Influencing a consumer's attitude toward payment data usage by banks

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Influencing a consumer's attitude toward data usage by banks

What factors can influence the attitude of consumers attitude toward payment data usage by banks?

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Master's Thesis

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Abstract

With the increasing digitization of payments, banks are gaining more and more access to consumer data. The arrival of the new payment messaging standard 20022 makes it easier for banks to use consumer payment data for various purposes. Because privacy of data is a sensitive issue for consumers, the customers of the Cards & Digital Payments team within Capgemini are reluctant to respond to API solutions that make extensive use of consumer payment data, which also contain more sensitive data. For this reason, this research was commissioned by the Cards & Digital Payment team with the research question “What factors positively influence the attitude of consumers toward digitized payment data being gathered and used by banks?” For this research, a quantitative research method was used by taking surveys that were completed by 131 respondents. The results show that the factors 'Transparency' and 'Level of Control' have a positive influence on the attitude towards the use of data by the bank.

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1. Introduction

Modern day finance systems are dependent on finance infrastructures or the technical systems that allow payments and transactions to be made. Our society is highly reliant on financial infrastructures, which is why in most countries these are viewed as ‘critical’ for the normal progression of life (Folkers, 2017). For this reason, they have great impact on politics, security and economics, creating the so called ‘infrastructural power’ within marker-based economic governance (Braun, 2020).

The widespread adoption of digital payment systems has led to the collection and use of vast amounts of payment data by banks and retailers. This data can be used to enhance personalized services, streamline transactions, and improve fraud detection. However, it also raises concerns about privacy and security. Consumers are increasingly aware of the value of their personal data and are concerned about who has access to it and how it is being used (Choi et al., 2020).

Privacy concerns are particularly relevant in the context of financial transactions, where sensitive information such as credit card numbers, bank account details, and transaction histories are routinely collected and processed (Acquisti et al., 2015). Recent data breaches and cybersecurity incidents have further heightened consumer concerns about the security of digital payment systems and the protection of their data (Jung et al., 2017).

1.1 Context and Problem statement

The financial sector has made great growth in innovation and technology in recent decades. There has been significant investment in on-premise legacy storage and data management technologies. while this has helped banks along their growth trajectory, it does not position them well enough for the next wave of worth unlocking. Banks must adapt to new expectations demanded by consumers. They also need to ensure that their data centres keep up with the trend in this data-driven, highly regulated and sensitive market (Capgemini, 2023).

As a major player in the market, Capgemini contributes much to these transformations and developments to financial organizations, which are mainly banks. Within the Cards & Digital Payment team, various API solutions are being worked on to offer services to banks through consumer data in order to stimulate the customer experience and bonding with the bank, and of course to increase the innovative image of the banks. These API solutions are designed and developed by the team and then presented to Capgemini's major clients within the financial sector, such as ING, ABN AMRO and Rabobank, among others. Within the payment domain

there is a new worldwide messaging standard, called ISO 20022. This standard offers banks the opportunity to receive structured data about consumers, if this is properly integrated with APIs (Gallaher & Harper, 2022). This standard is currently being combined with a API solutions by Capgemini's Cards & Digital payments team. Because consumers have concerns about their privacy and data, it is a challenge for the Cards & Digital Payments team to convince their customers (banks) to implement their API solutions in their software and Apps. The clients (banks) are hesitant because they are concerned about the attitude of their costumers. For this reason, the Principal of Capgemini, Gerold Tjon Sack Kie, has requested a study on which factors can increase the attitude of client towards the use of their data by the bank in a more positive way. These factors will be presented as advice to Capgemini's clients as well as applied in the API solutions of the Cards & Digital Payments team.

Given these concerns, understanding consumer attitudes toward the collection and use of digitalised payment data by banks is critical for the future development of business, finance, and data security. Therefore, the purpose of this research is to investigate the factors that positively influence the attitude of consumers toward the digitalised payment data being gathered and used by banks and retailers. This research aims to contribute to a better understanding of consumer preferences and concerns related to the collection and use of payment data, which Capgemini and their clients (banks) use to promote responsible data use and protect consumer privacy and security.

1.2 Research question

This research focuses on the attitude of consumers towards the collection and use by banks of their data that is released when using digital payment methods, and factors that can influence the attitude.

RQ: ***What factors positively influence the attitude of consumers toward digitalised payment data being collected and used by banks?***

SQ 1: How does Transparency of data within banks influence consumers their attitude towards the use of their digitalised payment data?

SQ 2: How does perceived benefits influence consumers attitude towards the use of their digitalised payment data?

SQ 3: How does consumers' perceived level of control over data influence their attitudes towards the collection and use of their digitized payment data by banks?

1.3 Research outline

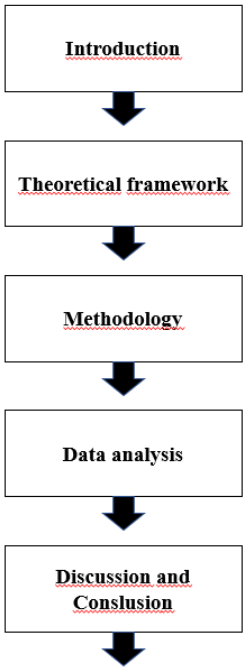

Figure 1 Research outline

In figure 1 its shown that this thesis has been divided into five chapters. Where in the first chapter an introduction is given about the topic, the problem statement and the research question. In the second chapter, the theoretical framework, a structure is given that can support the theory and the research of this thesis. The third chapter the research design is described together with the data collection method and the sampling. The fourth chapter treats the results from the research in which it is analyzed and interpreted. In the fifth chapter, the discussion, limitations and the conclusion are included.

1.4 Academic Relevance

Previous research has identified factors that influence consumer attitudes toward privacy and data sharing, such as perceived benefits and costs, trust in institutions, and privacy concerns (Milne & Culnan, 2004; Xu, Hock, Tan, & Agarwal, 2012). However, research specifically examining consumer attitudes toward the collection and use of payment data in the context of digital payment systems is limited (Kokolakis, 2017). Therefore, this research can contribute to filling this gap in the literature and provide a deeper understanding of consumer attitudes toward payment data collection and use in the context of digital payment systems.

Furthermore, this research is relevant to current policy discussions regarding consumer privacy and data protection. In recent years, data privacy laws, such as the General Data Protection

Regulation (GDPR) in Europe, have been enacted to protect consumer privacy and data rights (Voigt & von dem Bussche, 2017). Understanding consumer attitudes toward payment data collection and use can inform policy discussions and help ensure that data protection laws are tailored to meet consumer needs and preferences.

Overall, the research question *"What factors positively influence the attitude of consumers toward digitalized payment data being collected and used by banks?"* is academically relevant as it can contribute to a deeper understanding of consumer attitudes toward payment data collection and use, inform policy discussions, and promote responsible data use and protect consumer privacy and security.

1.5 Practical Relevance

The findings of this research could have practical relevance for Capgemini and banks and other financial institutions, as well as policymakers and regulators who oversee the banking industry. By gaining a better understanding of consumers' attitudes towards the use of digitalized payment data for different purposes, banks can tailor their practices to better align with consumer expectations and preferences. For example, banks could adjust their data collection and usage policies to be more transparent and provide consumers with more control over their data, which could in turn lead to increased trust and satisfaction among their customer bases. Policymakers and regulators could also use the findings of this research to inform their decision-making around the appropriate legal and regulatory frameworks for the collection and use of digitalized payment data by banks, with the aim of balancing the benefits of these practices with the protection of consumer privacy and data security.

1.6 Research approach

This study is assessed as deductive research because it is predicated on fundamental concepts drawn from earlier works of literature. To be able to answer the research question, "*What factors positively influence the attitude of consumers toward digitalized payment data being collected and used by banks*?" quantitative research is conducted. Quantitative research method involves the collection and analysis of numerical data, which can be statistically analyzed to identify patterns and relationships between variables. This is done through surveys, which is a common method of data collection in quantitative research, as they allow large amounts of data to be collected efficiently. The results of the surveys are analyzed in SPSS.

2. Theoretical framework

This chapter of this thesis provides a foundation for understanding the factors that influence the attitude of consumers towards digitalised payment data being gathered and used by banks.

In recent years, there has been a significant increase in the amount of personal data that banks, and other financial institutions are able to collect about their customers. This data can be used to provide more tailored and personalised services, but it also raises concerns about privacy and security. Understanding the factors that influence consumers' attitudes towards this practice is important for financial institutions to develop strategies that balance the need for personalised services with the need for privacy and security.

To achieve this, the theoretical framework draws upon existing literature and theories in the fields of consumer behaviour and information privacy.

2.1 Data privacy

Data collected from online behaviour and actions of individuals can expose a lot about them. In this context, personal data is strongly linked to the privacy of the concerned. An interpretation of privacy, which remains significantly influential to this day, is that the right to privacy is the right to be free from any form of harassment and exposure. While this definition was described in the 18th century as “the right to be left alone”, it corresponds to an age before the digital age and the internet, by means of telegraphs, audio recordings, visual recordings, or photographs. In a time when much more information is being released and collected people are more sensitive to the possible consequences, thus this interpretation is still valid (Warren & Brandeis, 1890).

According to Leino-Kilpi (2001), privacy can be divided into four dimensions: Social, Physical, Psychological, and Informational. He describes the social dimension as the ability of and individual to control social contacts. Physical privacy stands for the ability of others to physically enter an individual’s personal space and territory. Furthermore, psychological privacy of one concern the ability to control cognitive and affective input and outputs, and the right to determine if they will share thoughts or reveal information in any circumstances. Lastly, the dimension that concerns this thesis, Informational privacy, this relates to an individual’s right to decide when, how and what information they want to disclose about themselves to another person or organisation.

