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The future of Artificial intelligence in Swedish banking Enhancing customer relations with an *Economic Butler*

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Abstract

The study examines artificial intelligence (AI), its impact on customer relations and its pillars consisting of trust, personal service, loyalty, and satisfaction within the Swedish banking sector. The primary objective is to explore how AI-technologies can be utilized, assess the potential benefits, and identify the opportunities and challenges associated with the implementation of AI in the Swedish banking sector.

AI is utilized to streamline operations and offer personalized customer interactions through the use of AI-innovations and data analytics. These technologies are reshaping the Swedish banking sector by increasing efficiency and enabling more customized service offerings. However, the adoption of AI also entails challenges, including concerns regarding privacy, security and the potential reduction of physical customer interactions.

The study is based on a qualitative method with semi-structured interviews for data collection. The interviews were conducted with a total of five experienced banking professionals from four different banks in order to take different perspectives into account and to identify the practical impacts of AI to address the existing knowledge gap about its effects on customer relations.

The study highlights that AI improves accessibility and inclusion in banking by automating time-consuming tasks. It is apparent that the development could progress to the point where AI may serve as an economic butler. However, AI entails risks that can potentially deter customers and contribute to bias, emphasizing the need for data monitoring. Despite significant advances in AI-technology, the findings underscore the need for human interaction to effectively serve complex customer needs. Moreover, the study advocates a hybrid model that takes into account AI with personal service, ensuring trust and enhancing customer relations in modern banking.

Keywords: Artificial Intelligence (AI), Banking, Customer Relations, Digitalization, Economic Butler

1. Introduction

1.1 Background

Today, modern companies are undergoing digitalization through the implementation of artificial intelligence (AI) as an important step forward (Al-Dosari, Fetais & Kucukvar 2024). AI can be defined as the ability of computers to acquire and apply knowledge without human intervention (Deutsche Bank 2019). Another definition of AI is highlighted by Manheim and Kaplan (2019), emphasizing that AI can be understood as a system's ability to accurately interpret external data, learn from this information, and adapt to achieve specific goals. Davenport et al. (2020) suggest that AI encompasses systems, programs, algorithms, and machines that imitate human intelligence which can replace monotonous work tasks.

The Swedish banking sector, which for a long time has been at the forefront of introducing new technology, has become one of the most digitalized in Europe according to the Swedish Bankers' Association (2019). The advancement of information technology has contributed to the powerful emergence of AI in the financial industry, characterized by increased efficiency, simplified processes, convenience, and contributed in areas such as risk assessment, prediction of customer behavior, improvement of pricing strategies and accessibility (Al-Dosari, Fetais & Kucukvar 2024; Radenkovic, Hanic & Bugaricic 2022). Further, AI-systems have been developed for automated assessment of creditworthiness and capital optimization, and in customer service AI-powered chatbots, i.e conversational online assistants applied to support personal interactions. Furthermore, AI is used to streamline security systems in order to prevent fraud and money laundering (Chwila 2023; Lazo & Ebarido 2023) and is a central tool utilized for regulatory compliance, which includes technology related to monitoring and ensuring data quality. Compared to the human factor, AI replaces time-consuming tasks, is more efficient and strengthens integrity and protection through data accuracy for bank customers, resulting in a more personal and reliable banking experience (Chwila 2023; Lazo & Ebarido 2023).

In the banking sector, customer relations are a decisive factor in increasing customer loyalty and building long-term relationships (Levy 2014). Research underlines that factors such as security, bank reputation and customers' experiences of service innovations significantly improve customer satisfaction, which in turn strengthens customer relations (Biswas, Jaiswal, & Kant 2021). Customers' perceptions of service innovation have a direct connection to service quality, the use of modern communication channels and banks' ability to adapt to new technology. Together, these factors are crucial for maintaining and enhancing customer relations (Mahmoud et al. 2018). The implementation of AI-technology in the banking system brings technical possibilities that can increase trust, personal service, customer loyalty and satisfaction through improved quality of banking services, increased accessibility and flexibility (Lazo & Ebarido 2023).

1.2 Problem discussion

Today, AI primarily serves the interests of banks rather than customers, lacking in direct customer relationship benefits. However, AI has the potential to improve customer relations and reduce the risks of customer disloyalty, and deteriorating relationships. As AI proliferates, privacy and security concerns pose ethical challenges for banks. Research in the area is insufficient and there is a dilemma where bank customers stand between sharing personal information to enjoy benefits or avoiding sharing information and thus being excluded from taking part in offerings. Hence, banks must balance the experimentation of new technologies and act ethically in line with regulations to protect their customers to maintain trust (Fares, Butt, & Lee 2022). Furthermore, as human interactions are replaced by AI-driven technology to an increasingly greater extent, customer relations are at risk of deterioration due to algorithms not understanding reality and risk misinterpreting information (Lazo & Ebarido 2023; Larsson & Viitaoja 2017). However, there is a lack of research in this area, making it challenging for banks to integrate AI while enhancing customer relations. This includes understanding individual needs and providing a sense of personal service. As AI-driven technology is integrated into the highly competitive banking sector, there is a need to understand its opportunities and challenges, but also its effects on customer relations. It is clear that AI has potential due to its rapid development, while the knowledge gap surrounding its practical implications is increasing.

1.3 Purpose and research question

The study aims to explore the transformative impact of AI in the banking sector enabled by digitalization. The purpose of the study is to investigate the implementation of how AI can enhance customer relations, including trust, personal service, customer loyalty and satisfaction among Swedish banks. The study intends to identify the growing knowledge gap concerning customer relations when implementing AI and to distinguish opportunities and challenges, which leads to the following question.

- *How can Swedish banks utilize AI to enhance customer relations, and what are the opportunities and challenges?*

2. Theoretical framework

2.1 Digitalization

2.1.1 Definition of digitalization

Digitalization has had a significant impact on society and innovation in the service sector. In this regard, digitalization refers to “the process of converting analog or physical forms of information into digital ones, while digitalization refers to the transformation of industries, business models and processes” (Diener, Dvoulety & Spacek 2023, p. 2). Digitalization is based on automated processes where reorganization is required to be able to implement new technical solutions over time (Puschmann 2017). Conventional physical services are replaced to a high degree by digital solutions, which raises questions about strategies regarding companies business models, competitiveness, decision-making, innovation, decentralization, internationalization, process optimization and customer relations. Digitalization has enabled the development of AI with vast amounts of data access to improve algorithms, infrastructure for seamless integration across various sectors (Puschmann 2017).

2.1.2 Digitalization and banking

An important aspect as a result of digitalization has been maintaining competitiveness, which has required adaptation. This means greater investments in technology and innovation to maintain bank customer relationships and satisfying service and product offerings. As these investments have increased, new opportunities have emerged (Lazo & Ebarido 2023), for instance, new channels where banks interact with customers in a new manner. The development, production and distribution of banking products and services within the banking industry has changed as a response to customer preferences and expectations of banks (Diener, Dvoulety & Spacek 2023).

The rapidly growing online markets that are phasing out physical interactions reflect the digital evolution and despite more responsibility shifting towards customers, offers are becoming increasingly tailored and personalized (Diener, Dvoulety & Spacek 2023). Examples of these are technological advances in opening products and services, purchasing financial instruments, data management and cloud services, which contribute to new offerings. The traditional physical office visit has been increasingly replaced by digital customer service, platforms, such as websites and apps, and AI in the form of voice recognition, chatbots and robo-advisors that act as artificial advisors that offer financial advice for investments, contributing to improvements in the customer experience (Lee, Tsai & Lanting 2011; Lazo & Ebarido 2023; Fares, Butt & Lee 2022). However, digitalization that has replaced physical interaction risks deteriorating customer experiences (Lazo & Ebarido 2023; Larsson & Viitaoja 2017).

2.1.3 Omni-channels and banking

In order for banks to maintain competitive, innovative digital solutions have developed for customers to enjoy benefits. Omni-channel strategy is a further development of multi-channel approach influenced by digital advancements. In contrast to multi-channel strategy that is managed and built on three independent channels, physical offices, websites, and marketing, omni-channel is viewed as a unified system, with the goal to enhance and create a seamless customer experience (Verhoef, Kannan, & Inmann 2015; Diener, Dvoulety & Spacek 2023). This development is driven by digitalization, where channels are seen as interconnected touchpoints and exchange of interactions takes place. Touchpoints are for instance, social media platforms, internet banking, apps and customer service. Thus, with the widespread use of mobile devices and social media platforms, the number of touchpoints and interactions increases and together shapes the customer journey, allowing customers to seamlessly navigate through different stages of a purchasing process (Verhoef, Kannan & Inmann 2015).

