and nonprofessionals can bring into light unconventional ideas for fintech solutions.

When it comes to the integration of technologies into the organization, the analysis has shown a part which the theory did not cover to that extent. During the literature review, it was stated that executives should communicate the benefits of digital transformation throughout the organization and encourage holistic engagement. However, there was little theory around the initial reactions to the digital transition from members of the organization as well as the strategic measures that shall be taken in order to address smooth adaptation. The analysis has shown that companies have taken initiatives in order to eliminate the fear of personnel to be replaced by the technologies. Companies are investing in the education and digital capabilities enhancement of their workforce. For instance, there are special trainings organized to familiarize the frontend users with the new digital processes, personnel is required to follow some webinars and workshops, and business units are having direct contact with Human Resources departments in order to design upskilling guidelines.

In addition, the analysis has shown that large market players can benefit from their size and scale so as to facilitate digital transformation in short time intervals. On the contrary, smaller-size banks need to find different paths in order to achieve some level of digital maturity. The examples of traditional and transforming banks showcase that without the help of third-party service providers, their digital transformation plan would have been difficult to operationalize. The expertise of third parties helps small scale banks to market new products faster and increases their readiness level to sudden behavioral changes.

RECOMMENDATIONS FOR MANAGERS

After a thorough analysis of the five case companies, the research found that indeed smaller scale banks encounter issues in alignment with strategic objectives with their IT architecture. Digital natives, on the other hand, use their scale to transform exponentially within a period of three to five years. Big players have already taken serious actions in achieving ultimate digital maturity, thus heavily capitalizing on product development, strategic alliances, and personnel training. Secondary data proves that their strategy takes a 360-degree approach that aligns with both customer journey and IT architecture. Smaller players may not be able to reach the level of responsiveness to external changes, but they can benchmark some principal practices by partnering up with specialists from the financial technology sector.

Managers that formulate and execute digital transformation strategy for transforming banks need to consider their next steps toward higher levels of digital maturity. Main business units should collaborate with Human Resources to articulate the necessary skills required to drive the organization toward a sustainable future. Indeed, outsourcing digital solutions from third-party services not only enhances the network dynamics but also shortens the period of transformation. However, transforming banks should be able to leverage partnerships where the exchange of capabilities and know-how is possible. In terms of customer requirements, transforming banks would have to be more creative when it comes to their offerings and think of the niche-needs of different customer segments. It is essential to view the bank's customers according to their characteristics. Grouping customers into categories/persona profiles helps to understand the patterns of their behavioral needs. Thus, transforming banks to be able to capture a wider audience ought to set the characteristics of different customer groupings and identify their needs. These needs could work as a base for the product design of an innovative offering.

Managers that execute digital transformation strategy for conventional planning should consider viewing their personnel as the main asset of the company. The design of cross-functional teams may resolve the fear of being fired since they contribute to the generic execution of a digital project. Waterfall methodologies, when undertaking a project, can be switched to agile methods, to be able to assess volatilities and implement changes where they are needed. In terms of customer perspective, traditional banks lack the presence of an omnichannel approach. Given resource restriction, the banks could consider utilizing an omnichannel digital platform from a third-party (like in the case of Hellenic Bank). The benefits behind this approach are that the bank can optimize its end-to-end customer relationship by integrating existing digital channels into a single unified space. Using the omnichannel method can eliminate static digital banking solutions and transform them into engaging cross-channel solutions.

LIMITATIONS AND FUTURE RESEARCH

This research utilized a case approach for the analytical part; therefore, it is not wise to universalize the assumptions for the entire industry. The findings are instead considered *exploratory* rather than explanatory. The literature review provided a solid foundation to form the assumptions upon the challenges that occur in banks that are on a different stage of their digital transformation journey – mostly of the first stages of digital maturity. To eliminate biases, this research selected companies that are based in the EU. Given the current regulatory framework and innovation-friendly environment, banks are expected to have already undertaken actions to begin their digital transformation. Thus, the results and recommendations may be more accurate for banks that operate within the EU market, especially for transforming and traditional banks. Still, the vast scale of the three digital natives allows to examine the international aspect as well. However, the phenomenon of digital transformation is a subject for further investigation and research. Future studies and analyses may explore the assumptions formed in this paper and solidify their validity with the help of broader research in more markets. It is highly recommended that future research could emphasize a comparative analysis of banks operating in developed, developing, and emerging markets. The study could explore the market dynamics and identify similarities and/or differences in challenges in the digital transformation process of banks in different market contexts.