2.2 Information privacy

Solovo (2006) further identifies four dimensions for information privacy: information collection, information processing, information dissemination, and invasion (Figure 1). According to him, the collection of information itself can be a harmful activity. Not all information gathering is harmful, but certain types can be. The second dimension involves information processing, in which the data holders store it, combine it, manipulate it, search it, and use it. The third dimension is the information dissemination, in which the data holder shares the information with third parties. The last dimension is invasions, it progresses toward the individual and do not necessarily involve information. Figure 2.1 shows the activities corresponding to the 4 dimensions and the relationships between the dimensions. This model outlines the main definitions that this thesis uses for the formation of a theoretic framework.

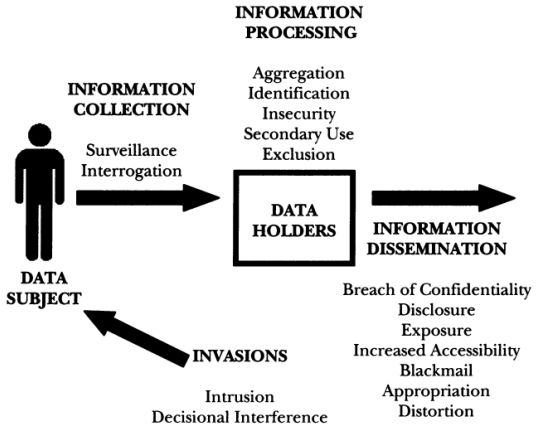

Figure 2.1: The relationship between Taxonomy of Privacy (Solove, 2006).

Smith et al. (1996) designed a Concerns for Information Privacy (CFIP) framework to capture users' concerns regarding organizational data privacy procedures and to comprehend their complexities. This framework highlights four elements of privacy concerns during the collection of privacy information by vendors: collection of private information, unauthorized secondary use, improper access, and errors (Smith et al., 1996). Collection refers to the concern users have related to the extremely large amount of personally identifiable that is being collected and stored in databases. Error is related to the protection against intentional and unintentional inaccuracies in personal data processing. Unauthorized secondary use refers to the concern users have about the collected information not being used for the intended purpose but for other purposes. Improper access refers to users' concerns about personal information being easily accessible to those who are not allowed to view or engage with it

(Hann et al., 2007). The contribution of this framework to the body of literature can be of specific use to this thesis as it relates to the main research question. It also proposes a better understanding of what different purposes for data use exist, thus providing theoretic background to the first sub question.

2.3 Information privacy and consumer attitude

Research on information privacy attitudes often explores perceptions of and reactions to information privacy policies, practices, and tools. The challenge of research on attitudes is that each study conceptualizes “attitude” differently (Bélanger & Crossler, 2011).

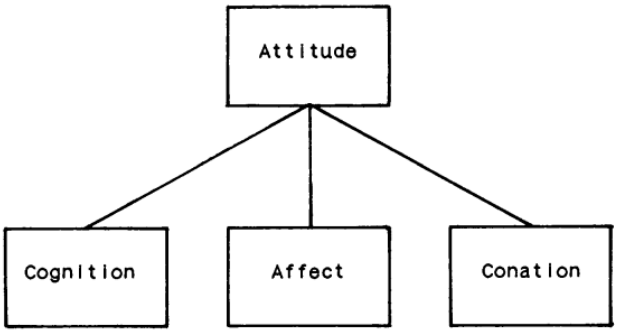

Figure 2.2 Hierarchical model of attitude (Azjen, 1989)

As shown in figure 2.2 According to the multidimensional perspective of attitudes, conceptual components of attitude include cognitive, affective, and conative response tendencies. Since it can be observed directly, it must be inferred through measurable reactions, and given the nature of the construct, these responses must represent whether the attitude object is positively or negatively viewed. Beyond this requirement there are no limitations placed on the kind of responses that can be considered. It is possible to categorize attitude relevant responses into various subgroups (Azjen, 1989).

While some studies view attitude as a dependent value, most consider it an independent value that has an influence on the behavior of consumers (Bélanger & Crossler, 2011). In case that attitude is used as a dependent variable, the focus will be laid on the cognitive level of analysis. This offers an explanation in terms of mental processes. The cognitive component of attitude refers to the beliefs and thoughts that an individual has about an attitude object. This component is often considered the most important one in determining an individual's attitude, as it provides the basis for the affective and behavioral components (de Montlibert, et al., 1961).

When attitudes are seen as an independent variable, the functional level analysis gets used in which the responses in terms of environment gets explained (De Houwer & Barnes-Holmes, 2013). In this thesis the component attitude is taken as a dependent variable and therefore the focus will lay on the cognitive level of analysis. Behavioral reaction on the payment data usage by banks is being taken out of scope for this thesis. Despite not taking behavior of consumers in scope, it's still good to mention the following research result, in case future research will be done. In a study conducted by Culnan and Armstrong (1999) it is found that greater concern for information privacy has no big influence on the willingness to disclose personal information. By simply telling the consumers that their personal information is being kept and used in fair practices. Their concern is mitigated to an extent that allows to have the consumers disclose their personal information or at least to get them to not take actions to protect their personal information (Berendt, Günther, & Spiekermann, 2005).

2.4 Information privacy concerns of consumers

Several studies have examined various aspects of data privacy, including the legal and regulatory frameworks, privacy-enhancing technologies, and individuals' attitudes and behaviors towards data privacy. It has been found that individuals are often not aware of how their personal data is being used by organizations' (Graeff & Harmon, 2002) (Milne & Rohm, 2000). In a study conducted by Nowak and Phelps on the general concern level of consumers on their privacy, it was identified that 82%of the participants were concerned about threats on the personal information privacy. 31% of this group were indicating to be "very concerned", and 51% of the respondents indicated to be "somewhat concerned" (Nowak & Phelps, 1992). However, these are research results from more than 20 years ago. If you compare these results with consumers' privacy concerns of today, the results will likely be different. Therefore, the current thesis aims to give more up-to-date knowledge in the field. Findings suggest that concerns of customers about their information privacy can influence individuals' attitudes, such as their preferences for regulatory environments and willingness to disclose personal information (Milberg, Smith, & Burke, 2000; Van Slyke, Shim, Johnson, & Jiang, 2006). They also influence how consumers accept technology, including how likely they are to make online purchases (Malhotra, Kim, & Agarwal, 2004; Smith, Milberg, & Burke, 1996; Stewart & Segars, 2002).

According to Bilogrevic & Ortlieb (2016) the comfort level of consumers, regarding their information privacy, is influenced by three contextual factors. These are type of service, type

of data, and the possible relationship with a third-party company. Another aspect is the expected liability for first-party data holders in case of a possible information leak and third-party companies get access to the leaked data. In the context of perceived benefits, the respondents believe that there is an imbalance between the benefits they experience compared to the benefits the company gets when accessing and sharing their data. Despite this statement, there are several studies that show, that if consumers receive a benefit from disclosing their data, they may be willing to do so. Whether their achieved benefits compared to those of the organizations are respectively less or not.

2.2 Perceived Risk of exchange data

Smith et al. (2011) cite that the probability of unfavorable consequences along with their level of severity, is taken into account when determining risk. Therefore, expectations or the chance that something will occur are risks. There are numerous hazards linked to disclosing personal information, and they vary depending on how much and how sensitively the information is disclosed (Beldad, de Jong, & Steehouder, 2011). Malhotra et al. (2004) state that disclosing more sensitive information is perceived as riskier by individuals than disclosing less sensitive information. According to Smith, et al. (2011) Emphasize that earlier research has determined the different kinds of perceived risks related to the disclosure of personal information. These risks are, for example sharing personal information without knowledge, unauthorized access, and theft, and or consent of the consumer (Dinev, Smith, Xu, & Hart, 2013) (Dinev & Hart, 2006).When individuals surmise that their personal information is being misused, they make assumptions about the extent of the uncertainty involved; the higher the uncertainty, the higher the perceived risk (Xu, Dinev, Smith, & Hart, 2011). Although the previous literature mainly investigated the influence of perceived risks on the disclosure of data in a broader sense, it is still relevant for this study. This study also focuses on disclosing data. However, for the purpose of this research, this will be performed in the context of digital and cards payments.

2.3 Perceived benefits of exchange data

The fact that consumers have a right to privacy, or protection of personal information, does not necessarily mean that this right is always utilized. Various studies have looked at the attitudes towards the use of personal data in a general sense. A study conducted in 2002, delved into the concerns of online buyers with regards to privacy and security (Brown, 2001). Brown discovered "something of a "privacy paradox"" after a series of in-depth interviews with online buyers. While participants expressed concerns about having their privacy violated, as long as

they received something in return, they continued to be willing to provide their personal information to internet businesses. Interviewees were apprehensive over how much information was gathered about them, yet this did not deter them from making online purchases. Also, they stated that they had been utilizing loyalty cards because of the discounts and gifts that various businesses were offering. These findings corresponded with earlier studies on loyalty cards, which demonstrated that consumers were willing to exchange personal information about their purchases for discounts at the register (Sayre & Horne, 2000).

In a field experiment conducted by Acquisti et al. (2013) it was revealed that shoppers are less inclined to share their data when they are presented with a clear choice. The experiment offered participants a non-sensitive survey, with the promise of receiving Visa gift cards that could be used online or in stores, like debit cards. The participants were given two options: a $10 "anonymous" gift card that would not link transactions to their name, or a $12 "trackable" card that would link transactions to their name. Initially, half of the participants received one type of card, and the other half received the other. They were then given the chance to switch. Some were offered $2 to allow their name to be linked to transactions, while others were asked if they would accept a card with $2 less value to prevent their name from being linked to transactions. The results showed that 52.1% of the subjects who initially held the less valuable but anonymous card chose to keep it, compared to only 9.7% of those who held the more valuable card.