2.2 Artificial intelligence

2.2.1 Definition of AI

Digitalization has enabled the emergence of AI. The concept of AI is well established, however its definition appears to remain subject to ambiguities due to its complexities and different branches within AI (Chwila 2023). AI combines various technologies through language processing, machine learning, automation, robotics, deep learning, and expert systems to perceive and interpret data (Chwila 2023; Davenport et al. 2020). Puntoni et al. (2021) suggest AI as an ecosystem including data collection and storage, statistics and computational techniques, and output. However, supporting activities rely on human input. The capabilities of AI extend from automation, managing customer information to performing transactions and analyzing data, such as texts for decision-making. AI can process vast amounts of data, including both numerical and non-numerical information, facial expressions and voices. Furthermore, AI can generate new data, termed generative AI, which is a more advanced branch within the field of AI (Chwila 2023; Puntoni et al. 2021).

AI has rapidly evolved in recent years, becoming a widely spread topic in our contemporary society. As AI will continue to develop in the future, there is a growing interest in how powerful it can become. It is said that AI can replace humans and pose great challenges for the future. Today, AI is at a level of intelligence that lacks context-awareness, i.e. advanced AI cannot outperform human understanding. AI can perform tasks at higher accuracy than humans and has already begun to automate and replace human labor consisting of time-consuming tasks. However, with these technological advancement's customers are said to become more distrustful (Davenport et al. 2020).

2.2.2 Advantages and disadvantages of AI

The increasing demand for personalized services combined with abundance of information has changed the service system. AI allows companies to leverage online consumer engagement to conduct information and develop AI-based services further. The integration of AI-technologies makes customers interact through self-services when they need support. In addition, this consumer engagement in real time, allows companies to be agile and dynamic, taking quick and effective context-based actions with support from AI (Buhalis & Sinarta 2019). Moreover, AI can be applied to predict consumer behavior, preferences and to capture customer experiences and satisfy needs through personalized offerings. AI is thus consumer-focused, this to predict behavior, with the aim to enhance experiences. Utilizing AI for data collection and analysis, the mapping of customers is made more efficient, i.e. ascertain customers preferences and predictions of future behavior. Furthermore, AI is available around the clock throughout the customer journey, which enhances customer engagement while being cost-effective by replacing time-consuming work tasks through automation. In addition, organizations have a unique opportunity to collect customer information through big data which involves analyzing large and complex data sets to identify patterns that relate to behavior and interactions (Hu & Wang 2020; Davenport et al. 2020). Implementing AI entails reorganization and streamline operations, but also reduces costs, positioning AI as a key tool for the future. However, as AI evolves, ethical challenges arise where current legislation is lagging behind (Chwila 2023). AI-driven technologies can pose challenges, such as misinterpreting data, which can result in AI creating incorrect conclusions that are harmful for interactions, which may lead to a impaired trust in AI. Further, misinterpretation of data may require significant resources to be addressed. Rather than AI replacing humans, AI should be utilized as a tool to enrich and assist human efforts (Chwila 2023). Despite the challenges and ethical concerns with AI, its role in enhancing customer experiences and operational efficiency cannot be understated.

2.3 AI and banking

2.3.1 The impact of AI in banking

AI in finance has attracted attention for decades, where discussions consist of its potential market disruptiveness that diminish the importance of manual labor resulting in increased efficiency and reliability. Along with increased computing power, application areas of AI have evolved from empowering financial markets, risk management, banking, and trading to the newer forms of AI applicable in the banking sector (Puschmann 2017). This modern use of AI has enabled digital currencies, platforms for asset and wealth management, and new opportunities for risk and regulation management. Furthermore, the emergence of AI has enabled smart banking, smart insurance, smart trading, smart blockchain, smart payment and smart marketing. Smart refers to the use of advanced technology, particularly AI, big data, and other digital tools to enhance efficiency and quality of services. AI is nurturing new economical and financial innovations, products, and services by contributing new business

opportunities. For instance, natural language processing (NLP), refers to machine learning technology that gives computers the ability to interpret, understand and manipulate human language (Chen et al. 2023). NLP helps businesses in creating smart contracts while event and behavioral analysis enhances marketing strategies. In addition, statistical modeling supports investment decisions and machine and deep learning enables improvements in risk and security infrastructures (Cao 2022). Thus, the inevitable emergence of AI is reshaping the economy and financial services by offering new opportunities through its growth (Puschmann 2017).

2.3.2 From classical to modern AI in banking

Classical AI-research in finance and economy has focused on understanding and designing system mechanisms, forecasting, credit loan and risk management, marketing analysis, investment strategies and optimization (Cao 2020). Modern AI-research on the other hand, is moving beyond the conventional online banking and financial services provided by traditional banks. In connection with the expansion of internet use, vast amounts of digital information are generated and stored. This is the basis for data-driven decisions, which has enabled new methods for identifying data through machine learning (Hu & Wang 2020). In banking, data is an essential aspect in almost all areas. This is the driving force behind the success of AI, i.e. solving problems, understanding language and sound and observing data autonomously (Lazo & Ebarido 2023).

2.3.3 AI in fraud detection and data management

Financial fraud entails the deliberate utilization of illicit methods or practices to attain financial profit. Financial protection such as AI, safeguards financial activities through early detection, warning, assessment, and auditing processes. Associated applications encompass fraud detection, including the detection of fraud related to financial statements and payment cards (Chwila 2023; Lazo & Ebarido 2023). Through data collection, AI, built on algorithmic machine learning, can analyze and track customer behaviors such as, customer location information and transactions, review data and detect potential fraud. With this technology, security within banks increases as it is conceivable that fraud can be managed proactively but also to detect new forms of fraud (Zhang 2022).

2.3.4 Ethical and regulatory challenges with AI

A shortage in current AI-systems that contributes to a damaging impact for users lies in the absence of clearly defined ethical objectives and constraints. Unlike humans, AI lacks moral awareness in decision-making and has not achieved context-awareness (Davenport et al. 2020). Today, AI cannot consider ethics without embedding mathematical calculations of ethical standards into its design (McCalman et al. 2022). This implies that systematic discrimination can be induced or elicited by inaccurate coding or thinking of humans. Besides ethical concerns, specific business issues that are associated with AI include bias in market

trend forecasting, stock price prediction, algorithmic trading, financial report analysis, pricing and hedging, marketing, and credit scoring. Data privacy is another challenge, particularly in fraud detection and consumer behavior analysis, and social commerce (Cao 2020). Furthermore, the banking industry is highly regulated where regulatory concern is the most prominent barrier to adopting AI (Lazo & Ebarido 2023). There are uncertainties surrounding the implementation of AI, where regulatory authorities and customers appear to be skeptical. For AI to be accepted by the public and successfully implemented for banks (Bouhia et al. 2022; Lazo & Ebarido 2023), it is crucial that it gains trust.

2.4 Customer-centric AI in banking

With the advent of AI-driven technologies such as chatbots, robo-advisors, and personalized banking experiences, financial institutions are exploring new opportunities to enhance customer interactions, streamline processes, and deliver tailored services. These innovations emphasize a shift towards more automated and personalized banking solutions driven by advancements in AI and machine learning algorithms (Aleksandrova, Ninova & Zhelev 2023).

2.4.1 Chatbots

An AI-powered chatbot is based on a computer program supported by AI-technology in the form of natural language understanding, machine learning and big data. Through embedded AI-systems, activities are made more efficient, which includes that chatbots can surpass manual labor and contribute with service around the clock (Chen et al. 2019). A chatbot is a tool applied to converse with users, with the aim of answering questions within banking (Lazo & Ebarido 2023; Bouhia et al. 2022). Since AI-chatbots often are the first point of contact in an organization, these affect customers' impressions of the organization's quality (Chen et al. 2019). Through text, a chatbot can analyze and identify expressions and grammatical structures that result in customers receiving adequate answers to their questions. In addition, chatbots store data, which allows customer behaviors to be analyzed, calculated and interpreted to predict and generate individual preferences. Through data collection, information can be used as a memory for future customer interactions in order to evolve and tailor experiences to satisfy customer needs. Companies that utilize chatbots have opportunities to revise, refine and optimize processes that affect decision-making (Trivedi 2019; Chen et al. 2019; Misischia, Poesce & Strauss 2022).

2.4.2 Robo-advisors

Financial advice traditionally takes place through direct contact with bank experts (Belanche, Casalo & Flavian 2019). Nowadays, customers are offered more options through robo-advisors that act as artificial advisors (Misischia, Poetze & Strauss 2022; Cheng 2023; Fares, Butt & Lee 2022). A robo-advisor is based on interactive AI-based technology to manage customers' investments. Furthermore, robo-advisors tailor investment

recommendations based on risk appetite through analytics based on statistics and machine learning algorithms (Lazo & Ebarido 2023; Chen et al. 2019). The interaction process for a robo-advisor takes place in three steps. The first is configuration, which involves creating a customer profile that is assessed by AI with the aim of reducing information asymmetry between customer and robo-advisor. The second step is matching and adaptation based on algorithms creating personalized investment recommendations. The third step includes maintenance, which consists of robo-advisors adapting holdings in a portfolio based on market conditions and customer needs. This investment process can be equated to the interactions that occur between human advisor and customer (Jung et al. 2018). The success of robo-advisors is determined by its popularity, user experience and quality. In order to motivate customers to use robo-advisors, it is important to exceed customer expectations. Features such as usability and interactive user experiences can increase popularity and customer satisfaction. To create engagement, robo-advisors must be reliable, accurate and user-friendly, which are crucial for service quality and encourage robo-advisor usage (Lazo & Ebarido 2023; Cheng 2023).

