DEGREE PROJECT IN INDUSTRIAL ENGINEERING AND MANAGEMENT,
SECOND CYCLE, 15 CREDITS
STOCKHOLM, *SWEDEN 2021*

Digitalization of the customer experience in banking

Use of AI and SSTs in complex/sensitive tasks: pre-collection

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Master of Science Thesis TRITA-ITM-EX 2021:133
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Acknowledgement

We would like to thank and express our gratitude to Prof. Dr. Terrence Brown for his support and guidance through the master thesis. He helped us to keep on track with the important matters of every single step along the way to reach our goal.

We would like to thank our supervisors at the bank for giving us the opportunity to conduct this research in close collaboration, and for providing all the necessary information needed.

We would also like to thank our friends and family who supported us along the way. Finally, our heartfelt thanks and gratitude to Zuhal Alkanat and Lourance Touma who were always there for us.

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Abstract

The digital revolution is changing the banking industry, and how banks create value and deliver services to their customers. Customer experience becomes the main pillar of digitally transformed banks through self-service technologies (SSTs) and the use of artificial intelligence (AI); the research focus of this study is to explore the impact of those modern technologies when dealing with sensitive information and emotional encounters in the banking sector. A case study method has been used with an in-depth investigation consisting of both internal and external interviews for Valhalla Bank in Sweden. External interview results presented the debtor's perspective by laying out the main challenges faced during the repayment process. The study concluded by answering the main research questions and suggesting practical implications for financial institutions. Banks should proactively seek both explicit and latent needs of different customer segments; any customer interaction data has the potential to become the source of optimizing call scheduling, script customization, or customer experience evaluation. Customers expect flexibility to choose between human interaction and self-service technologies. Sensitive topics can be dealt with digital tools when they can provide advanced functionality with maturity to establish trust and security. Lastly, even though the technology is perceived as cold with a lack of empathy, customers are ready to experiment as they are not comfortable nor satisfied with the current interactions. Regardless of the state of the digital journey of a financial institution, customers should be well-informed about technologies while banks prioritize ethical controls to provide transparent relationships in which any type of customer can feel valued.

Keywords: digital transformation, digitalization, customer experience, self-service technologies, AI, pre-collection, sustainable digitalization, ethical coding

Sammanfattning

Den digitala revolutionen förändrar banksektorn och hur banker skapar värde och levererar tjänster till sina kunder. Kundupplevelse blir huvudpelaren för digitalt transformerade banker genom självbetjäning tekniker (SST) och användningen av artificiell intelligens (AI). Forskningsfokus för denna studie är att undersöka effekterna av den moderna tekniken när man hanterar känslig information och känslomässiga möten inom banksektorn. En fallstudiemetod har använts med en djupgående undersökning bestående av både interna och externa intervjuer för Valhalla Bank i Sverige. Externa intervjuresultat presenterade gäldenärens perspektiv genom att redogöra för de största utmaningarna under återbetalning processen. E-bank kanaler och lösningar har dominerat kundernas preferenser med en hoppfull syn på att bygga upp förtroende för relativt ny teknik. Studien avslutades med att besvara de viktigaste forskningsfrågorna och föreslå praktiska konsekvenser för finansinstituten. Banker bör proaktivt söka både tydliga och latenta behov för olika kundsegment, samtidigt som deras mest värdefulla tillgång är kundernas digitala fotavtryck. Alla kundinteraktion data har potential att bli källan till att optimera samtals planering, anpassning av skript eller utvärdering av kundupplevelse. Kunder förväntar sig flexibilitet och frihet att välja mellan mänsklig interaktion och självbetjänings teknik. Känsliga ämnen kan hanteras med digitala verktyg när de kan ge avancerad funktionalitet med mognad för att skapa förtroende och säkerhet. Slutligen, även om tekniken upplevs som ”kall” med brist på empati och känslor, särskilt när det gäller komplexa och känsliga uppgifter som skuldfrågor, är kunderna redo att experimentera eftersom de inte är bekväma eller nöjda med de nuvarande mänskliga interaktionerna. Oavsett tillståndet för en finansiell instituts digitala resa bör kunderna vara välinformerade om ny teknik medan bankerna prioriterar etisk kontroll med detaljerade handlingsplaner för att ge en nära och transparent relation där alla typer av kunder kan känna sig värderade och förstådda.

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1. Introduction

This chapter covers six sections, a background of the research subject followed by a problem statement. Which in turn is followed by the research purpose as well as the research questions, delimitations, and at last sustainability. This research is a collaboration between two researchers, the Royal Institute of Technology and a large bank (~300 employees) operating within day-to-day finances, based in Sweden, and due to agreement with the bank of being anonymous, a fictitious name will be used: Valhalla bank.

1.1 Background

The Valhalla bank improves daily finances for more than 300,000 private individuals, entrepreneurs, affiliations, and organizations. The bank endeavors to offer financial administrations that individuals genuinely need and that have an effect in the society. their administrations are proposed to be a stabilizer to the increasingly complicated service offerings to help contributions that are arising on the market. It's additionally obvious to Valhalla bank that all clients who trust their funds at their bank, should get a sensible financing cost. That is the reason the bank centers around and offers competitive funds and transaction accounts of the market.

At the beginning of 2021, there were 59.5 % of the global population (which corresponds to 4.66 billion people) are active internet users, and 92.6 % of the active internet users (corresponds to 4.32 billion people) are using online digital devices such as mobile devices (Johnson, 2021). The industries are changing shape as digitalization is becoming more compelling, at the same time changing the way of companies such as banks, and customer interactions. The digital revolution is changing the banking industry, the use of digital technology banking service has become the most strategic channels used by their customers, and is also the first step to digitize self-service in banks (Carbo-Valverde et al., 2020). Digitalization in the banking industry is not just for cost savings, it also includes specific processes e.g. how to improve the enhancement of customer experiences (McKenna et al., 2013; Pagani & Pardo, 2017; Verhoef et al., 2019). The process of this effort is driven by rival priorities (Hernandez-Murillo et al., 2010; Vives, 2019) and demands from the customers (Campbell & Frei, 2010).

The technological interface type is a self-service technology, the definition of the technological interface allows the customers to create and consume services on their own, without any assistance from employees (Meuter et al., 2000; Curran & Meuter, 2005). Self-service technologies are becoming more adopted in society (Kauffman & Lally, 1994). There are some challenges in providing the introduction of this service because of the features of the technology, it can attract customers/consumers if it’s clear and easy to use, or else customer/consumers won't be interested in the self-service technology that is too complex

to understand. There is also a challenge to attract new customers to the bank as well as getting the current customer to change into self-service technology to get more interacted with the bank. Encouragement and justification by the bank may be required to adopt the self-service technology for current customers (Curran & Meuter, 2007; Meuter et al., 2005). However, there are described situations where customers/consumers are using the self-service technologies to avoid direct contact with employees (Meuter et al. 2000; Curran & Meuter, 2005) due to stress to face the issues and having to deal with a possibly judgmental person. On the other side there are the opposite customers/consumers who will avoid self-service technology because of the customers' preference to interact with a person (Dabholkar, 1996).

Self-service technologies (SSTs) and artificial intelligence (AI) have been developed quickly which has provided many opportunities for governments worldwide to improve public services and increased the interactions with citizens as well (Chen, et al., 2020). SSTs are referred to as interfaces in technology that enable consumers to benefit from services, the main priority is to make consumers independent of direct service employee participation (Meuter et al., 2000; Curran & Meuter, 2007; Dabholkar, 1996; Cheng et al., 2006). The SSTs are used in the service industries, and the AI technologies have been integrated into the SSTs, it is considered as an emerging tendency (Chen, et al., 2020; Carbo-Valverde et al., 2020).

The digitalization innovation has resulted in breakthrough technologies where artificial intelligence (AI) is one of them, and following incremental technologies e.g. diffusion accessibility of digital channels which has increased in the past years (Carbo-Valverde et al., 2020). For each year the acceptance of technology has emerged with innovation theories at the same time as the customers are adopting new technologies (Venkatesh & Bala, 2008). If the digital services are costly (Gerrard et al., 2006) and complex (Mallat, 2007) there is a risk that the customer may decide to avoid them, as well as when multichannel services are provided through internet banking, the customer may show dissatisfaction (Eriksson & Nilsson, 2007). The perception from the customer is safety that is significant to adopt the digitalization of customer experience claims (Casalo et al., 2007). The IT investments in the banking industry are increasing, and it has increased the digital capabilities regarding the IT in digitalization of the Valhalla bank customer, these investments have a chance to affect the banks' results (Beccalli, 2007; Chowdhury, 2003). However, if the bank is focusing on technologies to improve their customer experience claims, it may also have an effect and impact on the end-users in the bank (Carbo-Valverde et al., 2020).

1.2 Problem statement

For the last years, society has seen increasing debt amongst Swedish households (SCB, 2021), along with that increased debt, an increased number of Swedes are having difficulties paying it back. Due to the Covid-19 pandemic year 2020, the consumption decreased at the

same time the consumer loans continued to grow. Over the past five years, consumer loans have increased in Sweden from approximately SEK 181 billion to SEK 260 billion, in this statistic of consumer loans include e.g. card credits, private loans, down payment loans, etc. (SCB, 2021).

Along with increased delinquency, the developed technology in digital banking has significant implications as it affects customer interfaces (Dootson et al., 2016). Digital banking through telephone, internet, and mobile applications are the majority ways of delivering multi-channel services to customers/consumers (Cortinas et al., 2010) even for a pre-collection process that today is manually through a telephone call. At the same time the customer's expectations increase, it becomes significant for the banks to capture and retain the customers as well as increasing the profitability (Monferrer-Tirado et al., 2016). In this case, Valhalla bank has the vision to be the most used internet bank in Sweden, as the Valhalla bank is not a first mover as the trends are already happening in Nordea, Swedbank and SEB (Larsson, 2021). The partial challenge this research highlights, is to digitalize the pre-collection process with self-service technology and AI, as trust has a significant role in SST and AI.

Lewis & Weigert (1985) and Luhmann (2018) argue that trust is like a leap of faith, which is upheld by available information. The consumers can't determine the performance of SST as they have to evaluate the trustworthiness of the specific channel used (Jonshon et al., 2008) and as for the pre-collection process, trust in technology is significant as the use of SST and AI will be implanted on complex/sensitive tasks. A closer relationship between the debtor and the collector results in a higher chance of repayment (Deville, 2015). On the customer side, self-service digital interfaces enable them to repay debt from any location (DawnBurton, 2020) with a design that resembles an online shopping experience to minimize negative emotions associated with debt (Ash et al., 2018). Ethically, human pre-collectors might be subject to biases like being judgmental or emotional whereas a digital platform would provide consistency (DawnBurton, 2020).