Another study shows the correlation between the privacy preferences of online shoppers and their actual behavior on giving their personal information. In the experiment the participants were asked to complete a questionnaire on privacy preferences. Subsequently they got asked to visit an online store in which they got questioned by a shopping bot. In return for answering these questions the participants got a discount on their purchases. Even though the questions were highly personal, the participants did answer most of them. This shows that despite their claims, online shoppers did not act in a way that was consistent with their great regard for privacy (Spiekermann, GroBKlags, & Berendt, 2001). In fact, attempts to determine the precise values that people place on privacy may be misguided. There is a possibility that the online shoppers were not aware of their personal information being disclosed while answering the questions. Uncertainty in preferences is apparent not only from studies that compare stated attitudes with behavior, but also from studies that estimate the value of privacy. In surveys with explicit questions, people are usually asked to make direct trade-offs between incomplete data privacy protection and money.

2.4 Convenience and disclosing data

Numerous studies have examined how consumers feel about sharing their personal information when there is a benefit involved, like conveniency. In a study in the United States, students made a series of choices about sharing information with websites that differed in protection of personal information and prices for access to services such as convenience (Hann, Hui, Lee, & Png, 2007). The researchers concluded that consumers valued protection against unauthorized access and secondary use of personal data in exchange for an amount between $30.49 and $44.62. In surveys where questions are asked that highlight privacy as a factor to consider, respondents are more likely to give more importance to their privacy when answering the questions. Also, it makes a difference between being aware of what kind of information is provided when using websites or services. However, these studies are typically focused on situations where consumers have a choice and are not reliant on the websites or services where their information is being collected. A prime example of this are digital payments, where a significant amount of personal information is collected from consumers when they pay for goods or services on websites or in physical stores using mobile banking and payment cards. Digital payments have become a popular method of payment, with a growing percentage of consumers choosing it due to its convenience (Capgemini, 2021). In the literature, the conveniency that comes with digital payments, such as mobile payments, has been recognized as a preference over other payment methods (Dewan & Chen, 2005) (Kim, Mirusmonov, & Lee, 2010). The original purpose of technology includes convenience to make human life easier through making common tasks less difficult (Kim, Mirusmonov, & Lee, 2010). Despite the fact that consumer behavior is not included in the scope of this study, it is important to point out that even if consumers have a negative attitude towards the collection of their data, it does not necessarily mean it will have an influence on their behavior. And that conveniency, especially with digital/card payment method, plays a role in this.

2.5 Trust in banks

Trust in banks is a crucial factor of how good the financial system functions. Despite being highly important there is not much known about what trust in banks determines (Fungáčová, Hasan, & Weill, 2017). This has therefore also been a starting point for Fungáčová, Hasan, & Weill (2017), they conducted a broad analysis at country level to better understand trust in banks.They also studied the determinants of confidence in banks at the individual level and the impact of sociodemography characteristics such as gender, age, income, education and access to information resources. The results showed that womn in general are more willing to trust

banks than men, and that the trust increases with income and decreseas with age and education. It was identified that individiuals who are religious have more trust in banks than non-religious individiuals. Also those who find wealth important and have political values that are associated with helping society, alsohave less trust in banks, than ones that hold pro-market economy values. Another interesting finding is that individuals who trust others, tend to have more trust in banks (Fungáčová, Hasan, & Weill, 2017). A good description of what trust really reflects is given by Mayer et al. (1995) "the willingness to assume the risk of disclosure". Trust increases the likehood of customers willing to continue in the relationship with the organisation (Grundlach & Murphy, 1993). For this reason it is crucial for banks to win and keep the trust of their customers.

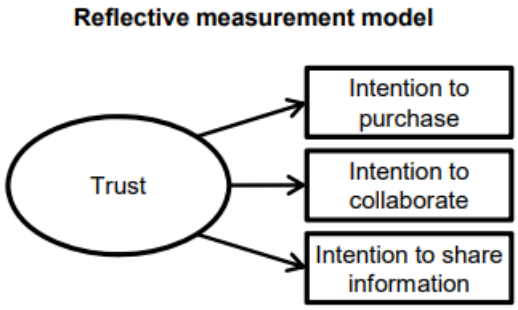

Figure 2.3 Reflective measurement model

In figure 2.3 is given the reflective measurement model that shows the reflection caused by a consumers trust in an organisation (Jarvis, MacKenzie, & Podsakoff, 2003). For this thesis the reflection "Intention to share information" is taken into count. There are factors that can contribute to consumer trust in the bank, which can lead to an increase in the intention to share information. Personal data security by organizations

Making use of AI algorithms to large datasets containing personal information, or "Big data", has clearly practical benefits, but some recent high-profile cases have raised several moral and legal concerns regarding the behavior of institutions using these datasets (Andreotta, Kirkham, & Rizzi, 2022). Many organizations have been found to collect data without obtaining explicit consent from individuals, and often use such data for marketing purposes. This lack of transparency and control over data usage has led to calls for stronger data protection laws and regulations (Li, Yu, & He, 2019). Another key concern associated with data privacy is the potential for data breaches and cyberattacks.

Many studies have shown that organizations are vulnerable to cyberattacks, and that data breaches can result in significant financial and reputational damage. Furthermore, individuals who have their personal data stolen or compromised can suffer serious consequences, such as identity theft and financial fraud (Sen & Borle, 2015). The current digital landscape has led to growing concerns among consumers regarding data privacy. However, it remains unclear whether these concerns are consistently prevalent. With the proliferation of digitization, consumers may paradoxically feel both at ease and less bothered by the collection of their data. This may be due to their trust in the organizations responsible for collecting their data, or perhaps simply a preference for the convenience offered by digital systems over their own privacy.

2.6 Transparency

Transparency can be defined in different ways depending on the context. For this study it's relevant to understand transparency in the context of data as its accessibility. Specifically, data transparency is the consumer's ability to gain insight into the data collected and used about the consumer (Turilli & Floridi, 2009). Or at least having the ability to obtain information about what data is being collected about the consumer, and by who (Fawad & Krishnan, 2006). Tene and Polenetsky (2012) take a critical look at the transparency mechanisms that comprise privacy policies, which are used by many organizations to comply with privacy laws. The privacy policies shown to consumers are multi-page policies, making it difficult for the consumer to read through it all. With this, organizations claim to be transparent about their data collection, without actually making it accessible to consumers to gain insight into it. In the literature, research has mainly been done into the relationship between the transparency of companies, by creating openness about their operations and actions, and consumer trust (Urban, Amyx, & Lorenzon, 2009) (Khan & Malluhi, 2010). Despite the fact that trust is also an important factor in consumer attitudes. Is there a shortage in the literature of the direct relationship between transparency and consumer attitudes towards the collection and use of data by organisations, and more specifically, banks.

2.7 Level of Control

The European Data Protection Directive has placed legislation in which they have introduced the "opt-out rule" with the aim of increasing transparency and consumer control over their own data. The opt out rule can be defined as the right to refuse to share data with cookies. Cookies are a mechanism by which data from consumers can be collected and shared with other websites

in order to personalize the experience on the website for consumers and to display personalized advertisements (Tene & Polonetsky, 2012). Although these opt-out options are not voluntarily placed by organizations on their website, consumers do get a better awareness of the data that is collected and used about them. This can stimulate the consumer's self-confidence and attitude towards the organisations.

According to the claims of Phelps et al. (2000) people's privacy concerns and attitudes towards data sharing are influenced by the degree of control they have and receive over their data. To such extend that if a high level of control is given over the data that is collected and used, this could allay the concerns of the consumers. This claim is also made by Brandimarte et al. (2013) The higher the control the consumer has over their data, the more likely they are willing to share their data, to the extent that this can also be the case for very personal data.

2.8 Payment data collection & procession by banks

The gathering and processing of payment data by banks has evolved into a significant component of modern banking as financial transactions become increasingly digitized. The ability to analyze large amounts of data generated by these transactions allows banks to gain valuable insights into customer behavior, spending patterns, and preferences. These insights can then be used to develop more personalized financial services and products, enhancing the overall customer experience. However, the collection and processing of payment data also raises important concerns related to data privacy, security, and compliancy.

If payment data is structured and analyzed in a correct way, it can give banks a big insight on individuals personal life and behavior. Payment data can be gathered in different ways, including:

- Payment data disclosed by the consumers for purchases online and in stores, also called point-of-sale
- A monthly recurring beneficiary transaction, initiated by employers or health insurance companies
- Payment initiated by public institutions or certain communities (political or religious) (Westermeier, 2020)

Because the focus for this research is on consumers, the payment data that is given when purchasing in the store or online and the consumers at the time the payment is made will be demarcated. In many online shops and stores, there is now also the choice to make a purchase

on credit or with a third party as an intermediary, this is also called the Buy Now Pay Later method (Capgemini, 2021). This payment method also is taken outside the scope of this thesis. Second, it is possible that the consumer pays with cash in the store, in this case the store can identify the consumer and will the payment data, and as long as the stores do not make this data available to the banks, it will not be a collectable payment data by the bank. This payment method also falls outside the scope of this thesis.

Table 1 Summary of Transaction Data Collected at Point-of-Sale by Transaction Processing Method

Transaction Processing Method	Representative Technology at Point-of-Sale	Transaction Data Gathered at Point-of-Sale
Manual (customer not identified)	Cash register without scanner	Date, retail location, amount of purchase
Manual (customer identified)	Cash register; credit card	Date, retail location, customer, amount of purchase
Point-of-Sale (customer not identified)	Cash register with scanner; inventory database	Date and time, retail location, items purchased, amount of purchase
Point-of-Sale (customer identified)	Cash register with scanner or mail order; credit card or customer account; inventory and customer databases	Date and time, retail location, items purchased, amount of purchase, customer
Online (customer identified)	Computer-to-computer, credit card or customer account; inventory and customer databases	Date and time, browsing patterns, items purchased, amount of purchase, customer

Figure 2.4 Transaction data collected at POS (Culnan & Armstrong, 1999)

Figure 2.4 illustrates the data which is being gathered per transaction processing method according to Culnan & Armstrong (1999). To really get an insight of what data is collected by online payments or Point-of-sale payments one should look at the messaging from the cash register to the bank, ISO 8583. In Figure 1.4 it is illustrated that from the starting point where the cardholder initiates a payment until it gets received by the bank, messaging standard ISO 8583 is being used.