2.4.3 Personalization

The main drivers for bank customers to be motivated to use AI-driven technologies are the tailored experiences they provide (Lazo & Ebarido 2023). Banks that utilize AI to focus on customer needs can create more personalized interactions, which can improve customer loyalty over time. Digital platforms such as apps and websites have become useful tools for banks. These contribute to facilitating banking-related matters in everyday life for customers, such as chatbots among others. Digital platforms have several functions and through the implementation of AI, subjective approaches from bank employees are avoided. AI thus constitutes a valuable and competitive tool for modern banking (Lee & Chen 2023; Bouhia et al. 2022). However, an issue related to AI and personalization is customer data integrity and protection. Businesses such as banks use data for commercial gain in connection with the internet's presence in everyday life. Hence, it is crucial that customers have the ability to monitor and control their digital footprint, even if this is currently a challenge (Lazo & Ebarido 2023).

A central issue in interactions with AI is privacy. Individuals express concerns about the management of their personal information in connection with AI-technologies (Bouhia et al, 2022). Although there are many benefits for using AI-technologies, individuals are reluctant to use AI-services (Rese, Ganster & Baier 2020). According to Bouhia et al. (2022), research in the area is insufficient and there is a dilemma where bank customers stand between sharing personal information to enjoy benefits in the form of individual-based recommendations and avoiding sharing information and thus being excluded from taking part in personalized offerings.

2.5 Factors enhancing customer relations

2.5.1 Customer relations

A customer relation is generally composed of satisfaction, trust and commitment and can therefore be argued to be key factors for successful long-term relationships (Morgan & Hunt 1994). Customers care about relationships with service providers and use their past experiences as a basis for evaluation (Crosby et al. 1990). Relationship quality lacks a unified definition (Rauyruen & Miller 2007; Robie et al. 1998). However, relationship quality is positively correlated with loyalty (Hennig-Thurau & Klee 1997; Roberts et al. 2003). Furthermore, there is a lack of research in the area of customer relationships in banking. Mainly, a lot of emphasis is put in Customer Relationship Management systems (CRM) to provide an organizational benefit for business in general, functioning as a support system for customer relationships. Moreover, research also covers relationship marketing as a discipline of growing importance for service providers since the value customers bring can be regarded as intangible assets creating long-term revenues (Bayón et al. 2002).

2.5.2 Trust

Trust encompasses a variety of aspects. A common denominator is the notion that trust is based on a willingness to trust someone else. It is implied that individuals who lack knowledge choose to give their trust to experts. Thus, trust acts as a method for managing uncertainty. Understanding what influences trust is critical for banks to proactively increase trust through personalized service. High trust in a bank reassures customers, making them more forgiving of occasional issues, seeing them as exceptions. However, without trust, any negative experience reinforces doubts about a bank's reliability (van Esterik-Plasmeijer & van Raaij, 2016). The foundation of the determinants of trust is based on competence, benevolence, and transparency, also including the importance of shared values and communication (Carlander et al. 2018; van Esterik-Plasmeijer & van Raaij 2016). These aspects are the main factors influenced by banks personal service. Competence is considered as the skill required of bank personnel to carry out specific tasks. As financial services can be perceived as complex for customers to understand, the competence of banks is crucial in building trust. Thus, when customers with low involvement perceive that they receive sufficient support, their trust is enhanced, leading to increased loyalty (Shankar & Jebarajakirthy 2019). Benevolence includes expectations that banks act for customers interests and contribute to an experience based on morality, ethics and consequential thinking to maintain customer integrity. Transparency refers to providing customers with sufficient information to satisfy the requirements of a reasonable individual. Efforts to enhance trust have increasingly focused on improving transparency and communication (Carlander et al. 2018). Information that is transparent promotes rational decision-making in financial markets. By providing reliable services, protecting privacy and personal information together with customer support, trust in banking can increase (Shankar & Jebarajakirthy 2019).

2.5.3 Personal service

The importance of personal service has increased in the service sector, which is based on a high level of intangible attributes where human interactions are central. This includes financial services where the relationship between banks and customers is central (Ngoc Thuy & Nguyen 2010). When dissatisfied with banking services, customers tend to solve their errands in alternative service channels such as internet banking without banking employees' assistance. High quality personal service is claimed to be a cornerstone for creating and maintaining customer satisfaction. The quality of personal service directly affects the perceived quality of services. Moreover, perceived service quality directly and indirectly affects customer loyalty through customer satisfaction. Furthermore, personal service has a positive impact on trust in a bank as well as its customer satisfaction. Furthermore, the importance of personal meetings to strengthen trust is emphasized. Direct interaction implies that employees can be perceived as more competent through advice, benevolence by prioritizing customers interests and transparency by providing relevant and understandable information to customers (Carlander et al. 2018). This indicates that customers experience high quality of banks personal service and thus trust in banks, which ultimately contributes to increased customer satisfaction (Carlander et al. 2018; Ngoc Thuy & Nguyen 2010).

2.5.4 Customer loyalty

Customer retention is a challenging process and important for long-term success of a company (Bowen & Chen McCain 2015). Loyal customers are less affected by price fluctuations and are more likely to spread positive word of mouth for a specific service provider (Akbar & Parvez 2009). Therefore, loyal customers are an important revenue base for an organization with the potential to serve as advocates and attract more customers. Loyalty is often a result of the customer's belief that a brand consistently delivers value and meets their expectations, where marketing efforts can change and reinforce.

As attitudes towards products, services and brands are in constant motion, the perception and feelings around them can change over time, shifting and reshaping loyalty. Factors such as product features, functionality, reliability, and the perceived value for money are important for customers which are not fully loyal (Oliver 1999). This implies that less loyal customers are vulnerable to advertising, since perceived or actual benefits from other brands can deteriorate the value of the consistent choice (Oliver 1999). Therefore, banks need to develop marketing strategies focused on delivering superior value to customers, to increase customer loyalty (Kotler et al. 2019).

According to Oliver (1999), loyalty consists of different attitudinal phases or behavior levels advancing from shallow stages to more robust forms of loyalty. Dick and Basu (1994) propose a perspective on loyalty where it is not treated as a distinct psychological construct, but rather as the strength of the connection between attitudes toward a company and repeated buying actions. From the attitudinal perspective, customer loyalty can be explained as the

tendency to continue a relationship with a service provider (Zeithaml 2000). In the context of banking, Larsson and Vittaolja (2017) have developed a definition of loyalty, that is "Bank customers holding favorable attitudes towards their bank of choice, manifested through repeated purchase intentions and/or behaviors at the same bank" (Larsson & Vittaolja 2017, p.870).

2.5.5 Satisfaction

Satisfaction is defined as the gap between expectations and the perceived performance of a product, where both satisfaction and dissatisfaction originate (Kotler et al. 2019). This implies that the distance cannot be found and evaluated until a purchase has been made (Arora & Narula 2018). Satisfaction is the positive result, meaning a high evaluation of the product or service quality (Caruana et al. 2001). Satisfaction is also linked to customers' feelings around a service or product, where emotionally anchored satisfaction is suggested as a high predictor to future purchase intentions (Martin et al. 2008; Zeelenberg & Pieters 2004). Bowen and Chen McCain (2015) emphasize a positive relation between customer satisfaction and loyalty, which is supported by Hill and Brierley (2017), emphasizing the critical role of satisfaction within the loyalty framework.

2.6 Summary of theoretical framework

Building on the theoretical framework, it can be ascertained that the concepts of customer relations, trust, loyalty and satisfaction are incoherent as they are not connected to banking and AI within the literature, but appear as separate concepts. Personal service is the sole concept that has been researched in relation to banking and AI. Despite not being collectively addressed in the literature, these concepts have been selected due to their interconnected nature. For instance, personal service and customer relations are crucial for banks. Additionally, trust, loyalty, and satisfaction are significant aspects for customer relations. This interrelation makes it compelling to study these concepts together. In addition, the absence of models explaining the impact of AI on customer relations entailed that the model below was developed. Moreover, the lack of literature on these concepts in the context of banking motivates the execution of the study.

Based on the purpose and theoretical framework presented, a visualization model has been created with the aim of mapping and distinguishing the different themes, which is the basis for the interviews of the study. The model presents the central areas of the study which together contribute to enhanced customer relations. The model aims to visualize opportunities and challenges to connect with the research question. Figure 1 is based on the study's research question in relation to the theoretical framework.

