

**Developing a framework for evaluating
customer value creation out of digital
transformation for firms providing financial
services.**

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Abstract

Everywhere in society, digitalization is visible. Everywhere in society, people aim to make use of the benefits aligned with digitalization. For firms, digitalization brings opportunities as well as new challenges. The impact of digitalization is what this research describes as digital transformation. In the process of digital transformation, changes occur that require strategic responses within firms. One key aspect of this is within the financial services industry is digital servitization, where businesses use digital technologies to create customer value in a service delivery context. However, the alignment between implemented digital technologies and serving customer demands requires more research. Therefore, this study focuses on how financial services firms can create more customer value due to exploiting digital transformation. A conceptual framework is established based on a literature review on the main concepts consisting of digital transformation; financial services; customer value. The framework is assessed via interviews with experts in the financial services industry. These conversations help this research refining its framework. Additionally, we validate this framework through a case study, in which this research examines how a financial services firm introduces and uses digital tools to enhance customer value.

The analysis uncovers some important insights, allowing for final adjustments to create a framework on digital transformation for firms providing financial services. This research discovers that taking a step-by-step approach to digital transformation is key, beneficial for both the company and its customers. Success in exploiting digital technologies depends on effectively integrating them into the firm's processes and having clear strategies on digital transformation. Continuous monitoring, regularly evaluating and involving both employees and customers are crucial elements in this process. By including these takeaways, this research presents a digital transformation framework that guides financial services firms on their digital transformation, in a customer value creation context. Hereby the question if financial services firms should adopt digitalization is answered and guidance is given by highlighting the main takeaways on how the adaptation can lead to more customer and firm value. Herein, improving employees' willingness to incorporate digital tools in their service delivery is a crucial task to achieve more customer and firm value.

Keywords. Digital transformation, financial services, customer value (creation).

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1 Introduction

In the past decades, the financial services industry transformed and started to adapt financing activities based on data and digital technologies. A massive increase in the availability of digital devices as well as the internet caused the necessity for financial services firms to join the movement. This increase is led by the rise of mobile banking changing customer relationships and the use of digital service technologies when and where the financial activities require (Laukkanen, 2016). The developments in digital technologies initiate a situation in which firms try to improve efficiency and effectiveness, produce better outputs and increase the value of products and/or services (Wang & Alexander, 2015). This initiation requires financial services firms to proceed in digital transformation to remain their competition position and provide better customer services. The potential benefits are enormous, especially in an administrative sector as the financial services industry. Parviainen et al. (2022) show that costs can be cut up to 90% by digitizing information-intensive processes. This shift towards digital servitization, which involves the transformation from a product to a service-centric approach, uses digital service technologies to create customer value (Sklyar et al., 2019). Digital servitization doesn't only enhance customer value but also targets other firm performance measures. By exploiting the use of their digital tools, financial services firms can decrease firm's risk, reduce costs and increase efficiency to eventually increase firm value (Wang & Alexander, 2015). These tools are typically designed to facilitate specific activities or processes within a firm.

However, the speed of digital transformation can be challenging for financial services firms. Financial services firms must have the correct tools and strategies to adopt new digital tools and effectively make use of these tools. For certain financial services firms, this raises questions on how to change and regulate their in-firm processes as well as the products and services they provide to their clients. Financial firms, starting to incorporate digital tools, could encounter a good fit within their financial activities. Whereas other financial firms might be more conservative in using digital tools for their day-to-day processes. This initiates a situation out of which a lot of useful information on further digital transformation can be retrieved. This raises the question, how firms can benefit from the implementation of a digital tool at best. Especially how firms can enable themselves to create more customer value when they start with, or have implemented, new digital tools. Herein, earlier research on the topic as well as financials firms' experiences proving successful digital transformation is useful.

Financial services firms create value for customers through enhanced service delivery (L. Manser Payne et al., 2021a). Thus, an introduction of digital tools to improve service delivery could be enhancing customer value creation. The earlier research provides an urge to exploit the relation between service digitalization and value creation more in depth. According to earlier cross-sectoral research on the impact of digital transformation on company activities, only about 20% of international companies

understand digital transformation strategies and make sure resources are allocated to analyze the implementation of strategies and improvements (Pfirsching et al., 2020). Currently, a limited number of studies has specifically focused on the effects of leveraging digital tools in this financial services sector (Werth, Schwarzbach, Cardona, et al., 2020). By focusing on this effect, the relationship between digital transformation and services in the financial industry and the impact of effective implementation on customer value can be clarified.

1.1 Research proposition

A common hazard in digital transformation is applying more technology to find an answer to the problem. The result is a strong focus on the IT side instead of customer value management (Verhoef & Lemon, 2013). Therefore, this research focusses on the financial services industry, and how customer value creation can be evaluated by a conceptual framework on digital transformation. Herein, the purpose is to get an understanding of the relationship between financial services and digital transformation. A conceptual framework is established to understand this relationship. This urges for a need to develop a framework that offers an understanding how digital transformation impacts financial services. To specify this, the conceptual framework entails a staged approach on digitalization and the consequential impact on value perception (customer value). The Technology Acceptance Model (TAM) became a dominant model for researching the acceptance of technology and the factors affecting the initial acceptance (Venkatesh et al., 2003).

Despite the potential benefits, research on evaluating how the financial services industry can create more value introducing new technologies is limited (L. Manser Payne et al., 2021a). Therefore, this research will create a conceptual framework to address the above-mentioned relationship. The first stage of the conceptual framework will focus on the acceptance of digital tools in the financial services industry, which is researched by how TAMs are used to study digital transformation and the implementation of digital tools. The second stage emphasizes the integration of digital tools within existing financial services firms' its processes. The third stage focusses on the exploitation of digital tools in financial services firms. In this stage, the relation between customer value as a result of exploiting digital tools usage is set out. Eventually the framework is enhanced by real life data from the field by executing interviews with experts in the financial services industry. Furthermore, the framework is assessed during a case study at an internationally operating accounting firm. This procedure will be further explained in the methodology part. The staged approached within the framework differentiates this research from previous research. Earlier research mainly focusses on the readiness, being prepared for implementing concrete activities, of digital tools within financial services firms. Lezina et al. (2019) for instance focus on creating a framework for assessing company' s digital transformation readiness, which does not consider the integration and exploitation of digital tools.

Whereas, integrating and exploiting new digital tools is one of the biggest challenges companies currently face (Marz, 2021). Especially, because no organization or institution is immune to the effects (Hess et al., 2016). Hence this research evaluates the actual usage of digital tools in the stages of acceptance, integration and exploitation. Previous research, as Singh et al. (2020), investigate the relationship between actual use of digital technologies and behavior intention. Contrary, this research, takes the financial firm's perspective when evaluating the actual use of digital technologies in the light of TAM and the customers perspective when customer value creation is evaluated.

Furthermore, earlier research focuses on qualitative sector specific data retrieved by interviews and examines this by literature on the drivers of digital transformation. As an example, Werth et al., focus on their sector interview material and examine this in the literature (Werth, Schwarzbach, Rodríguez Cardona, et al., 2020). This research works the other way around and assesses a framework based on theories and earlier research by real life data from experts to create a topical perspective. Furthermore, this analysis is validated through an informative case study on the usage of a digital tool at an international operating financial services firm. The goal of this research is to create a digital transformation framework that provides guidance for all financial services firms applying digital technologies in their service delivery process. Besides general takeaways that stem from the digital transformation framework, the goal is to provide specific recommendation for the case study firm on the introduction and usage of their digital tools. The methods for achieving this goal are presented in the methodology chapter (3).

1.2 Research questions

This raises a question; how this research can investigate the process of digital transformation and the adoption of new digital tools in a financial services firm. Furthermore, how these can be structured and incorporated into a conceptual framework to evaluate the effect on customer value. To be able to develop such a framework, a central research question and contributing sub-questions are developed. The following research question is analyzed:

How can customer value creation be evaluated by using a framework on digital transformation for financial services firms?

To get a structural approach in answering the research question. Several sub-questions are developed which are answered during the different chapters of this thesis, allowing to get an answer on the research question. The chapters of this research are structured within the design science methodology (Peppers et al., 2007), this structure is explained in the next chapter. The first sub-question provides a problem-centered initiation to get an understanding of digital transformation for financial services firms. This is necessary to understand the importance of digital transformation for a financial services

firm. This question is answered by introducing the problem, stating the importance and a motivation of the necessity of this.

1. What is the role of digital transformation in financial services when evaluating customer value?

By Identifying the different parts of digital transformation (technologies), the objectives for a solution for accomplishing a better overview of digital transformation in the financial industry is provided. During this chapter, previous research and theories are introduced. Hereby the concepts analyzed, and the methods used during previous research are presented. Hereby this research can define the methods necessary for this research to identify the role of digital transformation in the financial services industry in a customer-value context. Previous research and theories on the subject are combined to set out the properties of the artifact, which is the conceptual framework. This framework possesses a stage approach towards the implementation of digital tools within financial services firms. The properties of this conceptual framework are defined by answering the following sub-question.

2. What are the stages of digital transformation for a financial services firm?

The third sub-question introduces the practical relevance of this research. During this stage, sector data is retrieved and provides insights how theories on value creation and digital transformation can be aligned with real life experiences within financial services firm. The alignment between theory and practice is made via testing the conceptual framework during interviews with employees in the financial services industry.

3. How can the conceptual framework be assessed by introducing a financial services firm perspective?

Since the framework is assessed by sector data, this research can validate it during a case study in the financial services industry. Thereby, this research can define the process from potential customer value creation out of digital transformation. Sub-question 4, focuses on validating this framework during a case study on a financial services firm that introduced a digital tool in their financial service activities. This question is answered by executing a survey among one company, specified on the introduction of one digital tool that is used in their activities.

4. How does the introduction of digital tools within financial services firms affect customer value?

To gather the benefits for a financial services firm out of this framework. The key takeaways of this case study are set out while providing an answer to sub-question five. This question is answered by defining the differences between the case study takeaways and earlier findings in an advisory context.

5. *What are the main takeaways for a financial services firm's when introducing new digital tools to create customer value?*

1.3 Document outline

This research is organized in chapters. An overview of the chapters can be seen in Figure 1. The arrows indicate how one chapter provides information for further chapters.

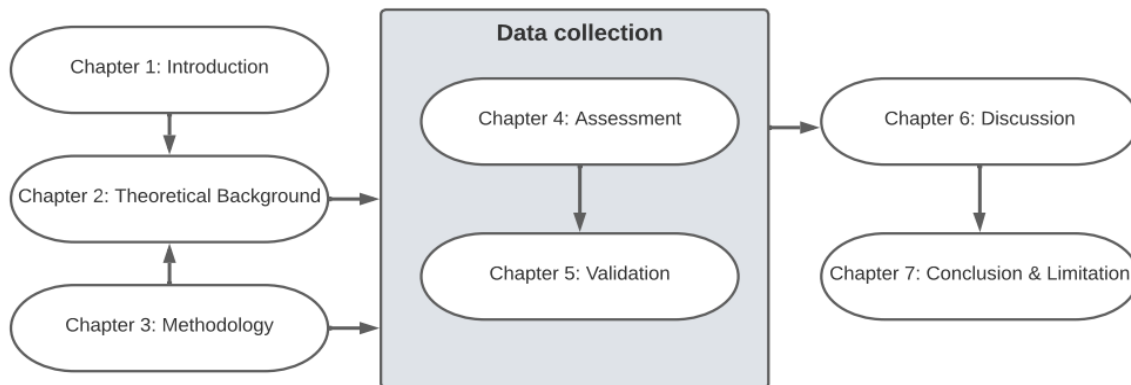


Figure 1: Document outline

The **first** chapter introduces the topic. It first explains the current situation, the complications, the questions that arise and eventually how these will be answered. The research proposition will be defined which provides a scope to formulating the research question and additional sub-questions which are the guidelines of this research. The **second** chapter presents the earlier research on the topic and the theoretical background. Using a concept centric approach consisting of: Digital transformation, financial services and customer value relevant earlier research is mapped. A preliminary conceptual framework is introduced necessary for guidance in the data collection period. Furthermore, the methodology of previous research is presented to provide guidance to this research's methodology. The **third** chapter is dedicated to the methodology and the aligned methods used in this research. This provides a systematic approach for conducting research based on the design science research methodology (Peppers et al., 2007). The **fourth** chapter assesses the conceptual framework by comparing the findings of interviews with existing theories. During this part findings from the sector, provided by experts on digitalization in the financial services industry, are analyzed. After an assessment the conceptual framework is further developed to cover both industry findings and existing theories. The **fifth** chapter consist of a demonstration by validating the framework during a case study on the introduction of a digital tool usage in a financial services company. Final adjustments will be made to the framework and an answer to the last sub-question is given based on the case study outcomes. Chapter **six** and **seven** provide the evaluation and limitation of this research. Concluding remarks on this research, an answer to the research question as well as recommendations for further research are provided.

2 Literature review

This chapter presents a literature review and theoretical framework on digital transformation, financial services and value creation and the relationship with each other. Before the previous literature is examined, the approach towards article selection is explained. After that, the first section focusses on the different concepts, and how previous researchers defined these. Followed up by specifying the boundaries of this research. After that, a review on relevant prior literature and the main concepts is set out. This is structured by a concept-centric approach, herein concepts determine the organizing framework of this review. A concept matrix is developed in which the articles related to each concept is presented via a tick the box system. When the conceptual framework is complete, this research goes backward by reviewing citations of the articles which are identified in the concept matrix previously. After that, a third step in reviewing prior literature consists of going forward by identifying the articles citing the key articles identified in the earlier steps.

Retrieving articles from earlier research is done via trusted leading journals (E.g., Scopus, Web of Science). Retrieved articles meet the criteria of a minimum of ten citations to guarantee relevance of the insights. The key words used in gathering relevant articles are digital transformation, financial services and customer value. These three keywords are used to look for articles in the categories abstract, title and keywords. These articles are subject to being available in Scopus or Web of Science and found when searching for (one or a combination of) the three keywords mentioned above. Out of this search, articles meeting the citation criteria are scanned through abstract. All found articles are put in a concept matrix, a tick the box system displays which articles cover which concepts. Additional articles, not included in the concept matrix, might be used when they present necessary additional insights contributing to this research, they are found using the forward and backward approach mentioned in the end of previous paragraph. Once convergence of insight in the concepts out of newly retrieved articles occurs the analysis of literature ends. Article acquisition is limited to access. This means that articles not openly accessible, or using the University of Twente off campus access, are excluded from this research. Articles addressing a specific case study bounded to one company, country or method are also excluded from this research. After outlining the past research, a research gap is highlighted wherein the theoretical framework addresses the shortcomings. This theoretical framework will justify the propositions made in the literature review by providing theoretical explanation, examples and previous empirical findings. This chapter concludes with the implications for this research.

2.1 article selection

The first set of articles is retrieved via Scopus and Web of Science. Using the key words in the fields of title, abstract and key words and the criteria of minimal 10 citations, the following articles are found which are displayed in the first three rows in Table 1.

Continuing the article selection by the input of only two of the three keywords in a combination, all relevant articles after reading the abstract and checking the criteria, are displayed in the second set of rows in Table 1. To provide boundaries to the article selection, only articles with 20 or more citation on Scopus or Web of Science are considered.

After that, the key words are looked for individually and the main contributions of previous research available on Scopus and Web of Science are attached to the concept matrix. Articles selected have more than 500 citations the least. In this stage, all articles are chronologically ordered to provide insights in the difference in conceptual approaches over time. The final concept matrix is displayed in Table 1.

ARTICLES	CONCEPT		
	Digital Transformation	Financial Services	Customer value
(GOMBER ET AL., 2018)	X	X	X
(E. H. MANSER PAYNE ET AL., 2021)	X	X	X
(L. MANSER PAYNE ET AL., 2021)	X	X	X
(CHANIAS ET AL., 2019)	X	X	
(MILIAN ET AL., 2019)	X	X	
(SURYONO ET AL., 2020)	X	X	
(BREIDBACH ET AL., 2019)	X	X	
(SCARDOVI, 2017)	X	X	
(BROBY, 2021)	X	X	
(BORATYŃSKA, 2019)	X	X	X
(GIMPEL ET AL., 2018)	X	X	
(KAMALALDIN ET AL., 2020)	X		X
(ZAKI, 2019)	X		X
(CHEN ET AL., 2021)	X		X
(POUSTTCHI ET AL., 2019)	X		
(ZAOUI & SOUISSI, 2020)	X		
(WIELGOS ET AL., 2021)	X		X

(TAYLOR ET AL., 2020)	X	X
(FANDOS ROIG ET AL., 2009)		X
(TERPSTRA & VERBEETEN, 2014A)		X
(LAUKKANEN, 2016)		X
(KOMULAINEN ET AL., 2018)	X	X
(VIAL, 2019A)	X	
(SEBASTIAN ET AL., 2017)	X	
(WEST & BOGERS, 2014A)	X	

Table 1: Concept matrix

2.2 Digital transformation

Digital transformation undeniable influences many industries including the financial services industry. Given the importance of the effects of digital transformation on nowadays society much research on this topic has been conducted. Earlier research covers the topic of digital transformation as well as the acceptance of digital tools, its integration to company processes and how to create value out of digital transformation. Most of these studies address the role of TAMs on digital transformation. How TAMs are used to study digital transformation provides feedback for the application of digital on eventual value creation to the financial services industry.