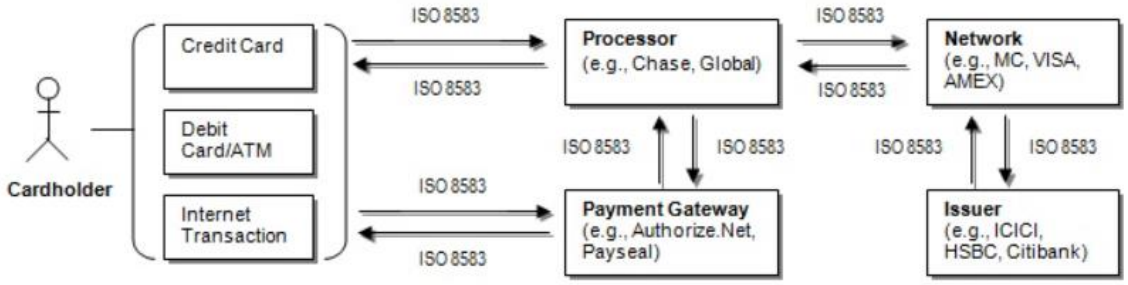

Figure 2.5 ISO 8583 message structure (Kumar, 2018)

ISO (the International Organization for Standardization) is a worldwide federation of national standards. International Standards are drafted in accordance with the rules given in the ISO/IEC Directives. This International Standard is meant to serve as an interface specification that enables message exchange between systems that implement various application requirements.

ISO 8583 is a full specification for financial transactions to process for transactions originated from a payment card, such as, purchases, withdrawals, deposits, reversals, refunds, balance inquiry, payments, and inter-account transfers. ISO 8583 is a messaging standard that is currently used by all banks in the Netherlands. But will be soon replaced with the new messaging standard ISO 20022. With the implementation of ISO 20022, banks will be able to provide much richer data, which in turn has the potential to increase the interoperability and efficiency of payment systems (Gallaher & Harper, 2022). With the obligation of the European Central Bank, all banks within Europe are obliged to have implemented ISO 20022 by the end of 2025. Apart from the fact that the bank is already in possession of customers' personal data, such as date of birth, address, and social security number. In addition, the bank collects more data about a consumer when they make payments with their cards or online, such as how much the consumer spends on a particular store, or which places they regularly visit. It is also possible for the bank to collect data such as product types, code, and names (ISO 20022 RTPG Core Review Group, 2017; European Payments Council, 2015). This kind of data can tell a lot about a consumer's lifestyle and preferences.

2.9 Payment data usage purpose by banks

Data analytics is generally used by banks for demand, supply, and risk management. Banks want to know, among other things, whether their customers pay on time. They are interested in learning how their customers use their credit cards. They also want to know whether customers use or could be interested in banking products.

Banks are one of the institutions that are subject to strict supervision. Banks are obliged to be compliant, if this is not the case they will be faced with high fines. The ECB can impose fines of up to 10% of annual turnover on banks that fail to comply with prudential requirements (Europese Central Bank | Bankentoezicht, 2023). For this reason, banks are often more careful in their use of data. Ravi and Kamaruddin (2017) present ways that banks can make use of their data.

"• The customer analytics provide a 360° view of a customer to make a proper decision for personalised marketing.

• The risk analytics helps to determine credit score of a customer to take decisions on granting a loan.

• The social analytics provides the insights for cross-selling also it can help in preventing frauds.

• The analysis of customer interaction over multiple channels can help the bank to present some personalised offers.

• The banks can also analyse the offline interaction of the customer with the bank through the ATM data, credit, or debit card transaction data.

• The data from online and offline interaction with the bank can be analysed for churn prediction, market basket analysis, increasing the customer life period."

Because this research is mainly focused on the factors that influence the attitude of the consumer, not all data use reasons will not be included in the scope. Only the data use reasons that are considered as "perceived benefit" for the customer are included in the scope.

2.10 Research model

The research model that underpins this thesis seeks to investigate the factors that influence the attitude of consumers toward digitalized payment data being gathered and used by banks. By developing a conceptual model that integrates theoretical perspectives and empirical evidence, it is aimed to uncover the key determinants that shape consumers' attitudes in this context.

In this research model, different types of factors have been included from the literature, those that influence consumer attitudes. This selection is determined by the fact that they are frequently tested factors in previous literature and has aroused the curiosity of the researcher of this thesis. Figure 2.6 illustrates the model of this thesis.

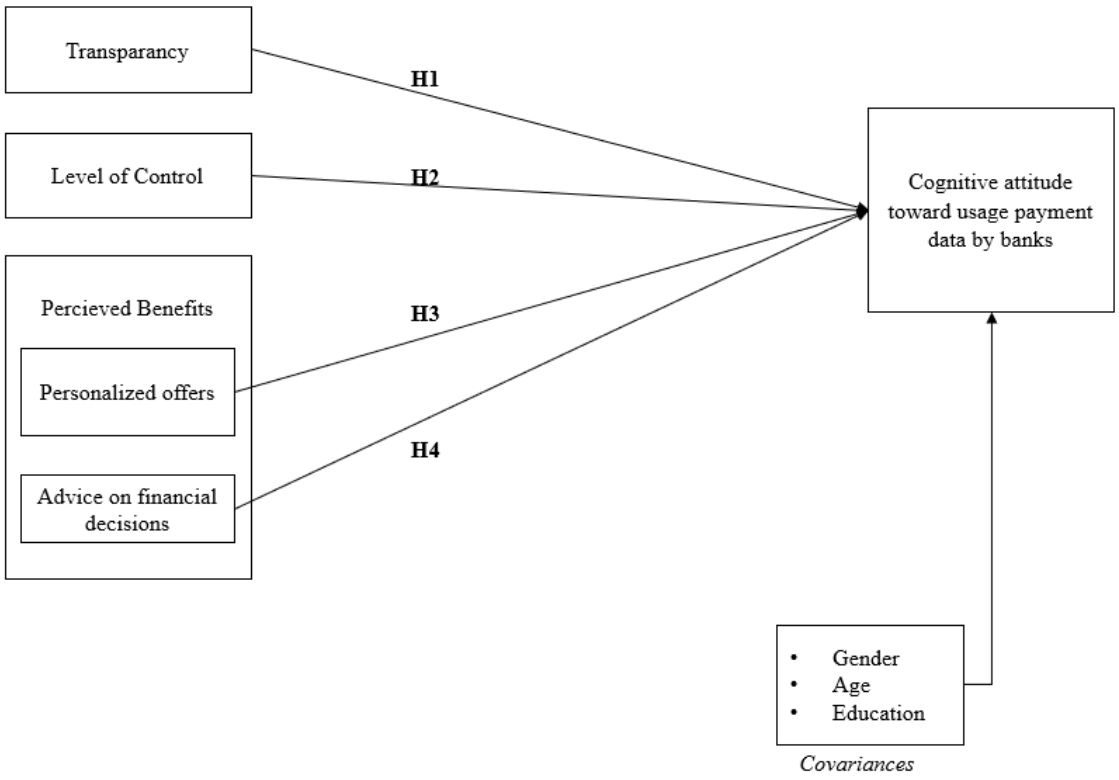

Figure 2.6: Research model

2.11 Hypotheses

A study executed by Awad and Krishnan (2006) showed that if consumers, rate transparency of data as important, have a more negative attitude toward being profiled for personalized offers the consumers who find the transparency on the data less important. The study shows that there is a relation in which the transparency of data can lead to a more positive attitude of the consumers. This anchored the hypothesis that perceiving transparency on their data makes consumers have a more positive attitude toward the usage of their personal data by the banks.

***H1**: Transparency on the collection and usage of payment data by banks is positively impacting the attitude toward the usage of payment data by banks.*

Banks can offer consumers the opportunity to have more control over their data in various ways. The study by Roeber et al. (2015) has shown that simply giving consumers the right to request their data and to request its deletion has a positive influence on their attitude towards sharing their data. To actually test this in specific for banks, the hypothesis arises that having control over data can positively influence the attitude of consumers towards the use of their data at the bank.

***H2**: having control over the collection and usage of payment data at banks is positively impacting the attitude toward the usage of payment data by banks.*

Chellapa and Sin (2005) conducted research on consumers on multiple websites and observed that the perceived benefits from personalization are almost twice as influential as the perceived risk of disclosing personal information. They describe personalization as "the ability to proactively tailor products and product purchasing experiences to tastes of individual consumers based upon their personal preference information" (p. 181).

***H3**: Perceiving benefit from personalized offers is positively impacting the attitude toward the usage of personal data by banks.*

Graeff and Harmon (2002) claim that consumers may be willing to provide personal information because of their desire for perceived personalized attention from organizations. Consumers could get benefit from the financial advice the bank gives them. The results indicated greater benefits in advice for people with less financial literacy. The findings of Moreland (2018) suggest that providing financial advice to customers and others through service activities can improve financial decision-making.

***H4**: Perceiving financial advice is positively impacting the attitude toward the usage of personal data by banks.*

3. Methodology

This chapter outlines the research design and methods used to investigate the factors that influence the attitude of consumers towards digitalised payment data being gathered and used by banks. This study employs a deductive research approach and quantitative research methods, specifically using surveys to collect data from a sample of consumers.

3.1 Research design

To answer the research question *"What factors positively influence the attitude of consumers toward digitalized payment data being collected and used by banks?"* this study includes factors that has been identified as factors that can influence the attitude of consumers. For this study the factors are tested in the context of consumer data collected and used by banks. The research design for this study is cross-sectional, meaning that data is collected from a single point in time. The study is also correlational, seeking to identify relationships between different variables, rather than establishing causal relationships.