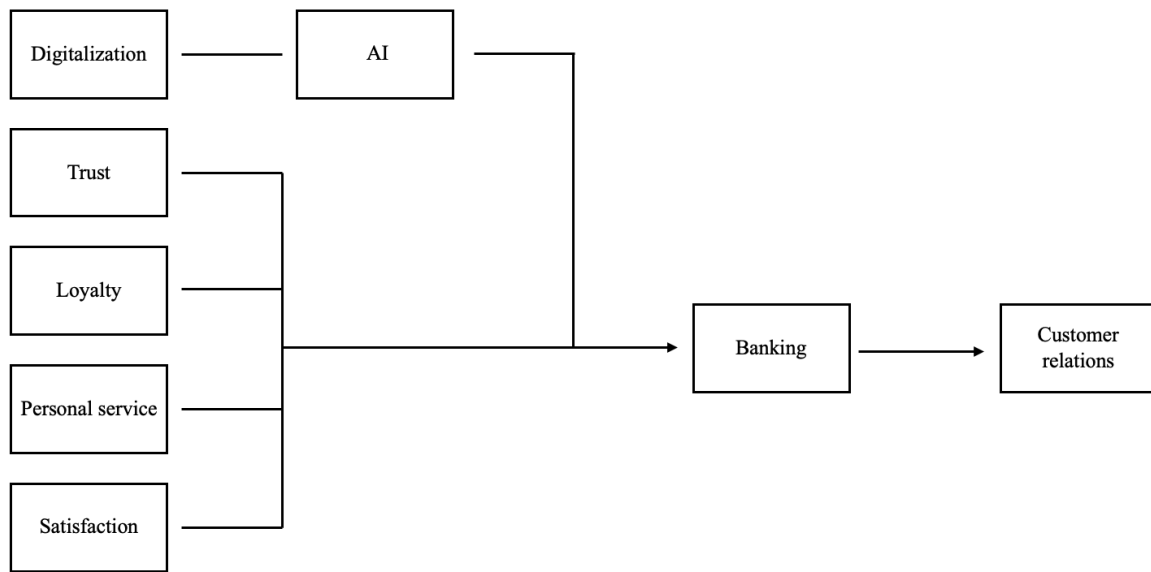


Figure 1. Visualization of theoretical framework.

3. Methodology and data collection

3.1 Data collection

In accordance with Kvale et al. (2014) and in line with the purpose of the study, to investigate how Swedish banks utilize AI to enhance customer relations within the Swedish banking sector, a qualitative study based on interviews was carried out with the intention of creating a deep understanding of the respondents' experiences. To achieve this, an interview guide (Appendix) was designed based on the study's purpose and research question. In addition to the interview guide, a pilot interview was conducted before the study's main interviews in order to ensure the relevance of the themes and questions in the interview guide (Kvale et al. 2014).

3.2 Interviews

The study's interviews are of a semi-structured nature because it entails flexibility for researchers to ask questions in random order during the execution of an interview (Bryman 2016; Magnusson & Marecek 2015). When collecting data, semi-structured interviews enable a more in-depth discussion and involve greater freedom for the respondents to develop their answers and create space for reflection (Eriksson & Kovalainen 2008). The purpose of semi-structured interviews is to avoid influencing the respondents' answers. By asking versatile and open questions and interacting with the respective respondent, the risk of controlling responses is reduced (Bryman 2016). The objective was to design an interview guide where the questions capture the respective respondents' experiences, with the aim of

contributing to a discussion that goes beyond the framework of the main questions. Thus, the approach for the interviews was based on asking spontaneous follow-up questions.

The geographical location of the respondents is scattered, which implies that four of five interviews could not be conducted physically. Therefore, the respondents could not meet on site, instead video calls were considered the most appropriate tool, of which Microsoft Teams was used as the interview tool. Conducting interviews via video call creates better security between interviewer and respondents because it enables interaction through facial expressions in contrast to telephone calls which only involve communication through dialogue (Kvale et al. 2014). However, the disadvantages of virtual meetings compared to physical ones are that they can limit personal contact, which can be important for building trust and understanding through body language. The technology also makes communication more difficult since the respondents may experience lower engagement due to distractions, which can lead to misunderstandings.

3.3 Pilot interview

A pilot interview was conducted to verify the relevance of the themes and questions that the interview guide contains in relation to the study's purpose and question (Kvale et al. 2014). The respondent who participated in the pilot interview is employed as a senior advisor at a Swedish bank and was chosen based on his experience, offering valuable insights into AI and everyday customer contact, which was considered suitable for the execution of the study. Furthermore, pilot interviews aim to critically review and edit interview guides before the main interviews are conducted (Kvale et al. 2014). The results of the pilot interview indicated that a number of questions were repetitive and could be combined with others. This entailed reorganization of the interview guide before the study's main interviews were conducted.

3.4 Selection

The ambition of the study was to conduct interviews with individuals who have experience in banking, and in particular in artificial intelligence and customer relations. The respondents in the study are bank professionals who work in the Swedish banking sector. A total of five bank officials were interviewed, from four different Swedish banks. The size of the sample was assessed to be suitable to create an overall picture of how bank employees work in the various banks and to describe how Swedish banks utilize AI to enhance customer relations. To understand how banks work with AI, two computer science professionals were interviewed, and to gain insight into customer relations, three individuals working daily with customer contact within banking were interviewed. In order for the study to be representative, a requirement was that the respondents had at least one year of work experience in their current position. Such a basic requirement is based on the respondents having had time to develop and having received an overview of the subject, as this can open up for deeper discussion during the interviews. The respondents were contacted by phone and email.

A targeted selection was applied based on the selection criteria that were considered relevant. A target-directed selection is an approach that strategically helps researchers to select respondents by hand-picking based on the selection criteria that are assessed to be relevant in relation to a study's purpose and question (Bryman 2016). At the same time, there are risks in using a targeted selection. These include that the sample may become too homogeneous or heterogeneous, which may result in a non-representative result. To ensure a comprehensive picture of the banks and to consider more perspectives, five bank professionals were interviewed.

3.4.1 Respondents

In the chapter result and analysis, data collected through the conducted interviews is presented. In the sections, the aim is to identify similarities, differences and themes based on the respondents' answers. Furthermore, quotes from the respondents are illustrated to make the study's data material visible. The respondents are presented as 1-5 and their associated bank A-D, which is visualized below in (table 1) and (table 2).

| Organization | Positions | Interviews | Length | Respondent |
|--------------|--|------------|------------|------------|
| Bank A | Private Wealth Management | 2024-04-10 | 60 minutes | 1 |
| Bank B | Private Wealth Management | 2024-04-16 | 45 minutes | 2 |
| Bank C | Technology and innovation strategy, Group Technology Data Innovation | 2024-04-18 | 70 minutes | 3 |
| Bank A | Research Lead Computer Science | 2024-04-19 | 35 minutes | 4 |
| Bank D | CEO | 2024-04-22 | 50 minutes | 5 |

Table 1. The table presents the respondents, the positions they hold, date for interview, length of interview and assigned respondent number.

| | |
|--------------|---|
| Respondent 1 | The respondent works in private wealth management, managing wealth for private individuals, which includes investment advice and tax planning. |
| Respondent 2 | The respondent works in private wealth management, managing wealth for private individuals, which includes investment advice and tax planning. |
| Respondent 3 | The respondent works as Chief of Technology and is responsible for technology strategies, oversees the development and implementation of technical systems and solutions. |
| Respondent 4 | The respondent works with Research Lead and Computer Science, i.e. research in computer science, leads projects and develops new algorithms. |
| Respondent 5 | The respondent is a CEO and is responsible for a Swedish bank's strategic and operational activities. |

Table 2. The table presents each respondent's job description.

3.5 Processing and data analysis

After conducting the interviews, the work of transcribing began. Transcription is an essential part of the analysis because researchers in the transcription process have the opportunity to identify and reflect on the content of the interviews, i.e. material about what has been said and how it has been expressed (Kvale et al. 2014). Transcribing is a time-consuming process, at the same time as it is a fundamental aspect that supports a nuanced analysis where researchers can review and go through the material repeatedly (Eriksson & Kovalainen 2008; Bryman 2016). In order to understand and interpret the data material more deeply, the transcription was processed repeatedly with the aim of distinguishing and identifying central themes together with literature references. In (figure 1) the themes that form the basis of the results and analysis of the study are depicted.

To analyze the collected data, thematic analysis was applied. Thematic analysis as a method, is based on categorizing data through different themes before it is analyzed (Braun & Clareke 2006). Furthermore, an abductive method was applied, which is common in practice, incorporating elements of both deductive and inductive methods (Eriksson & Kovalainen 2008; Alvesson & Sköldbberg 1994). A deductive method is based on principles that enable researchers to develop themes before the analysis is initiated through literature references (Ritchie et al. 2014). An inductive method is a secondary input method applied to discern potential themes that do not appear in the deductive process. However, the abductive approach allows gradual development, i.e. the empirical material is adjusted at the same time as the theory is refined, meaning that collected data and previous theories are alternated.

Thus, theory and the results go hand in hand during the course of the study. The abductive approach is useful to avoid focusing solely on predetermined theories, which means that studies can be conducted more unconditionally.

In the abductive process, the main themes were identified and distinguished prior to the analysis being carried out using a deductive method. Once all the data were identified and categorized into themes, an inductive method was applied. However, it is crucial that the empirical data obtained is supported by the theoretical framework, otherwise, there is a risk that the analysis consists only of independent descriptions of limited value. Conversely, theories that are not grounded in the empirical material can appear as speculation. To prevent this, the study initially adopts a deductive research approach.