Digital transformation, obviously, is visible everywhere in society. The application of digital technology in all aspects of human life is shaping societies in many ways (Komulainen et al., 2018). It changes the way people communicate, create and use knowledge. From an industry approach, digital technologies affect the way customers are targeted as well. The whole marketing landscape changes with the rise of digital technologies (Leeflang et al., 2014). An increase in focus on services aligned with information and communication technologies is visible to speed up with the changes in customer's behavior and international competition (Komulainen et al., 2018). This service perspective is driven by digital transformation. In line with this perspective, Manser Payne et al. (2021a) approach digital transformation from a service-dominant perspective. Digital transformation changes the service ecosystem by changing the way services are created, delivered and evaluated (E. H. Manser Payne et al., 2021). Redefining value proposition by using digital tools, in most cases increases the availability and quality of services (Pashkov & Pelykh, 2020).

Vial (2019b), describes the concept of digital transformation as "a process where digital technologies create disruptions triggering strategic responses from organizational barriers that affect the positive and negative outcomes of this process". The concept of digital transformation is broadly applied to the impact of digital technology on organizations. An even broader perspective by Vial (2019a) when defining digital transformation states "the changes that the digital technology causes or influences in all aspects of human life". Researchers agree that organizations must actively deal with and accelerate

their digital transformation (A. Singh & Hess, 2017). Furthermore, they are typically tasked with responsibilities to initiate, execute and accelerate the company' s digital transformation strategy (Kunisch et al., 2022).

Introducing digital tools within your organization, according to previous research benefits from using a staged approach. West & Bogers (2014a) introduce the IDEA open innovation initiative stages. Their research suggests three major steps for digital technology implementation consisting of: Obtaining innovations from external sources, Integrating innovations and commercializing innovations.

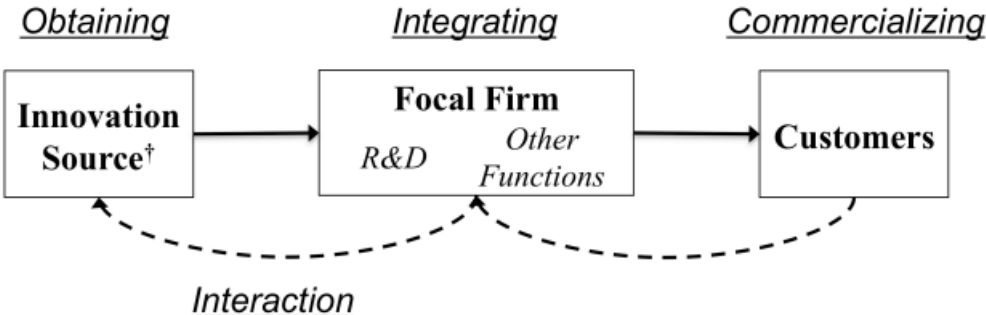


Figure 2: Open innovation stages (West & Bogers, 2014)

Within the innovation stages, the aim is to integrate and commercialize digital technologies in the financial services industry (West & Bogers, 2014b). Herein, digital technologies are a very broad definition of a specific set of technologies which could be beneficial in their digital transformation. Previous research tried to generalize the concept of digital technologies into one concept. SMACIT is a shorthand for the entire set of powerful, readily accessible digital tools (Sebastian et al., 2017). SMACIT are social, mobile, analytics, cloud and Internet of Things technologies that could present massive opportunities (Sebastian et al., 2017). But how can these SMACIT technologies be effectively implemented to make digital transformation successful? According to Sebastian et al. (2017), successful digital transformation consists of three main elements. First, an according strategy that creates a value proposition out of SMACIT. Second, an operational backbone that facilitates operation excellence. Third, a platform for digital services that facilitates innovation and adaptiveness to new opportunities (Sebastian et al., 2017). Again, in this literature, three stages of introducing new technologies are a guideline. This is also the basis to this research with a staged approach consisting of accepting (Davis & Davis, 1989), integrating (West & Bogers, 2014a) and exploiting (Wang & Alexander, 2015).

2.2.1 Acceptation

Over the past decades, technological change-initiated researchers to address the adoption of new technologies. Research on the acceptance and introduction of new technologies has been

predominant. The Technology Acceptance Model, which was first introduced by Fred Davis (1989) is one of the main models used in research factors that influence the acceptance of new technologies among users. Venkatesh et al. (2003), research, among Davis's TAM, seven other theories on technology acceptance. Out of this research they established a theory combining the characteristics of all previous theories and models and named it the Unified Theory of Acceptance and Use of Technology (UTAUT).

This section introduces TAM's and its developments over time and how TAMs are used to study digital transformation. The guiding principles of TAM as developed by Davis are perceived usefulness and perceived ease of use. TAM its first design was meant to evaluate the acceptability of information systems/technologies for users.

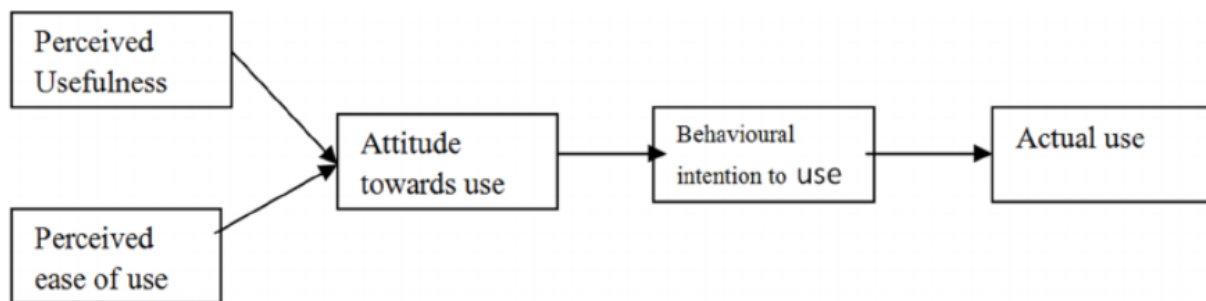


Figure 3: Technology Acceptance Model (TAM) (Davis, 1989)

Perceived Usefulness within Davis's research refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (1989). Herein, a particular system provides advantages when being used since it is not directly stimulated by bonuses or raises. Contrary perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis & Davis, 1989). This implies that a particular system may not encounter any difficulties for using since any system perceived to be easier to use is likely to be preferred. Manser Payne et al., introduce the TAM from Davis in evaluating the implementation of artificial intelligence in mobile banking (2021). They contend that data security is an important factor of the acceptance of AI technologies in the financial services sector. Hence, financial services firms introducing safety measures can add value to their activities. As security is a critical factor for customers in deciding to use a mobile service delivery platform in banking (Laukkanen, 2016).

2.2.2 Integration

Where perceived usefulness and perceived ease of use affect attitude towards use and thus the acceptance of digital tools, the eventual intention to use, is also crucial for success. After acceptance of digital tools, alignment with current processes, tools and value propositions is essential. To maintain

or improve market competition, the company’s value proposition must be redefined by integrating digital tools within services (Kraus et al., 2021).

Komulainen (2018) in its research from a business to business (B2B) perspective on digitalization argue that future researchers must investigate the underlying reasons that mitigate the creation of customer value due to a lack of proper integration of their services. Therefore, financial services firms that aim to leverage the digitalization process must learn to adopt effective integration. Chanas et al. (2019) come up with digital transformation strategies for a financial services provider in a pre-digital stage. They propose an integrated process on creating a digital transformation strategy (DTS). This process is found to be very dynamic and involves iterations between learning and doing (Chanas et al., 2019). Furthermore, they argue that instead of technology-centric, the development of a DTS is customer and business-oriented since it enables employees in their servicing activities.

Instead of focusing on pre-digital organizations, Lezina et al., (2019), focus on organization within digital transformation. Herein, a lack of integration of new and existing technologies requires the development of an assessment system of expectations and strategic goals of the (Lezina et al., 2019). A structured approach focusing on digital transformation goals as well as the organizational context overcomes this. Milian et al. (2019), theorize an integrated process/activity model for digital transformation strategies. Herein, the episodes of digital strategy making is based on the DTS practices as every change or implementation of digital tools should be in line with the strategy while the strategy also refines the DTS practices (Milian et al., 2019). This process generates the input for the realized DTS, keeping in mind that the practices of digital transformation always embrace the organization context. A visual representation of this model can be found in Figure 4.



Figure 4: DTS model (Milian et al., 2019)

Digitalization creates an urge for formulating and implementing a DTS. Such a DTS does not aim to function as a replacement for former strategies but seeks to provide insight in how an organizational strategy can create differential value by leveraging digital tools (Karagiannaki et al., 2017).

2.2.3 Exploitation

Integration of digital technologies ends when a firm establishes a linkage that coordinates organization processes within and across its organization to deliver new forms of value using digital tools (Wielgos et al., 2021). Development Officers are required to ensure digital transformation as a strategic priority by exploiting business opportunities presented by new digital tools (Kraus et al., 2021). Hess et al. (2016) argue that it is no longer a question of when and if companies need to digitally transform, but how to embrace it and use it as a competitive advantage (Vial, 2019a). This competitive advantage out of leveraging digital tools is described as facilitating both customization and operational efficiency (Kamalaldin et al., 2020). Operational efficiency is measured by dividing operating expenses through total revenue. Finding the appropriate level of customization on the one side while integrating digital tools is a challenge. Kamalaldin et al., (2020), explain this customer relation as working closely with each other. By better understanding how provider and customer relationships facilitate the transformation to digital servitization, this can be exploited. Their framework proposes that complementary digitalization capabilities is the main trigger, which initiates a digital servitization relationship. These complementary digitalization capabilities require constant evaluation and monitoring of digital service capabilities and benefits. Designing this customer relationship will at the same time increase operational efficiency out of using digital tools (Kamalaldin et al., 2020).

Vial (2019a) also emphasizes that exploiting digital tools (Analytics or IoT) both provides insights in market opportunities (operational efficiency) and can increase customer proximity (relationship). In his research, ambidexterity is explained as a firm's ability to maintain both operational efficient as well as exploiting digital tools (Vial, 2019a). Top priority in achieving this, according to Wielgos et al. (2021), is the degree to which a firm specifies, monitors and evaluates the procedures and systems to adapt to new forms of value through combinations of digital technologies. Exploiting this, is funded in engaging between actors and the services provided to them.

2.3 Digital transformation in the financial services industry

Digital transformation in the financial services industry results in new and different ways of operating to what is observed before (Gomber et al., 2018) . To get a better understanding of the role of digital transformation in the financial services industry this research must first further define financial services. Pashkov & Pelykh define financial services as mechanisms for obtaining services of financial nature (2020). Consisting of transactions with financial assets, carried out for consumers to obtain benefits or save their real value (Pashkov & Pelykh, 2020). The financial services industry has also been subject to transformations due to digital innovations as a result of intensive development of digital technologies. The presence of digital transformation in the financial services industry can be explained by a customer's demand (Laukkanen, 2016). A term addressing this in earlier research is digital

servitization, which entails the transformation from a product to a service-centric approach, using digital service technologies to create customer value (Sklyar et al., 2019). Digital servitization is especially present in the financial services industry (Jakšič & Marinc, 2019) (L. Manser Payne et al., 2021b). A common umbrella term representing technological innovation in the financial services industry is FinTech (S. Singh et al., 2020). Fintech is considered as the main driver of the last wave of digital transformation in the financial services industry (Werth, Schwarzbach, Cardona, et al., 2020). Fintech is defined by Eickhoff et al., (2017) as companies that operate at the intersection of financial products and services and information technologies. Next to that, they are usually relatively new companies, often start-ups, with their own innovative product or service offering (Eickhoff et al., 2017). For this research, Fintech is involved by the digital tools they provide to the financial services industry rather than their role in the financial services industry.

2.4 Customer value

Part of the servitization literature, as introduced by Manser Payne et al. (2021b) is the use of digital service technologies to create customer value. However, introducing digital service technology into the sector does not automatically create more customer value. It even creates a lot of challenges for multiple stakeholders in the sector. Komulainen et al. (2018) argues that it requires a restructuring of value-creating activities in the services industry. Furthermore, only a few companies understand customer value in terms of how value can be delivered through experience and how to create services that consumers want (Komulainen et al., 2018). Research by Terpstra & Verbeeten (2014b) on customer satisfaction in the financial services industry explain customer value as an individual customer's long-term profitability. Verhoef & Lemon dive deeper into this explanation in their research on successful customer value management (2013). They create six lessons for effective customer value management. These lessons consist of: Use CVM to improve business performance; Ensure that CVM is more customer driven than IT driven; Adopt CLV as a core metric; Invest in strong analytical capabilities; Understand the key drivers of customer acquisition, customer retention and customer expansion; manage channels to create customer value (Verhoef & Lemon, 2013).

For now, it is most important to retrieve a conceptualization of customer value in the financial services industry out of earlier research. To achieve this, it is necessary to look at the service delivery through the eyes of your customers (Zaki, 2019). Especially in the B2B industry, where customer experience indexes are lagging and where the value of each customer tends to be higher (Zaki, 2019). This requires going beyond the functional measure of provided services and identifying value creation elements (McCull-Kennedy et al., 2018). Gummesson et al. (2010) argue that financial services firms need to adopt a customer-centric mindset, recognizing the active role of customers in creating value. They argue that financial services firms should align their organizational structures, processes, and systems

to facilitate value co-creation and enhance customer experiences. By actively engaging customers in the co-creation process, financial services firms can better understand their needs, preferences, and pain points, leading to the delivery of innovative and relevant offerings. This approach fosters customer loyalty and satisfaction, ultimately enhancing customer value.

Adopting a customer-centric mindset, fostering strong relationships, facilitating value co-creation, and leveraging technology are key elements for financial services firms to deliver superior customer value. By understanding and addressing customers' unique needs, financial institutions can differentiate themselves, foster long-term partnerships, and create sustainable competitive advantage in the market. Previous research broadly described the dimensions of customer value in financial services but lacked in creating the distinguishing factors from a customer centric perspective. The customer needs analysis, through a customer centered approach, is established by Medberg & Gronroos (2020). To capture the customer value in use in service context within banks they identify seven dimensions of positive and negative value in use: solution, attitude, convenience, expertise, speed of service, flexibility and monetary costs (Medberg & Grönroos, 2020). These values can be converted in the context of the Iron Triangle of customer value. The Iron Triangle its concepts consist of time, cost and quality and are applied to information systems and information technology research (Pollack et al., 2018). Different definitions on customer value are combined in this research into a customer's long-term profitability (Terpstra & Verbeeten, 2014) which is embedded in the concepts of the iron triangle (Pollack et al., 2018). These three concepts, time, cost and quality are represented in the framework and help this research evaluate customer value creation out of digital transformation within financial services firms.

2.5 Preliminary conceptual framework

Out of earlier research on the topic of digital transformation in the financial services industry this research builds further with a staged framework, this framework is established around the main concepts retrieved out of earlier research.

The eventual customer value creation (concept 5) in the digital transformation (concept 1) process builds on three phases. First, technology acceptance models provide the basis for the first stage of acceptance (concept 2) of digital tools. Second, digital transformation strategies guide the second stage of integration (concept 3) of digital tools. Third, customer engagement initiates the third stage of exploitation (concept 4) of digital tools. All stages will be further defined during expert interviews that will enhance the framework with empirical insights from the financial services sector.

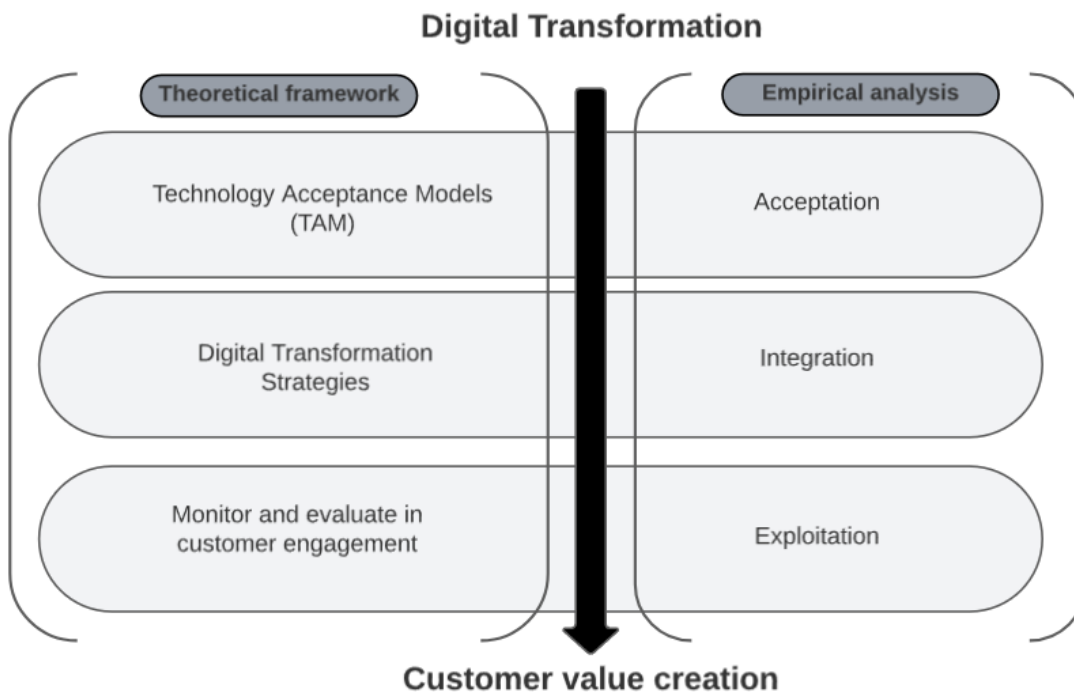


Figure 5: Initial conceptual framework

2.6 Survey of methods

The methods in the articles that cover the three main concepts of this research are reviewed in their methodology and methods. This presents which methodology earlier research introduces and which methods are used to achieve results, how they evaluated and why they used this set of methods. Hereby, this research can create a suitable methodology for this research that steps in where previous research is lacking and takes profit of the places where methods are in good-fit.