3.2 Participants

For participating in this study, the participants had to meet the following criteria: The participant for this study consists of consumers who use mobile payment and card payments at least 70% of the times they pay and are over 18 years of age. This is a criterion that is important for the outcome of hypothesis 1: Conveniency of mobile/card payments. For the consumer, the mobile or card means of payment will have to be so convenient that this will be the consumer's preference in 70% of the time.

Another criterium is the participant should not work or have as much as knowledge as someone that works in, the payments departments at the bank, and so have the knowledge of what data is being gathered and how it's been protected and used. Having insider information regarding the protection of payment data and usage by banks can influence the outcome of the results.

The participants must also be resident in the Netherlands with a Dutch bank account, because the Dutch banks have been included in the scope of this study.

3.3 Approach

The sample is selected through a combination of convenience sampling and snowball sampling. Convenience sampling involves selecting participants who are easily accessible, such as those

who are members of a particular online community. Snowball sampling involves participants recruiting other participants through their personal networks.

3.4 Survey design

The research questions used in the surveys are pre-existing question taken from studies done before. An advantage of using pre-existing survey questions is that it will have undergone considerable testing prior to being used for the first time.

The survey instrument used in this study is a structured questionnaire, consisting of closed-ended questions that are designed to collect numerical data. The questionnaire is divided into three sections: demographic information, behavioral information, and attitudes towards digitalized payment data collection and use by banks. The demographic section collects data on age, gender, and education. The behavioral section collects data on the frequency of digital payments and the types of digital payments used. The attitudes section collects data on factors that influences consumer attitudes towards digitalized payment data collection and use by banks, using a 7-point Likert scale.

3.5 Data quality

Cohen et al. (1988) assert that a study is reliable if it has been demonstrated to be valid, and that a study must first be demonstrated to be reliable before it can be said to be valid. It is impossible to do research that is entirely trustworthy and reputable. However, to increase the study's reliability and validity. However, in order to increase the study's reliability and validity, the following is done. The measurement used in this survey research is the addition of an attention check in the questionnaire. Two questions with the same meaning were asked in the survey's final question. By assessing whether there is a significant difference between the responses gathered for these two questions, it may be established whether respondents paid attention to the survey. As a result, there is some assurance of the research's internal validity. Additionally, the majority of the survey's items came from a previously published journal study. This also guarantees the research's internal validity. To confirm the accuracy of the measurements found in current journal papers, extensive controls and testing were done.

4. Data analysis

In this chapter, the quantitative data collected for this study are analysed and interpreted.

4.1Descriptive statistics

This survey has been filled out by 131 respondents with valid responses. For all independent variables a 7-likert scale is being used, the values differed between agreement (1 = strongly agree, 2 = agree, 3= somewhat agree, 4 = neither agree nor disagree, 5 = somewhat disagree, 6 = disagree, 7 = strongly disagree) and acceptability (1 = very acceptable, 2 = acceptable, 3 = somewhat acceptable, 4 = Neither unacceptable, nor acceptable, 5 = somewhat unacceptable, 6 = unacceptable, 7 = very unacceptable). For the dependent variable, also a 7-likert scale is being used with the values positivity (1 = very positive, 2 = positive, 3 = somewhat positive, 4 = Neither positive, nor negative, 5 = somewhat negative, 6 = negative, 7 = very negative)

4.1.1 Descriptive covariates

The survey is in majority filled in by men (54,2%), this differs with a small amount with the female respondents (45,8%). In the survey the option “non-binary” and “prefer not to answer” were also given, but both of these options were chosen by none of the 131 respondents.

Table 4.1 shows that the majority of the respondents are between the ages 25 and 34 (57,3%). This can be explained by the fact that for the distribution of the survey conveniency sampling combined with snowball sampling is being used. The rest of the grouping of the ages differs significantly a lot with the majority between the ages 25-35.

Age in years

	N	%
18-24 years old	20	15,3%
25-34 years old	75	57,3%
35-44 years old	18	13,7%
45-54 years old	10	7,6%
55-64 years old	8	6,1%

Table 4.1 Descriptive age

As for the education level of the respondents, the majority has finished or is still continuing their bachelor’s (37,4%) or master’s degree (45%). As shown in table 4.2, the remaining 17,6% of the respondents had a secondary vocational degree or less. Here too, the explanation lies with the convenience and snowball sampling.

Education

	N	%
Less than a high school diploma	2	1,5%
High school graduate or equivalent	12	9,2%
Secondary vocational education (MBO)	9	6,9%
Bachelor's degree	49	37,4%
Master's degree	59	45,0%

Table 4.2 Descriptive education

According to the responses in the survey, the majority of the respondents (84.0%) reported using the mobile/card payment method above 60% of the time. This suggests that a significant portion of the sample relies heavily on these payment methods. Additionally, 11.5% of the respondents reported using this payment method between 30% and 60% of the time, while only a small proportion (4.6%) indicated using it less than 30% of the time (table 4.3)

Use of mobile/card payment method

	N	%
less then 30% of the time	6	4,6%
in between 30% and 60% of the time	15	11,5%
Above 60% of the time	110	84,0%

Table 4.3 Descriptive Use of mobile/card payment method

4.2 Factors analysis

For the effectiveness of this research, the validity is an important evaluation. The validity determines whether an instrument measures what it claims to measure. Construct validity can be measured with an Exploratory Factor Analysis (EFA). Beside being the most common method for assessing construct validity, it is also considered as one of the most strongest methods (Kang, 2013).

Through EFA a collection of observed variables, that have comparable movement in the same direction, can be identified by factor rotation and extraction. This way EFA can be used to investigate the relations between observed variables and the underlying factors (Fontaine, 2005).

4.2.1 Sampling adequacy

Prior to performing a factor analysis, the variables should be checked on the Kaiser Meyer Olkin (KMO) & Bartlett's test of sphericity. KMO measures the sampling adequacy to test the appropriateness of using the variables for the factor analysis (Kaiser, 1974). The test Bartlett's test of sphericity tests that the correlation matrix in a dataset has significant correlations between at least some of the variables, which is necessary for factor analysis (Bartlett, 1954).

According to Kaiser, a value between 0.5 and 0.7 is mediocre, and a value between 0.7 and 0.8 is good, a value between 0.8 and 0.9 is excellent, and the value between 0.9 and higher is fantastic. In table 4.4 there can be seen that the KMO value is ,763, which makes the tested variables, based on the conclusion of Kaiser, a good value for the factor analysis. Table 4.4 further shows the significance of the Bartlett's test of sphericity and shows that the items used are correlated and suitable for the factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,763
Bartlett's Test of Sphericity	Approx. Chi-Square	846,383
	df	91
	Sig.	<,001

Table 4.4 Kaiser-Meyer-Olkin (KMO and Bartlett's test of Sphericity

4.2.2 Factor Loading

Table 4.5 shows the Pearson correlation between the variables and the components, or in this thesis called "factors". This is know as factor loading, which indicates a moderate correlation between the variable and the factor if it results higher then 0.30 (Tavakol & Wetzel, 2020). The matrix shows that the created pre conceptualized factor has a correlation with the specifically created variables for those factors. Based on the results the following can be assumed, Component 1 = Level of Control, Component 2 = Financial Benefit, Component 3 = Personalized Benefit, Component 4 = Transaparancy. The majority of the variables have a correlation with the factors, except for the variables "PersBen_Contactless" and "PersBen_Dig_Receipt". It indicated that the variable "PersBen_Contactless" has a stronger correlation with the pe conceptualized factor "Financial Benefit", then "Personalized Benefit" which it was supposedly created for. Because, based on the judgemental of the researcher, the content of this variable can also be associated with the financial benefit factor, this variable will be used for the factor with which it is correlated the most.

Rotated Component Matrix[a]

	Component			
	1	2	3	4
Level_Cntrl_Stores	,903			,195
Level_Cntrl_Choose	,903			
Level_Cntrl_Opt_Out	,811			,202
FinBen_Saving_Tips		,831	,159	
FinBen_Invest		,802	,197	
PersBen_Contactless	,280	,665	,207	-,203
FinBen_Loan		,602	,255	
PersBen_Dig_Receipt	,325	,347	,316	-,226
PersBen_Spec_Res_Offes		,196	,898	
PersBen_Spec_Offer		,255	,888	
PersBen_Insurrance		,333	,714	
Transp_Retention	,140			,888
Transp_Purpose	,115			,828
Transp_Database	,144		-,104	,816

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 4.5 Rotated Component Matrix

As for the variable "PersBen_Dig_Receipt", the matrix shows that it has just a little above 0.3 correlation with the first three factors in the matrix. Although it also has a correlation with 2 other factors for which it has not been specifically selected, this variable will only be used for testing the Personalized Benefit factor.

4.2.3 Cronbach's Alpha

For this study the majority of the variables have been taken from prior literature, and also the measurement that is being used. For this reason it is important to measure the Cronbach for each variable. The Cronbach Alpha is used as a means of indicating the reliability of multi-item scales (DeVellis, 2005). The acceptance value of Cronbach's alpha is 0.7, and values above 0.8 are considered good (Taber, 2017).

In this study the variables are divided into 4 factors (independent variables), for this reason the reliability is measured in 4 separate constructs. As shown in the tables below, the Cronbach's alpha is valued above 0.8 for the factors "Transparency" and "Level of Control", which are considered being good in the context of reliability. And as for the factors "Personalized Benefit" and "Financial Benefit", these are valued above 0.7 and acceptable for this study.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,828	,830	3

Table 4.6 Cronbach's Alpha: Transparency

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,881	,881	3

Table 4.7 Cronbach's Alpha: Level of Control

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,774	,789	4

Table 4.8 Cronbach's Alpha: Personalized Benefit

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,757	,760	4

Table 4.9 Cronbach's Alpha: Financial Benefit

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,698	,706	2

Table 4.10 Cronbach's Alpha: Attitude toward data collection and usage

4.3 Hypotheses testing

To examine the hypothesis in this study, the gathered quantitative data is tested by two statistical tests in SPSS, *Multiple Regression Analyses* and *T-tests*. multiple regression analysis allows for the simultaneous examination of multiple factors, quantitative analysis of relationships, assessment of significance, and prediction of attitudes. By employing this technique, valuable insight can be gained into the factors that impact consumers attitude toward the usage of data by banks.