3.6 Research ethics principles

Every respondent received information about the structure of the interviews and consent to recording was ensured before the interviews were carried out. The information consisted of the fact that recording during the interviews will only be used for the current study and that all interview material is deleted when the study is completed. In order to de-identify the respondents from the material, comments and personal expressions were cleaned by word filtering during the processing and compilation process. Thus, anonymity was ensured and the confidentiality requirement for the study was fulfilled (Bryman 2016). Furthermore, it is described by Patel and Davidson (2011) that an important aspect to fulfill confidentiality is to anonymize names, which is considered in the study. In this way, the quality of the study can be strengthened, which contributes to credibility. In order to prove credibility and quality in the study, citation is applied where names, expressions and opinions remain anonymous in the coming parts of the study (Eriksson & Kovalainen 2008). The advantage of citations is that they make the data material visible to the reader, which brings transparency. Since the purpose and question of the study is to investigate how Swedish banks utilize AI to enhance customer relationships within the Swedish banking system and to depict the respondents answers, anonymity does not affect the study's conclusion because the respondents answers are still presented.

Ethical rules and principles have been followed in line with Bryman and Bell (2016) by providing respondents with information about their rights and opportunities. This information is essential for the respondents to feel safe and for them to participate independently. Therefore, they were informed that participation is completely voluntary as well as about the research area of the study. As voluntariness is a cornerstone of ethical research, respondents were informed that they have the right to withdraw their participation at any time. Furthermore, it guarantees that the information requirement as well as the consent requirement are complied with (Bryman 2016). Bryman (2016) describes the use requirement, which includes that the data collected during the execution of the study may only be used for research-related purposes. It is described that personal information is not intended to be used for non-research-related purposes, such as commercial interests. The

usage requirement is thus satisfied by all collected material for this study being applied only in scientific contexts and serving as a basis specifically for this study (Eriksson & Kovalainen 2008).

3.7 Quality and credibility

For the credibility of the study, it is important to discuss the comparability of how previous research and theories stand in relation to each other (Eriksson & Kovalainen 2008). The current research area and the respondents selected are influenced by contextual elements, such as previous experiences and organizational guidelines. For this reason, it is essential to present the respondents' experiences in an accurate and representative manner in order to create credibility in the results and analysis. Credibility is presented by Bryman & Bell (2017) as a central criterion for ensuring high-quality analysis in qualitative research. Quality can be divided into four categories; trustworthiness, reliability, verifiability and transferability. Trustworthiness refers to providing a detailed description of a study's process. In this study, trustworthiness is strengthened by the interview guide that was created prior to conducting the interviews, which contributes to a consistent and structured method. Furthermore, Bryman and Bell (2017) emphasize reliability as a crucial aspect that can be ensured by designing the content of the study in a consistent way. The study's reliability is improved by presenting the results and analysis in accordance with the order of the interview guide's questions. Verifiability, according to Bryman and Bell (2017), includes maintaining objectivity during the conduct of a study. However, in qualitative research, some researchers claim that it is a challenge to maintain an objective approach because qualitative research is based on the interpretation and understanding of data. By conducting interviews in this study with respondents from four different banks, subjectivity can be counteracted. Finally, transferability is described, which is the degree to which the manner and extent of the study's results can be applied in other contexts of a study. For readers of this study, it is relevant to consider the transferability for future research purposes.

Several methodological choices were made based on what was considered most appropriate in relation to the purpose of the study, i.e. to investigate the implementation of how AI enhances customer relations and distinguish opportunities and challenges. A qualitative method with semi-structured interviews is reasonable because the method implies space for the respondents to generate detailed answers about previous experiences. Applying other methods such as observations or surveys would have made it difficult to answer the research question as it becomes a challenge to capture the respondents' experiences. Conducting a pilot interview gave an insight into how well the interview guide could provide answers based on the study's purpose and research question. The respondent who participated in the pilot interview fulfilled the study's requirements, which entailed that the interview guide could be adjusted and developed before the main interviews. Conducting a pilot interview alone can be justified as sufficient as only a few adjustments to the interview guide were required prior to the main interviews.

A method that could increase the study's validity is respondent validation. The method implies that respondents ensure that their statements are interpreted correctly (Bryman, 2016). Using respondent validation could possibly have resulted in the answers becoming even more detailed. At the same time, it can be stated that the result gives a representative picture of AI and customer relations within Swedish banks, despite the fact that no respondent validation was carried out. Criticism can be raised against the fact that there were not clearer and more comprehensive selection criteria. Interviewing even more employees with different backgrounds, educations and experiences could have generated more perspectives, which could possibly have resulted in more differences, especially employees who worked for a shorter time.

4. Result

4.1 Digitalization and banking

Respondent 3 highlights that their bank has been constantly working with digitalization since the 1960s when analog files were made digital. Since then, the development has accelerated due to the general IT-maturity in the finance industry. Respondent 3 explains that the large-scale digitalization has enabled tailored services for both existing customers and potential customers by applying omni-channel strategies. Through omni-channel strategies, banks can follow customer journeys. This to capture a comprehensive picture of customers. Respondents 1 and 3 describe how customers' housing processes start on hemnet.se which later continues to a loan application on banks websites. By following this journey, banks are enabled to offer services that customers are not aware they need, such as writing contracts and legal advice. Furthermore, respondent 3 claims that omni-channel strategies are helpful for employees since it is possible to interact with, and monitor other departments, resulting in increased internal efficiency.

For instance, one decade ago the knowledge about the customer was far more fragmented with different departments having their own information. Now, every department has the ability to see the full picture of the customer from internal and external data, meaning that we are able to really put the customer in the center. (Respondent 3)

Since the majority of data is digital, the internal opportunities to gain efficiency are great, especially within customer relations. Respondent 4 highlights the importance of using technology both internally and externally as it can improve trust, satisfaction and in turn customer relations. However, respondents 3 and 4 emphasize the importance of understanding technology and its outcomes before it is applied among customers. Otherwise, there are risks of damaging the bank's reputation and ultimately customer relations.

So the idea here is that you can reduce the burden on the employees and therefore also increase the efficiency of the service and reduce waiting times that the customer has. And things like that. And give better quality answers perhaps. (Respondent 4)

All respondents demonstrate that digitalization has enabled efficient service for the majority of customers, especially among those who value speed and accessibility. Digital improvements are important efforts aimed to enhance customer satisfaction when dealing with bank errands, contributing to a positive bank impression. However, for customers with more complex financial situations, i.e. wealthier individuals, it is described by three respondents that relations and personal meetings are highly valued. As their services are more extensive than regular customers due to larger capital volumes, they often prefer to have personal advisory meetings to discuss their investments rather than managing errands themselves digitally. For bank personnel, digitalization entails administrative advantages, such as digital signing of agreements, improved access to data, availability and communication through websites and customer service. The respondents underline that although digitalization has made processes more efficient and accessible, there is still a need for personal service within banks offerings.

Many customers prefer the digital and automated because they think it's flexible and accessible. But I feel that above all the customers with a little more capital prefer to talk to the physical person. (Respondent 2)

All respondents stress that it is important that there is a balance between technical development and personal service. Digital platforms offer convenience, efficiency, and access to a wider customer base, which has entailed that the banking sector has become increasingly democratized. At the same time, personal service remains critical for building deeper customer relations. The respondents highlight that their banks must provide physical meetings to maintain customer relations and thus trust, satisfaction and loyalty, otherwise other players on the market will. The perceptions of respondents 1 and 2 are that physical meetings are already considered an exclusive service, which is likely to become even more evident in the future, parallel to the fact that the development of digital solutions will continue to incuse the banking sector. On the other hand, the other three respondents believe that physical meetings should not be an exclusive service at all, suggesting that everyone should have equal accessibility to personal meetings.

The younger population are digitally proficient in comparison to the elder but they still might face doubt or other negative feelings through a digital process because they don't really understand the application process or just prefer having someone to talk to.
(Respondent 3)

Respondents 3 and 4 stress that it is crucial that customers always have access to personal service since banking errands can often be complex. Therefore, personal service is important both to receive guidance and confirmation in various decision-making situations where chatbots or other digital assistance are insufficient. Respondent 3 emphasizes the importance of maintaining a balance by ensuring customers the opportunity to opt out of digital processes and have human interaction at any time. Respondents 3 and 4 state that their bank has introduced a function on their digital platforms, where customers by pressing a button, are

directly connected to bank personnel, meaning that customers have a valuable option to choose between managing errands through self-service or receive personal assistance. Thus, the button function acts as a lifeline of significant value and is available to all customers, regardless of customer category both on their website and app.