Gomber et al. (2018) provide a qualitative research methodology, consisting of a conceptual analysis based on previous research and executing case studies. The aim of this approach is to set out a comprehensive understanding of the fintech revolution from multiple perspectives. The literature review by Gomber et al. (2018) established the conceptual foundation of the article. The literature reviewed consists of various academic papers, reports, industry publications and books on the fintech revolution and the impact on financial services. Nevertheless, no real criteria for article selection are set out. Conducting a systematic literature, by introducing in- and exclusion criteria could mitigate bias. By executing case studies, Gomber et al. (2018) illustrate real-world evidence on innovations and disruptions in the financial industry. Hereby, the conceptual analysis is backed up by practical illustrations from the sector. The authors evaluate the main themes of their research through a conceptual understanding of their dimensions of innovation, disruption and transformation in the scope of financial services. This chosen method of the authors allows them to gather a wide range of information and to set this out against empirical evidence. Especially, current empirical evidence can be an appropriate tool to support claims in previous research in a fast-changing sector. Nevertheless,

the research by Gomber et al. (2018), is limited by a lack of primary data collection. By executing interviews or setting out a survey, the depth of analysis could be increased, and unique insights could have been captured that enhance the relevance.

Manser Payne et al. (2021b) provide conceptual research. They execute this by doing a literature review and conceptual development. Furthermore, they develop a value co-creation framework for artificial intelligence, and they develop a research agenda to clarify digital transformation in the financial services industry by providing guidance for further research. Manser Payne et al. (2021a) evaluate their methods by addressing the gaps in the literature and guiding the future research with the framework. Nevertheless, the research could have benefit from clarifying the research design by introducing a central methodology. Limitations to the methods chosen in this research come across at the lack of empirical validation. The proposed framework could benefit from a validation in empirical evidence. Hence, it is hard to assess the applicability of this framework in the financial industry. For future research this limitation can be mitigated by gathering empirical data using interviews, surveys etc.

Manser Payne, Berger et al. (2021) provide research in the same sector using the same methods. Within a conceptual analysis, they review existing literature to provide a conceptual framework. The goal of their research is to enhance the value co-creation process in AI-based mobile banking service platforms (E. H. Manser Payne et al., 2021). To achieve this, a conceptual model is developed to investigate the value in use of AI-based mobile banking applications according to five antecedents. This conceptual model is assessed by empirical data collected from 218 respondents and analyzed using structural equation modelling.

Komulainen et al. (2018) provide a qualitative approach using a phenomenological research strategy. The goal of their research is to examine how the customer value experience conveys the service network in the banking industry. The chosen methodology and goal align well and enables this research to understand the perspective of participants on future banking activities. The focus on empirical evidence provides an in-depth exploration of individual experiences. Empirical data is acquired through focus groups and executing interviews. These semi-structured interviews eventually are transcribed and analyzed by an abductive approach consisting of data reduction, data display and drawing conclusions. Nevertheless, by assessing earlier research on the topic this research could have a broader background on the topic before retrieving empirical data.

Boratynska (2019), executes qualitative research on the potential major impact of fintech on value creation in the financial services industry. The study combines insight from a literature review with insights from sector sources. The literature review introduces the theoretical framework, which is the

DIPLOMA model for fintech. A concept-centric approach is followed to define fintech. Insight in the industry seems limited since it is limited to the Consumer Finance Congress event. Hence, this research could have benefited from a broader industry perspective by collecting primary data.

A recurring trend in the abovementioned articles is to introduce methods that aim to relate practical applications with theoretical knowledge. Nevertheless, it is hard to relate theory and practice with each other in research. A structured approach is necessary to achieve this, here previous research lacks. There is no real translation from theoretical knowledge in specific artifacts that make them accessible in practical cases. Hence, there is no specific motivation for the way empirical data is retrieved. Structuring this motivation, is where this research methodology steps in. The takeaway from earlier research is the urge for a commonly accepted methodological framework. Therefore, this research introduces a methodological framework to structure the link between theory and practice where earlier research tends to lack.

3 Methodology

In this chapter the methodology of this research is introduced. The first section summarizes the methods used in previous research. After that, the applicable methodology of this research is introduced. Hereby, the methods used to answer the research and sub-questions of this research are introduced. Lastly the reason why certain methods were chosen is explained.

3.1 Methods used in studied articles.

Previous articles covering the main concepts of this research provide different methodological approaches. Gomber et al. (2018) discuss the concept of customer experience by assessing existing functionality of digital financial technologies as well as complementary and disruptive effects. They introduce this assessment in a framework by a qualitative approach to previous research. Hereby, they present a new fintech innovation mapping approach for the assessment of transformation in four main areas in the financial services industry. Manser Payne et al. (2021b) explore relevant literature for their main concepts; digital servitization, service-dominant logic and disruptive innovation. By developing a framework in their qualitative research, the authors set out the consequences for firms and customers. Barger et al. (2021) do quantitative research and collect data from respondents affected by digital technologies in banking. They measure the value in-use perception via five antecedents in their model using structural equation modeling. These antecedents consist of baseline perceptions of current bank service delivery; service delivery configuration benefits; general data security; safety perceptions of specific mobile banking services; and perceptions of AI service delivery. Research by Komulainen (2018) also use a qualitative method to collect empirical data from their focus groups via interviews with end-user of banking services. The article by Boratynska (2019) lacks in adequate data collection compared to the other studied articles since it builds upon academic literature and a rather limited amount of industry insights. Furthermore, no specific data analysis mechanism is mentioned.

As introduced in the previous chapter, the research gap lies where practical applications are embedded in theoretical knowledge. This research overcomes the research gap by bridging between theory and practice by introducing the design science research methodology. Whereas previous research created ad hoc methodologies, this research introduces the research methodology aligned with design science created by Pepper et al. (2007). This methodology structures our research and aligns the methods used with the goals.

The urge for a commonly accepted framework emerged due to lack of conformity in methods in previous research. Hence adopting design science research methodology seems appropriate and beneficial for this research. The need for the design science research methodology emerged due to a lack of a methodology that bridges between theory and practice and in that way serve as a commonly

accepted framework for design science research. Design science allows researcher to design and develop artifacts that embody theoretical concepts, making them more accessible and logical to apply in real-world context. This research methodology consists of six steps.

The first activity is problem identification and motivation. During this step, researchers define and specify their research problem to provide justifications to the urge of finding a solution to the research problem. The second activity is to define the objectives for a solution. Here, the distinction between quantitative and qualitative is made based on a fit with the problem specification. The proposed objectives are validated through earlier research on its feasibility. The third activity is the design and development stage. Here, a model, framework or construct is introduced, and the specific properties of this artifact are explained. The fourth activity demonstrates the artifact. Here the relation between the research problem, and how this can be targeted by the artifact is introduced. This can be demonstrated through a validation process as with a case study. The fifth activity is evaluation, here the applicability of the artifact in the demonstration is evaluated. The actual results of using the artifact can be compared with the objectives of the solution. The last activity covers the communication of the findings of the research to the relevant audience. A visual representation of the design science research methodology can be found in Figure 6.

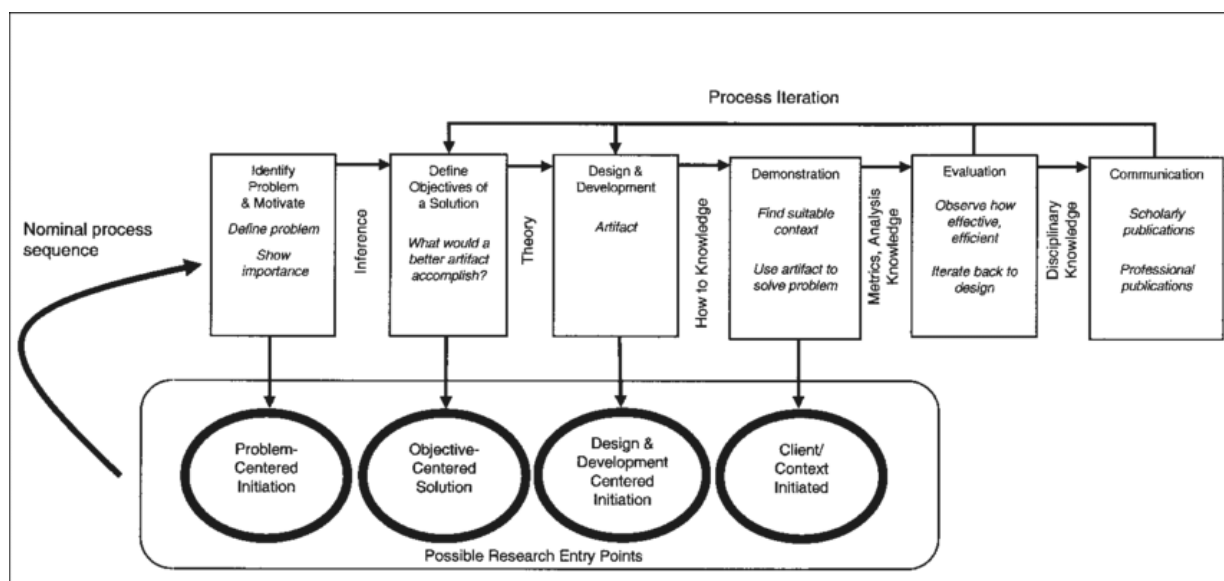


Figure 6: Design science research methodology (Peffer et al., 2007)

3.2 Methodology

Nevertheless, the methodology of this research uses parts of the methods used in the studied articles that match with most of the concepts according to the concept matrix in chapter 2. In three out of the four mentioned papers, a qualitative approach is used to investigate the topic. Furthermore, a conceptual framework is established in two out of the three qualitative approaches in the articles.

Hence, this research takes a qualitative approach and makes use of a conceptual framework. Next to insights from the literature, this research's framework will be optimized by retrieving sector data during interview and assessed by an informative case study of the implementation of a digital tool inside a financial services company. The choices above are in line with the design science research methodology. By using a conceptual framework, this research can effectively carry out design science research. Next to that, it contributes to the recognition and legitimization of this research by clarifying its objectives, processes and outputs. Hence, instead of an ad hoc methodology, researcher can refer to the design science research methodology which is commonly understood. By introducing design science, this research creates an artifact, which is the framework, to solve the problems that are observed in the first chapter. The development of the artifact, according to Peffer et al. (2007), should be a search process that draws from existing theories and knowledge. After that this research forms research contributions, evaluate the design of the artifact and communicate the results to the respective audience (Peffer et al., 2007). Concluding, the design science research framework serves as a designed object that embeds the framework to understand and solve the research problem. Configuring the DSRM into this research, the following research process is set out that will allow this research to provide an answer to the research- and sub-questions. This methodology is in line with earlier research executed by Werth et al. (2020). Methodologically this approach is valuable for the conceptualization of the informative case study later in this research.

3.2.1 Problem identification and motivation.

Out of a problem-centered initiation, the urgency of this research is emphasized. This chapter is structured following a situation, complication, question and answer approach. The current situation with a brief background on the topic is provided by introducing recent research on the topic. The complication is addressed by the pitfalls of the digitalization. Tackling this problem starts by transforming the pitfalls into success. This is done by explaining the current situation of digital transformation in the financial industry and how more customer value can be retrieved in this transformation. Hereby, an answer to the first sub-question is defined and allows this research to introduce the central concepts.

3.2.2 Define the objectives for a solution.

A qualitative study of the relevant literature and theoretical foundation forms the basis to get an understanding of the main concepts: digital transformation; financial services; customer value. Relevant literature is collected through setting criteria for article selection based on the main concepts. Via a tick the box system per concept searches within Scopus and Web of Science will provide this research with the relevant literature. The articles are put in a concept matrix to determine the contribution of the article to this research. Analyzing the definition of the concepts as well as the

methods used in previous literature helps defining the gap in previous research. By identifying what is missing, this research can create a new artifact. This artifact helps to support solutions to the problem stated in chapter 1 by creating a conceptual framework with specific properties. This artifact is the preliminary framework which is the basis for the data collection mechanism. Furthermore, by defining the properties of the conceptual framework, an answer to the second sub-question can be given.

3.2.3 Assessment and development.

This chapter continues with the assessment and development of the conceptual framework. The assessment is done by retrieving empirical data out of the financial services industry. 10 semi-structured interviews are conducted with experts from the financial services industry to design the preliminary framework with the properties retrieved out of the literature and theories. These properties consist of the concepts visible in the preliminary conceptual framework in Figure 5. At first, 28 interview participants were contacted. The criteria set for finding interview participants are that they are working in the financial services industry and preferably have experience with digitalization, data science or innovation. These are contacted via LinkedIn, UT Staff and personal connections. The response rate towards scheduling an interview is 50%, 14 out of 28 contacts responded. A flowchart on the initial contacts towards eventual interview participants, which were 9, can be found in Figure 7.

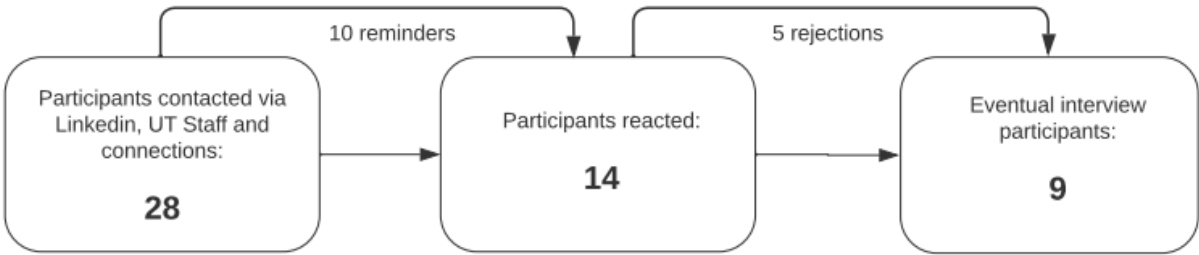


Figure 7: Flowchart on interview contact

Table 2 shows an overview of the eventual interview participant’s sample. All interviews took place between 21st of June and 6th of July 2023. All participants and company names are dealt with anonymously and confidential, hence these are not visible. Due to the confidentiality of the interviews, the transcripts of the interviews are also not presented in this research.

#	Job function	Country
Participant 1	Credit Risk at Bank	Netherlands
Participant 2	Digital business implementation manager at Bank	Netherlands
Participant 3	Senior project manager at investment organization	Netherlands
Participant 4	Credit Risk analyst at Fintech company	Canada
Participant 5	Senior manager analytics at bank	Canada

Participant 6	Credit Risk analyst at investment organization	Brazil
Participant 7	SME director at accountant	Netherlands
Participant 8	Director at insurance office	Netherlands
Participant 9	Senior manager at bank	Brazil

Table 2: Interview participants

The choice for semi-structured interviews allows this research to see different perspectives of experts while remaining the possibility to shift focus during the interviews. Interviews are an appropriate method because this research wants to understand the perception of the properties. The different properties of the framework will be assessed during these interviews and serve as assessment for improving the framework. During the interview, the main concepts of this research are introduced and the perspective on digital transformation in the financial services industry is asked. After that, the different stages of introducing new digital tools are brought up, consisting of accepting new digital tools; integrating digital tools with existing processes; exploiting the usage of digital tools. After that, the relation to the creation of customer value out of the digital transformation process is discussed. The goal is to get a sense of the importance of the different concepts to get a view on the relationship between them in the process of digital transformation. This relationship scheme (Figure 11) of concepts forms the basis for the validation in chapter 5. An overview of the interview protocol can be found in Appendix 1. The questions served as guidance for the interview to get a perspective on the most important covered, next to that, follow-up questions are used to get more specific information. Hereby, the interview facilitates the interviewee with freedom to elaborate on interesting topics while making sure the most important concepts are covered. After the first set of interviews, a small evaluation and revision of the interview guideline is made to improve the data collection.

The interviews are analyzed by first transcribing all the interview data. For this time-consuming task, the AI-program Amberscript is accessed via the University of Twente to speed up the process. The transcribed data is checked after using the AI transcriber to make sure no flaws are left. The interview data is first analyzed by deductive coding. This method is chosen because a conceptual framework is already established in advance of the interviews. Hence, a predefined set of codes is present, which are assigned to the new qualitative data. The data is coded by highlighting quotations out of the transcribed data and linking the quotations to the aggregate themes and then towards the pre-defined codes. The program Atlas.ti is used for coding the data. This makes sure a structured approach is used in the coding process. To mitigate bias and preventing to lose eye on new ideas and dynamics within the data, new codes will also be added via an inductive coding manner once they are identified. Once the findings out of existing theories can be compared with findings out of interviews, this research can

create the final framework which covers both the literature and the current sector's perspective. Hereby, an answer to the third sub-question is provided.