1.3 Research purpose

The purpose of this research is to examine how to digitize the customer experience claims process at the same time to increase the satisfaction amongst the Valhalla bank customers with higher focus on the millennial segment. The researchers intend to clarify the connection between Valhalla bank customers' attitude to technology, its experience of the bank, and its satisfaction. However, the Valhalla bank is trying to digitally transform and that is knocking up against the readiness of customers, especially delinquent debtors.

1.4 Research questions

Banks seem to be a place where technology can improve the customer experience, and one of the challenges that banks have is how to handle delinquent debtors. One of the options that banks have is increasing the use of self-service technologies, because it can make the bank more effective and efficient, especially concerning their customer service process. A thought is; Is the use of self-service technology in dealing with delinquent debtors good or bad? It could be good because people might feel uncomfortable speaking to other people about personal issues. However, on the other hand, it could be bad because people want the human compassion and feelings of speaking to someone and might feel uncomfortable speaking to an artificial person concerning their personal feelings.

What we are going to do in our research is to investigate this further with the hope to give some suggestions on how the bank should proceed. Therefore, the following research questions are divided into main question and two sub-questions:

Main question: How can human interaction be transferred into digital technology in banking?

Sub-question 1: How can self-service technologies and AI help to improve the customer experience for banking?

Sub-question 2: How to establish trust in the use of digital tools for the pre-collection process?

1.5 Delimitation

This research will concentrate on the Valhalla bank digitalization customer claims process which limits its generalizability to banks globally. However, the focus will be on self-service digitizing the customer experience claims process. The results are going to be Swedish based, the Swedish culture may have an impact on how digitalization works for the bank.

1.6 Sustainability

The digital revolution is here and has already been implemented in many cases. It remains to be seen the impact digitalization will have on the planet, societies, and human lives. Digitalization is considered to be an element of great social change, there are some requirements such as the digitalization must be sustainable, fair, and also relevant to the majority/all people and will be operative for the common good. The technology's potential can lead to more/or new social, economic, and environmental/ecological problems, it's important to shape the path as the first step, in the beginning, to truly achieve sustainable digitalization (Sustainable digitalization, 2019). In this research, the Valhalla bank is considering a sustainable approach: best practices and grow sustainably rather than grow fast.

In September 2015, the overall assembly embraced the 2030 agenda plan for sustainable development that incorporates 17 sustainable development goals. Expanding on the rule of "leaving no one behind", the new plan underscores an all-encompassing way to deal with accomplishing feasible improvement for all (UN, 2015). These goals are focusing on the significant challenges worldwide and propose a wide choice of sustainable policy solutions. Among these SDGs, there are certain goals to reduce poverty & hunger, bring peace, Sustainable use of all resources given, and establish sustainable economies, access to free and fair institutions, and justice. Every one of these viewpoints and more is essential for sustainable digitalization (Sustainable Digitalization, 2019).

Figure 1: *The 17 sustainable development goals.*

According to United Nations Secretary-General's Special Advocate (UNSGSA) compendium (2018) of igniting SDG progress through digital financial inclusion, the digitizing of banking worldwide will touch upon the following goals 1-11, 13, and 16. However, due to delimitation of Swedish-based results, digitalization of the customer experience in banking with the use of self-service technology and AI in complex/sensitive tasks for pre-collection, following SDGs will be touched upon mostly: 5, 9, 10 & 11.

2. Literature review

The research focus of this study is the customer experience impact of modern technologies when dealing with sensitive information and emotional encounters for financial services. Subsections are organized from a macro scale to a more detailed investigation for pre-collection as a main example of the sensitive process to showcase the relationship between banking, customers, and technology. The researchers reviewed the literature in the area of digital transformation in banking, digitalization of the customer experience, AI & self-service technologies for financial services, digital pre-collection, and lastly the millennials' perspective and social impact.

The effectiveness of the customer preferences of digital tools has localized dynamics (Setia et al., 2013, p. 565); and in this case, all the analysis has been conducted to be relatable with the Swedish financial system and cultural aspects.

Previous research suggests that there is strong evidence of the evolution of users and technology. Therefore, further research is needed to take a closer look at the impacts of human-machine interaction on banking. Becoming customer-centric by utilizing modern technologies is involved with significant expenses but when applied to the claim management, the payoff remains uncertain (Cziesla, 2014).

2.1 Digital transformation in the banking industry

Digital transformation (DT) is a term used to describe the changes in business activities, processes, and competencies by technology (i-SCOOP 2015). According to the Gartner report in 2012, on average banks had three times more IT spending compared to all other industries. Therefore, financial services have been considered as one of the IT-intensive industries in which digital technologies, meaning "the combination of information, computing, communication, and connectivity technologies" (Bharadwaj & Sawy, 2013, p. 471), are essential.

The main transformation in financial services is powered by the mobile revolution, social media, and the use of big data. It is stated that a company needs to redesign both its customer value proposition and daily operations to leverage digital technologies. (Kreitstshtein, 2017).

As innovation is valued in service development and delivery, at the end of the day the customers would be more inclined towards the net benefits. (Mbama et al., 2018). According to Cuesta, In digital banking, the needs of end customers are aimed to be prioritized and customers have been tried to be actively included in the product and service creation. While doing so, metrics are widely used which quantify the return of digital investments. One of the main angles of the digitalization of a financial institution, digital

channels come more to the forefront, and banking starts to be provided by “self-service” tools (Cuesta et al., 2015).

The customer experience has been pointed to as one of the main pillars of digitally transformed banks (Westerman et al., 2014). Most common digital trends which are machine learning and automation have also been used to improve customer experience (e.g. tailored customer service, more human presence with routine tasks being automated (Accenture Research 2016, 11).

2.2 Digitizing customer experience & self-service

It has been observed that the literature around “customer experience” (CX) is still an ongoing debate since there have been proposed multiple theories for the dimensions of CE. Those different arguments have been considered throughout the research.

The customer experience (CX) has been defined by Carbone (1994) as “aggregate and cumulative customer perception created during learning about, acquiring, using, maintaining and disposing of a product or service." So, it can be concluded that an efficient CX in banking cannot only be seen as a utility but the main driver of an emotional response. In a digital setting, it gains even further significance compared to traditional banking, given the lack of face-to-face interactions. CX is also one of the key sources of trust and dignity relationship that has been established with a bank (Armstrong et al., 2005).

Kim et al., (2008) emphasized the significance of creating unique experiences for customers instead of solely delivering goods and services. Haeckel et al., (2003) defined those experiences as the feelings of customers as a result of their interactions with a firm which includes atmospheric stimuli as well. Thus, researchers found that the banking firms should put customer needs as the main priority and provide elevated feelings through the atmosphere while being friendly (Chahal et al., 2015).

Schmitt (2000 and 1999) classified experiences in five categories and concluded that for an ultimate experience all need to be integrated: sensory experience (sense), affective experience, (feel), cognitive experience (think), physical experience (act), and social identity experience (relate).

Whereas Haeckel et al. (2003) specified three categories of experience: functional, mechanic, and humanistic. Functional includes the main delivery of goods or services, mechanic creates emotional and affective responses and lastly, humanistic clues include human interactions (choice of words, tone, and body language.)

For financial institutions, core experience, which is a combination of cognitive, affective, and behavioral, becomes the main driver of a favorable customer experience (Chahal et al.,

2015). The educational base of the given services offered solutions and the financial concepts; also needs to be transmitted to create a greater economic value.

However, studies agree that sustaining a comprehensive cognitive experience and providing explanatory, easy-to-use self-service tools results in quick and efficient service experiences (Ugwuanyi et al., 2021), it will not be sufficient on its own. As it is known that individual perceptions, emotions, and behaviors affect the overall experience (Richardson, A. 2010) the emotional acceptance and response of any offered solution should be carefully considered by banks. In addition to that, a company needs to take into account different insights or perspectives from different genders, ethnicities, or cultural backgrounds while creating experiences (Sharma et al., 2014). James Allen reported that 80% of companies claim that they offer a great customer experience whereas 8% of their customers have the same opinion (Sharma et al., 2014). It is shown that more customers utilize banking services through the internet compared to other channels, and mobile banking is on the rise while telephone banking is experiencing a decrease in recent years (Mbama et al., 2018).

Davis (1989) argued that the ease of use and usefulness determines the acceptance of new technology by customers. Novak et al. (2000) suggested that the online customer experience tools should offer challenge, control, flow, focussed attention, interactivity, involvement, playfulness, and overall a positive effect to the customers. As this study explores the impact of using banking chatbots on different dimensions of customer experience that have been listed above, the next section will showcase the types of modern technologies that may influence customer experience directly.

2.3 Application of AI & big data for customer experience

Advancements in artificial intelligence and big data analytics enable financial services to be more customer-centric by offering: Natural Language Processing, Deep learning, Intelligence automation, Computer vision, Neural Networks, Machine Learning, and Video Analytics (Indriasari et al., 2019).

Big data has been defined as a large volume of high velocity, complex, and variable information that requires advanced techniques and technologies to be captured, stored, distributed, and analyzed by TechAmerica Foundation (Gandomi et al., 2015). For financial institutions, big data means more business opportunities and a holistic insight for customers and the market. (Indriasari et al., 2019). Table 1 & 2 summarizes the use of AI and big data analytics in select global banks.

Bank	Functional Area
Bank of America	Chatbot & AI-enabled tool for financial guidance through voice and text messages
JPMorgan Chase	Easy-to-use mobile apps for new customer acquisition, especially millennials
Wells Fargo	Easy-to-use mobile apps for new customer acquisition, especially millennials
City Bank	Fraud detection
JPMorgan	Process automation

Table 1: *Implementation of AI in the global banks (Indriasari et al., 2019).*

Bank	Objective
HDFC Bank OCBC Bank Bank of China	Providing relevant content through preferred channels
GE Capitals	Capturing sales leads, optimization of customer experience
HSBC	Directing customers to low-cost channels
PKO Bank Polski	Multi-channel campaign platform
Laurentian Bank of Canada	Multi-channel campaign platform

Table 2: *Implementation of Big Data Analytics in the global banks (Indriasari et al., 2019).*

Self-service technologies are also considered as a way to improve customer experience and refer to the interfaces to which customers may receive service without the direct participation of a company employee. (Curran & Meuter, 2005; Meuter et al., 2000) While reducing operational costs and increasing efficiency, (Kim & Yang, 2018), SSTs provide a continuous flow of experience, which may be good, bad, or indifferent (Berry et al., 2002). Banks make significant investments to implement those technologies and need to ensure a proper return.