Although very few actually press the button. It is some kind of security thing that you put on that shows, we are there if you need. (Respondent 3)

4.2 AI and banking

All respondents demonstrate that the application of AI extends across several areas, where AI is primarily used to streamline processes and increase availability for customers. AI is today applied through forecasting, risk management, chatbots, robo-advisors, for personalization features and occurs in internal computer systems to prevent criminal activity and ensure compliance with legislation. Respondent 4 states that their bank has initiated projects that are currently still in the testing phase involving generative AI, which is a more advanced branch within the field of AI. Respondents 1 and 2 emphasize that AI has a more prominent role in pension advice, where robo-advisors actively work with portfolio management, analyzing various market signals to provide individual recommendations and support fund managers in their work. Respondent 1 describes this as proactive and data-driven management. The respondents state that, for AI to function effectively, customer data is central as it personalizes offers based on individual preferences. Four respondents emphasize that there are great opportunities with AI, in particular to reduce the workload of administrative tasks and allocating time to focus on value-creation, such as relationship-building activities.

Three respondents suggest that loan applications are an area where AI has potential to be almost completely automated. The same respondents are convinced that AI can facilitate loan processes by managing more complex decisions, i.e. completely without human involvement, such as determining how much mortgage a customer can receive based on the individual financial situation.

In 95 percent of cases, it will be possible to automate mortgages for private individuals. Most applications already today are automatically granted. The stuff that you need to look at manually should be able to have AI do it in 95 percent of the cases. I am completely convinced of that. Because it's a much simpler product and it's something customers understand. (Respondent 1)

Four respondents express that the Know Your Customer-process (KYC), i.e. customer data is a key area where AI plays an important role and has significant potential for further development. This since money laundering and fraud legislation is becoming more strict and the number of fraud cases are increasing. Four respondents emphasize that AI can streamline the KYC-process through wider use. In addition, the same respondents express that AI is more accurate, efficient and objective than humans, allowing AI to operate around the clock

to identify deviations and automate reviews to detect, counteract and manage criminal activity such as money laundering. Thus, reducing the need for human involvement and enhancing security measures.

There are areas where I would say that different types of AI solutions to slightly different extents have been involved in one way or another for a little longer. But I think this is essentially the same for all banks. In fraud and money laundering areas and things that are highly regulated, there is a strong responsibility on the banks to monitor and keep an eye on it. In this area I think that AI has more potential. (Respondent 3)

According to the respondents, the banking sector is characterized by secrecy and sensitive customer information, where banks must navigate in a complex environment, including factors such as data sharing and customer integrity that must be managed safely. The respondents express that the implementation of AI entails regulatory challenges regarding communication and transparency of its use. Respondents 1, 3, and 4 state that AI-driven models need to be sufficiently robust for implementation, ensuring that banks can rely on them and be held accountable. Therefore, it is suggested that it is crucial for banks to consider the extent to which they can experiment with customer data and examine how AI responds to changes in data sets. This is crucial as there is a risk of AI developing biases that need to be mitigated. However, four respondents highlight that banks must adapt their operations to technological development to maintain competitiveness.

Respondent 1 believes that in the future, AI may play an important role in identifying and informing customers about their needs, for instance, to carry out loan applications automatically and how much they need to save for retirement or whether their current savings are sufficient. The respondent predicts that the development of AI may go so far that it proactively identifies and recommends solutions based on a customer's individual needs by managing transactions but also contributing to customers' financial situation in its entirety, described as an economic butler. Respondent 5 agrees and anticipates the development of an economic butler in the near future. According to respondent 5 the economic butler will be able to personalize to the extent that it can conduct transactions autonomously ensuring that customers never miss payments, for instance those that must be paid quarterly or yearly. Moreover, the economic butler has the potential to manage the monetary balance across accounts based on transaction patterns, which ensures that customers will always have an adequate amount of liquid funds in their account. However, respondent 4 disagrees and does not believe that such a service can be developed in the near future. Respondent 4 refers to not being able to understand how AI-models work and to control or explain actions taken by AI.

Because in this scenario you have more things that can go wrong. So, you know, we kind of need to be sure that that doesn't happen, and today it can. Having an agent actually making transactions for you is, I think, stretched too far. (Respondent 4)

4.3 AI and customer relations in banking

The respondents highlight the importance of networking as part of their strategy for developing customer relations, including internal and external networking activities. Internal networking is a process of collaboration between different departments within banks to effectively identify potential customers, while external networking focuses on maintaining and creating new customer relations. The respondents express that the possibilities with AI are great, however, due to strong competition, personal service must be preserved since it is challenging to build customer relations in a digitalized environment. In order to succeed in building customer relations, respondents 1 and 2 stress that references from satisfied customers are actively requested, which can strengthen existing relations but also open opportunities to attract new customers. Respondents 1 and 2 emphasize that personal networking is a decisive factor in establishing deep and value-creating relations, thus AI cannot replace the relationship between bank and customer in its entirety. The other three respondents emphasize that customer relations must be equal, i.e. regardless of the amount of capital, all customers should have equal possibilities for personal service when needed.

And it is above all the administrative stuff that I think can very much be replaced with AI. And will benefit the employees and the bank in general. And then it really seems that the use of AI makes it possible to focus even more strongly on customer relations. Remove the time-consuming tasks and get full focus on building customer relationships and meeting customers. No, I am very positive and hope that more AI can be implemented. (Respondent 1)

The respondents express that AI-driven services are increasingly prevalent and replacing work tasks, however, it cannot maintain customer relations as the core of customer relations lies in human elements. Despite AI's growing implementation in the banking sector, the respondents predict that there will be a continued demand for face-to-face meetings and traditional bank visits. Currently, customers often take a bank's physical presence for granted, with the opportunity to meet bank personnel physically. However, in connection with banking shifting digitally, physical meetings are considered to become an exclusive service that customers are willing to pay for, according to respondent 2.

I think that many customers, especially the elderly, want to pay to get help. If you have a problem, you want to call people, not a machine. Because they just get stressed anyway from doing things. The physical meeting at a traditional bank office has actually been taken for granted. That service will be exclusive as a premium service. (Respondent 2)

Respondents 2 and 5 express that the more AI-driven technology is applied, the exclusion of customers increases, which in turn may result in deteriorated customer relations. Respondent 3 highlights the need to comprehend what builds trust and relations and that it is significant to establish clear guidelines for incorporating AI into platforms. Moreover, respondent 3 states that any service developed by the bank must be customer-centric in order to promote long term relations.

Yes, but I think we might not use the term loyalty. Basically, a lot of what we do when we talk about being long-term, we're talking about generations, sort of. [...] It is so incredibly important to really start from exactly what the customer needs and not have any other agenda. (Respondent 3)

It is expressed that it is crucial to reflect on what constitutes effective responses or support on AI-driven platforms for the customers. A human can recognize who they interact with and adapt their responses accordingly. Therefore, it is important but also challenging for algorithms to have a correct understanding of reality to provide relevant information and responses since there is a risk that AI misinterprets information.

It is important to ask ourselves, how do we want to feel when being in a flow-scheme. So if we do a lot of cool things that save a lot of costs but the customers do not like us, then we won't be happy with that result either. We see that we need to sort of understand what value the technology creates. (Respondent 3)

In the case of an economic butler, it has potential to gain popularity among customers through its ability to tailor services with precision. However, respondent 3 expresses concern about the extent to which banks can develop this sort of service. The respondent highlights privacy concerns that may harm the relationship between the bank and customer, in a case where the economic butler, for instance, observes customers location services and sends push notifications to prevent repetitive impulsive shopping in the same store.

It is precisely this borderland that, in any case, if you have the ambition to preserve, and keep the human in services, then you have to devote some time to those questions and be able to embrace the complexity of it. (Respondent 3)

Respondents 3 and four 4 emphasize that technology is not the central factor in implementing new AI-technologies. Respondent 3 highlights a model where technology accounts for 10 percent, the data it utilizes comprises 20 percent and the remaining 70 percent involves the people engaged. It is further emphasized that without the appropriate individuals involved in the development of new AI-services, the quality of these services is likely to suffer. Additionally, some banking matters are too complex to fit in a linear model and may therefore not be suitable for customers, thereby potentially damaging the relations with customers.

4.4 AI opportunities and challenges in banking

4.4.1 Opportunities

All respondents emphasize that the greatest possibilities with AI are streamlining processes by automating time-consuming and administrative tasks. Therefore, as emphasized by three respondents, AI enables banks to allocate resources more effectively and focus on value-creating activities, such as advisory services and enhancing customer relations, and thus satisfaction, trust and loyalty. Furthermore, AI allows banks to provide more personalized customer solutions tailored based on individual needs and behaviors. In addition, the use of chatbots and robo-advisors improves the speed and accessibility of service, which in turn can enhance customer satisfaction. As stated by respondent 3, AI democratizes banking services as it increases the availability and inclusion for customers with limited access to physical bank branches. Additionally, all respondents agree that AI contributes to risk management by analyzing vast amounts of data to identify and mitigate risks associated with criminal activities and thereby strengthening banks ability to prevent frauds and comply with regulations and laws. Moreover, AI has the potential to optimize individuals' entire financial situation by acting as an economic butler that considers all financial private circumstances such as type of employment, demographics and customer category in order to assess financial risks related to specific situations, which leads to increased convenience.