3.2.4 Demonstration.

An informative case study within the accountancy firm BDO supports this analysis. The established conceptual framework is applied to a digital tool that has been implemented at BDO in the past five years and assessed via the three different stages as in the framework. These stages consist of acceptance, integration and exploitation of digital tools. By executing interviews with experts in Chapter 4, clearance on the relationships between the concepts is provided. During this demonstration these relationships are validated by making assumptions on the eventual conceptual framework which are built upon the main concepts retrieved in the literature review. This case study is done by executing interviews with users of a digital tool within BDO's financial service activities. The number of interviews is dependent upon when theoretical saturation is achieved. This implies that gathering more empirical data does not provide this research with additional insights. Before executing the interviews, documents on the digital tool and the usage within BDO are analyzed and a quick overview of this is set out. The interview participants are bounded to everyone who uses this digital tool on weekly basis, these are considered as the experts for using this tool within BDO. Via PowerBI, the numbers on usage among BDO employees is presented. This interview has semi-structured questions. An overview of the interview process as well as the interview questions guideline can be found in Appendix 4 and 5. Three semi-structured interview are conducted to retrieve employees' their perspective. These interviews are recorded, and the data is transcribed using Amberscript. These transcriptions are analyzed by highlighting prompts related to the main concepts of the framework. The goal is to confirm assumptions made from the final conceptual framework established in chapter 4. These prompts are used to confirm or deny and adjust the framework. The assumptions are introduced and validated in Chapter 5. The results are collected systematically by categorizing them to retrieve valuable insights. The goal of this case study is to get a real-time unfiltered response on the usage of a digital tool evaluated by the framework focused on customer value. Hereby an advice can be established to provide guidance towards future implementation of digital tools, wherein creating customer value is the focus. This future guidance will consist of a final framework on digital transformation that is now validated in a case study.

The digital tool that is evaluated during the interviews is the web application Robot-X. The choice for this web-application derives from its function to enhance the auditing process. This seems appropriate since this tool is designed to facilitate specific activities or processes within the firm, which is in line with Wang & Alexander's statement on digital tools (2015). It serves as a tool to promote efficiency and effectiveness. Furthermore, the web-application allows for collaboration with clients by providing

insights to clients in the audited documents. Especially, this customer interaction is important for the choice for Robot-X since this research wants to evaluate customer value for the usage of this digital tool for BDO. By executing a case study on a digital tool introduction, an answer to the fourth sub-question is provided.

3.1.5 Evaluation.

With a complete background and validation on the framework, the last chapters reflect upon the results and methods with a critical view changes and justification and key-takeaways for the company on their digital tool usage. Furthermore, recommendations for further research are added. This includes key-takeaways for the financial services firms in general as well as specific recommendations for the case-study firm. Evaluation of the research is executed by first stating the results and outcomes of this research. Secondly, there is reflected upon the methods used to achieve these results and whether these were suitable. Furthermore, a critical view on the practical recommendations, contributions to existing literature and research limitations is presented. This allows this research to answer the fifth sub-question and have a complete background to get an answer on the research question in the conclusion chapter.

4 Properties of the Conceptual Framework

In this chapter the properties of the conceptual framework are designed by retrieving practical input by executing interviews in the financial services industry. The outputs are split between the different topics that guide the semi-structured interviews; introduction questions dismissed. The first stage introduces the concepts of digital transformation, digital transformation in the financial services industry and how this creates value for customers. The second stage introduces the properties of the conceptual framework, consisting of acceptance of new digital tools, integration with existing processes and exploiting the usage of digital tools to create value for customers. Generally, the sections are structured by combining main findings out of the theories with the content retrieved from the interviewees. This is done by using the pre-defined codes/properties as guidance for the main story, this structure is complemented by introducing the quotations for a complete analysis. At the end of this chapter, the conceptual framework is presented which will be validated during a case study in the next chapter.

First, the properties of the conceptual framework, which are also the predefined codes that guide this section as well as the coding of the qualitative data. By searching for these codes in the qualitative data, as well as synonyms in Atlas.ti, prompts can be distinguished. In line with the preliminary framework in section 2.5, the following properties come forward.

Digital transformation, explained by Vial (2019a) as “a process where digital technologies create disruptions triggering strategic responses from organizational barriers that affect the positive and negative outcomes of this process”. More briefly this indicates the impact made by digitalization. Digital transformation is considered as a process; hence it requires several underlying properties. These properties consist of three stages. First the **acceptation** of new digital tools, which is explained by Technology Acceptance Models by Davis (1989). Acceptation of new digital tools relies on the perceived ease of use and perceived usefulness of it. Second, **integration** of new digital tools with existing processes and technologies requires an integrated process on creating a digital transformation strategy. This process is found to be very dynamic and involves iterations between learning and doing. Third, the **exploitation** of the usage of new digital tools. Herein, ambidexterity results in combining customer needs with operational efficiency to exploit digital tools. The unit of analysis provides the last property, which is **customer value**. Customer value is described as an individual customer’s long-term profitability embedded in the criteria of the iron triangle consisting of time, quality and costs.

Via Atlas.ti this research executes a text search for the concepts of the framework in the interview data. Related codes were used for the same concept and provided the search with the following words

as feasible in table 3. After executing the text search, the related concepts per interview are feasible in Figure 8.

Digital transformation: Digital transformation, digitalization, digital tool, digitalize, technology, transform.
Acceptation: Acceptation, acceptance, accept, implementation, using, willingness.
Integration: Integration, incorporate, merge, blend.
Exploitation: Exploitation, leverage, utilizing.
Customer value: Customer value, value creation, value, advantage

Table 3: Code names

Kolom1	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5	Interview 6	Interview 7	Interview 8	Interview 9	Totals
Acceptation Gr=39	5	7	3	3	6	1	10	0	4	39
Customer value Gr=89	11	8	3	21	12	16	9	4	5	89
Digital transformation Gr=151	17	7	14	15	25	15	13	13	32	151
Exploitation Gr=34	2	0	3	2	8	2	9	0	8	34
Integration Gr=39	6	3	4	3	4	2	6	2	9	39
Totals	41	25	27	44	55	36	47	19	58	352

Figure 8: Quotations matrix per concept

4.1 Structuring of data

To get a structured approach towards the empirical data comparison and the earlier retrieved literature the following approach is introduced. Out of the literature, statements on the concept are introduced. By aligning quotations out of the empirical data with these statements this research can derive the meaning of these statements. Furthermore, this allows to confirm or deny these statements. Now, this research can distinguish whether the conceptual framework out of the literature fulfills or whether additional variables must be included in the framework. After the comparison between the literature and the empirical data an assessed framework, through experts' perspective from the sector, is created. Based on the collection of empirical data and the analysis, the data structure in figure 9 is developed. Out of all relevant quotations per concept, themes were distinguished which create the link to the quotations of the interview that form the structure of this chapter. In the subparagraphs of this chapter, the data structure is explained and elaborated upon to present the results of the data collection and analysis. Eventually the concepts are reevaluated based on their relationship in the process of digital transformation to allow this research to continue to the validation stage of the conceptual framework.

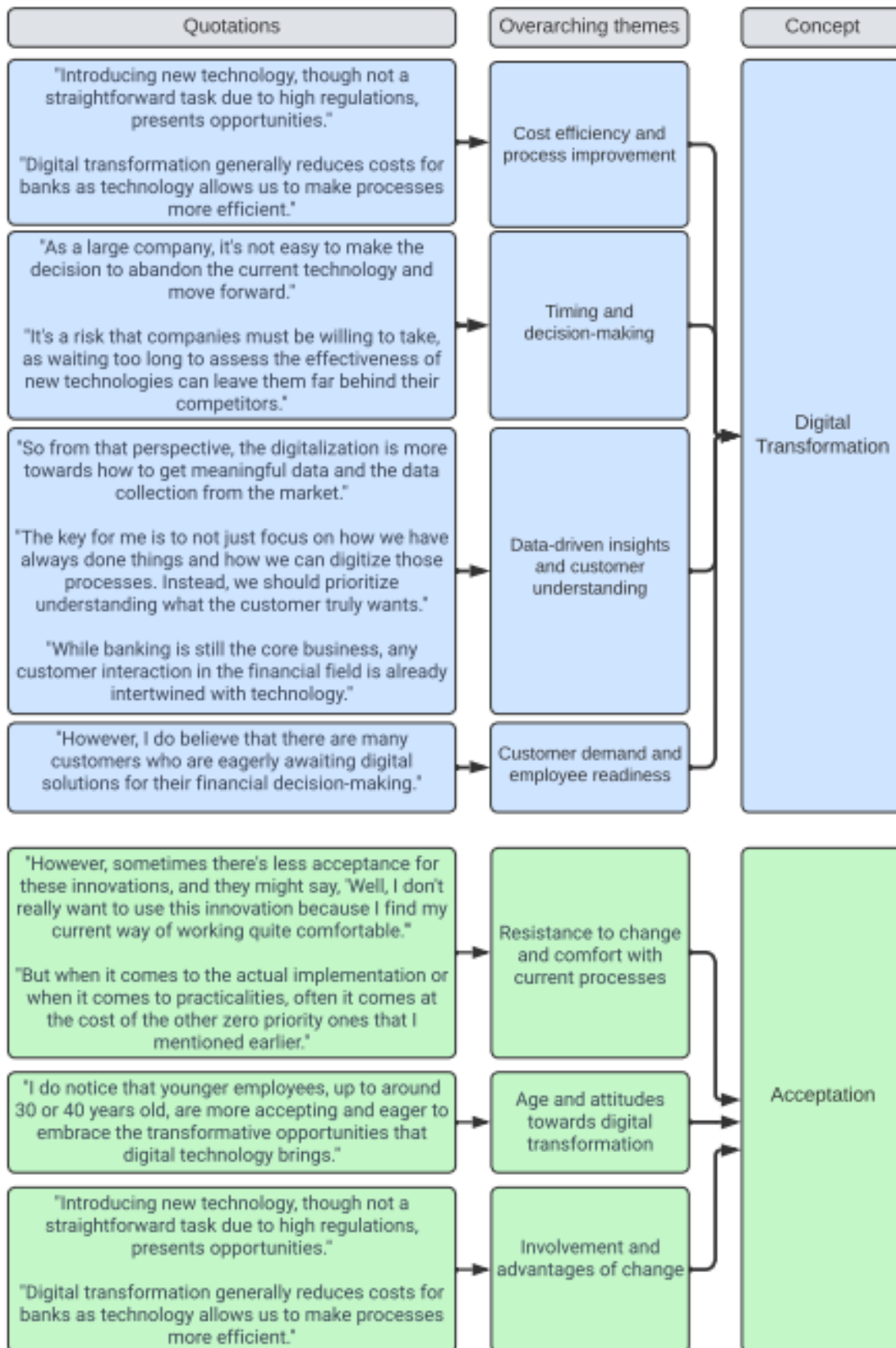
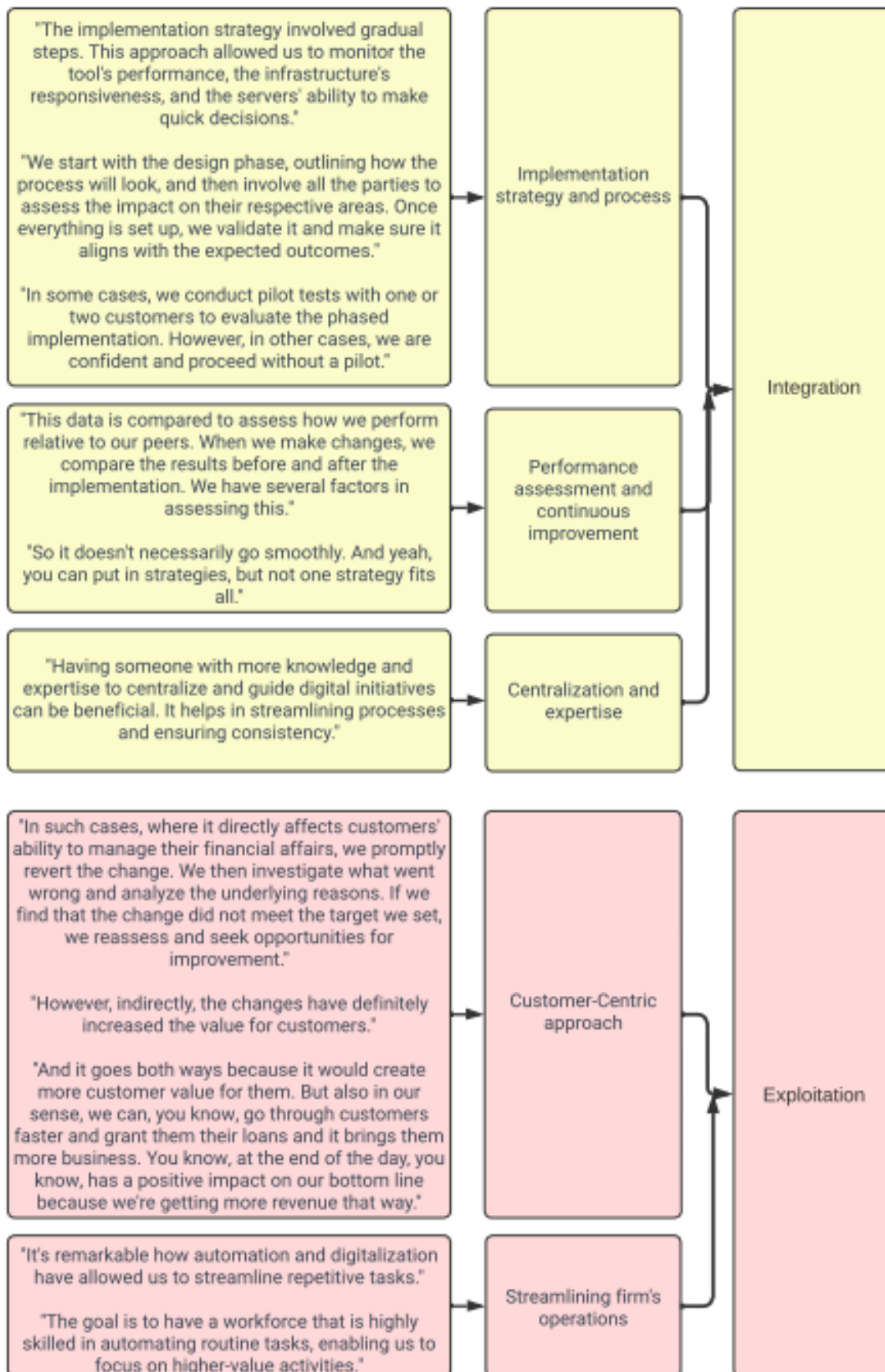
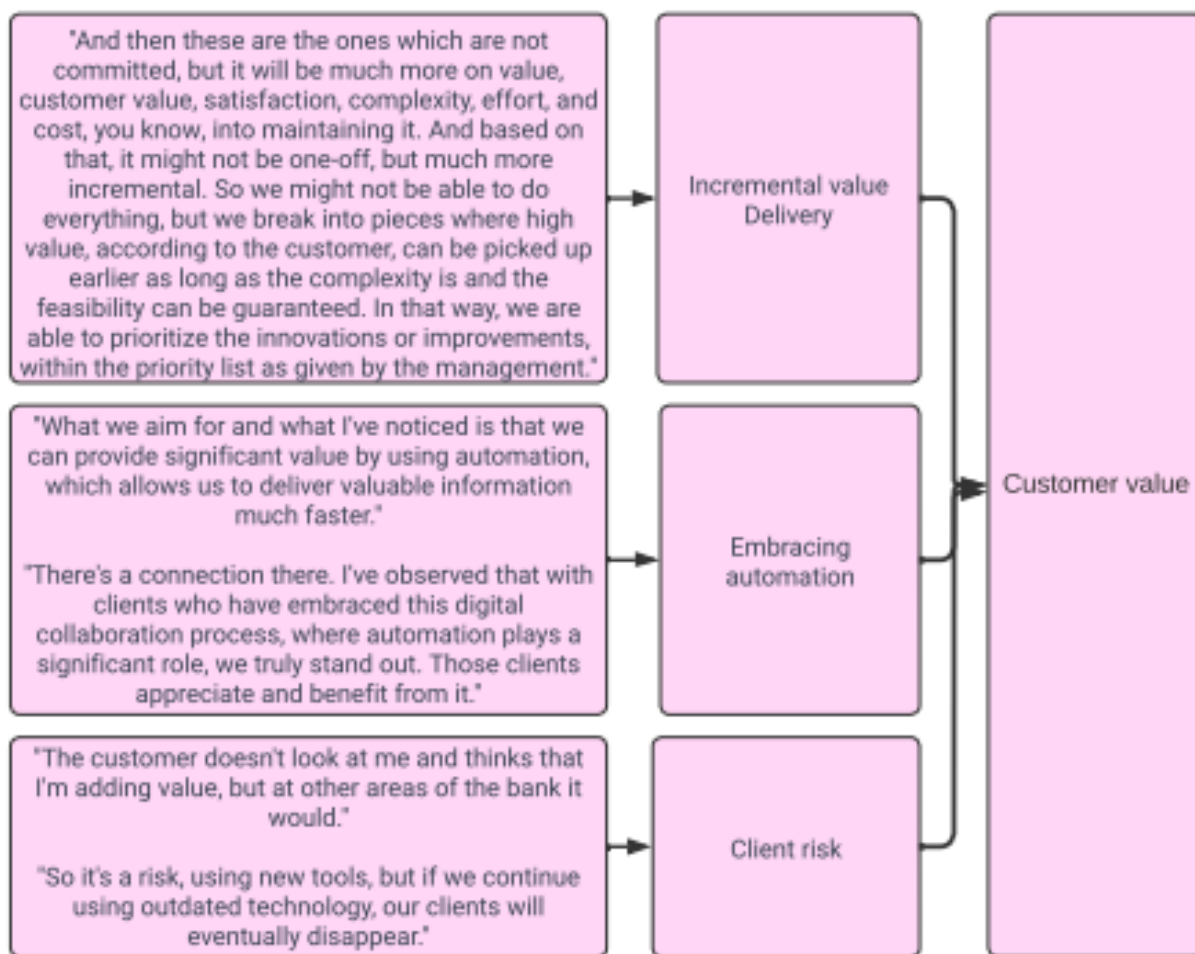


Figure 9: Coding structure





4.2 Digital Transformation

This section dives deeper into the explanation of digital transformation and its presence in financial services. It explains why companies get into digitalization and forms the basis of understanding for why financial services should digitally transform.