The definition of the chatbot has been done by Desaulniers (2016) as “interactive messaging powered by [AI].” And as “service, powered by rules and sometimes artificial intelligence that you interact with via a chat interface” By Schlicht (2016).

In a consumer survey conducted by Dreyer (2016), chatbots were not considered as a solution to complex problems. Some consumers defined chatbot experience as frustrating

and compared to the interactive voice response (IVR) systems. They also had concerns regarding the completeness of the information that can be provided by bots.

Then offering the full information in the right time, format, and context to the customer will become the main determinant of a chatbot experience. Additionally, perceived ease of use by customers will affect their experience directly. And any poor information quality could increase the operational and maintenance costs (Trivedi, 2019). Gorla, Somers, and Wong (2010) added required responsiveness, empathy, and assurance dimensions to this picture. Lastly, the associated consumer risks with the offered new technology should be considered by banks which could be in many types; financial, time, psychological, social, and performance risks (Lai-Ming Tam 2012).

2.4 Digital pre-collection & diffusion of technology

A focus on customer experience is the imperativeness of business success by driving consumer behavior (Gentile, Spiller & Noci, 2007). In the context of banking or pre-collection; a positive experience or overall customer relationship may result in a different prioritization of repayments by a consumer who is in a financially difficult position; as this study is aiming to find out.

Previous studies focused on the determinants of diffusion of the banking technologies such as perceived ease of use, compatibility, age, security, privacy, computer experience, Internet experience, complexity, lack of awareness, lack of knowledge, trust, availability (Takieddine & Sun, 2015). Rogers' diffusion of innovation theory (Rogers, 2003) suggests that the adoption by customers will be based on their initial knowledge, and how the innovation is communicated to them. Online credit applications provide relief for customers in financial difficulty and give a rise to the use of loans. In an experiment, it has been observed that people may choose to get high-cost credits in an impulsive response to their personal, psychological, and emotional problems. The digital interface with graphics like loan calculators makes consumers feel more charge and control while normalizing the concept of getting credit as a part of everyday life (DawnBurton, 2020).

Most financial institutions have a mixed process of phone calls, letters, and personal visits where human interaction plays a vital role (DawnBurton, 2020). Deville (2015) stated that a closer relationship between the debtor and the collector results in a higher chance of repayment. However, this one-to-one collection process has higher costs to service including employment, IT support, and training (DawnBurton, 2020). Another risk with the traditional model is that a poor collection experience may result in a customer churn shortly after clearing their outstanding debt (DawnBurton, 2020).

Digitalizing the process may help with predicting customers' preferred communication channels, the times most likely to obtain a positive response or even an emotional analysis

of the voice tone. Analytics tools will show the number of emails opened, clicks, and browsing patterns. Despite the initial IT investments or monthly subscriptions, platforms are usually transparent to track cost-to-collect ratios (DawnBurton, 2020).

On the customer side, self-service digital interfaces enable them to repay debt 24/7, 365 days a year from any location (DawnBurton, 2020) with a design that resembles an online shopping experience to minimize negative emotions associated with debt (Ash et al., 2018)

The second theory for diffusion is Delone and Mclean's model (2003) which highlights the offered technologies' overall quality on information, system and service level. According to their information systems success model; financial activities offered by banks are needed to be secure and reliable with well-functioning technology platforms to be adopted by customers.

Lastly, human pre-collectors might be subject to biases towards certain groups, races, or genders and may behave judgmental or emotional whereas a digital platform would be expected to provide consistency (DawnBurton, 2020). However, the customer preference on the digitalization of pre-collection and the final overall impact of the shift in the experience has not been covered in the existing literature.

2.5 Possible digitization methods for the improvement of pre-collection

2.5.1 Use of data with machine learning capabilities

By the use of big data analytics and machine learning, the data about customers' loan repayment history, the total number of owned loans, and credit cards may yield a useful assessment of their probability of repayment.

A recent study developed a model based on machine learning techniques to generate data-driven scheduling of outbound calls made by collectors to maximize the amount collected in the long term. The model prioritizes the calls for the debtors that have the highest marginal value per phone call (Geer et al., 2018).

In their experiment with real debtors, the model proved that debtors who get higher loans are less likely to repay their debt whereas debtors that have been customers for a longer period are more likely to repay. The same study showed that the amount of partially paid debt, the repayment plan, or product type have no significant impact on the repayment. Compared to traditional scheduling, debt collected per call has been increased from 38 euros to 57 euros (Geer et al., 2018).

As a different approach to analytics, the 'Tala' app serving in Africa and Asia utilizes non-traditional data such as debtors' relationships; connections; location consistency, or transactions to determine the probability of their repayment; and holds a 90% repayment rate (Lui & Lamb, 2018).

2.5.2 AI-powered chatbots

Websites and apps of financial institutions need to be designed to maximize the sense of security. The same applies to the offered chatbot solutions, additionally, they should be programmed to seem more human by giving names, personalities, and emotions to establish trust. (Letheren et al., 2017) The characteristics of a well-designed chatbot according to PwC have been summarized in Fig. 2.

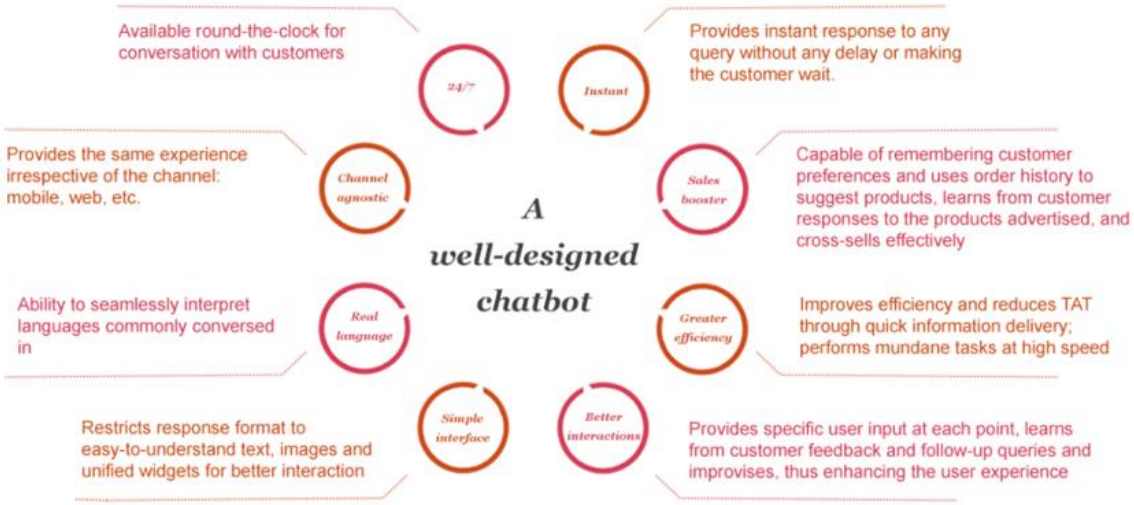

Figure 2: *Characteristics of a well-designed chatbot (PwC India, 2021).*

The performance and trust perception of the use of chatbots have been found to be positively affecting customer experience and satisfaction. (Eren, 2021) For a personalized and efficient customer experience training the chatbots is compulsory (Lui & Lamb, 2018) a not well-trained model may lead to wrong decisions and decrease productivity. By also taking into account strict banking regulations (Bank of International Settlements, 2010), it carries significant risk of losses by unpredictable human behavior or vulnerability of technological infrastructures (Romao et al., 2019).

Swedbank, Bank of America, Capital One, and Société Générale have been experimenting with chatbots targeting millennials (Societe Generale, 2017) In terms of transparency, Swedbank and Société Générale choose to disclose whenever a bot is included in the communication. (Lui & Lamb, 2018).

According to Lui & Lamb, it has been argued that as money is a sensitive topic especially spending habits, speaking to a robot takes away the possible embarrassment. On the other hand, others believe human interaction is preferred to discuss or complain about such matters. Despite their technological advancements, Barclays decided to use human interactions rather than chatbots for sensitive claims (Lui & Lamb, 2018). Lack of empathy and low level of conversation management & sentiment analysis are the other possible drawbacks from the customer side (Lui & Lamb, 2018).

Older generations may resist or have difficulties while shifting to AI-assisted services, however, millennials have higher debt and lower savings (Crosman, 2018). For user adoption, Barclays have set up labs in their branches where they hold sessions to educate customers on how to use new digital services such as online banking and AI (Lui & Lamb, 2018).

2.5.3 Educational Gamification

Gamification is an application using game elements like rules, levels, points, leader boards, rewards for business objectives (Deterding, Dixon, Khaled, & Nacke, 2011). Research documents that it improves learning outcomes by pushing content in smaller sizes as a part of a social and collaborative exercise (Jain & Dutta, 2019).

2.6 Millennials' perspective & Social impact

Throughout the research, millennials are categorized as individuals who were born between 1980 and 2000 (Lee & Kotler, 2016). They generally have higher levels of debt compared to older generations (Nava et al., 2014). Their loyalty to any type of financial institution depends on their level of satisfaction, fees, products, and customer service (Perry, 2015).

A survey among millennials shows that they use both but prefer mobile banking through smartphones over online banking through their laptops; which is unique for their generation (Brodmann et al., 2018).

Smaller banks as challengers mainly target millennials who are likely to become 75 percent of the workforce by 2025 (Culiberg & Mihelic, 2016), mortgage seekers, and small to medium-sized businesses; therefore, innovation and differentiation by the use of modern technologies gain greater importance for those (Lui & Lamb, 2018).

Among millennials, 25 percent indicated a lack of financial knowledge and 44 percent have used at least one type of loan or advance (Friedline & West 2015). As introduced earlier, gamification applications could deliver the required education for them which may potentially improve their debt repayment behavior (Brodmann et al., 2018). However, it is debatable whether the consciousness of their main pool of customers would be profitable

for the banks or not, when it is considered that most probably their ignorance and lack of knowledge makes them pay fines repeatedly without even noticing.

Technological developments have the potential to create new values and concerns at the same time. (DawnBurton, 2020). It is found that machine learning programs have a risk to be biased towards certain races or genders; to avoid that banks need to train their developers for fair treatment, equality, and data protection. When building a sustainable, trustworthy relationship this must be on top of the agenda of any digital bank (Lui & Lamb, 2018).

3. Methodology

In this chapter, the chosen methodologies will be discussed. The research design presents how the methodology is organized by divided parts of the research approach. In the following order: (1) Case studies, (2) In-depth interviews, (3) Data analysis, (4) Research quality, and (5) Ethics.