CONCLUSION

This thesis aimed to conclude what challenges banks face in their attempt to pursue digital transformation. By utilizing existing theories and studies on the field, trends have been identified so as to support the inevitability of the current phenomenon in the banking industry. The literature review has supported the distinction of the banks in three categories; a. traditional banks, b. transforming banks, and c. digital natives. It was underlined throughout Part 1 of this thesis, that firms pursue digital transformation in different ways and speeds based on their available resources and capabilities. For instance, digital natives are considered to be banks vast in scale, which can invest immense capital on their digital transformation. Financial resources allow them to establish digital subsidiaries as well as go after M&A strategies. On the contrary, transforming and traditional banks are considered to be smaller market players that do not possess as many digital capabilities as digital natives, thus seeking out expertise from third-parties.

In order to prove the differences in problems and solutions faced by different types of banks, a case study was conducted. Each case company represented a bank in the respective category, depending on specific predefined criteria in three dimensions; a. the customer journey, b. technology management, and c. strategic management. The literature review helped to identify essential criteria in each dimension and define how different types of banks approach them. The criteria helped to determine whether a bank fits a specific category and become a subject of analysis.

The research made use of existing assumptions regarding strategic alignments viewed from three perspectives: a. strategic management, b. customer requirements, and c. internal organization and IT. The research not only showcases the challenges of digital transformation efforts in banking but also reflects the major trends that drive banks to integrate digital technologies into their business processes. Such trends include the automation and optimization of processes with the help of the cloud, big data, e-banking, blockchain, and AI technologies – the case study of digital natives also support the usage of these latest technologies. These technologies have brought significant opportunities in banking industries not only in the backend but also in frontend operations. Banks are able to decrease their operational cost whilst maximizing customer experience. The literature review introduced the idea of a customer-centric approach in the digital transformation process. The latter was justified with the case companies showing a similar rationale when developing a plan for digital initiatives.

The changing behavioral patterns of end-customers is another vital trend that banks should keep in mind when forming a digital transformation strategy. The strategy should include initiatives and objectives that specifically address the needs of the end-customers. In the literature review, there were introduced such terms as digital natives, nomads, hunters, and quality seekers,

which describe different customer personas. The latter three were defined according to the end-customers views and opinions of financial services, whereas the term “digital native” implies to customers that are *generally* fond of digital technologies. The three personas are different in terms of their expectations and needs when it comes to products and services from banking service providers, including banks and innovators.

Among others, the industry trends have also shown the tendency of incumbent banks to view fintech innovators as an opportunity to grow rather than a threat that jeopardizes their market position. Banks follow several strategies in order to facilitate collaboration with fintech startups and tech giants. Some of these are a. strategic alliances, b. strategic partnerships, c. M&A, etc. Research showed that smaller-scale banks seek out third-party service providers to further their digital transformation strategy. Given their limited resources and capabilities, strategic partnerships with fintechs allow them to introduce and market products much faster than it would have otherwise been under the scenario of in-house development.

To sum up, one could safely assume the digital transformation has not followed universal guidelines for each type of bank. Banks should view themselves as a unique case and strive to identify in which areas digital technologies may be useful to bring value, not only to the business but also to the stakeholders. The case study shows that smaller scale banks encounter obstacles in the digital transformation journey, given limitations in both resources and capabilities. However, by utilizing existing internal mechanisms and external support, traditional banks can become transforming banks. For transforming banks to move a step forward toward ultimate digital maturity, they need to be able to invest in human upskilling and leverage partnerships to develop a sustainable ecosystem. Executives in the banking industry need to understand the inevitability of digital transformation. Whether their organization lacks some specific internal features or not, it is necessary to evolve in each way possible.

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APPENDIXES

Appendix 1. First Interview Structure

Table 18. First Interview Structure

1	What corporate structure does the bank follow? Function-based or project-based?
2	What is the bank's key competitive advantage (key competencies or resources)
3	What is the bank's digital strategy?
4	How is the bank perceiving the threat of FinTechs and tech companies?
5	Does the company prefer to acquire or collaborate with fintech startups or develop digital transformation from within?
6	What changes in the business model had to be modified to prepare for digital transformation?
7	When thinking of digital transformation, does the bank aim to reduce its operational costs or create extra value for its customers?
8	What kind of technologies does the bank utilize, and in which area of the value chain are being implemented?

Appendix 2. Second Interview Structure

Table 19. Second Interview Structure

Strategic Management	
1	Did the integration of digital technologies help to meet customer's demands?
2	What kind of challenges appeared when the bank attempted to integrate new technologies?
3	What kind of innovative products did digital technologies help to bring out?
4	What is the most valuable asset of the bank when considering digital transformation?
5	How was the digital strategy adjusted in response to digital transformation
6	How did the bank convince the old demographics to transition, and how does it reach out to new ones?
7	How do digital technologies make the interaction between network partners possible?
Internal Organization and IT	
8	To what scale did the integration of new technologies minimize manual work in the bank?
9	What type of complexities did the end-users encounter in their attempt to work with new technologies?
10	How did end-users adapt to the new technologies?
11	How were end-users prepared to work with the new technologies? E.g., training.