The literature defines digital transformation as a process where digital technologies create disruptions triggering strategic responses from organizational barriers that affect the positive and negative outcomes of this process (Vial, 2019a). Especially these positive outcomes are reflected in the financial services sector. Cost redundancy and efficient processes arise as companies improve services through digitalization (**quote 1**).

Quote 1: "It is an evolutionary process that enables us to transform and improve our services, Digital transformation generally reduces costs for banks as technology allows us to make processes more efficient".

Positive outcomes for a firm due to digital transformation, according to Vial (2019a), is triggered by strategic responses. Financial services firms must define these strategic responses. They must choose which digital tools to adopt and especially determine the right timing (**quote 2**). Strategy is key here,

especially for large financial services firms which cannot easily adopt each digital tool due to burdens in regulations, customer demand or costs. Nevertheless, the opportunities presented overcome the challenges that are initiated (**quote 3**). Adopting a Digital Transformation Strategy (DTS) can guideline determining the right timing for adopting new digital technologies. Such a DTS seeks to provide insight in how a firm's strategy can create differential value by leveraging digital tools (Karagiannaki et al., 2017).

Quote 2: "As a large company, it's not easy to make the decision to abandon the current technology and move forward." Therefore, determining the right timing for adopting new technologies becomes crucial.

Quote 3: "Introducing new technology, though not a straightforward task due to high regulations, presents opportunities."

Researchers agree that organizations must actively deal with and accelerate their digital transformation (A. Singh & Hess, 2017). Next to that, they are usually tasked with responsibilities to initiate, execute and accelerate the company's DTS (Kunisch et al., 2022). Acceleration is important as the speed of digital transformation is one of the biggest challenges financial services faces. Being patient to evaluate the efficiency of digital transformation can result in competitive disadvantages (**Quote 4**).

Quote 4: "It's a risk that companies must be willing to take, as waiting too long to assess the effectiveness of new technologies can leave them far behind their competitors."

Research has shown that redefining value propositions to leverage the effectiveness of new technologies and using digital tools, increases the availability and quality of services towards customers (Pashkov & Pelykh, 2020). For the whole financial services industry this results in any form of customer interaction being intertwined with technology (**quote 5**).

Quote 5: "While banking is still the core business, any customer interaction in the financial field is already intertwined with technology"

One of the main applications of digital technologies in customer interaction complies with customer behaviour. Defining a customer behaviour image is more interesting than ever due to the changes in customer behavior in a digital world. Speeding up with the changes in customer behaviour is necessary (Komulainen et al., 2018). By gathering data on customers, their needs can be defined, to makes sure that innovation within the company, allign with customer needs (**quote 6**). On the other hand, customer demand is also a trigger for the presence of digital transformation in the financial services industry (Laukkanen, 2016). Getting to know exactly what the customer wants, therefore provides

guidance for a financial firm's digital transformation (**quote 7**). Taking this up a notch, arguments that believe that customers also demand digital tools for their financial decision making are visible(**Quote 8**). Realising this, using the most advanced technologies in the market nowadays (AI/ML) is something that is feasible in the near future.

Quote 6: "So from that perspective, the digitalization is more towards how to get meaningful data and the data collection from the market."

Quote 7: "The key for me is to not just focus on how we have always done things and how we can digitize those processes. Instead, we should prioritize understanding what the customer truly wants"

Quote 8: "However, I do believe that there are many customers who are eagerly awaiting digital solutions for their financial decision-making."

The comparison between empirical data and the literature shows similarities in digital transformation definition and its presence in the financial services industry, stating it is present and it should be exploited. Nevertheless, the initiation of digital transformation encounters some underlying factors which this research retrieved from empirical data. These factors, trigger the need for digital transformation, stem from the market pressure as well as customer demands.

4.1.1 Acceptation

Acceptation of new digital tools comes forward at the point there is chosen for actual implementation. From a user perspective, literature provides us with the criteria of perceived usefulness and perceived ease of use of a digital tool (Davis, 1989). Herein, Davis is defining perceived ease of use of a digital tool as the degree to which a person believes that using a particular tool would be free of effort. Conservatism plays an important role in this phase of accepting new digital tools. On the hand, employees might not be eager to change their current working processes because they are used to it (**quote 9**). On the other hand, generational influences also play an important role here. Whereas younger employees are sometimes more eager to embrace new digital technologies in comparison to older employees (**quote 10**).

Quote 9: "However, sometimes there's less acceptance for these innovations, and they might say, "Well, I don't really want to use this innovation because I find my current way of working quite comfortable."

Quote 10: "I do notice that younger employees, up to around 30 or 40 years old, are more accepting and eager to embrace the transformative opportunities that digital technology brings."

Perceived Usefulness within Davis' research refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (1989). Overcoming both criteria on acceptance of digital tools can be achieved through showing the advantages of using new systems (**Quote 11**). By determining, and showing that new technologies enhance the delivery of services towards customers, employees can overcome their conservatism (**quote 12**)

Quote 11: "When you involve them in those changes and demonstrate the advantages, then the work actually becomes easier, you see."

Quote 12: "It's currently a point of discussion throughout the entire company, determining whether a technology can make our work easier. So, the need for integrating new technologies is definitely there."

They also contend that data security is an important factor of the acceptance of digital technologies in the financial services sector. Hence, financial services firms introducing safety measures can add value to their delivery of services (E. H. Manser Payne et al., 2021). Nevertheless, every financial services firm has its own set of priorities when evaluating the implementation of a new digital tool. For banks for example they can consist of the production and running the bank (**quote 13**). The importance of these take-aways is to not that for every financial services firm this is different, and the firm's priorities are always evaluated first when a tool is accepted.

Quote 13: "But when it comes to the actual implementation or when it comes to practicalities, often it comes at the cost of the other zero priority ones that I mentioned earlier."

4.1.2 Integration

The digital transformation research and experts view argue that both market pressure and customer demands initiate the transition. This section shows what factors define good integration, why market pressure and customer demands are visible here as well and how the integration of digital tools can enhance market competition and customer engagement. Researchers propose an integrated process on integration of digital tools. This process involves dynamic iterations between learning and doing. Next to an innovative mindset, the developments should be customer and business oriented as it should enable employees in delivering services to customers (Chanas et al., 2019). So, creating a DTS involves trial and error and investigates effects on customers and market position. Trial and error involve gradual steps in the implementation phase (**quote 14**). A dynamic phase in which an outline of the process is created, this usually involves executing pilot test to make sure implementation aligns with the expected outcomes (**quote 15**).

Quote 14: “The implementation strategy involved gradual steps. This approach allowed us to monitor the tool's performance, the infrastructure's responsiveness, and the servers' ability to make quick decisions.

Quote 15: “We start with the design phase, outlining how the process will look, and then involve all the parties to assess the impact on their respective areas. Once everything is set up, we validate it and make sure it aligns with the expected outcomes”

It can be argued that the main reason to involve customers in this process is to make sure value is added to the customers when introducing new digital tools. In achieving this, pilot test can be an effective tool to measure the positive effects of an implementation process. Komulainen (2018), in its research from a business to business (B2B) perspective on digitalization argues that future researchers must investigate the underlying reasons that create customer value because of a proper integration of digital tools with their existing service delivery. This involves risks, but these opportunities (**Quote 3**) overcome the challenges. Exploiting these opportunities involves piloting during the phases implementation with customers to get a sense of their valuation of the change in provided services (**quote 16**).

Quote 16: “In some cases, we conduct pilot tests with one or two customers to evaluate the phased implementation. However, in other cases, we are confident and proceed without a pilot.”

Besides considering what the customer wants, the market position is also valuable. As reviewed earlier, both customer engagement and operational efficiency are clear goals in digital transformation and the exploitation of digital tools according to the ambidexterity explanation of Vial (2019a). To maintain or improve market competition the company's value proposition must be redefined by the integration of services and digital tools (Kraus et al., 2021). Redefining value propositions involves market research. Therefore, it is important to compare and assess introductions of new digital tools, and the changes this involves with market competitors (**quote 17**). Why? to make sure operational efficiency remains high or even enhances due to a better market position?

Quote 17: “This data is compared to assess how we perform relative to our peers. When we make changes, we compare the results before and after the implementation.” We have several factors in assessing this.”

So, effective integration is dependent on several factors. Including customer involvement and market effects. Furthermore, revisions in the implementation phase are required to exploit opportunities that arise with digitalization. Incorporating these aspects into one strategy would overcome mistakes. Milian et al. (2019), theorize this integrated process for digital transformation strategies. Herein, the

episodes of digital strategy making is based on the DTS practices as every change or implementation of digital tools should be in line with the strategy while the strategy also refines the DTS practices (Milian et al., 2019). This model shows perspective as the sector requires a structured approach to DTS. As this process does not necessarily runs smoothly, and there is no one size fits all solutions (**quote 18**). However, best practices show that a structured approach which introduces employees that guide towards a DTS helps. Someone, with expertise on digitalization can help to streamline the process and remain consistency within digital initiatives (**quote 19**).

Quote 18: “So it doesn't necessarily go smoothly. And yeah, you can put in strategies, but not one strategy fits all”.

Quote 19: “Having someone with more knowledge and expertise to centralize and guide digital initiatives can be beneficial. It helps in streamlining processes and ensuring consistency.”

4.1.3. Exploitation

Continuing on the building blocks of customer demand and operational efficiency, the eventual implementation of digital tools should serve these as well. Nevertheless, finding the appropriate level of digitalization while maintaining customization and operational efficiency is hard. Vial (2019a) also emphasizes that exploiting digital tools both provides insights in market opportunities (operational efficiency) and can increase customer proximity (relationship). Only then, a competitive advantage can be achieved.

To elaborate on this, competitive advantage out of digital tool usage needs some further introduction. Hess et al. (2016) argue that it is no longer a question of when and if companies need to digitally transform, but how to embrace it and use it as a competitive advantage (Vial, 2019a). Again, it is claimed by Kamalaldin (2020) that competitive advantage out of leveraging digital covers both customization and operational efficiency. Customization is dependent on whether the introduction of a digital tool directly or indirectly affects the customer. If it directly involves the customer, and the digital tool does not have the expected effect, the need for revision is high (**quote 20**). With indirect effects, the opportunities generally outweigh the risk involved because changes can be made without effecting the customer relationship (**quote 21**).

Quote 20: “In such cases, where it directly affects customers' ability to manage their financial affairs, we promptly revert the change. We then investigate what went wrong and analyze the underlying reasons. If we find that the change did not meet the target we set, we reassess and seek opportunities for improvement.”

Quote 21: However, indirectly, the changes have increased the value for customers.” These changes consist of changes made in the financial services industry towards digitalization.

Operational efficiency is measured by dividing operational expenses through total revenue. So, to increase operational efficiency out of digital tools implementation, a financial services firm must either reduce their operating expenses or must increase their total revenue. Ideally both are achieved. First, digitalization can reduce repetitive tasks. By automating separate tasks, efficiency can be increased which reduces operation expenses (**quote 22**). On the other hand, total revenue can be increased due to digitalization. Speeding up the service delivery process, enables the firm to help more customers. This results in more business and eventually increases revenues (**quote 23**).

Quote 22: “It's remarkable how automation and digitalization have allowed us to streamline repetitive tasks.”

Quote 23: “And it goes both ways because it would create more customer value for them. But also in our sense, we can, you know, go through customers faster and grant them their loans and it brings them more business. You know, at the end of the day, you know, has a positive impact on our bottom line because we're getting more revenue that way.”

How can this be achieved and maintained. According to Wielgos et al. (2021), top priority in achieving this is the degree to which a firm specifies, monitors and evaluates. After introducing new digital tools, the procedures and systems that changed must results in new forms of value through the digitalization. Succession depends on skilled employees and a specialized team that enables the monitoring and evaluation of changes due to digitalization (**quote 24**)

Quote 24: “The goal is to have a workforce that is highly skilled in automating routine tasks, enabling us to focus on higher-value activities.”

4.2 Customer value

In the rapidly evolving world of digital transformation, organizations find themselves grappling with the challenge of delivering value, and cost-effectiveness to their customers. Komulainen et al. (2018) argues that it requires a restructuring of value-creating activities in the services industry. Furthermore, only a few companies understand customer value in terms of how value can be delivered through experience and how to create services that consumers want (Komulainen et al., 2018). Achieving this, is subject to taking incremental steps and building upon the fields where customer detect high value (**quote 25**).

Quote 25: "And then these are the ones which are not committed, but it will be much more on value, customer value, satisfaction, complexity, effort, and cost, you know, into maintaining

it. And based on that, it might not be one-off, but much more incremental. So, we might not be able to do everything, but we break into pieces where high value, according to the customer, can be picked up earlier if the complexity is, and the feasibility can be guaranteed. In that way, we are able to prioritize the innovations or improvements, within the priority list as given by the management."

In the pursuit of delivering value, organizations must delve deeper into understanding their customers' needs and preferences. It is most important to retrieve a conceptualization of customer value in the financial services industry out of earlier research in order to get this understanding. Hence, it is necessary to look at the service delivery through the eyes of your customers (McColl-Kennedy et al., 2018). Especially in the business-to-business industry, where customer experience indexes are lagging and where the value of each customer tends to be higher (Zaki, 2019). It is clear that value is provided to customers but defining where and to what extent is tricky (**quote 26**).

Quote 26: "The customer doesn't look at me and thinks that I'm adding value, but at other areas of the bank it would."

Nevertheless, embracing automation and technology can unlock significant potential for organizations striving to provide faster and more valuable services to their customers. Gummesson (2010) argue that financial services firms should align their organizational structures, processes, and systems to facilitate value co-creation and enhance customer experiences. Automation is one of the main tools to do this (**quote 27**). The advent of digital collaboration and automation has enabled organizations to stand out in the market by exploiting digitalization (**quote 28**).

Quote 27: "What we aim for and what I've noticed is that we can provide significant value by using automation, which allows us to deliver valuable information much faster."

Quote 28: "There's a connection there. I've observed that with clients who have embraced this digital collaboration process, where automation plays a significant role, we truly stand out. Those clients appreciate and benefit from it."

In this era of rapid technological advancement, organizations face a critical choice: adapt and innovate or risk being left behind. The necessity to keep pace with evolving tools and technologies is underscored by the understanding that customer expectations are evolving, and organizations must meet those expectations to thrive. If not, they will lose customer and firm value (**quote 29**),

Quote 29: "So it's a risk, using new tools, but if we continue using outdated technology, our clients will eventually disappear."

In conclusion, achieving customer value in the digital transformation requires organizations to prioritize customer needs, establish meaningful relationships and embrace digital technologies. By adopting these strategies, organizations can deliver exceptional customer experiences, stand out in the market, and ensure long-term customer value and operational efficiencies. Furthermore, by improving long-term customer value, operational efficiencies are enhanced for the firm as well.