3.1 Research approach

Although the research on self-service technology with implemented AI for use in complex/sensitive tasks as pre-collection in banking, is not very extensive compared to discussed benefits, the concepts in this research have been occasionally examined before (e.g. Chen et al., 2020; Carbo-Valverde et al., 2020; Meuter et al., 2000; Curran & Meuter, 2007) usually countries which have very developed banks. The empirical research method has three approaches: inductive, deductive, and abductive. The difference between these approaches is that the inductive approach is aiming to develop a theory, the deductive approach aiming to test a current theory, while the abductive approach is another way to deal with what the inductive and deductive is deficient by following a realist point of view (Saunders et al., 2015). The abductive approach was chosen since this research intends to use case study outputs and mirrored customer opinions by testing existing theories and coming up with a realistic point of view on the subject. To gain an understanding of the problems in Sweden for self-service technology and AI in banking, this research conducted a qualitative study to explore the perceptions of self-service technology in banking among employees of Valhalla bank and mirrored customers. There is a difference between quantitative and qualitative study/research. A quantitative study can be defined as research that describes phenomena according to numerical information that is often analyzed with mathematical methods such as statistics (Creswell & Creswell, 2017; Creswell, 1994). By using a qualitative study approach, it provides great details to explore different viewpoints in the early stage of the conducted research, which also helps the researchers to gain a stronger initial understanding of the issue, in turn, helps to identify phenomena, attitudes, and influences (Maxwell, 2012; Healy & Perry, 2000).

3.2 Case studies

A case study method will be used in this research, followed by answering question along the research path, that is ideal for researches that require an in-depth investigation (Feagin, et al., 1991; Yin, 2011), and to explore the phenomenon in a variety of methods settled up naturally, to gather in-depth knowledge (Kohtamäki & Rajala, 2016; Collis & Hussey, 2013). The reason why case studies are used as a method is that the methods are driven by the research questions and because the way the research questions are structured, fits with this certain type of data collection. There are researchers with wide experience in this methodology such as Stake, Yin, etc. that have developed great operations (Stake, 1995; Yin, 2011). When these operations are followed, whether the research is quasi-experimental or

experimental, the researcher is following methods that are well tested and developed in the scientific aspect. However, collections of data and analysis methods can hide specific details that are necessary for the research (Stake, 1995).

This research will be using a case study method to answer a question like how and why specific phenomena occur, the reason is that Feagin et al., (1991) mentions that it is ideal for researches that require depth information as mentioned earlier. The case studies that are being used mostly involved in-depth analysis of specific companies, industries, individuals, etc. over time (Robert, 2003). This research will be studying the current processes of the Valhalla bank to examine what needs the bank is and how they are focusing on developing them with a sustainable strategy as well.

3.3 In-depth interviews

In-depth interviews will be used in this research in a total of nine interviews divided into six (6) internal (employees in Valhalla bank) and four (4) external (Valhalla bank customers). All the interviews were performed in the English language (some in Swedish to make it easier for the interviewee more comfortable) and were transcribed through a specific transcription tool and to ensure the tool transcribed it correctly, it was controlled manually as well. For a qualitative data collection technique, the in-depth interviews are useful in an efficient way for a wide choice of purposes (e.g. needs assessment, strategic planning, problem identification, etc.). The in-depth interviews are useful for situations where the researchers will ask open-ended questions that will provide in-depth information from few individuals rather than interviewing a lot of individuals (Guion, et al., 2011).

The in-depth qualitative interviews are a great tool to apply for a research study to plan and evaluate extension programs due to their open-ended questions and discovery-oriented method. More specifically, it allows the interviewer to explore deep in the respondents' feelings, mindset, and perspective of the chosen topic. However, four specific key characteristics need to be followed to succeed with an in-depth interview, and the interviewers' skills and attributes to perform an excellent interview are significant to succeed (Guion, et al., 2011).

Key characteristics (Guion, et al., 2011):

- **Open-ended questions** - The interview questions need to be specifically shaped e.g. by beginning the questions with "why" or "how", this leads to the respondent won't answer "yes" or "no", instead giving the respondent the liberty to answer the question in their way.

- **Semi-structured format** - To keep the interview simple yet efficient, it is significant to pre-plan the key questions in an organized way that will keep the interview conversational and easy to follow. However, it is great if there is a possibility to flow the question from previous responses.

- **Seek understanding and interpretation** - Active listening skills are important to perform an interview, it helps to reflect what the respondent has to offer for information. It helps the interviewer to seek further understanding and clarity throughout the interview by interpreting what's being said.

- **Recording responses** - It is more efficient to record the interviews by audio rather than writing notes. By audio-recording, it helps the interviewer to focus more on the respondents' reflections rather than doing two things at the same time by recording through notes.

The interviews were conducted with a combination of open-ended questions and in a semi-structured format which allows the respondent to answer in their viewpoint (Flick, 2018; Guion et al., 2011).

3.3.1 Internal

For the six internal in-depth interviews with the Valhalla bank see table 3, will explicit questions be asked. Explicit questions are questions that are clearly stated and complete without implication, vagueness, and/or equivocalness (Merriam-webster, 2021), making it clear for the respondent not to assume, by any chance of imagination (Mometrix Test Preparation, 2021). The explicit questions will be clear and direct for the internal interviews in the Valhalla bank. Explicit questions usually start with *"who", "what", "where",* and *"when"* (JRA AYL, 2015, p.8).

Example question: *What do you think of digitizing the current pre-collection process?*

Nr.	Name	Role
1	Thomas Andersson	Innovation manager
2	Ramen Smith	Pre-collections department head
3	Christina Loraine	Customer agent for pre-collection
4	Simon Hayes	Head of tech development
5	Vanessa Rose	UX designer and backlog owner
6	Elenor Bonnie	Analytics head

Table 3: *The internal in-depth interviews, due to ethics agreement with the bank employees of being anonymous, fictitious names are used.*

3.3.2 External

For the four external in-depth interviews with the mirrored Valhalla bank customers, will the implicit questions be asked. Dealing with this type of information is very sensitive, and the

bank as well as the researchers thought it was not the best idea to approach actual bank customers, so the researchers mirrored customers from the demographic information Valhalla bank provided to find people that matched it through our own social media network. Implicit questions are questions that are not directly stated, there are assumptions, questions, and/or implications (Merriam-webster, 2021), which means the respondent need to understand the implicit questions and facts based on other clues as to life experience and own thoughts (Mometrix Test Preparation, 2021). The implicit questions will be asked for the mirrored bank customers due to sensitive information regarding pre-collection. Implicit questions usually start with *"why"* or *"how"* (JRA AYL, 2015, p.16).

Example question: *How do you experience the banks' employee behavior toward pre-collection through a phone call?*

3.4 Data analysis

The data collected from interviews were analyzed via an analytical approach to making the data useful for this research. The performed interviews were recorded and transcribed with digital tools as well as go through it manually in case the digital tools missed important details and finally summarized to display the most important facts and statements the employees have. The data was also analyzed to see how many of the participants have the same perception, experience, and perspective of the same fact/statement to also find patterns between them. A comparison of the findings from the literature and interview results were performed to see relations between ideas, certain words, or concepts. The analytical approach is called content analysis.

To obtain valuable data and results, the gathered content was based on Collis & Hussey (2013) four key steps process, due to delimitation of this research, the final key of the process is recontextualizing, which will not be used.

1. Comprehending - to gain full understanding from the interviews of setting, culture, and study topic before the research can start (it can be discussed how much the researchers' knowledge should have to prior correctly).
2. Synthesizing - where different themes and concepts are drawn together to form new integrated patterns (data are reduced and sifted to achieve a general explanation)
3. Theorizing - by using theories, it gives structure and application of qualitative data, by confronting the data by alternative explanations.

3.5 Research quality

Validity and reliability are important concepts to evaluate the quality of research. Reliability is showing if the method is logical and provides the information needed if the information is trustworthy of the research. If there is a possibility where the same results can be achieved under the same circumstances by doing the research again, it points that the method is reliable (Kirk & Miller, 1986). Baškarada (2014) explains four factors: construct validity,

internal validity, external validity, and reliability. The first factor of construct validity goes by the name operationalization and is a process of defining concepts through attributes/variables to make the concept measurable by empirical observations (Baškarada, 2014; Loseke, 2012). By using more references as evidence that point in the same direction as a strategy to improve construct validity (Baškarada, 2014; Kirk & Miller, 1986; Loseke, 2012). As for internal and external validity, the internal is implicated by justifying daily relationships and can only be applied to explanatory case studies and not descriptive or exploratory, while external validity is focused on findings that generalize with different case studies (Baškarada, 2014; Pellissier, 2008).

Primary, secondary, and different data sources can provide two or more different insights and sometimes comparable insights, and this triangulation approach is not pursued. The accomplished internal interviews were reviewed by the supervisor of Valhalla bank to adjust accordingly as well as the single interviews were reviewed by the respondent due to their employee role in the bank and to ensure the right facts and details are highlighted. By following this process, it enables the researchers to obtain trustworthy information and also to further analyze the data.

3.6 Ethics

The in-depth interviews, both internal and external, were following the ethical guidelines provided by the Swedish Research Council (2019). The implementation of four principal rules by Dill, Diener, and Crandall (1980) was considered for the in-depth interviews with respect to the participant.

1. No harm to participants
2. No lack of notified consent
3. Untouched privacy (participant have the free will to talk about it or not)
4. No delusion involved

Before each interview was booked, the participant was informed that the interview will be anonymous with fictitious names, the real questions will not be displayed, for research purposes only, the detailed process, recorded interview, etc. When the participant accepted, the interview was booked and recorded. In many circumstances, if the participant doesn't want to continue the interview due to e.g. sensitive information or emotionally affected, the participant can either choose not to answer the question or leave the interview. Full freedom was given to the participant to leave to ensure free participation (Becker et al., 2012).

4. Results & analysis

4.1 External interview results

The numbers [1-4] represented in this section are the interview result summaries located in the appendix section.

4.1.1 Problems/challenges to repay their debt

The respondents had different challenges as they repay their debt. One respondent had issues with account management [1], there was not enough money in the main account, while the rest of the respondents [2], [3], [4] had too high interest rate. All the respondents [1], [2], [3], [4] mentioned that they didn't get the help needed from their local bank and one respondent [2] changed banks while the rest [1], [3], [4] stayed at the same bank.