4.3.1 Transparency

The first regression analysis was run to test the following hypothesis, H1: *Transparency on the collection and usage of payment data by banks is positively impacting the attitude toward the usage of payment data by banks.*

The assumption of independence of errors, homoscedasticity, linearity, normality of residence, and unusual points were met. The regression analysis showed important insights in the relation between transparency and attitudes towards the usage of payment data by banks. As shown in table 4.11 the overall model was statistically significant ($F(4, 126) = 5.547$, $p < 0.001$), explaining 15% of the variance in attitudes.

Model	R	R Square	Adjusted R Square	Change Statistics			
				F Change	df1	df2	Sig. F Change
1	,387[a]	,150	,123	5,547	4	126	<,001

a. Predictors: (Constant), Education, Transparency, Age in years, Gender

b. Dependent Variable: Attitude_Data_Usage

Table 4.11 Model Summary Transparency

As shown in table 4.12 transparency appeared as a significant predictor, with a positive standardized coefficient (Beta = 0.361, p < 0.001). This indicates that higher level of transparency are associated with a more positive attitude toward the usage of payment data. The covariates, including gender and education, did not show significant associations with the attitudes towards data usage.

	B	Std. Error	Beta	Sig.
(Constant)	2,305	,635		<,001
Transparency	,445	,103	,361	<,001
Gender	,044	,175	,022	,802
Age in years	,152	,084	,154	,073
Education	-,123	,085	-,122	,153

a. Dependent Variable: Attitude_Data_Usage

Table 4.12 Coefficients Transparency

Age

However, age turned out to have more or less a significant positive relationship (Beta = 0.154, p = 0.073). This suggests that older participants tend to hold a more positive attitudes toward the usage of payment data by banks. This is also shown in table 4.13, in which the higher the value, the more positive the age category is toward the use of payment data by the bank.

Age in years	Mean	N	Std. Deviation
18-24 years old	3,30	20	1,081
25-34 years old	2,97	75	1,026
35-44 years old	3,11	18	,963
45-54 years old	3,50	10	,850
55-64 years old	3,38	8	,916
Total	3,11	131	1,010

Table 4.13 Means for age in Attitude on Data Usage

When this assumption is compared with the means of transparency per age category, the following can be seen in table 4.14. It shows that as the age increases, the mean shows a lower value. This indicates the extent to which consumers attach importance to the bank's

transparency regarding their payment data. The lower the value, the more the consumers find it important to receive transparency.

Age in years	Mean	N	Std. Deviation
18-24 years old	2,0167	20	,88175
25-34 years old	1,6533	75	,83368
35-44 years old	1,5741	18	,82292
45-54 years old	1,5667	10	,64884
55-64 years old	1,2500	8	,46291
Total	1,6667	131	,81859

Table 4.14 Means for age in Transparency

Also when looking at the other age categories, it can be clearly seen that transparency of the bank with regard to data collection and use is an important aspect for consumers in all age categories.

The results provide support for the hypothesis that transparency on the collection and usage of payment data by banks positively impacts attitudes towards the usage of data by banks. The significant and positive coefficient for transparency suggests that individuals perceive greater transparency as an important factor toward their attitudes towards the usage of payment data.

4.3.2 Level of Control

The second regression analysis was run to test the following hypothesis, H2: *having control over the collection and usage of payment data at banks is positively impacting the attitude toward the usage of payment data by banks.*

The assumption of independence of errors, homoscedasticity, linearity, normality of residence ,and unusual points were met. The analysis demonstrates that including control over the collection and usage of payment data as a predictor variable, together with Age, Gender, and Education as covariates, had a significant overall fit ($F(4,126) = 8.882$, $p < 0.001$). As shown in table 4.15 the model explained 22% of the variance in individuals' attitudes toward the usage of payment data, after accounting for covariates.

				Change Statistics			
Model	R	R Square	Std. Error of the Estimate	F Change	df1	df2	Sig. F Change
1	,469[a]	,220	,906	8,882	4	126	<,001

[a]. Predictors: (Constant), Education, Age in years, Level_of_Control, Gender

[b]. Dependent Variable: Attitude_Data_Usage

Table 4.15 Model summary Level of Control

Specifically, as shown in table 4.16 control over the collection and usage of payment data (Beta = 0.452, $p < 0.001$) was found to have a significant positive impact on individuals' attitudes. This suggests that individuals who perceive greater control over their payment data exhibit a more positive attitude toward its usage by banks.

On the other hand, Gender (Beta = 0.056, $p = 0.502$), Age (Beta = 0.008, $p = 0.921$), and Education (Beta = -0.133, $p = 0.104$) did not significantly influence attitudes toward the usage of payment data.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,744	,577		4,755	<,001
	Level_of_Control	,293	,052	,452	5,622	<,001
	Gender	,113	,168	,056	,673	,502
	Age in years	,008	,081	,008	,100	,921
	Education	-,134	,082	-,133	-1,637	,104

a. Dependent Variable: Attitude_Data_Usage

Table 4.16 Coefficients Level of Control

The results supports the hypothesis that having control over the collection and usage of payment data positively influences consumers attitudes toward its usage by banks. The results underlines the importance of transparency and providing users control over their data to stimulate a positive attitude and trust in the usage of payment data by banks. However, demographic factors such as Gender, Age, and Education were not significant to the attitude.

4.3.3 Perceiving personalized offers

The third regression analysis was run to test the following hypothesis, *H3: Perceiving benefit from personalized offers is positively impacting the attitude toward the usage of personal data by banks.*

The assumption of independence of errors, homoscedasticity, linearity, normality of residence, and unusual points were met. As shown in table 4.17, analysis revealed that the model, including perceiving benefits from personalized offers as a predictor variable, and Age, Gender, and Education as covariates, had a non-significant overall fit ($F(4,126) = 0.873$, $p = 0.482$). The model accounted for only 2.7% of the variance in attitudes towards the usage of personal data by banks after controlling for the covariates.

Model	R	R Square	Adjusted R Square	Change Statistics			
				F Change	df1	df2	Sig. F Change
1	,164[a]	,027	-,004	,873	4	126	,482

[a]. Predictors: (Constant), Personalized_Benefit, Education, Age in years, Gender

[b]. Dependent Variable: Attitude_Data_Usage

Table 4.17 *Model summary Perceived personalized offers*

Specifically, as shown in table 4.18, the analysis indicated that the perception of personalized benefits from offers (Beta = 0.052, p = 0.553) did not significantly impact individuals' attitudes towards the usage of personal data by banks. The covariates, Gender (Beta = 0.028, p = 0.764), Age (Beta = 0.086, p = 0.342), and Education (Beta = -0.127, p = 0.164), did not significantly influence attitudes in the context of data usage.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,091	,702		4,400	<,001
	Gender	,056	,187	,028	,301	,764
	Age in years	,085	,089	,086	,954	,342
	Education	-,128	,091	-,127	-1,400	,164
	Personalized_Benefit	,038	,063	,052	,594	,553

[a]. Dependent Variable: Attitude_Data_Usage

Table 4.18 Coefficients Level of Control

The hypothesis suggests that perceiving benefits from personalized offers positively influences consumers attitude towards the usage of personal data by banks is not supported. Additionally, the covariates of Gender, Age, and Education did not significantly influence attitudes in the context of data usage.

4.3.4 Perceived financial advice

The fourth regression analysis was run to test the following hypothesis, *H4: Perceiving financial advice is positively impacting the attitude toward the usage of personal data by banks.*

The assumption of independence of errors, homoscedasticity, linearity, normality of residence, and unusual points were met. As shown in table 4.19, including the perception of financial benefits, Age, Gender, and Education as covariates, had a non-significant overall fit (F = 0.899, p = 0.466). The model accounted for only 2.8% of the variance in attitudes towards the usage of personal data by banks after considering the covariates.

Model	R	R Square	Adjusted R Square	F Change	df1	df2	Sig. F Change
1	,167[a]	,028	-,003	,899	4	126	,466

[a]. Predictors: (Constant), Education, Age in years, Financial_Benefit, Gender

[b]. Dependent Variable: Attitude_Data_Usage

Table 4.19 Model summary Perceived financial advice

As shown in table 4.20, the analysis showed that perceiving financial benefits from advice (Beta = 0.060, p = 0.501) did not significantly influence consumers attitude toward the usage of personal data by banks. The covariates, including Gender (Beta = 0.021, p = 0.824), Age (Beta = 0.087, p = 0.337), and Education (Beta = -0.124, p = 0.174), did not significantly impact attitudes in the context of data usage.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,102	,681		4,554	<,001
	Financial_Benefit	,041	,061	,060	,675	,501
	Gender	,042	,188	,021	,223	,824
	Age in years	,085	,089	,087	,963	,337
	Education	-,125	,091	-,124	-1,368	,174

[a]. Dependent Variable: Attitude_Data_Usage

Table 4.20 Coefficient Perceived financial advice

The hypothesis suggests that perceiving financial advice positively impacts consumers attitude toward the usage of personal data by banks is not rejected. Furthermore, the covariates of Gender, Age, and Education did not significantly influence attitudes in the context of data usage.

5. Discussion & Conclusion

In this chapter a comparison will be made in what has been found in existing literature and what was being expected in the outcome of the research, together with the results of the research that has been done for this thesis. The implications will be mentioned, and the limitations and future research will be addressed.

5.1 Discussion

Hypothesis 1

The first hypothesis expected that transparency provided by banks to consumers will have a positive influence on consumers' attitudes towards the use of data by the bank itself.