People like me, who have a relatively high salary but also have a volatility in the future outcome. I might get fired on Monday or so. But the type that I am, we tend to have quite high risk in the stock market as well. We have a fairly high level of risk in our cash flows and we take a fairly high risk on the stock market. For instance a municipally employed librarian, which has very non-volatile expected future income also tends to take very little risk in their savings. So these kinds of questions that we haven't brought up very much on the part of the banks. (Respondent 5)

In essence, an AI-driven economic butler can utilize information and evaluate various investment risks in relation to an individual's personal balance sheet. Furthermore, it has the potential to determine the risk level associated with future salary and capital gains and use this data to customize an investment portfolio accordingly, complying with individual needs. Respondent 4 underlines that this level of personalization illustrates the greatest opportunity that AI provides in the banking sector.

But if you focus specifically on private customers, I would say it's increasing personalization. So being able to actually give you better recommendations that are perhaps based on your earnings and history and things like that. (Respondent 4)

4.4.2 Challenges

The respondents state that despite the advantages of AI, its expansion risks deteriorating customer relations, which is a cornerstone in building trust and loyalty. Furthermore, privacy and customer protection entail challenges as the management of customer data raises privacy concerns. Banks must therefore navigate in a complex environment consisting of balancing the protection of customer information and experimentation of data. Respondent 2 emphasizes concern to the adoption of AI since it may contribute to financial instability and suggests that clear regulations should be established to prevent volatile market fluctuations. Moreover, machine learning models can be affected by biases from training data, resulting in outcomes that are discriminatory and difficult to interpret. The problem of not completely understanding the outcomes of AI also encompasses generative AI, which is capable of producing hallucinations, i.e data not based on facts or reality.

So you don't necessarily want to use deep learning models for making decisions, exactly because you're not going to be able to explain it. So, I don't want to have a deep learning model that decides whether I should grant you a loan or not. Because if the answer is no. I don't want you to be in the situation where I have to say, well, AI says so. (Respondent 4)

Respondent 5 states, while AI can enhance customer relations, thus, satisfaction, trust and personalized service, it may deteriorate customer loyalty in the long term. As banks introduce services corresponding to economic butlers, competitors will develop similar economic butler services, which pushes profit margins in the sector. In parallel to other industries, banking is expected to evolve, where customers compare cost-efficient services such as, interest rates across various banks internationally in the same way as travelers utilize apps to compare and book hotels. Another ethical concern to consider is the efficiency of AI and its potential consequences. Without context-awareness, AI can identify unethical patterns, such as using postcodes with an abundance of non-performing loans as a base for decisions.

5. Analysis

5.1 Digitalization and banking

In accordance with the literature, it is possible to draw parallels with the theories of digitalization and its impact on the banking sector. In line with Diener, Dvoulety and Spacek (2023) respondent 3 describes that digitalization has enabled tailored services for customers by applying omni-channel strategies, where banks aim to maintain competitiveness through innovative digital solutions, creating a unified system for customers. As emphasized by respondent 3, by following customer journeys through independent channels, such as hemnet.se, customers' loaning processes are seamlessly integrated into the customer experience, which correspond to Verhoef, Kannan and Inmann (2015). This demonstrates how banking services operate with interconnected touchpoints across digital channels such as

internet banking, apps, and customer service, facilitating interactions that engage customers. Furthermore, this development has been enabled through a greater amount of customer data. By efficiently interpreting customer data, bank employees can focus on the customer's needs that helps to create a comprehensive understanding of each customer. Additionally, internal and external data has enabled bank personnel to monitor interactions with other departments, resulting in increased internal efficiency.

As depicted by Rakshit and Bardhan (2020), improvements in efficiency, cost reductions and the ability to reach customers have been made possible by the progress of digitalization. This is in line with the respondents who emphasize that it is important that there is a balance between digitalization and personal service, underlining that technology can improve trust, satisfaction and in turn customer relations by providing qualitative answers. In accordance with the respondents and Diener, Dvoulety and Spacek (2023), customers can efficiently manage the majority of their financial matters themselves, which indicates an increased competence among users, where customers nowadays use flexible and accessible digital services available around the clock. In step with the development of digital solutions becoming integrated into banks offerings, the production and distribution of their products and services has developed as a response to changed customer preferences and expectations. However, it appears crucial to understand technology and its impact before it is applied publicly, if not, there are risks of harming bank reputation and ultimately customer relations.

In line with Lazo and Ebarido (2023) and Diener, Dvoulety and Spacek (2023), the respondents state that it is important to attract customers through new innovative solutions, which require adaptation in order to maintain competitiveness. Thus, innovation is important to be competitive but also to maintain customer relations through satisfying service and product offerings. Digital platforms offer convenience and efficiency to a wider customer base democratizing the banking sector, however, there is a continued demand for personal service, which is critical for building deeper customer relations. Furthermore, the younger population are digitally proficient in comparison to elderly, indicating that the long-term success for banks lies in retaining customer's belief that banks consistently deliver value and meet customer expectations as depicted by Bowen and Chen McCain (2015) and Akbar and Parvez (2009). If a bank does not provide personal service, other players in the market will, i.e. offering more satisfying relations. Two respondents emphasize in line with Lazo and Ebarido (2023), Larsson and Viitaoja (2017) that digitalization is replacing physical interactions which risks generating deteriorated customer experiences, however, in contrast, three respondents claim that digitalization enhances customer relations through that, greater focus can be put on individual customer needs. This indicates that personal meetings are becoming more requested and exclusive, which is expected to become even more evident in the future.

In line with Diener, Dvoulety and Spacek (2023), the respondents express that the responsibility is shifting increasingly from banks towards customers, and parallel to this, services are becoming even more digitalized, tailored and personalized. Lee, Tsai and Lanting

(2011) emphasize, in accordance with the respondents, that traditional visits in physical branches have been increasingly replaced by digital services. However, bank errands can often be complex, where chatbots or other digital assistance are insufficient. As highlighted by respondent 3 and 4, the balance of ensuring customers the opportunity to opt out of digital processes and receive human contact is crucial. To address this, the button function found on banking platforms directly connect customers with bank personnel, functioning as a security where customers can choose self-service or receive personal assistance, regardless of customer category, which depicts banks availability and democratization process.

5.2 AI and banking

Hu and Wang (2020), state that through vast amounts of data, AI can be trained and developed to further automate and personalize banking solutions, which is also underlined by all respondents. It is demonstrated that the application of AI extends across several areas because of the high degree of digitalization that has generated the vast amount of customer data. Primarily, AI has been applied to streamline and improve internal efficiency among bank personnel within different departments, partly because of its strategic importance to increase efficiency but also to train AI more before it is applied among customers. It is logical to assume that skilled AI will lead to more satisfied customers, which implies an increase in future interactions with the bank. By leveraging AI to deliver personalized and efficient services, banks can enhance customer satisfaction, increase loyalty and long-term engagement. However, two of the respondents demonstrate the importance of being able to opt out of the digital environment to interact with humans, which suggests that the satisfaction of AI-services has room for improvement before being accepted as humans.

It is further described that AI is used in the form of chatbots and robo-advisors, to personalize more for customers, and for internal computer systems to counter criminal activity and comply with legislation, which can be linked with the extent of the development (Trivedi 2019; Chen et al. 2019; Misischia, Poesce & Strauss 2023; Zhang et al. 2022). Internally, significant benefits have been gained through the utilization of AI-support within areas such as Know Your Customer-process, anti-money laundering and data, providing a holistic picture of the customer. Therefore, banks need to assure that their technical solutions are robust, safe and operate flawlessly to avoid creating a negative experience that might deteriorate the sense of trust and satisfaction.

However, on the customer side, the development of AI appears to be mainly implemented in the forms of chatbots for self-service and robo-advisors, contributing with recommendations for pension funds. Traditional advisory through direct contact with bank officials has to some extent come to be replaced by AI, which is in line with (Belanche, Casalo & Flavian 2019; Misischia, Poecze & Strauss 2022; Cheng 2023; Fares, Butt & Lee 2022). The consumer-oriented AI-development is however slowly advancing due to the complexity of understanding how the design of technology actually works and the outcome of new services. However, as the majority of the respondents stress, AI can shortly operate as an economic

butler. The role of a potential economic butler as aforementioned, is to replace the cognitive burden of monitoring and managing monetary balances between accounts, send reminders of infrequently made transactions, optimize savings on accounts by accounting for more data points that correspond to individuals living situation such as, yearly income, bonuses and repetitive expenses etc. Hence, this type of development illustrates how crucial it is that customers are aware, but also have the ability to monitor and control their digital footprint to be comfortable with a personal economic butler scanning and analyzing patterns in their transaction history.