The respondents faced a similar problem, and it was the behavior from bank employees that contacted the delinquent debtors, each respondent had their own experience of the pre-collector agent. One [1] felt neglecting and stress as an easy process, the bank made it complex, “I experienced that the bank employees viewed me as I was some kind of criminal” and when providing information to improve, the respondent got neglected of the advice. The second [2] were ashamed of the problem and “felt like a convict” even if the respondent tried to take on and face the problem but accepted it as the experience was not serious from the pre-collector agent. The third [3] said “I felt devalued as the treatment felt more like an attack instead of helping me, it hurt, they were not helpful”, it reached the personal feelings when called by the pre-collector agent. The fourth [4] experienced differences between pre-collecting agents, the behavior differs from whom they spoke with but got the experience that the respondent was considered as a fool sometimes, by saying “I get to speak to a bank employee who treats me like an fool because I study and have 3 parts job mostly because of a car.”

The problems/challenges the respondents experienced during the repayment process varied from interest rates to pre-collector agents’ behavior.

4.1.2 Banking channels and digital solutions

All the respondents [1], [2], [3], [4] use mobile applications as a digital banking channel daily, and [2] use a computer for internet banking to do more complex processes and more. Mobile application is used mostly, but not completely, because to get access to Bankid and Swish, it has to be through internet banking with a computer, therefore, when the user gets access, Bankid and Swish works on a smartphone.

The respondents [1], [2], [3], [4] were positive to digitize processes to self-service technology, some more than others. Respondent [1], [2] mentions digitized self-service

technology with implemented AI, “a way to simplify the pre-collection in my situation could be for the banks to use some form of an algorithm in a “self-service” technology to understand different people’s situations. This could maybe be achieved with the help of an AI“. While [3] and [4] say “I would prefer an online chatbot” and “I think it depends more on how advanced the chatbot is programmed”. The reasons differ between the respondents, but the most common reason was the behavior they experienced. [1] mentions AI implemented in self-service technology to make it “understand different peoples' situations”, and [2] mentions AI more to “adapt to my situation”. [3] mentions “I encounter chatbots daily in various websites, not all are well-developed, but the majority are sufficiently developed for their purpose”, and for sensitive tasks such as pre-collection, the chatbot should be well-developed to get the help needed safely. While [4] would prefer human interaction, but some processes can be digitized with self-service technology e.g. chatbot, but there is a risk that the chatbot “It feels like there is always a risk that it misunderstands me in some way, and I don’t get the answer I was seeking for”, which leads to trust issues.

The respondent [3] mentions an introduction to self-service technology, and the readiness process for self-service technology is significant. The respondent [3] mentions “It would be good if you got as an introduction to how the chat works and what functions it has that you can use to maximize the help via a YouTube link or similar that explains very simple, for a customer readiness”, that can be used to simplify the answer sought or the help needed. The respondent explains further; with an introduction of the chosen self-service technology, will build up trust for the technology, “or else I believe people would have trust issues until they test most of the features”. However, the respondents [1], [2], [3], [4] mentions that the biggest risk with banking services processes being digitized, there is a possibility of increased cyberattacks and also “it can be very hard when the digital features are out of order, or like the system is down for maintenance”.

4.1.3 Trust in self-service technology vs human interaction

Along with the ideas about digital solutions from the respondents, some experience that they want the pre-collection digital [1], [2] says “I would trust the technology service if it meets my expectations and help with what I need” and “first you take it via chat or other digital self-service technology and check how much of the problem you can solve, as a last resort to solve the problem would be good to take it with human interaction by phone or physically”. By saying this the respondents feel they can trust the self-service technology (e.g. chatbot) to fulfill their needs and maybe have human interaction as the last step if necessary, while [3] experience it can trust a self-service technology, but would also be nice to have human interaction by saying: “it would have been optimal and in the last step, if it is not possible to solve the last bit, you have to bring in a bank employee who solves it”. While [4] would not trust the technology, “I trust more a person than a chatbot”, would rather

speak to a human to get the help needed, mostly because the respondent doesn't feel like the self-service technology will completely transfer the human interaction.

The trust varies from person to person, and the behavior the respondents have experienced has a significant role in this part. The respondents [1], [2] felt judged by the pre-collector agent instead of getting the help needed, this experience breaks the trust with the human and feel more secured by taking it through digitized self-service technology, mostly because the respondents don't want to experience the situation again. e.g. "felt that I was convicted, even though I tried not to take on, but it was difficult at time". While [3] has a little trust issues and can not trust the self-service technology completely but to some extent because of the behavior experienced, "I would entrust self-service technology with a pre-collection process as long as I don't meet up with judgmental bank employees", still the trust for human interaction is higher. The [4] had mixed feelings of experience from pre-collector agent behavior, but still accept the results as the respondent know it's the truth, "even if the employee is judgmental, I don't care because I have accepted it in my head", and it feels real therefore the trust in the agent becomes stronger due to honesty, at the same time feel like to discuss and communicate with a human rather than digital self-service technology such as chatbot.

4.2 Internal interview results

4.2.1 Introduction

Internal interviews focus on Valhalla Bank's related employees' point of view of the main topics related to the digitalization of pre-collection. Researchers held 6 in-depth, digitally interviews, with the respondents who have close relationships with technology, digitalization, and pre-collection within the bank.

4.2.2 Roles of Interviewees

ROLES	MAIN RESPONSIBILITY
Innovation manager	Managing innovation teams and projects. Finding new business models internally.
Pre-collections department head	Responsible for the pre-collections department consisting of 8 customer agents who are calling customers who are 1-4 months late for their loan/credit repayment
Customer agent for pre-collection	Calling customers who have problems repaying their loans/credits, help them to make payment plans
Head of tech development	Developing and testing backend solutions of the bank, enabling data to be used by internal teams and customers
UX designer and backlog owner	Deciding and sketching a design for features to be added on a mobile application, managing the relationship between business and tech departments
Analytics head	Building and leading data science team to challenge & improve how things are being done internally

Table 4: *Interviewees' roles and main responsibilities*

4.2.3 Reflections regarding digital transformation within Valhalla Bank

According to the Innovation Manager, developing the best mobile app with in-house capabilities is becoming the main priority of Valhalla Bank currently, as they want to implement mobile-first banking. They have also included Robotics processes and automation into their agenda and are trying to find ways to integrate them into the daily operations.

Secondly, we have learned that AI & machine learning models/predictions are also key areas that the bank is trying to explore and experiment more. The development department shares the same vision as well, related interviewees emphasized having a modern platform and service layer. The chosen way to achieve this goal is currently modernizing the existing

by filling the gaps and building on top of the core functionalities of digital banking. The main channels of Valhalla Bank can be summed up as; mobile application, website, telephone banking, and social media accounts.

It is observed that within the bank there are no specific metrics set to measure the success of digital investments nor department achievements; currently, the innovation department is tracking only the number of app downloads or revenue increase from digital channels. Separate departments take into account reaching specific goals or finishing up backlog tasks as the main performance indicator. It is expressed that the efforts to measure may result in wasted time and money in some cases, especially for technological development. Saving cost, reducing manual work is being aimed in those departments, but without explicitly tracked metrics. Another perceived challenge to track metrics is being a growing bank; as both their customer base and services grow, interviewees believe that it is not rational to compare current operations with the past.

When deciding on new projects, it is seen that usefulness and efficiency are the key drivers' hand in hand with increased profitability. Interviewees explained that there is a good level of collaboration and communication between technology and business departments to develop an understanding of the purpose of development and creation.

The technology department is well aware that there has to be a demand from the customer side; the responsible explained that there is a trap that companies may tend to create needs to try out new technologies. A younger employee thinks the future will be explored by knowing what a customer needs before they even know it.
To match with current needs, test groups are being used to determine whether the functionality is desired or not, and then accordingly new products/services have been shaped before the release. A user experiences designer mentioned that it is challenging to include customers in those kinds of tests.

Aside from customer tests, the only customer listening method is the monthly customer service meetings where different departments become aware of real customer reactions; complaints are collected to improve experiences and revert negative feedback. There is only one person responsible for the customer experience feeding several different departments with input, on its own the customer experience is not yet a unit.

A common problem perceived by employees is the differences between customer segments and generations. They have drawn attention that digitalization may cause problems for older customers for example who don't have mobile bankID which is the main method of digital identification. On the other hand, the younger generation who have mobile products as a part of their life, have higher demands and got used to getting all services digitally most easily and quickly. Technology Department Head pointed out an important dilemma when

developing new products or channels; regardless of its vision, the bank needs to take into consideration its current customer base as the current success and satisfaction will be built among them -not the one that it is aiming to have in 10 years.

Regarding capturing the attention of millennials, interviewees informed that the bank has developed a special product: a savings account designed specifically for that segment. Gamification has also been seen as food for thought by different departments, mainly for the purposes to drive engagement within digital channels and overall loyalty. User experience designer warns that banks need to be careful with gamification uses and have to run tests with many customers before production, pushing too many notifications or drawing an unserious look may harm the overall relationship and the image of the bank.

Another new product release serves for the opposite; and offers millennials/gen z who don't have solid employment an advance from their future salary. The bank lowered the requirements compared to the other banks when giving loans to this specific segment, and made the process easier for them. Some interviewees raised concerns related to the communication strategy; as they believe suitable products/services for young customers are already there but are not communicated in a way they prefer, or they can be reached. Currently, the bank is not conducting any specific data analysis or research for the segment.

The bank does not have any physical touchpoints like branches; all services are accessible from home however for procedures like setting up an account for a child, there requires paperwork. When the physical posts are needed, this becomes an issue for those with higher needs of digitalization.

All interviewees agree that they are slightly behind on the digitalization game, addressing this issue and implementing modern technologies instead of traditional ways of doing business is the main theme of the short-to-mid term vision of Valhalla Bank. The bank's mobile application has been considered as a basic type by all the interviewees. Before having nice-to-have features which may put the bank ahead of the competition, they believe they need to first set up and be comfortable with the core necessities of digital banking and have a smooth, simple application up and running with enhanced design and usability. Established automated platforms, greater efficiency, and experience with self-service technologies have been said to be put as a next step currently.

UX designer believes that the future will bring open banking where the customers will access all banks through only one application; she defines the goal of the team as to become that application. To track customer experience, they only get customer interaction analysis through the Google Analytics application currently.

When it comes to the need for human interaction, interviewees are informed that most of the end services need the customer to call in, as in the situations of losing a card or closing an account. The call center agent said that for many customers it is difficult to find information by themselves, even basic services such as finding invoices within the application. Even though the information is there when the experience is not tailored well enough, customers end up calling agents to get help. Interviewees believe that the application should be helping and guiding customers more by not only showing information but also being ahead of customers and providing advice, recommendations to them. Currently, the bank has a chatbot application within its internet banking interface, with limited usage to answer frequently asked questions mainly; the team agrees the area of use can be extended.

AI is found to apply to many departments both for customer interactions and internal processes improvements, as an example development department have considered implementing a speech-to-text function to validate critical customer demands related to the backend systems or the mobile application team would like to include smart functions like advising on money transfer based on past behavior however there is not much in place yet other than data science teams currently.