Existing literature has shown that transparency about the data that organizations collect, use and possess can have a positive influence on consumer attitudes (Awad & Krishnan, 2006). This aroused the expectation that if the bank is transparent to consumers about what kind of data is collected and for what purpose it is used, this can lead to a more positive attitude among consumers towards the fact that their payment data is collected and used by the Bank.

On the first hypothesis, there is a significance between transparency and the attitude of the consumers. Despite the fact that this is to a small extent according to the results, there does appear to be a relationship between the transparency factor and the attitude. Furthermore, the test showed that there is significance in age. This suggests that the older participants are more likely to have a more positive attitude towards the use of data by the bank. Despite the fact that transparency was tested as an influential factor in this study in a different context, the results are consistent with the theory of Awad and Krishnan (2006). In addition to their theory, it has been found that older consumers attach more importance to transparency compared to the age group below the age 55 and thus maintain a more positive attitude towards the use of data by the bank when they gain more insight into their data.

Based on this, the hypothesis "*Transparency on the collection and usage of payment data by banks is positively impacting the attitude toward the usage of payment data by banks"* is accepted.

Hypothesis 2

For the second hypothesis, it expected that having control over your own data has a positive influence on the attitude towards the use of data by the bank.

According to Brandimarte et al. (2013) and Phelps et al. (2000), consumers tend to have a more positive attitude towards the use of their data by the bank when they are given more control over their data, specifically on which data is collected is about the consumers and which data is used. The results of this study have shown that there is a significant relationship between having control over their own data and attitude. And an increase in the degree of control over the data also increases the attitude in a more positive sense. This confirms the claims of existing literature that it also exists in the context of payment data and banks as an organization.

Based on this, the hypothesis "*Having control over the collection and usage of payment data at banks is positively impacting the attitude toward the usage of payment data by banks"* is accepted.

Hypothesis 3

For the third hypothesis, it was expected that perceived personalized offers would have a positive influence on consumers' attitudes towards the use of data by the bank.

In existing literature it has often been proven that perceived benefits have a positive influence on both the attitude and behavior of consumers (Spiekermann, GroBKlags, & Berendt, 2001). Sayre & Horne's (2000) study found that while participants expressed concerns about having their privacy violated, as long as they received something in return, they continued to be willing to provide their personal information to internet businesses. Also in the research by Chellapa and Sin (2005), which was conducted on multiple websites, it was observed that the perceived benefits from personalization are almost twice as influential as the perceived risk of disclosing personal information.

The test showed that there is no significant relationship between personalized offers and consumer attitudes. This shows that if the bank offers personalized offers to consumers, this does not influence their attitude more positively, nor negatively. These results therefore do not support the theory that has emerged in existing literature. It is, however, relevant to emphasize that the hypothesis included in this study is somewhat out of context from the theory, whereby in the existing literature research has mainly been done in shops and websites, for this hypothesis the bank, a financial institution, is used.

Based on this, the hypothesis "*Perceiving benefit from personalized offers is positively impacting the attitude toward the usage of personal data by banks"* is rejected.

Hypothesis 4

For the fourth hypothesis, it was expected that receiving financial advice has a positive influence on consumers' attitudes towards the use of data by banks.

Existing literature has shown that perceived benefits have a positive influence on the attitude of consumers (Spiekermann, GroBKlags, & Berendt, 2001). And that consumers may be willing to provide personal information because of their desire for perceived personalized attention from organizations (Graeff & Harmon, 2002). According to Moreland (2018), providing financial advice to customers and others through service activities can improve financial decision-making. As a financial institution, banks will be able to provide financial advice to consumers and thereby benefit consumers.

The test showed that there is no significant relationship between providing financial advice to consumers and their attitude towards the use of data by the bank. This shows that if the bank gives consumers financial advice in the context of benefit, this does not have a positive influence on the consumer's attitude. This shows that these findings do not correspond with theories in previous studies. In this respect, the provision of financial advice has not been used in previous literature as a beneficial means to ensure that consumers are more willing to share their data. In addition, the provision of financial advice can offer benefits to consumers, but this is not immediately seen as something beneficial by the consumers. Where it is seen as an advantage when giving money or a voucher.

Based on this, the hypothesis "*Perceiving financial advice is positively impacting the attitude toward the usage of personal data by banks"* is rejected.

5.2 Limitations and future research

In this study, except for 1 hypothesis, no significance was found for the control variables that consisted of age, gender, and education. If this is compared to other survey studies, it can be seen that this does not happen often. This could be because the respondents were not randomly generated, but from my own circle. These were respondents with similar educational backgrounds and work experiences. This is because due to lack of time it was not possible for me to get enough respondents through random sampling.

Another limitation was that the factors were investigated at a high level, due to a lack of time. This concerns both the depth of the factors and the quantity of the factors. This also applies to the dependent variable, in which this study could also have looked at not only the attitude but

also the behaviour. These are two points that require further investigation. For the first, the transparency and level of control factors can be examined in how they can be applied by companies. For example, which functions can be built into the app or how this can be included in an API solution, in order to provide more in-depth advice to the customer. A second future research could be to also look at the behavior of consumers. In the theoretical framework it was already pointed out that conviniency plays a major role in the behavior of the consumer. This would be interesting in the context of digital payment methods.

5.3 Conclusion

In this study it was aimed to answer the research question “What factors positively influence the attitude of consumers toward digitized payment data being gathered and used by banks?” This question was researched on behalf of Capgemini for the Cards & Digital Payments team so that these factors can be used in the advice to Capgemini's customers (banks) and can be taken into account in the design of their API solutions.

The results showed that the factors “Transparency” and “Control over data” play a significant role in shaping consumer attitudes. Where the “Transparency” factor has shown that the age group above the age of 55 in particular has a more positive attitude to the transparency provided by the bank. The literature has shown that organizations do not make data transparency user-friendly, making it difficult for consumers to gain a clear understanding of what data is being collected and used about them. Since the results have shown that transparency of data has a positive influence on attitude, the Cards and Digital Payments team can take this factor into account in their advice to their customers and apply it in their API solutions. With regard to the “Control over data” factor, the literature shows that as consumers gain more control over the data collected and used by organizations, their attitude and willingness also increase. This can increase to such an extent that consumers may even be willing to share very personal data. The Cards & Digital Payments team can also take this factor into account in their advice to their customers and apply it in their API solutions.

In addition, the factors “perceived personalized offers” and “perceived financial advice” were also tested for their influence on attitude, but it turned out that this has no significant relationship to attitude. This has resulted as the opposite of what has been found in previous studies.

6. References

Acquisti, A., John, L. K., & Loewenstein, G. (2013). What Is Privacy Worth? *The Journal of Legal Studies*, pp. 249-274.

Andreotta, A., Kirkham, N., & Rizzi, M. (2022). AI, big data, and the future of consent. *AI & Society, 37*, 1715-1728. doi:https://doi.org/10.1007/s00146-021-01262-5

Azjen, I. (1989). Attitude Structure and Behavior. In A. Pratkanis, S. Breckler, & A. Greenwald, *Attitude Structure and Funtion* (pp. 241-274). Hillsdale.

Bartlett, M. (1954). A Note on the Multiplying Factors for Various Chi Square Approximations. *Journal of the Royal Statistical Society*, pp. 296-298. doi:https://doi.org/10.1111/j.2517-6161.1954.tb00174.x

Bélanger, F., & Crossler, R. E. (2011). Privacy in the Digital Age: A Review of Information Privacy Research in Information Systems. *MIS Quarterly, 35*(4), 1017-1041. doi:https://doi.org/10.2307/41409971

Beldad, A., de Jong, M., & Steehouder, M. (2011). I trust not therefore it must be risky: Determinants of the perceived risks of disclosing personal data for e-government transactions. *Computers in Human Behavior, 27*(6), 2233-2242. doi:https://doi.org/10.1016/j.chb.2011.07.002

Berendt, B., Günther, O., & Spiekermann, S. (2005). Privacy in E-commerce: Stated Preferences vs. Actual Behavior. *Communications of the ACM, 48*, 101-106.

Bilogrevic, I., & Ortlieb, M. (2016). "If You Put All The Pieces Together...": Attitudes Towards Data Combination and Sharing Across Services and Companies. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (pp. 5215-5227). San Jose: CHI'16. doi:doi:10.1145/2858036.2858432

Braun, B. (2020). Central banking and the infrastructural power of finance: The case of ECB support for repo and securitization markets. *Socio-Economic Review, 18*(2), 395–418. doi:https://doi.org/10.1093/ser/mwy008

Brown, B. (2001). *Studying the internet experience.* Bristol: HP Laboratories Technical Report. Retrieved from https://www.hpl.hp.com/techreports/2001/HPL-2001-49.pdf

Capgemini. (2021). *WORLD PAYMENTS REPORT 2021*. Capgemini.

Chellapa, R. K., & Sin, R. (2005). Personalization versus Privacy: An Empirical Examination of the Online Consumer's Dilemma. *Information Technology and Management, 6*(2), 181-202. doi:DOI:10.1007/s10799-005-5879-y

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences.* New york: Taylor & Francis.

Culnan, M., & Armstrong, P. (1999). Information Privacy Concerns, Procedural Fairness, and. *Organization Science, 10*(1), 104-115. doi:DOI:10.1287/orsc.10.1.104

Culnan, M., & Bies, R. (2003). Consumer Privacy: Balancing Economic and Justice Considerations. *ournal of Social Issues*, 323-342.