4.3 Final conceptual framework

By an in-depth analysis on the empirical data, the preliminary framework is assessed. The different parts of the preliminary framework are justified by an expert's view. **Digital transformation**, which is described as the impact made by exploiting digitalization now shows underlying factors initiating the process of digital transformation. The first initiator is market pressure, as digitalization is a fast process, competitors exploit the tools associated with that. Therefore, a pressure from the market to remain competitive and profitable requires a need for digital transformation. Next to that, a customer demand initiates digital transformation. This is already demonstrated in research by Laukkanen (2016) and now confirmed by empirical insights showing that knowing what the customer wants, provides guidance for a financial firm's digital transformation. Furthermore, the stages of digital transformation, show much more overlap in the empirical data compared to the earlier research. **Acceptation** and **integration** are much more intertwined and are processed via digital transformation strategies. Acceptation herein requires an evaluation of top priorities of the firm as well as an critical view of potential value contribution of a digital tool before the tool is actually introduced. These steps as well as integrating a digital tool with existing processes is dependent on clear digital transformation strategies within a firm. Eventually, its succes and link to **exploitation** of digital tools requires constant monitoring and evaluating of usage, specifications and value contributions. Furthermore, where earlier research tends to take the customer's perspective it is important to note that digital tools also create customer value indirectly. This indirect customer value can be achieved through the exploitation of digital tools inside the firm, by creating firm value. By picking up the parts of customer value, which are most visible for customers, more **customer value** can be created. Taking the firm's perspective and creating value for the firm itself can indirectly also create customer value. An overall representation of this assesment of the preliminary framework results in the eventual conceptual framework visible in Figure 10, referred to as digital transformation framework.

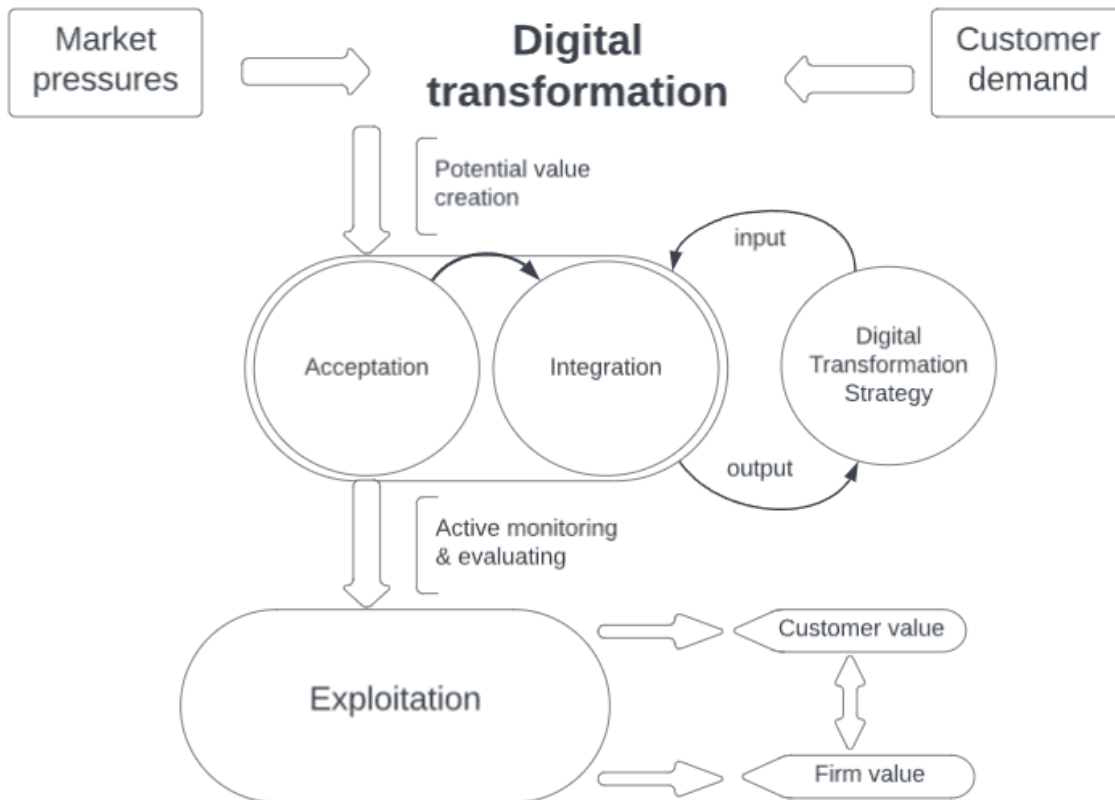


Figure 10: Digital transformation framework

In the digital transformation framework, we can discover the triggers for digital transformation consisting of market pressure and customer demand. Digital transformation its first stages, consisting of acceptance and integration require an assessment of value opportunities. Next to that, the acceptance and integration phase is subject to revisions in accordance with the firm’s digital transformation strategy. This is in line with Milian DTS model (2019), in which the DTS practices in acceptance and integration form a feedback loop with the actual DTS. Arriving at exploitation of digital tools, requires active monitoring and evaluation. Through this, firm value and customer value can be achieved wherein firm value can indirectly create customer value as well. This is for instance present when due to increased efficiency customer value is created due to less time constraints. Simultaneously, this also creates capacity within the firm to acquire more customer and create more revenue.

The empirical data on the concepts of this framework define the relationships of concepts to create assumptions to be tested in the demonstration in chapter 5. Digital transformation presents itself as a process, which due to outside pressures must be initiated. Hence it is more likely to be evaluated as a process than a concept. Acceptation initiates usage of digital tools and is dependent upon a potential value creation of the digital tool. Acceptation directly leads to integration, which together, to succeed, are dependent upon a digital transformation strategy. Nor by following these steps, exploitation is

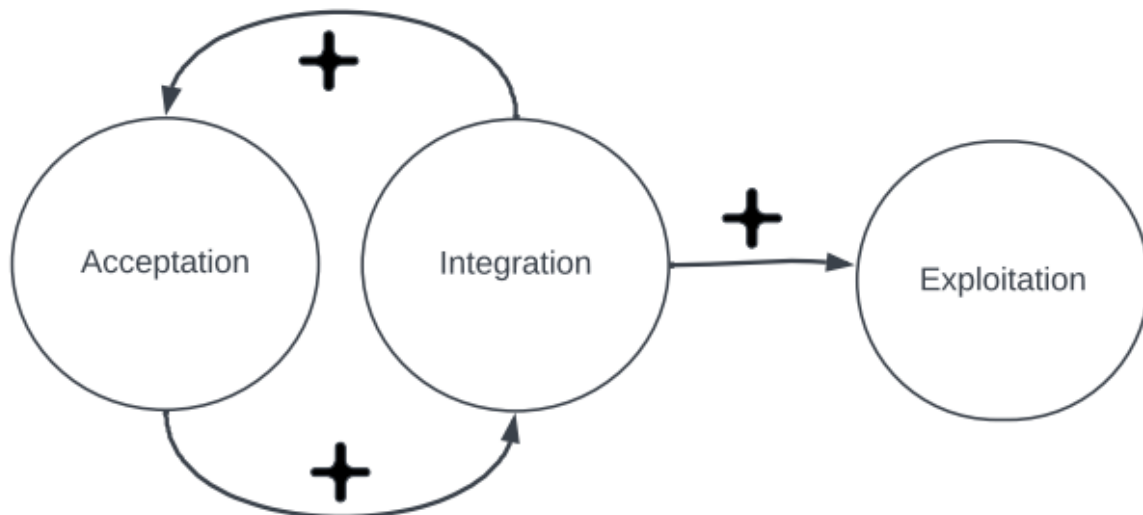


Figure 11: Concept relationship

achieved. Exploitation of digital tools is subject to effective integration and is achieved through active monitoring and evaluation. Resulting in customer and firm value. Customer and firm are the result of effective digital transformation, nevertheless this cannot be manifested. It is subject to exploiting digital tools, which is also subject to effective integration. Thereby this research can start defining the relationship between these concepts to make them assessable in the next chapter. This is outlined in Figure 11, which shows a simplified relationship order of the stages out of the digital transformation framework. The arrows show the positive relationship between the different stages. Out of this simple relationship scheme, the assumptions in the next chapter are made. As visible, the stage of integration influences the exploitation of digital tools which achieves the eventual goal of value creation. Acceptation of digital tools stands in advance as it is important to introduce the digital tools, but effective integration can also increase the acceptance level of digital tools.

5 Demonstration

Validating the DT framework is done via interviews on the usage of a digital tool among employees of the company BDO. This chapter starts by briefly introducing the digital tool, the evaluation method and the goal of the validation. After that, it sets out the main findings of these interviews by validating it through the established framework in chapter 4. Hereafter, this research can draw conclusions on the workflow on digital transformation within BDO in the last chapter.

5.1 Introduction company

BDO Netherlands, a leading member of BDO International, stands as a prominent financial services firm in the Dutch market, empowering businesses and organizations with tailored solutions and expert advice in the financial industry. With a big legacy of over a century, BDO Netherlands has continuously evolved to facilitate to the dynamic needs of clients, offering a comprehensive portfolio of services that drive growth, foster innovation, and ensure financial success. Established in 1917, BDO has emerged as a trusted name in the realm of financial services. BDO understands that every client is unique, with distinct aspirations and challenges. As such, the company adopts an integrated approach to help clients achieve their goals, combining the expertise of a diverse team of professionals with a deep understanding of various industries. From start-ups and SMEs to multinational corporations and public sector organizations, BDO helps a broad spectrum of clients, providing personalized solutions tailored to their specific needs.

BDO offers a comprehensive service portfolio, encompassing a wide range of financial solutions that address the demands of the business landscape. From accounting, tax, and audit services to advisory, mergers and acquisitions and digital transformation solutions, the company provides services designed to optimize performance and enhance profitability. In today's fast-paced, technology-driven world, staying ahead of the curve is essential. BDO remains committed to innovation, exploiting cutting-edge technologies and digital tools to deliver efficient, data-driven solutions to clients. The company embraces digital transformation, offering advanced analytics, cybersecurity, and data management services to ensure robust financial operations.

Within this research BDO, in particular their local office in Enschede and their auditing department is researched. The combination of their innovative spirit combined with their customer-centric service delivery provides BDO as a good case for this study.

5.1 Digital tool

The innovational spirit within BDO, as mentioned in the previous section, involves introducing digital tools. Using one specific digital tool, BDO serves as a good fit for the validation of our DT framework since it covers the digital transformation process for a financial services firm. The digital tool that is evaluated is called Robot-X. Robot-X is an application which is used within BDO among the auditing department. It increases the efficiency and effectiveness of the audit process. This process requires fewer manual tasks by using robot-X in the following practice shown in Figure 12.

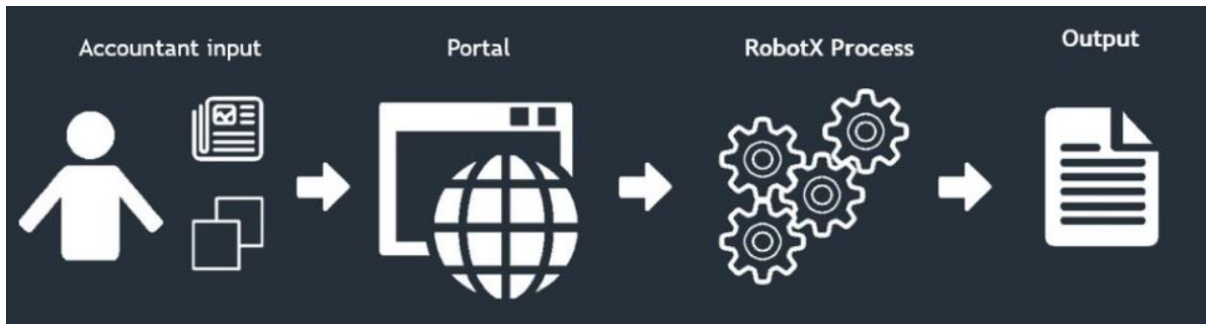


Figure 12: RobotX application process

The web-application can only be used by Audit & Assurance employees and can be implemented for every customer. The application had its first pilots in 2018 and has gone live halfway 2019. Over 2020, RobotX was tested for 212.00 samples, processed over 339.000 documents and has been applied to 502 customers within auditing. Client collaboration within RobotX allows customers to review the documents under audit. Furthermore, customers can add comments, react to made comments and customers can upload additional documents directly in the web-application. Nevertheless, the analysis in the next section does not directly focus on the specifications of the web-application. The analysis aims to discuss the usage of the web-application among employees. This analysis is based on three interviews that are conducted with employees using the RobotX web-application on, at least, weekly basis.

5.3 Goal and methods

The goal of this demonstration is to evaluate the main concepts in their relationship with each other and their relationship with each other. By assessing the relationship scheme with testable assumptions final revisions to the framework are established. Proving frameworks in conceptual research is a common mechanism to validate results and is embedded in the design science research methodology on which this research methodology is built upon. Peffers et al. (2007) describe this process as the following: “Develop a system architecture, analyze, and design the system, build the system. Experiment, observe and evaluate the system.” The system, in this demonstration, is the DT framework. This chapter covers the experiment, observation and evaluation of this system. According to Peffer et al. (2007), introducing a case study is an appropriate activity. Within earlier research this

approach is applied by Chantias et al. (2019). The same data collection and analysis, namely using interview data and a deductive coding method is applied for this research and therefore seems appropriated.

5.4 Validation

In order to validate the final DT framework, the following assumptions are created. These assumptions are created on the basis of the framework and are in compliance with the theoretical framework and the empirical data. These assumptions are validated through interviews in a case study testing the usage of a digital tool in a financial services firm. Validating these assumptions, allows for changes and justification in the framework and key-takeaways for the company on their digital tool usage.

- **Assumption 1:** Effective integration involves assessing potential value creation and is subject to a digital transformation strategy.
- **Assumption 2:** Acceptation of digital transformation is triggered by external factors and is encouraged by effective integration.
- **Assumption 3:** Exploiting digital tools is achieved through constant evaluation and monitoring.
- **Assumption 4:** Customer and firm value creation are results out of digital tools usage.

5.4.1 Assumption 1

The first assumption can be split into the external triggers initiating digital transformation and secondly the effect of integration on acceptance. The first factor triggering digital transformation is market pressure, this entails a pressure on a firm's operational efficiency if the firm does not involve digitalization practices. Insights within BDO show that adopting digital tools is essential in keeping up with the market (**Quote 1**). The second factor is customer demand. This entails a trigger in which customers expect the financial services firm to exploit digital technologies to make sure service provision remains efficient. Insights within BDO show that clients do expect the firm to be innovative (**quote 2**).

Quote 1: “The adoption of such tools is essential, as companies that fail to keep up with digitalization might face challenges.”

Quote 2: “Clients do expect us to be innovative and keep up with digitalization.”

After introducing new digital tools. The employee’s willingness to use new digital tools is something to focus on. Employees first need to be motivated to use a digital tool and secondly how to effectively use it. Some people find their current way of working satisfactory and are less inclined to try something. Hence it is important to show the importance of working with a new tool to exploit the

benefits of it (**quote 3**). After this succession, showing how to effectively work with it is crucial to create eventual value (**quote 4**).

Quote 3: “You really must show them and highlight the benefits to convince them to start using it.”

Quote 4: “They might not know how to use the tool effectively in their work or might not be aware of its efficiency.”

This assumption can be confirmed as the case study affirms that external factors trigger the usage of new digital tools. Furthermore, employees need motivation to use these tools which should be embedded in an integration strategy. Hence the case study results contribute to the DT framework, by introducing the effect of integration of digital tools on the acceptance level among employees. As acceptance does not solely influence integration. Integration, including a DTS, can enhance employee’s willingness to use digital tools and therefore the acceptance.

5.4.2. Assumption 2

According to the second assumption it is important to assess whether digital tools are incorporated only if they show potential value. Furthermore, a strategy is necessary to introduce and effectively integrate a digital tool as well as to reshape the strategy during this process (Figure 10). So potential value is a criterion to accept a digital tool according to the theories and experts in the sector. This is also in effect for the digital tools implemented within BDO. First, new tools are assessed on their value creation. If this is not visible, implementation is cancelled (**quote 5**). The priority for the financial services firm is that there is some part of value visible for the customer in the digital tool (**quote 6**). Next to that, within BDO it is confirmed that if a tool does not add value to their work, employees might also be hesitant to using it (**quote 7**).

Quote 5: “We assess whether a new tool adds value, and if it doesn't, we won't implement it.”

Quote 6: “Priority here is that it shows value for the services we deliver.”

Quote 7: “If the tool doesn't add value to my work at that moment, I might be hesitant to use it.”

At this point a clear strategy should be involved, as proven in the assumption, a digital transformation strategy is required to create value out of new digital tools. BDO also applies this strategy by first documenting the necessary steps during the implementation phase (**quote 8**). Secondly, BDO steers

towards effective usage by scheduling audit innovation sessions during which the usage of various tools is explained and demonstrated (**quote 9**).

Quote 8: “Yes, there is documentation about how we guide our implementation of new digital tools.”

Quote 9: “We have monthly quality sessions with about 40 people in a call, discussing the use of various tools, including RobotX.”

Although the assumption can be confirmed it is important to note that attention towards the actual usage of the tool and effectiveness should be included in the DT framework as well. As this demands attention as well to achieve effective integration. This entails, motivating employees to use a digital tool and to create a common willingness for this. This is also addressed in assumption 2.

5.4.3. Assumption 3

After effective integration, getting the most out of the tool is what a firm aims to achieve. This research defines this as exploiting digital tools. According to earlier research and the empirical data from experts in the financial services sector this is achieved through active monitoring and evaluation. Hence this assumption is made to be validated. It is important to note that this assumption does not assume that evaluation and monitoring increases the exploitation directly, it rather enables the exploitation of digital tools. The assumption in the next section will dive more deeply into the outcomes of exploiting digital tools. Within BDO, active monitoring and evaluation is also present to make sure these tools are used in the correct manner (**quote 10**). Next to that, these evaluations discard errors and make sure the tools specification and usage can be enhanced (**quote 11**).