The data science team is working on machine learning models to build up better decision-making workflows, mostly on projects directly linked with increased profitability like credit risks, pricing, credit decisions. Developing models to improve customer experience has not been considered yet, while all the models which are related to profitability are also under development and used only for testing and experimenting; there is none for production. The team leader stated that to turn the bank into a data-driven company, they need to make all organizations aware of data and understand its value. The department's main digital transformation goal is to make all data accessible for the analysis; as an example, currently, they are missing out on the behavior data which could be used to develop churn models. She also emphasized the importance of legal and ethical constraints when making use of the data.

Internally, it is stated that the bank needs more developers for faster progress as the current size of the teams is becoming a challenge. Cross-functional teams are not there yet, and having frontend and backend teams separate may create problems. Valhalla Bank is currently not holding any special ethical training for its developers; it has mandatory e-learning for all employees and applies ethical company values with diverse and equal teams.

4.2.4 Opinions regarding digitalization of the pre-collection

Today, eight employees within Valhalla Bank are responsible for calling customers when they are late on their payments with private loans. First customers receive an SMS to be informed that the bank is missing the payment, then after three days, emails with the same

content have been sent to the customers. Then, if there is still no payment made, an inbound call will be made by the agent regardless of the communication preference by the customers.

The company values being transparent and honest towards customers thus they are always reached through the same and explicit phone number of the bank. There is a high risk of debtors knowing the reason for the call and avoiding answering. For Valhalla Bank, the email communication is found to be more consistent since the quality of recorded customer phone numbers is low. Also, some customers in a financially difficult situation are not able to pay for their phone bills but still get access to their emails with free Wi-Fi or other options.

The current communication is in one way meaning that the bank reaches the customers if necessary; there is no possibility of a self-service tool nor secured messages/chat on the pre-collection. However, the mobile application of the bank has ambitions to become the best; it is stated that it has other priorities and is not supporting any functionalities related to the process. BankID, the main banking system identification method in Sweden, cannot be used when calling out customers; instead to prevent fraud (fake calls, etc.) and to secure the relationship between debtors and the bank, security questions are used.

In the pre-collections department, the workflow runs with four main buckets which are one-month duration; and in each, there happens a different strategy and communication method by the customer agents. Early in the process, at buckets 1 & 2; agents try to inform and help debtors by calling. This includes guiding on taking action and getting in a better financial position to be able to make the repayment. As most of the customers in this situation do not have extra income, to increase the collection rate agents try to reach them on the salary received to date in Sweden, before they start spending. When they are late on their payments, customers need to also pay for the late payment fee and the reminder fee.

Call center agents are not dedicated to certain customers but perform random calls that have been assigned to them. The Department head underlined the risk of vulnerability when dedicating employees in the situations of being absent etc. Her perception is that the customers just want to get help and usually do not care which person is making the call. It is stated that rarely, they may ask to call the same agent and talk to them again.

Agents are trained for the job with role-playing methods, and a call model which they do not need to follow strictly but rather can choose their own words and adapt to customers. They also have regular meetings with the department head where she tells the team how they should speak with different types of customers. Even though agents have 1-1 meetings with managers to develop skills and set goals; they do not receive any special ethical training and believe that they need to have those values before even starting the job. The team makes

calls within business hours. An agent stated that the most difficult part of her job is that respondents online are mostly angry; some may expect agents to lower their invoices or offer special help which is not possible. She also reported keeping calm, listening to them, stating that their anger is understandable/reasonable is the best way to approach and solve it out in those situations. No data analysis is being used in prior calls; however, the bank records some calls for legal and training purposes. The department head works with the analytics team to determine call scandalization to increase efficiency. The customer agent stated that a few years ago they were prioritizing later buckets, but then it turns out that they are much more difficult to get an answer from. So the current strategy is to prioritize lower buckets and to reach customers in the first bucket before the situation gets worse.

There is no evaluation of customer experience during or after pre-collection calls. To improve customer experience, agents have not many options but to be nice to any customer and try to give the right information.

A bucket 3, customers start receiving messages telling them that the bank has to talk to them urgently. Bucket 4 which means four months after the settlement date, if there is still no payment made then the customer will receive a cancellation notice and will be directed to the legal collection department. 20% of the loans are secured which means the customer provided a secured property and in case of no repayment; the money will still be received. On the other hand, the higher portion of the private loans are unsecured and are given based on future income. In any case, before offering loans, the bank evaluates customers' scoring based on past behavior, which is provided by Swedish Credit Bureau. However, Valhalla Bank with its inclusive values is stated to choose to give new opportunities by evaluating future abilities rather than past. When a customer has a bad score, one can still get a loan by only having an income and an ambition to pay back. The interest rate would be determined based on the individual risk (i.e. higher risk, higher rate). In some cases, two people may take a loan together if they are registered at the same address; those cases have been reported with better success in terms of collection.

The profile of late payers varies; customers for many years may experience unexpected situations or a new customer may get a loan with an initial intention to never pay/leave the country. On average, debtors in the pre-collection process are around 45 years old, with the majority of men.

The calling procedure is the same for all customer segments, regardless of their age. However, millennials are found to be late payers very often, and perceived with lower financial education by the bank employees; those responsible think that they get more in debt because of little knowledge on the system and its consequences. On the other hand, it is believed there is not much room for improvement with innovation and digitalization for

senior debtors as they may start having repayment difficulties as a result of the decrease in their pensions. It is also noted that there is no inheritance of a loan in Sweden.

During COVID-19, the bank experienced an increase in the claims portfolio and provided a three-month extension of the repayment period for all debtors impacted financially by the pandemic. Small business owners or customers working in service jobs are mostly affected.

Calling results which consist of data of the number of contacted customers, payment promises vs. actuals, are being received daily; and reviewed on a monthly basis. In such a situation, customers usually do not feel comfortable or become available; thus the current contact rate is around 20% for the Valhalla Bank which has been seen as an improvement area by interviewees.

An improved pre-collection process is believed to increase overall customer satisfaction as the customers would find the bank easy to deal with. Moreover, it holds a significant direct financial impact; on average there are more than 2000 debtors in a month who are late on paying their unsecured loans back which accumulates around 300M SEK unsettled debt in total.

Employees believe that it is highly important to digitize the current pre-collection process, however, they also think that some customers would still want to talk to a person. To improve the current process and to save time and money, interviewed managers proposed having both digital interfaces and human contacts and offering customers a chance to choose in between based on their preferences. New and younger customers are believed that they do not need anyone to call them for this procedure. Self-service technologies within mobile applications are also considered a way to improve the current process. The mobile application team informed that they are working on making customers able to get related notifications through the app, adjusting their payment, or get help without contacting someone.

A well-functioning chatbot is believed to be convenient, with enhanced capabilities of understanding the main question of the customer to provide the right answer. Otherwise, interviewees are concerned that the customer would get annoyed and want to talk to a real person. Trust has been considered as the most important aspect of the customer relationship as a bank; a poor quality chatbot may even result in a loss of trust in the bank and its operations. In that sense, instead of experimenting with the newest technology, some interviewees stated that they are more in favor of the use of mature ones. The UX designer reminded us that the smallest things within digital tools like sketches, designs, and the use of words have the power to establish that trust. Interviewees all agree that the actual end-user experience of such technology would be the most important factor.

The data science team discussed that it could be possible to find out and test models within Valhalla Bank to analyze which customers are more likely to make their repayments thus should be prioritized in the calls; or which channels are preferred by which debtors. However, they were not in favor of the use of untraditional data as it requires additional customer approval and may hurt the overall relationship.

For a healthy and ethical customer relationship, in a situation of pre-collection, the team thinks the bank should not stand in a position where it only tries to get its money back; rather should help out those in a tricky situation. And they are afraid and hesitant if technology would leave this relationship with no empathy or emotions.

5. Discussion

5.1 Level of digitalization within the bank

E-banking is perceived to be time-efficient, simple, and accessible by customers which is expected as literature also suggests that it has a high potential to replace all other banking channels like physical branches, phone banking, or ATMs (Calisir, Gumussoy, 2008). As in our case study example, digital banks like Valhalla Bank do not have any physical touchpoints; moreover, the external interviews show that the level of digitalization becomes the main driver for customers to switch between banks. Mobile banking has gained great importance with the rapid growth and adoption in the technology and devices (Canedoli et al., 2012); insights from both internal and external interviews shows clearly that both bank employees and the customers are well aware of this fact. In addition to that, increasing trust and personalization demands from customers, push banks to act on enabling advanced technologies. (Bandara et al., 2019) As it becomes more difficult to collect and understand changing customer needs, computational intelligence technologies like machine learning models, chatbots used in banking not only help with decision-making capabilities but utilizes historical data and behaviors to predict and provide user recommendations accordingly. (Donepudi,2017)

While banks are investing in these technological initiatives and experimenting, it is observed that they may be lacking the full understanding of the value it brings. For a bank to fairly assess the current state and the desired value out of digitalization, an appropriate measurement is required with clearly identified metrics; an improved customer experience or an operational efficiency would both contribute to the overall profitability of the bank (Neumeier et al., 2017) and should be analyzed carefully.

Lastly, in a bank, the internal collaboration between business and technology departments and the information flow between them would increase the overall performance (Sanders, 2007) and the success of digitalization. The overall level of digitalization within a bank and the organizational structure (Tidd et al., 1997), would directly impact the pace of diffusion of new technologies (Bradley & Stewart, 2003).

5.2 Understanding the customers and diffusion of new technologies

According to Paul Diederen's diffusion of technology model in banking, the adoption of any change would require learning and adjustments. The case study on Valhalla Bank showed that banks are listening to their customers when they raise their voice through customer service or when their opinions are explicitly asked as a part of a testing group. Both methods would present explicit needs of the customer whereas latent needs emerge in crisis moments or unexpected situations which need to be solved and those are usually the ones

which customers do not even know themselves or unable to articulate (Bao et al., 2020; Blocker, Flint, Myers, & Slater, 2011; Narver, Slater, & MacLachlan, 2004).

Not only the quality of the output but also the process itself might also become challenging as expressed in the interviews, banks are having difficulties including relevant participants into the test groups. However, in the mobile-first banking era, running experiments with the actual customers became possible. A/B testing enables one to get customer opinions on new ideas related to the offered technological services/products and to make data-driven decisions accordingly (Xu & Chen, 2016).