Individuals that are reluctant to the use of AI-services may experience a dilemma, standing between sharing personal information to enjoy benefits in the form of individual-based recommendations or avoiding sharing information and thus being excluded from taking part in a personalized customer experience in accordance with Rese, Ganster and Baier (2020) and Bouhia et al. (2022). The respondents underline that banks must navigate in an environment consisting of sensitive customer information, where data sharing and customer integrity are critical factors that must be managed carefully. This indicates that the implementation of AI entails challenges regarding the communication and transparency of its use. On the one hand, an economic butler might frighten customers, on the other hand it can be valuable for others. Despite these challenges, two respondents point out that banks are required to adapt their operations to technological progress in order to maintain competitiveness and at the same time comply with regulations. Furthermore, an economic butler imposes interactual challenges with intended customers. AI, packaged as an economic butler, demands different types of branches within AI, one to analyze data and another to communicate with customers. As generative AI today is not fully reliable, there will be no development of this type of service in the near future according to respondent 4.

5.3 AI and customer relations in banking

In line with Lazo and Ebarido (2023) the respondents highlight that by reducing human involvement, data management can become more autonomous, which entail greater opportunities for banks to streamline processes, improve speed and accuracy. The respondents emphasize the advantages of AI, where automation replaces time-consuming administrative tasks, which enables bank personnel to redirect their efforts towards value-creating and networking activities, such as advisory services and nurturing of customer relations. This indicates the importance of networking as a core aspect of their strategy for enhancing customer relations, including both internal and external networking activities. Hence, networking is a decisive factor in establishing deep and value-creating connections. Although AI implies great potential, there is a need to retain personal service in enhancing customer relations. However, this can be challenging in a highly competitive and digitalized environment. Moreover, AI cannot completely replace the relationship between bank and customer which is in line with Crosby et al. (1990), highlighting that customers care about relations with service providers and use their past experiences to evaluate relationships. This

implies that personal interaction is crucial, especially for customers having a greater need, i.e. with complex economies and those with advanced errands.

Davenport et al. (2020) along with McCalman et al. (2022) emphasize that unlike humans, AI lacks inherent moral awareness and has not reached the state of context-awareness. In accordance with the respondents, AI cannot consider ethics, highlighting the importance of maintaining human elements. However, AI can contribute with objectivity and develop so far as proactively identifying and recommending solutions, based on a customer's individual needs, thus supporting customers as an economic butler. Despite this, respondent 4 stresses that the application of AI will gradually decrease, however not to the extent that AI devalues human interaction. Utilizing an economic butler as a complement to humans can enhance and also create a more accurate manpower generally.

The respondents believe a continued demand for traditional face-to-face bank visits in the future. Biswas, Jaiswal and Kant (2021) along with Levy (2014) highlight banks reputation, customer experiences and perceived security as central factors for enhancing customer relations and building sustainable relationships. However, as suggested by respondent 1 and 2, physical interactions are taken for granted and are becoming increasingly exclusive. Further AI-developments indicate that customers, in particular elderly, are willing to pay for such exclusive services, which may result in increased exclusion among customers who cannot afford it. Therefore, it is crucial to create clear guidelines when incorporating AI that are built on customer-centricity, in order to promote long-term relations. Moreover, AI-driven platforms must be effective and accurate in providing information. While humans can recognize and adjust their interactions, it is a challenge for algorithms to outperform human understanding and create correct conclusions, which is in line with Davenport et al. (2020). This reflects the complexity involved in replicating human awareness and understanding in AI-systems.

In line with Buhalis & Sinarta (2019) and Chwila (2023) the potential and power of AI is significant, where AI is a key tool for predicting future behavior preferences. Four of the respondents believe the possibility of AI developing as an economic butler, being capable of accurately tailor services, which illustrates its potential power. However, as described by respondent 1, introducing an economic butler would entail that customer relations become non-existent. However, this is not necessarily detrimental, rather it is an opportunity to allocate more time towards customers, which is in line with Kotler et al. (2019), suggesting that customers expectations and the perceived service performance determines the customer satisfaction and the relation with the bank. However, there are concerns that a too attentive economic butler being too observant can deter customers and impact attitudes towards the service. This implies in accordance with Oliver (1999) that positive word of mouth and the perception and feelings of such an economic butler can be affected, which consequently affects loyalty. For banks to enhance relations, they must create an environment where customers want to maintain their relationship with the service provider which corresponds to Zeithaml (2000).

In conjunction with the application of AI-technology in the banking sector, it is important to underscore the human elements and the value of personal service. Respondent 3 illustrates a business model in connection with the production of new innovations, where technology accounts for 10 percent, data for 20 percent and human involvement 70 percent. The model implies that without competent human input, the quality of a service significantly declines, in particular in complex situations that AI-models cannot manage. Furthermore, high quality personal service is a cornerstone for customer satisfaction and has a positive impact on trust.

In line with Ngoc Thuy & Nguyen (2010) and Carlander et al. (2018), similarly to the respondents, the key to personal service consists in physical interactions, where employee competence can promote trust. In accordance with van Esterik-Plasmeijer and van Raaij (2016), customers who lack knowledge choose to give their trust to bank experts. This indicates that personal service contributes to managing uncertainties and reducing the effects of temporary automated service failures, implying that through high trust in a bank, customers are forgiving of occasional issues as they are perceived as exceptions. Hence, trust acts as a method for managing uncertainty. However, negative experiences combined with low trust entail doubts about banks reliability. Therefore, morality, ethics and consequential thinking are crucial to maintain customer integrity. Thus, for banks to succeed with the implementation of AI, it is required that technical experimentation is balanced with employee competence, benevolence, and transparency to provide sufficient support. By providing reliable services and protecting personal information together with customer support, trust in banking can increase in accordance with the respondents and Shankar and Jebarajakirthy (2019). This ensures long-term satisfaction, loyalty and thus enhances customer relations.

6. Conclusions and contributions

6.1 Conclusions

The study's purpose is to investigate how the implementation of AI enhances customer relations, thus trust, personal service, customer loyalty and satisfaction among Swedish banks, while also identifying the growing knowledge gap and distinguishing opportunities and challenges. The findings demonstrate that AI has reshaped the banking sector through different digital solutions, strategic management and enhanced services by enabling more personalized and efficient interactions. A primary opportunity of AI in the sector is its ability to reduce the workload of administrative tasks, thus allowing bank personnel to allocate more time for value-creation, relationship-building and networking activities and consequently enhancing customer relations. The findings highlight the possibility of an economic butler operating around the clock, which represents a significant opportunity. The application of an economic butler in banking services implies democratization, improving accessibility and inclusion for individuals with limited access to physical branches. However, it is crucial to consider that excessive AI surveillance can deter customers and negatively impact attitudes toward AI-technologies. Moreover, despite the benefits of AI-models, they have inherent

potential to autonomously develop biases. Hence it is important to underscore monitoring and ethical considerations in their implementation. This constitutes one of the greatest challenges with AI, since it can be difficult to entirely understand the actions taken by generative AI and deep learning models, hence difficulties to predict and explain the behavior of an economic butler.

It can be concluded that the current use of AI among banks does not primarily aim to enhance customer relations. Moreover, it can be confirmed that there is an essential need for human interactions in modern banking across all customer categories. Despite the advancements in AI, including the development of AI-powered tools and an economic butler, the complexity of more demanding customer needs still require direct human interaction. This underscores the importance of maintaining a balance between technical advancements and personal service. This balance is uncharted due to the lack of research on AI and its effect on customer relations. Hence, it is difficult to understand the consequences of an widespread implementation of AI and what actually constitutes innovation in a positive way from customers point of view. Therefore, the study advocates a hybrid model that balances efficient AI applications and at the same time preserving the value of personal service. This approach ensures that AI strengthens rather than replaces the human elements and thus enhances customer relations.

6.2 Contributions

The study contributes to theoretical implications of AI-implementation and personal service in the Swedish banking sector by illustrating the interplay between digital and human factors in modern banking. The study provides empirical evidence indicating that while AI can enhance customer relations, it cannot completely replace the human element. Additionally, the study underscores challenges related to the reduction of physical interactions, which are crucial for maintaining trust, satisfaction and thus customer relations. Moreover, figure 1 can serve as a basis for future studies based on statistical hypothesis testing.

The study contributes as a basis for practical implications and future research by depicting the impact of AI within the sector. Hence, future research should investigate the long-term effects of diminishing human interactions as AI-systems develop, particularly the implications of an economic butler that integrates context-awareness and ethical aspects. Further research is essential for examining how banks can navigate the continuous transformation of AI-technologies in response to constantly changing customer expectations, and to develop the proposed hybrid model that balances technological efficiency and personal service.

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Appendix

Interview guide

1. What does a typical working day look like for you, what are your responsibilities?
2. How do you work to attract and retain customers?
3. How do digital platforms and mobile use affect banks?
4. How do digital platforms and mobile use affect customers?
5. How do banks work with digital channels?
6. How do banks work with AI? In what areas?
7. How is AI being developed and applied in the banking sector? What is your experience? Can you give examples?
8. In what way does AI affect the banking sector?
9. What are the opportunities and challenges for banks when applying AI?
10. How is the communication and transparency regarding the use of AI?
11. How does AI in banking affect customer relations?
12. What are the opportunities and challenges of AI to enhance customer relationships?
13. How does AI affect trust, personal service, customer loyalty and satisfaction in banking?
14. How would you describe the future of customer relations in the banking sector?