Quote 10: “So active monitoring and evaluation helps us to make sure that we are using our tools as we are supposed to. This might enhance the services we provide to our customers, which creates more customer satisfaction, and this could be the value creation for them.”

Quote 11: “We have monthly meetings as key users to evaluate the performance of various tools and when there's an error, it's always subject to evaluation and improvement.”

Thus, it is visible that for the implementation of a digital tool within BDO, evaluation is present to make sure that the tool is used accordingly, and it is subject to improvement. The eventual goal of creating value out of this process is addressed in the next section.

5.4.4. Assumption 4

The goal of exploiting digitalization is improving value creation. Within the financial services industry, earlier research showed that this is mainly embedded in customer value. Nevertheless, empirical data from the sector itself emphasizes the firm's value, concretized in operational efficiency. Furthermore, the creation of customer value can create firm value as well. This is explained in the previous chapter. The assumption can be validated for three criteria. First evaluating customer value, secondly firm value and third the relation between customer and firm value.

To determine how a digital tool can create customer value, it's necessary to identify the variables that determine customer value and how variables are influenced by the usage of the digital tool. According to BDO the main benefits are in saving time and reducing errors. Herein reducing errors means enhancing the quality of the service. These variables are positively influenced by using RobotX. According to BDO using this tool enhances the quality of the service (**quote 12**) and enhancing the quality of the service is adding value to customers (**quote 13**). Furthermore, time and cost can be reduced by using this tool which contributes to the value creation for customers (**quote 14**).

Quote 12: "I believe using RobotX allows us to be more thorough, improving the quality of our services, which in turn increases client satisfaction."

Quote 13: "Any tool that helps us deliver high-quality service adds value for our customers."

Quote 14: "RobotX saves time, improves the quality of our work, and can positively impact costs, which ultimately contributes to the overall value we offer to our customers."

Simultaneously, using RobotX can create firm value. Within this research, this is expressed as operational efficiency. Again here, it is assumed that using RobotX can reduce time and improve quality. Thereby, value for the firm can be created. BDO affirms this, stating that using tools as RobotX improves handling tasks more efficiently to save time (**quote 15**). This and enhancing service quality by using digital tools can have a positive effect of the financial situation of the company (**quote 16**).

Quote 15: "By saving time, I could take on more clients, so BDO could potentially acquire more clients as we have increased capacity, leading to more revenue."

Quote 16: "Using RobotX and similar tools can be financially beneficial for BDO as it enables us to improve our service quality and handle more tasks efficiently."

Eventually, both the outcome in value creation for customers and the firm are intertwined according to earlier research and empirical data. As explained in the previous chapter, value that is created for

customers can lead to better firm’s operations. This is affirmed within BDO, stating that focusing on service quality can increase both customer and firm value (quote 17).

Quote 17: “By focusing on providing excellent service, we can create value for them, and in turn, it can lead to better revenue for BDO.”

Also, for the last assumption the different variables in the assumption leading to value creation out of digital tool usage can be confirmed for the financial services firm its case (2019).

Validation of the DT framework results in two minor adjustments. First of all, the effect of integration on the willingness to use digital tools influencing the acceptance stage. Secondly, to achieve results out of exploitation of digital tools, employee and customer engagement is an important variable. After these adjustments, the final framework is visible in Figure 13.

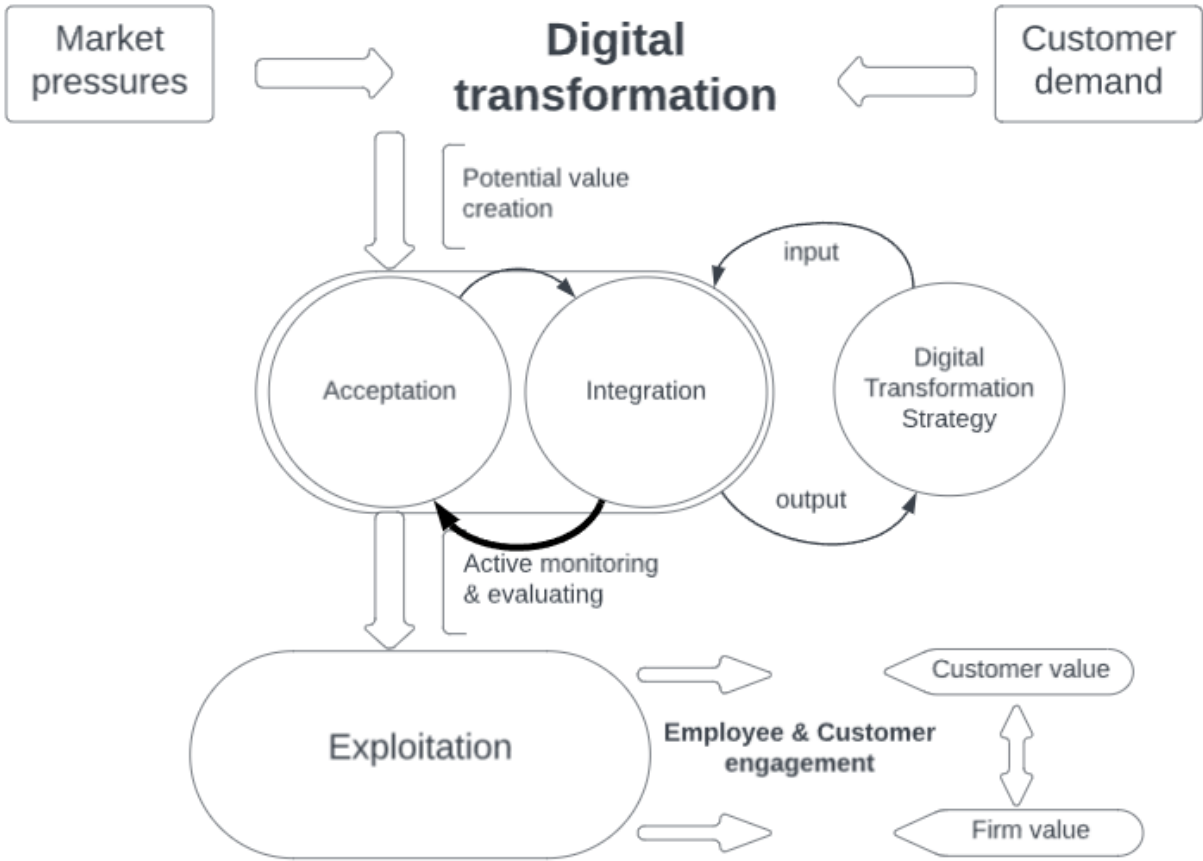


Figure 13: Final framework

6 Discussion

This chapter discusses the results of this research. In the subparagraphs, the different components of the final DT framework (Figure 10) that affect the different phases of digital transformation in the financial services industry are set out. Thereby, a structured overview of the phases of digital transformation, their initiators and effects are presented based on this research. This involves the theoretical background, empirical data and the case study results. Based thereon, the conclusions towards value creation in this digital transformation process and the answer to the research question are presented in chapter 7.

6.1 Discussion of the results

Digital transformation is heavily addressed in this research. According to the existing literature, digital transformation is visible and applied everywhere in nowadays society (Komulainen et al., 2018). Including the financial services sector (Gomber et al., 2018), affecting this industry as whole. Existing literature describes digital transformation as a process (Vial, 2019a) instead of a measurable concept. Hence existing literature related the digital transformation process to several stages that are conceptually measurable. Expert's view on digital transformation confirms the evolutionary process that functions to transform and improve the way services are provided in the financial services industry. Experts in the sector define this process as a result of external triggers as customer demand and market pressure. Although these triggers are not represented directly in the literature, case study results show that a financial services firm must digitally transform to maintain competitive and meet up with the customer expectations. Existing literature describes digital transformation as an already existing process and therefore does not present the variables initiating it. The combination of earlier research with the empirical data and case study results present digital transformation as a process covering the stages of acceptance, integration and exploitation of digital tools.

To improve research on introduction of digital tools within financial services firms, earlier research assesses acceptance levels of digital tools within the financial services industry. Older models combine technology acceptance models (TAM) and the perceived usefulness and ease of use of digital tools with the acceptance rates (Venkatesh et al., 2003). Within the stage of acceptance, empirical data and case study results show that potential value creation is also an important criterion in assessing the introduction of new digital technologies. Nevertheless, a common notice is that assessing the introduction of a digital tool is very dynamic and differentiating among firms. Financial services firms have different priorities, and these should specifically be evaluated before introducing a new tool. Herein, the key takeaway for firms is that new innovations must not intervene with top priorities within the firm.

The dynamic process of introducing new digital tools continues in the integration phase. Existing literature shows effective integration is dependent on good digital transformation strategies (Lezina et al., 2019). These strategies, structure the change in processes and make sure that new working manners are integrated with existing ones. Milian et al. (2019) show that this integration process consists of a dynamic flow between the implementation of a digital tool on the one side and the existing strategy on the other side. Creating an interplay of input and output to improve the eventual process within the firm that involves a new digital technology (Figure 4). Empirical data and case study results emphasize one crucial factor in the integration phase. The willingness of employees to use a digital tool and the way they are motivated to use it. This insight creates a bridge between the phases of acceptance and integration. First, acceptance includes the introduction of a digital tool to start the phase of integration. Second, integration should incorporate a digital transformation strategy that includes customer motivation and the creation of common willingness for digital tool usage, which increase the acceptance level. This bridge emphasizes the interplay as provided by Milian et al. (2019) on the input delivered by innovation and the output of a realized digital transformation strategy. Lastly the case study results show that realizing the above mentioned is subject to documentation and constant monitoring of implementation phases.

Monitoring and evaluation remain crucial after implementation, in the exploitation stage. Top priority in the exploitation phases according to existing literature is the degree to which a firm specifies, monitor and evaluates the procedures and systems to adapt to new forms of value through combinations of digital technologies (Wielgos et al., 2021). Exploiting this, is funded in engaging between actors and the services provided to them. Investigating the service delivering quality is recognized among experts. The service delivery that changes through digitalization should be monitored and evaluated. Empirical data shows that piloting is a useful method to do this. This approach allows financial services firms to monitor the performance of an implemented digital tool. Furthermore, through engaging with customers during this process, the infrastructure responsiveness can be measured by comparing the results before and after implementation. The case study confirms the process of monitoring and evaluation. By having monthly meetings, the changes are always subject to evaluation and improvement. So active monitoring and evaluation helps to make sure that the digital tools are being used appropriately. This enhances the services provided to customers, which creates more customer satisfaction.

However, introducing digital service technology into the sector does not automatically improve customer value (L. Manser Payne et al., 2021a). Although earlier research identifies the relationship between digital transformation customer value creation, the relationship is hard to measure. As described earlier in this research, customer value creation is an outcome of the stages of digital

transformation. Komulainen et al. (2018) argue that it requires a restructuring of value-creating activities in the services industry. Experts confirm this statement by stating that value for customers should be created where most visible for customers. To do that, customer value in the financial services industry must be defined. Existing research introduce the iron triangle of customer value (Pollack et al., 2018) consisting of: time, cost and quality. Herein, reducing time and cost and improving service quality positively affects customer value. Empirical data shows that introducing new digital tools presents opportunities for value creation. Streamlining repetitive tasks and delivering valuable information way faster increases efficiency and makes several services deliver tasks less time consuming. Case study results tick the box for every facet of customer value. Users of a digital tool within a financial services firm show that this tool saves time, improves the quality of the services provided and can positively impact costs, which ultimately contributes to the overall value offered to customers. An additional finding from existing literature is the ambidexterity of exploiting digital tools, resulting in both customer value and operational efficiency. Users of digital tools within a financial services firm acknowledge that by streamlining operations, more clients can be helped which increases capacity which positively affects revenues.

6.1.1 Practical recommendations

The practical recommendations of this research are embedded in the evaluation of the case study results. This entails the process of acceptance, integration and exploitation of the usage of a digital tool, RobotX within a financial services firm, BDO. Since this research defines these three stages in digital transformation, this chapter will provide BDO with recommendations regarding these three stages in a customer value creation context. Next to that, two key takeaways for financial services firms in general are presented.

Acceptation: The results regarding the stage of acceptance cover the initiation due to market pressure and customer demand. Furthermore, it emphasizes assessing value creation opportunities before implementation. The case study results show a structured approach in identifying new digital technology opportunities and introducing them in the company. Nevertheless, the willingness to use digital tools among employees is bounded. Hence, BDO is recommended to increase capacity into employee motivation in accepting the usage of digital tools since the effects of using them are clearly positive from a customer value perspective.

Integration: The results of this research on the stage of integration mainly focus on the presence of a digital transformation strategy. BDO employees state the presence of documentation in the integration of new digital tools. A pitfall is recognized where the advantages of the integration should be visible, especially how to communicate these advantages. Hence, BDO is recommended to provide employees with numerical results of advantages of digital tool usage. For instance, via timing hours in

executing similar tasks with and without using a digital tool. Thereby, employees can be positively shows the effects of using tools in their service delivery. From a customer value creation perspective, the time criteria might be enhanced by this.

Exploitation: The results on the stage of exploitation in this research show dependency on active monitoring and evaluation. BDO seems to cope with this effectively by scheduling monthly evaluating sessions with key users of the digital tools. Hence the only small recommendation in this regard is to continue with this process and involve as many employees as possible. Furthermore, customer involvement could contribute to the exploitation of digital tool.

Also, this research covers some practical recommendations for financial services firms in general. These recommendations stem from the expert's interview and case study. First of all, a common argument made during the empirical data gathering is based on the 'Take it or lose it' principle. As earlier research emphasized, the speed of digital transformation is enormous. Hence, financial services firms are required to step in take some risk to gamble on new technologies. If they won't, their competitors will and take over market share in their sector. Second, an important lesson in the process of digitalization is to always involve both employees and customers. This ensures that tools are applied to serving the needs of customers. Next to that, by involving employees a constant process of evaluation is created without much effort. Additionally, the advantages of using digital tools are obvious most of the times, hence convincing employees is a task that requires attention. In this way, employees start to motivate other employees and the number of digital tools users within a company could really increase. Although this research does not investigate the precise outcomes of putting effort in these takeaways, future research could bring interesting findings by making this measurable.

6.1.2 Contribution to existing literature

This research builds upon earlier research in this field. It provided several theoretical implications to existing literature by doing that. Existing literature described the main concepts of this research and the effect of digital transformation on the way services are provided in the financial industry. Nevertheless, it is limited at providing practical implications and examples of how this can be achieved and how the customer can be the beneficiary of digital transformation. Existing literature as by Komulainen et al. (2018), do incorporate sector interviews but lack at starting with a DT framework. On the other hand, Gomber et al. (2018), establish the conceptual background but lack to assess this by gathering sector insights via interviews. Here, this research stepped in. Starting by establishing a conceptual framework on already existing literature it continues by assessing this by expert's view on these earlier findings. Next to that, a real-case application for the assessed DT framework provides practical examples on how the use of digital tools can increase value for customers in the financial services industry. These practical examples are presented in the previous section.

In addition, this research contributes to existing literature by its staged approach towards researching digital transformation its effects. Whereas earlier research present digital transformation as a process as a whole, this research divides it into three steps. Hereby, a relationship of the stages with each other and its impact on customer value creation is defined. Hence, this research proposes that the stage of integration is a crucial stage as it affects the stage of acceptance and exploitation. By motivating employees to increase their willingness towards using digital tools it enhances the acceptance level. By defining guidelines in strategies, it creates monitoring and evaluation opportunities for digital transformation episodes which allow exploitation of the implemented digital tools. Next to that, the staged approach increases the applicability of the framework to a specific financial services firm. Existing literature tries to establish one central framework on investigating digital transformation for financial services firms (Gomber et al., 2018; Kamalaldin et al., 2020; L. Manser Payne et al., 2021b). This research shows the dynamics of digital transformation. It shows how digital transformation differs per firm, and how priorities heavily differ per firm. Thereby it emphasizes that each firm should always assess it firm's priorities when introducing new digital technologies. Hence, a specific framework on digital transformation is hard to apply. Instead, the guidance provided by this research show the importance of each different step for financial services firms when introducing new technologies to improve their services. Allowing financial services firms to partially, for instance for one stage, introduce this framework when implementing digital tools.

6.2 Reliability and validity and further research opportunities

This section presents a structured review on the methodology and the results of this research. By addressing each sub-question and the aligned methods a critical view on the reliability and validity of this research is presented. Furthermore, out of this critical view, further research opportunities are set out.

The first sub-question is answered in chapter 1. The goal of answering this question is to get a brief understanding of the role of digital transformation in financial services. Especially from a problem-centered perspective, to address the urge for this research. This question is answered by introducing the problem, stating the importance and a motivation of the necessity of this. Introducing the problem is done by providing a brief background on the topic by presenting recent research on the topic. After that, the pitfalls of digitalization together with an explanation on how to overcome these pitfalls are addressed. Generally, this section could have benefited from a more detailed introduction of the problem. By including more numerical examples on how digital transformation affects the industry, the urge for this research could have been clearer. Furthermore, due to the dynamics of digitalization it takes a lot of effort to get a good image of the current situation. Nevertheless, this section allowed to get a sufficient answer to the first sub-question by outlining recent research on the topic. For further

research it could be beneficial to directly specify on a specific sector or product affected by digitalization. Thereby, an accurate image of the sector's digital transformation situation can be presented, which forms a good basis for the questions and the goals of the research.