As all interviewed Valhalla Bank employees shared the same concerns on the gap between the demands of old and young generations, the literature suggests prioritizing high trustors who are identified as millennials or younger generations and are more familiar with digital tools in this case. They are also evaluated as having higher levels of trust towards the bank they are working with, by the researchers (Dimitriadis et al., 2011). According to the diffusion theory, the adoption rate on the discussed modern technologies would be affected by the relative advantage of accomplishing tasks and the overall compatibility with customers' values, experiences, and needs (Rogers 2003). Diffusion models in banking suggest that the benefits of newly introduced technologies cannot be captured immediately (Nakicenovic & Grübler, 2013). By segmenting the customers, communication could be tailored with specific messaging for each group: usability and opportunities would be demonstrated to the high trusters. Theory indicates that the innovation would flow from the institution and the early adopters to the rest (Bradley & Stewart, 2003) which can be supported with additional guidance to accelerate their trust and adoption process.

With their specific characteristics that have been discussed earlier, based on both interviews and the literature review it can be concluded that millennials and digital natives expect high relationship quality (Bondeson & Lindbom, 2018). External interviews showed that they value getting personal advice from banks; and also expressed positive attitudes towards gamification for the same purpose, with a focus on competition and joy aspects. They also expressed that they would like to solve problems in a timely manner without much need for reading or searching efforts. Manual or complex processes with long waiting durations carry a high risk to revert their experiences into negative quickly.

5.3 Self-service technologies & AI Applications

Previous researches have been focusing more on the adoption of self-service technology (Meuter et al., 2000; Curran & Meuter, 2005; Dabholkar, 1996; Curran & Meuter, 2007); however, the researches have the focus on the investigation of internet banking being continued used. Internet banking services are being more used as digitalization is increasing, the interview results show that even if the respondents [2, 3, 4] have tried internet banking services especially from mobile applications, they still have some trust issues and doubts

about whether they should continue or not, which is interesting. If the digital services are costly (Gerrard et al., 2006) and complex (Mallat, 2007) there is a risk that the customer may decide to avoid them, as multichannel services are provided through internet banking, the customer may show dissatisfaction (Eriksson & Nilsson, 2007). Therefore, it is significant to think about customer readiness to make the customers/consumers aware of advantages and provide information on internet banking, features, technology, etc.

The empirical data gathered, provided some evidence along with interview results, evidence that supports some self-service characteristics such as usefulness, self-control, cost, and time-saving. Customers who are prepared to utilize new technology to experience the benefits of internet banking have positive perspectives and are going to keep using internet banking (Cheng et al., 2006; Venkatesh & Bala, 2008). However, the customers/consumers will be cautious to accept digitized self-service technology for internet banking services due to risks (Cheng et al., 2006) e.g. the respondents mentioned cyber attacks or the process is down at the moment or a slow maintenance process.

Some respondents [1], [2], mentioned an AI-based self-service technology that is surprising and the researchers didn't expect customers/consumers were thinking broadly e.g. [1] & [2] mentioned AI implemented in self-service technology to make it understand different peoples situations. These technologies and functions of AI will guarantee an expanded integration of historical transaction data straight into the AI-based self-service technologies, which could rapidly and precisely identify clients, appropriately react to client requests, and efficiently give customized recommendations to satisfy clients' necessities. The AI-based self-service technology has much more features than ordinary self-service technology, it is restricted to basic inquiries (Chen et al., 2020; Carbo-Valverde et al., 2020).

When spreading the usage of AI and machine learning for front-end solutions, banks should be careful with the ethical training provided for the technical development teams. In the example of Valhalla Bank, as banks are still in the phase of experimentation with new technology they have not taken ethical concerns in their agenda yet, however as it has a direct impact on the customers and the society overall banks should grasp the vital importance of the topic while providing inclusiveness, diversity and equity training specifically designed for coding teams.

5.4 Pre-collection optimization

Both literature review and the interviews held show some improvement areas with the current pre-collection process of banks, especially on the way to increase current contact rates. Derived potential solutions will be presented in an order of increased complexity and investment requirements. The external interviewees shared that banks do not collect or prioritize their preferred communication channels when it comes to such vulnerable issues

which result in avoiding unexpected disturbing calls. Banks reach customers on their schedule without the possibility of two-way communication.

It is also seen that many debtors who experience difficulties on repayment go through negative feelings when dealing with call center agents; all respondents expressed that they believe they have been disgraced, neglected, and hurt during these calls. To avoid differentiation on the agent behaviors and attitudes, banks should be more careful with the call scripts and the training with an emphasis on the ethical side.

Surprisingly, previous customer interactions have been captured by banks without leveraging the full potential of data on their hand. Data analysis of customer calls would provide significant inputs on the way to optimize call schematization as well as understanding and evaluating customers' experiences.

Valhalla Bank chooses to give credits with higher returns and risks, in this manner banks should balance out their inclusiveness or high ambitions of profitability with operational easiness and ethical responsibilities. The pre-collections process turned out to be more efficient for multiple person lending which might be encouraged for high-risk segments. With the numbers presented in the results section, the case study carries strong evidence on the direct financial impact by even small improvements within the pre-collection process.

5.5 Risks and benefits of digitalization of pre-collection

It is evident that customers favor having more than one choice, and the need for human interaction varies based on the conversation topic and customer segment. Self-service technologies and mobile application capabilities have been thought of as norms by the interviewed debtors. The main benefits perceived by them can be summarized as, fast and accurate computation of information, emerging positive emotions, room for comfort, convenience, and flexibility on time.

However, such technology is expected both from bank employees and customers to be at an advanced level in terms of capabilities, and usability. Experience and communication of the solution are critical when establishing trustworthiness. Technology diffusion information would provide valuable insights in order to reach out and appeal to both older and younger customers (Rogers et al., 2011). Regardless of the customer's age, it is expected to guide and educate on how new tools function to maximize the impact of received help and service. Instructive readiness materials can be distributed via the mediums or formats that customers are likely to be familiar with, like YouTube videos.

On a focus of a well-functioning chatbot, interviewees converge on the opinion of simplicity and functionality as expected from the previous research. They do not want to deal with lengthy texts but expect their problems to be solved with ease. Some expressed their poor

past experiences which resulted in frustration and hurt customer relationships. Trust and perceived usefulness come with proved maturity of the applied technologies with the offered smooth customer experiences. Sensitive topics like debt not only raise questions and concerns regarding trust but also security; any perception of insecurity in banking would deter customers from actively using services (Hoehle et al., 2012) or even staying with that particular bank.

In summary, banks have the potential to reach operational excellence on their pre-collection workflows by becoming more data-driven. On the customer side, technology is still perceived as lacking empathy and emotion while having relatively both higher expectations and disappointments on the existing human interactions.

6. Conclusion

6.1 Implications

Methodology yields answers that were sought at the beginning of the study. The first step was to explore existing research and theories in the field related to the use of new technologies on sensitive/complex tasks within the banking industry. Later on, collected previous study results have been verified by the primary data from the case study and the external interviews.

The most important theoretical and practical findings are summarized in this section, it is important to note that these have local reasoning thus applicable mainly to the Swedish banking ecosystem and culture. To recapitulate, the research questions that are explored to be able to answer the ultimate question are;

1- How can self-service technologies and AI help to improve the customer experience for banking?
2- How to establish trust in the use of digital tools for the pre-collection process?

While the main research question that is answered in this study is the following:

How can human interaction be transferred into digital technology in banking?

- Customers grant e-banking capabilities and digital maturity of institutions with wide usage of new technologies to propose new solutions; however, banks should be analytical on both pre & post phases of technological investments.

- Banks should proactively seek both explicit and latent needs of different customer segments in order to better control demand aspect of diffusion, while doing so their most valuable asset is customers' digital footprint. As millennials and digital natives are already making the majority of the workforce, services and communications should be tailored according to their characteristics and expectations. Gamification technology has great potential to bridge between the lack of financial knowledge of youth and their competitive and joyful appetite while driving more engagement and loyalty.

- Self-service technologies and AI applications are actively desired by customers and recognized to be strong indicators of improved customer experience. In the process of becoming a data-driven financial institution, those technologies should not be only seen as black boxes but promoted to the forefront to sustain a competitive edge. The ethical controlling of these technologies should be the top concern of any

bank with a detailed action plan.

- The traditional pre-collection process has great room for improvement. Taking simple measures as not to neglect the channel preferences of the customers, providing two-way and flexible communication methods may yield improved contact rates. The interactions with the call center agents should be unified with a high focus on inclusiveness, diversity, and equity in addition to empathy as most of the current interactions are perceived negatively by debtors. Any customer interaction data has the potential to become the source of optimizing call scheduling, script customization, or customer experience evaluation. Banks need to balance out their "inclusion" or profitability ambitions with risk and ethical values. As different customer segments have varying reasons not to pay on time, strategies of pre-collection should also be customized accordingly.

- As the study demonstrates the pre-collection process has a significant financial and social impact, pioneering the digitalization of the traditional setup can become very beneficial for challenger digital banks. Customers expect flexibility and freedom to choose between human interaction and self-service technologies. Problems should be solved in a timely, accurate fashion on the go. Sensitive topics can be dealt with digital tools when they can provide advanced functionality with maturity to establish trust and security. User experience can be maximized by providing customer readiness materials and tools. Lastly, even though the technology is perceived as cold with a lack of empathy and emotions especially when it comes to complex and sensitive tasks like debt issues, customers are ready to experiment as they are not comfortable nor satisfied with the current human interactions.

It is needed to note that the rate of improvements and changes in the technological landscape is tremendous; many advancements in AI and SSTs are expected in the near future which will both empower chatbot capabilities as well as customer acceptance. Regardless of the state of the digital journey of a financial institution, customers should be well informed about new technologies with a close and transparent relationship where one feels valued and understood.

6.2 Limitation

Even if this research is good, all research has some problems and limitations. The results are Swedish based, the Swedish culture may have a significant impact on how digitization works for the bank.

The researchers of this study are fully aware that the interviews are limited and will have a negative effect on the reliability. The interviews can be one-sided because of ethics (see below), because the participants are volunteers and have the free will to leave. Some

participants can be more responsive, which affects the result due to in-depth explanations from the participant. Some interviews proceeded in Swedish due to making it comfortable for the participant. To be as objective as possible is significant when the recorded data is being analyzed to keep reliability on a high level (Zainal, 2007).

For the internal validity, problems can occur but will be reduced to a minimum by analyzing the content two times to make sure good quality information achieved is absorbed. External validity by generalizability will be harder to obtain, due to the case studies this research uses on minimum users, to generalize the finding can be difficult (Zainal 2007). However, the goal of this research is to digitalize the customer experience claim process in Valhalla bank, which means this research is based on propositions that will need further research to obtain validity and reliability, then the generalizability won't be a problem.

6.3 Future research

Due to the Swedish-based results, future research could concentrate on how the outcomes hold in cross-cultural research (more globally). In Sweden, the adoption of internet banking has been increasing at a fast rate, and therefore, it is fascinating to contrast the Swedish case with different sectors, where the adoption has not been quickly implemented at such a fast rate. Therefore, further investigation could likewise examine different innovations than internet banking and self-service technology, technologies that have yet not been implemented similarly (e.g. mobile application with new and developed features).

Another interesting future research can be to investigate the continued use of self-service technology in other internet banking channels, as well as implementing an AI-based self-service technology. We venture out by finding that multichannel satisfaction is significant for proceeding with use, and future research could consider the impact of explicit channels.

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8. Appendix

The external interview results are summarized because interview questions will not be displayed, and due to anonymity agreement with the respondents, made-up names will be used.

Interview 1: Robin Andersson

The reason why Robin took a loan was to buy himself a suitable car for transport. Robin explains that he had a hard time repaying: sometimes there was a hard time repaying the loan due to fluctuations in my income. At points, there were times when I didn't have any money in my bank account (since I used to transfer the money from another account into the main one). When the automated monthly payments were due, and there was not enough money in my main account, the bank wouldn't transfer the money since there was nothing to take from. I contacted the bank about this since I wanted them to take from my other accounts if there was no money in my main one, and my response was quite neglecting and stressful. I experienced that the bank employees viewed me as I was some kind of criminal. Furthermore, I was providing them with information for them to improve, but they were neglecting my advice.

A way to simplify the pre-collection in my situation could be for the banks to use some form of an algorithm in a "self-service" technology to understand different people's situations. This could maybe be achieved with the help of an AI. The only objection that I have is that it can make people's situations impersonal using a device without conscience. However, the benefit of using such self-service tools is that a computer can compute information better and faster than humans with a fast response time. So, in that way, I am positive about such a solution. When it comes to debt, it is quite awkward to talk to a human being about it. I would rather solve it digitally through self-service technology like a chatbot or a similar service, I think if the self-service technology is well-developed on an advanced level, it will gain the trust of the consumers, I would trust the technology service if it meets my expectations and help with what I need.

Perhaps some digital solution that can help you manage your savings and payments based on the previous month, a feature such as a recommended financial structure would be beneficial, all through the mobile app. Also, recommend gamification methods in the banking service. It's easier to manage the money. Nowadays, you can easily check your balance at any time, but there is a risk as well and that is the increase of cyber-attacks on individuals through digital channels.

Interview 2: Henry Miller

The bank has been good until an embarrassing event happened and felt that I did not get the help I needed or anything, the interest rate was high, and I could not pay back, but became more pressured and doomed, so I switched to another bank which is more digitalized, but I think it is a bit hard that they have shut down most of their offices, it's very limited. It's more like self-service, you should do it more yourself via mobile application or internet, which is more positive, but sometimes you feel like talking physically to a person. The reason I stay with the new bank is that it has become more digital, and I do not feel that I am ashamed in the same way, even though I do it for the whole event, but most of the processes are handled via the internet, which many banks have today. But it is important to have a person as well and the bank employee needs to be understandable and try to help me with a customized payment plan that is profitable for both parties.

I have had a hard time paying back loans. I feel that it has been difficult as the bank has not helped me out and taken me into account but has been stricter. Furthermore, I am ashamed of the incident, I have mentally decided that what I have done is stupid, and get what I deserve back. But felt that I was convicted, even though I tried not to take on, but it was difficult at times, but cannot complain about it given what I have done. It was very sighing and stuff from the staff that helped me with a payment plan. But it would have been good to get personal advice anyway and especially if they could help me and make it beneficial for me as well, for example, their conditions are adapted for me, so I can pay back while I can live a normal life. By giving me a good payment plan that works for both parties, so that I do not feel too bad because I do not have money. So, a plan that allows the bank to get its money while I can live normally and that the bank is flexible and understandable for my stupidity. So that the bank not only says: you will have to pay for this and this, because then I will just feel like I will never be able to handle this, and it will only get worse. It may be self-service technology, but the final step should be personal, nonetheless.

If the self-service is very advanced with AI, that it can for example adapt to my situation, that it can give me a lot of options on how I can pay back that I can choose from, can help and not sending me a lot of text to read because as most chatbots do as an example, it will not help me, I am a person who does not want to read too much but address the problem immediately. On the last option, I still think it should be a person to talk to, to get personalized help. Would more say that first you take it via chat or other digital self-service technology and check how much of the problem you can solve, as a last resort to solve the problem would be good to take it with human interaction by phone or physically, I would trust the self-service system with my sensitive problem. I think that would have been optimal because if someone had just called me from the bank, the risk would have been very high that I would not have answered. I do not mind meeting someone physically to solve the problem. But it's nicer if it had been a chat instead or something similar, so you have time to think about what you want to say, also nice that you can take it from home via

the chat instead of getting in place with this shame over the event. It is possible to talk to the bank but still feel the shame and the risk that I may be convicted will be higher. If I am going to talk to a friend about it, it is only for my closest friend that I trust and feel safe with without feeling stressed, judged, etc.

What could be beneficial to have is 24 hours of active chat, that I go into the app and just press to start the chat and start talking if I need help. An active and advanced developed chatbot with implemented AI and not square that thinks only within the framework, which can help and kind of feel understanding as well as adapt to the need the person has, it could be something, for me at least. The feeling you have today for such things is that they feel very impersonal and very simple so that they do not help one at all, and only refers to reading this or that, I do not want to read more texts, I want to solve the problem, for example, I want to be able to say block my card, and then it should say: do you really want to block your card, and if I answer yes, then it should make it easy and smooth. It should not be that it should send me on to call any number or read this text. I want it to solve it for me. I mostly use the mobile app, but if I'm going to do something like e.g. fixing Bankid, Swish, etc. I have to use a computer, but when it comes to more complex processes I would use a computer instead of a mobile phone.

Furthermore, I have experienced that certain situations at some banks are complex which should be very simple. Experienced that I had problems with creating a BankId via the internet bank, for example, it was a complex process that led to me having to call in to be able to solve it and get help when it was not possible to do it myself. Such a process made me frustrated that it was complex. But now in the bank I have I think that everything is very clear and simple. But I think it can be more difficult for the elderly, they should get customized help because they are not used to digitization, and they prefer cash.

Interview 3: William Johnson

The biggest problem for me was setting up the payment plan, the percentage interest rate they charge, and the part I get to keep. It is hard to describe what you are allowed to keep, it was as if you baked the whole cake and only get to keep the crumbs. I was called by the bank, and they said that I am in debt and can't pay, I felt devalued as the treatment felt more like an attack instead of helping me, it hurt, they were not helpful. I began to look down on myself, felt that this person from the bank knew my secret, and I just felt bad about it. They could handle it in a much better way, I understand if the employee who called didn't have a good day, but it's important to have great customer service that helps.

For my situation, I would recommend digital self-service technology, that I could go in, write what I earn, and have for wishes, etc. to write off my entire salary and that I need this much to be able to live normally, feel good and feel that I can survive without it depresses me mentally. Based on the data you enter, the bank takes it into account and has some type of negotiation to make it profitable for both parties. In other words, I would entrust self-service technology with a pre-collection process as long as I don't meet up with judgmental bank employees. I encounter chatbots daily on various websites, not all are well-developed, but the majority are sufficiently developed for their purpose that you should get the help you need.

I prefer an online chat with a robot because I encounter chatbots daily on various websites, not all are well-developed, but the majority are sufficiently developed for their purpose that you should get the help you need, so I would prefer an online chatbot because I feel like I was not talking to a person directly, as I am a person who is ashamed to talk about my problems, I am sensitive to tell that I have done wrong. It would be good if you got as an introduction to how the chat works and what functions it has that you can use to maximize the help via a YouTube link or similar that explains very simple, for a customer readiness, or else I believe people would have trust issues until they test most of the features. So I would say if I had to choose a self-service technology the chat robot can help me the most and solve problems, I think it would have been optimal and in the last step, if it is not possible to solve the last bit, you have to bring in a bank employee who solves it.

What I think is missing in digital channels today is a transfer between different banks that takes only 1 day instead of 2-3 working days (without using swish), a function that makes it possible to transfer money abroad much easier and takes place on the same day. The features that could help me when it comes to the pre-collection process is that you could see an overview of everything, be able to see the entire payment plan ahead, be able to be flexible so that at some point maybe be able to pay a little less because you want to travel or do any activity for the sake of health. The pros when it comes to digital banking are smooth and easy, no need to meet people and be ashamed, get help faster. However, the

cons are that anyone looking for me or any individual can get the information quite easily if I have a dept, etc., and it is very sensitive.

Gamification would be tempting to test as you feel that if you meet a goal, for example, savings, you will feel competitive and succeed better next time, partly because you feel that you get something out of it while you feel that you are getting “paid” excitingly.

Interview 4: Hannibal Smith

The payment plan is set up upon five years, I think that might be my biggest challenge if I don't get one good job after finished studies instead of working three part-time jobs, so I still can afford to have the car. The behavior differs, sometimes I get to speak to a bank employee who wants to help, and sometimes I get to speak to a bank employee who treats me like an fool because I study and have 3 parts job mostly because of a car. The behavior differs a lot, can't complain, they are also humans. But I think banks should be more flexible, maybe give a smaller percentage of interest rate. Digitalize the process, so it doesn't take too much time until I get the help I need, for today if I have to call in, I have to wait at least 40-50 minutes until it is my turn to get the help, and sometimes I don't really have the time and stuff gets postponed and then problems start to occur.

So, to digitalize the process as self-service technology but at the same time, I don't feel as convenient as I would have wanted to when I chat with a chatbot. It feels like there is always a risk that it misunderstands me in some way, and I don't get the answer I was seeking for. I think it depends more on how advanced the chatbot is programmed, but I would have trust issues with a chatbot. I always prefer face-to-face discussions, but that is not always possible. I do not mind having online calls either, but chats I try to avoid, I think it's much harder to express myself when chatting. Talking about money issues with a bank employee feels safer, and I get more help out of it even if the employee is judgmental, I don't care because I have accepted it in my head. I trust more a person than a chatbot for example. I would suggest leaving the sensitive parts of banking as they are today, to get in touch with an employee, but the rest should be implemented self-service due to time-saving and more all through the mobile application because the mobile phone is all I use.

Furthermore, I would not say no to digitalization, because it has many pros. After all, the processes are much more effective and time-saving these days but on the flip side, it can be very hard when the digital features are out of order, or like the system is down for maintenance.

I have heard about gamification and for me, It depends on what has to be done to get reach the goal and get the "reward", how much time needs to be spent on it. Otherwise, I could give it a shot and see how it turns out to be.

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