The second sub-question is answered in chapter 2. The goal of answering this question is to create first conceptual framework on digital transformation for the financial services industry. To create a structured approach to the review of earlier literature, a concept matrix on gathering literature was developed. This research benefited from this concept matrix by setting boundaries for the collection of earlier research. Since the topic of digital transformation, also in the financial services sector, is heavily researched it was necessary to limit the number of articles to be reviewed. By a tick-the-box system per concept the articles are prioritized, creating a good structure for the second chapter. Hereby, the literature review was sufficient and formed a good basis for the analysis of this research. Collected articles were limited to Web of Science and Scopus, by expanding the article libraries, a broader image of the concepts could have been presented. Further research could benefit from limiting earlier research to the past few years due to the speed of digital transformation. Hence, the reliability on the actuality of this research, since it is partly based on possibly outdated research, can be doubted.

The third sub-question is answered in chapter 4. The goal of answering this question is to get an assessment of the preliminary conceptual framework on digital transformation out of the literature review. This is achieved by assessing the different facets of the conceptual framework during sector interviews in the financial services industry. By executing semi-structured interviews with employees in the sector, their perspective could be compared with the literature. To unfold this perspective, follow-up questions were used in addition to the interview guideline (Appendix 9.3). To make sure that interviewees were aware of the meaning of the main concepts, a definition of the main concepts was provided prior to the interview. Future research could be performed by including a questionnaire based on existing literature and its results prior to the interviews. By setting out a questionnaire on the results of the second chapter of this research, the researcher could have been able to identify more accurate questions to assess the conceptual framework during the interviews. Due to time constraints, this research did not include this. The number of interviewees for the empirical data was limited to 9 participants. This research could have benefited from including more interviews. This could ensure theoretical saturation by setting out clear boundaries for this to occur, which was hard to certainly confirm after 9 interviews. Next to that, the criteria set for interviewees are that they should be working in the financial services industry and preferably have experience with digitalization, data science or innovation. Since 8 out of the 9 interview participants had experience with this, bias could have occurred in their answers towards digital transformation. Since their role was related to this

concept, they could tend to be in favor of digitalization. To mitigate this, interviewees from different countries participate to make sure that different opinions on the topic are provided. The choice for a qualitative data collection method seemed logical after reviewing the literature. Firstly, nearly all reviewed articles used a qualitative approach. Secondly, the methods of the reviewed articles that covered all concepts of this research all executed a qualitative data collection method. Hence this method seems appropriate, nevertheless a link towards qualitative research to validate the results could be introduced in further research. In the data analysis phase of this research, another discussion point can be mentioned. The researcher is the only one that coded the interview transcripts. Besides, the researcher individually divided the concepts over the different themes and quotations. Besides the researcher performing this division of codes, no other checks by an external party took place. This means that the coding process is subjective to the insights of the researcher. Nevertheless, by a structured approach based on concepts out of earlier research and using Atlas.ti as coding program, the possible bias formed by this limitation is mitigated. This research used deductive coding based on the concepts identified in the conceptual framework. Reliability of the results could be improved when an inductive coding method was also introduced. Thereby, empirical data would not have been limited to the main concepts and different interesting findings could have been included.

The fourth sub-question is answered in chapter 5. The goal of answering this question is to get a validation of the digital transformation framework established in chapter 4. The method chosen for this validation is a case study with semi-structured interviews. According to earlier research, case studies are a suitable method for validating. Semi-structured interviews were used because the goal was to get a sense of the perspective of employees working with a specific digital tool while being able to add follow-up questions during the interview as well. The amount of interviewees for the case study were 3. As explained in section 3.5, the number of case-study interviews was limited to achieving theoretical saturation. After the third interview, a third similar perspective was retrieved, hence no more interviews were included for the validation of the digital transformation framework.

There is also some limitation in the case study in this research. Participants were contacted on the basis of usage of digital tools. Employees that mostly used these tools, were contacted first. Hence, the 3 participants were all possibly positively biased towards using a digital tool. To overcome this bias, the key users of the digital tools which acted in the company's monthly evaluation sessions were included in the interview to get a sense from the downsides of the digital tool as well. Future research, including case studies in its validation chapter, could benefit from including heterogeneity. This research included a homogenous interview sample, hence differences between users and non-users of a digital were not included. This research opportunity is embedded in one of the takeaways provided in this research. As described in section 6.2, take it, or lose it and involving employees and customers

is an important takeaways for financial services firms. Making this measurable could deliver interesting insights. For instance, by doing quantitative research analysis on heterogeneous groups divided in groups using digital tools and groups that don't. For this, a case-study, as in this research, would be a suitable method. Hereby the impact of using digital tools on criteria defining customer value can be measured. Herein customer value could be limited towards one certain aspect, for instance the time needed to provide services, which is measurable. The outcomes of such research could prove empirical evidence on the advantages of using digital technologies to create customer value, using this research's framework as a basis of understanding. Lastly, choosing the digital tool to be researched could be better explained. Setting specific criteria on the digital tools could enhance the reliability of the validation process. However, due to time-constraints this research chooses the most used digital tool to increase the sample size of possible interview candidates.

The fifth sub-question of this research is answered in chapter 6 and 7. The goal of answering this question is to set out the findings of this research and to allow for an evaluation of the methods. By summarizing the findings of the sector interviews and the case study results, the main takeaways are presented. These takeaways consist of general sector takeaways and specific recommendations for the case study firm. Introducing an evaluation method for the results of this research could have been beneficial for the reliability and validity check of this research. Hence, future research is recommended to decide on an evaluation method during its methodology section.

Additionally, rigorous developments in the field of artificial intelligence provide opportunities for future research. During the expert's interviews and the case study of this research, this topic was often brought to the attention. Future research in the field of customer value creation in digital transformation in financial services could investigate the role of AI in service delivery for customers. As one interviewee stated, AI could become the ideal financial advisor meeting every criterion for every single customer. Hence measuring customer satisfaction by introducing AI in financial services could be an interesting topic to research. Again, this could build further upon the basis of the understanding provided by the DT framework provided in this research. Lastly, in these further research opportunities, the analysis could benefit from increasing the population or data sample.

7 Conclusion

The main research question this research tried to answer is: *“How can customer value creation be evaluated by using a framework on digital transformation for financial services firms?”* In order to answer this main research question, several sub-questions have been established. These have been answered during this research by executing a literature review, sector interviews with nine experts working in the financial sector and an informative case study and comparing these results.

The first sub-question introduced the main concepts of this research by answering the question: *“What is the role of digital transformation in financial services when evaluating customer value?”* The answer to this sub-question highlighted the opportunities and challenges that arise with digital transformation. Creating an initial urge for strategic responses to the process of digital transformation. These responses required a structured approach on defining the process of digital transformation. Hence, sub-question two defined the stages of digital transformation by answering: *“What are the stages of digital transformation for a financial services firm?”* By an extensive literature review, the need for a staged approach as well as an introduction to the different stages is presented. Showing the stages of acceptance, integration and exploitation within digital transformation. By explaining the different stages, this research allows for the framework to be assessed and increased the applicability of the conceptual framework on the case study later on. The third sub-question starts with incorporating empirical data to assess the conceptual framework by answering the question: *“How can the conceptual framework be assessed by introducing a financial services firm perspective?”*. Assessing the earlier literature through empirical data by executing sector interviews provided adjustments to the framework. The assessment indicated underlying factors causing the need for digital transformation. Next to that, it showed the importance of digital transformation strategies, that affect the intertwined stages of acceptance and integration. Indicating a continuous evaluation between the firm’s digital transformation strategy and the implementation and integration of digital tools. The actual implementation and integration of a digital tool in the context of the framework of this research is validated by answering sub-question four: *“How does the introduction of digital tools within financial services firms affect customer value?”* Case study outcomes showed an urge of employee and customer involvement to achieve exploitation of digital tools. Especially, improving employees’ willingness to use digital tools maximizes the potential benefits hidden in the process of digital transformation. Sub-question five addresses the conclusions of this research by providing an answer to: *“What are the main takeaways for a financial services firm’s when introducing new digital tools to create customer value?”* Active monitoring and evaluation and showing the potential value to both employees and customers is the most important takeaway for financial services aiming to create more customer value out of their digital transformation process.

By answering this sub-question, an answer to the research question is concluded. By defining the essence of customer value creation in a services industry context, the framework established in this research guides digital transformation. A staged approach is necessary to continuously evaluate customer value creation out of using digital technologies. By taking a customer-centric perspective, the established framework provides several takeaways for financial services firms in different stages of digital transformation. In conclusion, evaluating customer value creation through a DT framework on digital transformation for financial services firms is dependent on engaging between customers, employees and the introduced technologies. This study highlighted that this approach can enhance customer value through reducing time-consuming tasks, reducing costs and enhancing the quality of provided services. For customer and employee engagement in digitalization, this study provided recommendations to BDO to improve future customer value creation out of new or existing digital tools. These consisted of enhancing employee willingness to use digital tools, showing the advantages and involving both employees and customers in the evaluation and monitoring process.

8 References

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9 Appendices

9.1 Contact expert's interview

Request for interview – 1st Email.

Dear Sir/Madam [or name of respondent],

My name is Bram de Rouw, I am a master student in Business Administration at the University of Twente in The Netherlands. I am working on my master thesis on the topic of digital transformation in the financial services industry. For the data collection, I will interview employees at financial services firms. I am sending you this email because I am very interested in interviewing [company name].

My research is related to value creation out of digital transformation in the financial services industry. You can find an overview that explains the topic of my research in the attachment.

I would like to conduct an interview of approximately 30-45 minutes with you or a representative of the organization. In this interview, we will discuss your perspective on the most important concepts of my research. The data from the interview will be analyzed and used confidentially and anonymously, and the data handling will align with the guidelines of the GDPR.

I would like to know if you are interested in scheduling an (online) interview with me about this topic.

If you have any questions, please do not hesitate to contact me. I am looking forward to your response.

Kind regards,
Bram de Rouw,
University of Twente

Information about the interview – 2nd Email

Dear [name of representative],

Tomorrow at [time], we have scheduled the interview for my master thesis within financial services. With this email, I want to give you some additional information about the interview.

In the attachment you can find an overview of my research topic. The goal for the interview is to gather your perspective on the customer value creation process from digital transformation in the financial services industry. If you have any questions regarding my research, we can discuss these during the interview, or feel free to send me an email.


I would also like to give you some information about data handling. The interview will take a maximum of one hour. If you agree, I would like to record the interview. The recording of the interview will be only accessible to me and will be stored in line with the GDPR guidelines. The recording will ultimately be deleted directly after I finish my master thesis.

Furthermore, the data extracted from the interview is anonymized, therefore no names nor company names will be mentioned in the data analysis nor the master thesis. During the interview, I would like to ask you to take part in a quiet room with a good internet connection. And if you have any questions or remarks prior to the interview, please do not hesitate to contact me.

I am looking forward to meeting you!

Kind regards,
Bram de Rouw
University of Twente

9.2 Participants information letter



**DIGITAL TRANSFORMATION
IN THE FINANCIAL SERVICES
INDUSTRY**

Background

The speed of digital transformation can be challenging for financial services firms. Financial services firms must have the correct tools and strategies to adopt new digital tools and effectively make use of these tools. Simultaneously firms must learn how to benefit from the implementation of a digital technology at best. Especially how firms can enable themselves to improve customer value when they start or have implemented new digital technologies.

This thesis research will investigate how customer value creation can be evaluated during digital transformation in the financial services industry.

Research question

How can customer value creation be evaluated by using a research framework digital transformation for financial services firms?

Interview

First, I want to get some general information about your role in the financial services industry. Thereafter we will discuss the main concepts of my research: Digital Transformation; Financial services; customer value. Then we will discuss the stages that determine the success of customer value creation which are defined by my research: Acceptance of new digital tools, integration with existing processes and exploiting the usage of digital tools to create value for customers.

Definitions

Digital Transformation: A process where digital technologies create disruptions triggering strategic responses.

Digitalization: adopting digital technologies and incorporating them into existing systems and processes.

Digital tools: A product or service that serves the digitalization process.

Digital transformation strategy (DTS): A company's approach to provide insight in how an organizational strategy can create differential value by leveraging digital technologies.

Customer value: An individual customer's long-term profitability.

UNIVERSITY OF TWENTE.

Figure 14: Interview protocol

9.3 Interview setup expert interview

Script for beginning interview.

After all information has been provided to the interview participants in advance this script makes sure the start of the interview runs smoothly, everything is mentioned and consent for the recording is asked.

- o Asking consent for recording the interview and begin with recording the interview once approved.
- o Mentioning the schedule for the interview, which is at first providing some information about myself and the research and the data management procedures, then discussing the structure of the interview questions.
- o Shortly introducing myself
- o Providing some information about the research and the goal for the interview and asking whether the representative has questions.
- o Giving some information about the data handling procedures.
- o Asking for consent to participate in the interview. After discussing these points, the interview can start.

Script for ending interview.

After discussing the interview questions, the interview will end with the thanking the representative for participating in the interview and closing the interview.

Interview questions

Question block	Exemplary Questions
Introduction	<ul style="list-style-type: none"> • Introduction of the persons (Interviewee and interviewer) and the project
About the own company/institution	<ul style="list-style-type: none"> • Can you please describe your role at the company or institution and the company or institution and its role for the financial services sector?
Digital transformation in the financial services sector	<ul style="list-style-type: none"> • How would you characterize the digital transformation in the financial services industry? • Can you provide an example? • How does digitalization influence the way services are provided to customers?
Acceptance of Digital Tools	<ul style="list-style-type: none"> • What would be the main reason for a financial services firm to embrace the usage of digital tools in service activities? • Why would a digital tool be deferred?
Integration of Digital tools	<ul style="list-style-type: none"> • What are complications for financial services firms when introducing digital tools within their servicing activities? • How can financial services firms achieve effective integration in leveraging digital tools?
Exploitation of Digital tools	<ul style="list-style-type: none"> • How can financial services firms use digital tools as a competitive advantage? • What is your opinion digital transformation strategies in financial services firms?
Creating customer value	<ul style="list-style-type: none"> • Which part of customer value is most important for a financial services firm? • Where do you see opportunities for a financial services firm when introducing new digital technologies to create customer value?
Ending questions	<ul style="list-style-type: none"> • Do you have any additions?

Table 4: Interview guideline

9.4 Contact case study interviews

Request for interview – 1st Email.

Dear participant,

For my graduation research at BDO, I am looking for participants for my interviews. I intend to conduct at least 3 interviews. Interview participants should be employees within BDO who use the RobotX tool. If I'm not mistaken, you fall under this category as well, but please correct me if I'm wrong.

Therefore, I would like to ask for your assistance in my research by participating in a 45–60-minute interview. I hope to schedule these interviews on the following dates:

Please let me know if you are available during these times by indicating which moments are suitable with your schedule. Once we have scheduled the interview, I will provide additional information about my research and the purpose of the interview.

Thank you in advance!

Best regards,

Bram de Rouw

Information about the interview – 2nd Email

Dear participant,

First of all, thank you for your time and effort in participating in my graduation research at BDO. In this email, I would like to briefly introduce my research, the interview, and its purpose.

For my graduation research, I have developed a research framework on digital transformation in the financial services industry. I want to apply this research framework within BDO for the RobotX tool. I need your help for this application.

To accomplish this, I would like to conduct an interview, which is a semi-structured interview. This interview will focus on the key phases of digital transformation as defined in my research: acceptance, integration, and exploitation of digital tools. The goal is to gain your perspective on these different steps, specifically regarding the use of RobotX.

Once again, thank you for your willingness to assist me with my research.

Best regards,

Bram de Rouw

9.5 Interview setup case study interview

Question block	Exemplary Questions
Introduction	<ul style="list-style-type: none"> • Introducing the interview, the interviewee and this research • Can you please shortly introduce yourself and your function within the company?
About the digital tool	<ul style="list-style-type: none"> • Can you please indicate how, and how often you use the tool RobotX in your work? • How would you define the advantages of using digital tools in your work? And in specific for using of RobotX? • How would you define the advantages of using digital tools for customers of BDO? And in specific for the use of RobotX?
Acceptation	<ul style="list-style-type: none"> • What is the main reason for you to use RobotX? • Why would you defer using a digital tool once it is introduced by BDO?
Integration	<ul style="list-style-type: none"> • How are digital tools integration among current working processes? Especially for RobotX? • How is this documented? • How could this be enhanced? • How are you burdened in the use of digital tools during your work?
Exploitation	<ul style="list-style-type: none"> • How do you maximize the usefulness of RobotX in your work? • How is the usefulness monitored and evaluated?
Customer value creation	<ul style="list-style-type: none"> • How would you define customer value during your work? • How do you think that using RobotX could add value for BDO? How do you think that using RobotX can add value for customers of BDO? • Where do you find opportunities for BDO to create value for customers once introducing new digital tools?
Ending questions	<ul style="list-style-type: none"> • Do you have questions or additions?

Table 5: Interview guideline case study