De Houwer, J., & Barnes-Holmes, D. (2013). A functional-cognitive framework for attitude. *European Review of Social Psychology, 24*(1), 252–287. doi:https://doi.org/10.1080/10463283.2014.892320

de Montlibert, C., Pagés, R., Rosenberg, M., Hovland, C., Mcguire, W., Abelson, R., & Brehm, J. (1961). Attitude Organization and Change: An Analysis of Consistency Among Attitude Components. *Revue Française de Sociologie, 2*(4), 333-334. doi:doi:10.2307/3319768

DeVellis, R. (2005). Inter-Rater Reliability. *Encyclopedia of Social Measurement*, pp. 317-322. doi:https://doi.org/10.1016/B0-12-369398-5/00095-5

Dewan, S., & Chen, L. (2005). Mobile Payment Adoption in the USA: A Cross-Industry, Cross-Platform Solution. *1*, 4-28. doi:https://doi.org/10.1080/15536548.2005.10855765

Dinev, T., & Hart, P. (2006). An Extended Privacy Calculus Model for E-Commerce Transactions. *Information Systems Research, 17*(1), 61-80. doi:https://www.jstor.org/stable/23015781

Dinev, T., Smith, J. H., Xu, H., & Hart, P. (2013). Information Privacy and Correlates: An Empirical Attempt to Bridge and Distinguish Privacy-Related Concepts. *European Journal of Information Systems*, 295-316. doi:DOI:10.1057/ejis.2012.23

European Payments Council. (2015). *Payments and Cash Withdrawals with Cards in SEPA.* European Payments Council.

Europese Central Bank | Bankentoezicht. (2023). Retrieved from https://www.bankingsupervision.europa.eu/banking/tasks/sanctions/html/index.nl.html#:~:text=De%20ECB%20kan%20boetes%20van,indien%20die%20kunnen%20worden%20bepaald.

Folkers, A. (2017). Existential provisions: The technopolitics of public infrastructure. *Environment and Planning D: Society and Space, 35*(5), 855-874.

Fontaine, J. (2005). Equivalence. *Encyclopedia of Social Measurement*, pp. 803-813. doi:https://doi.org/10.1016/B0-12-369398-5/00116-X

Fungáčová, Z., Hasan, I., & Weill, L. (2017). Trust in banks. *Journal of Economic Behavior & Organization, 157*, 452-476. doi:https://doi.org/10.1016/j.jebo.2017.08.014

Gallaher, M., & Harper, C. (2022). *Demystifying ISO 20022: Evaluating the benefits and limitations of new messaging standards.* Journal of Payment Strategy & Systems.

Graeff, T., & Harmon, S. (2002). Collecting and Using Personal Data: Consumers' Awareness and Concerns. *Journal of Consumer Marketing, 19*(4), 302-318. doi:DOI:10.1108/07363760210433627

Grundlach, G. T., & Murphy, P. E. (1993). Ethical and Legal Foundations of Relational Marketing Exchanges. *Journal of Marketing, 57*(4), 35-46. doi:https://doi.org/10.1177/002224299305700403

Hann, I., Hui, K., Lee, S., & Png, I. (2007). Overcoming Online Information Privacy Concerns: An Information-Processing Theory Approach. *Journal of Management Information Systems*, 13-42.

ISO 20022 RTPG Core Review Group. (2017). *ISO 20022 Real Time Payments Global Market Practice: Message Usage Guidelines.*

Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. (2003). A Critical Review of Construct Indicators and Measurement Model Specification in Marketing and Consumer Research. *Journal of Consumer Research, 30*(2), 199-218. doi:DOI:10.1086/376806

Jones, K. (1996). Trust as an Affective Attitude. *Ethics, 107*(1), 4-25. doi:https://www.jstor.org/stable/2382241

Kaiser, H. (1974). An index of factorial simplicity. *Psychometrika*, pp. 31–36. doi:https://doi.org/10.1007/BF02291575

Kang, H. (2013). A guide on the use of factor analysis in the assessment of construct validity. *J Korean Acad Nurs.*, pp. 587-94. doi:doi: 10.4040/jkan.2013.43.5.587.

Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior, 26*(3), 310–322. doi:DOI:10.1016/j.chb.2009.10.013

Kokolakis, S. (2017). Privacy attitudes and privacy behaviour: A review of current research on the privacy paradox phenomenon. *Computers & Security, 64*, 122-134. doi:https://doi.org/10.1016/j.cose.2015.07.002

Kumar, S. (2018). *Introduction to ISO 8583*. Retrieved from Code project: codeproject.com/Articles/100084/Introduction-to-ISO

leino-Kilpi, H., Välimäki, M., Dassen, T., Gasull, M., Lemonidou, C., Scott, A., & Arndt, M. (2001). Privacy:a review of the literature. *International Journal of Nursing Studies, 38*(6), 663-671. doi:doi.org/10.1016/s0020-7489(00)00111-5

Li, H., Yu, L., & He, W. (2019). The Impact of GDPR on Global Technology Development. *Journal of Global Information Technology Management, 22*(1), 1-6. doi:DOI: 10.1080/1097198X.2019.1569186

Malhotra, N. K., Kim, S. K., & Agarwal, J. (2004). Internet Users' Information Privacy Concerns (IUIPC): The Construct, the Scale, and a Causal Model. *Information Systems Research, 15*(4), 336-355. doi:https://doi.org/10.1287/isre.1040.0032

Mayer, R., Davis, J., & Schoorman, F. (1995). An Integrative Model of Organizational Trust. *Academy of Management Review, 20*, 706-734. doi:https://doi.org/10.5465/amr.1995.9508080335

McKnight, D., Choudhoury, H., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a web site: A trust building model. *Journal of Strategic Information Systems, 11*, 297–323. doi:DOI:10.1016/S0963-8687(02)00020-3

Milberg, S., Smith, H., & Burke, S. (2000). Information Privacy: Corporate Management and National Regulation. *Organization Science, 11*(1), 35-57. doi:DOI:10.1287/orsc.11.1.35.12567

Milne, G., & Culnan, M. (2004). Strategies for reducing online privacy risks: Why consumers read (or don't read) online privacy notices. *Journal of Interactive Marketing*, 15-29.

Milne, G., & Rohm, A. (2000). Consumer Privacy and Name Removal Across Direct Marketing Channels: Exploring Opt-In and Opt-Out Alternatives. *Journal of Public Policy & Marketing, 19*(2), 238-249. doi:DOI:10.1509/jppm.19.2.238.17136

Moreland, K. A. (2018). Seeking Financial Advice and Other Desirable Financial Behaviors. *Journal of Financial Counseling and Planning, 29*(2), 198-207. doi:DOI:10.1891/1052-3073.29.2.198

Mueller, R., & Hancock, G. (n.d.). Factor Analysis and Latent Structur, Confirmatory. *International Encyclopedia of the Social & Behavioral Sciences*, pp. 5239-5244. doi:doi.org/10.1016/B0-08-043076-7/00426-5

NFPS. (2015). Attitudes of the Dutch regarding the Use of Payments Data by Banks and Other Parties. *Research conducted by Motivaction.*

Nowak, G., & Phelps, J. (1992). Understanding Privacy Concerns: an assesment of consumer's information related knowledge and beliefs. *Journal of Direct Marketing, 6*(4), 28-39. doi:https://doi.org/10.1002/dir.4000060407

Ravi, V., & Kamaruddin, S. (2017). Big Data Analytics Enabled Smart Financial Services: Opportunities and Challenges. *International Conference on Big Data Analytics* (pp. 15-39). Springer International Publishing AG.

Sayre, S., & Horne, D. (2000). Trading Secrets For Savings: How Concerned Are Consumers About Club Cards As a Privacy Threat? *Advances in Consumer Research*, 151-155.

Sen, R., & Borle, S. (2015). Estimating the Contextual Risk of Data Breach: An Empirical. *Journal of Management Information Systems, 32*(2), 314-341. doi:https://doi.org/10.1080/07421222.2015.1063315

Smith, H., Milberg, S., & Burke, S. (1996). Information Privacy: Measuring Individuals' Concerns about Organizational Practices. *MIS Quarterly, 20*(2), 167-196. doi:https://doi.org/10.2307/249477

Smith, J., Dinev, T., & Xu, H. (2011). Information Privacy Research: An Interdisciplinary Review. *MIS Quarterly, 35*(4), 989-1015. doi:DOI:10.2307/41409970

Söllner, M., Hoffmann, A., Hirdes, E. M., Rudakova, L., Leimeister, S., & Leimeister, J. M. (2010). Towards a Formative Measurement Model for Trust. *Bled eConference* (pp. 65-79). Bled: eTrust: Implications for the Individual, Enterprises and Society .

Solove, D. J. (2006). A Taxonomy of Privacy. *University of Pennsylvania Law Review, 154*(3), 477-564. doi:https://doi.org/10.2307/40041279

Spiekermann, S., GroBKlags, J., & Berendt, B. (2001). E-privacy in 2nd Generation ECommerce: Privacy Preferences versus actual Behavior. *Proceedings of the 3rd ACM Conference on Electronic Commerce,*, (pp. 14-17). Florida.

Stewart, K. A., & Segars, A. H. (2002). An Empirical Examination of the Concern for Information Privacy Instrument. *Information Systems Research, 13*(1), 36-49. doi:DOI:10.1287/isre.13.1.36.97

Taber, K. (2017). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, pp. 1273–1296. doi:https://doi.org/10.1007/s11165-016-9602-2

Tavakol, M., & Wetzel, A. (2020). Factor Analysis: a means for theory and instrument development in support of construct validity. *Int J Med Educ.*, pp. 245–247. doi:doi: 10.5116/ijme.5f96.0f4a

Van Slyke, C., Shim, J., Johnson, R., & Jiang, J. (2006). Concern for Information Privacy and Online Consumer Purchasing. *Journal of the Association for Information Systems, 7*(6), 415-444. doi:DOI:10.17705/1jais.00092

Vivek, J. (2022). *How Is Data Analytics Used In Finance And Banking Sector?* Retrieved from Zuci systems: https://www.zucisystems.com/blog/how-is-data-analytics-used-in-finance-and-banking-sector/

Voigt, P., & von dem Bussche, A. (2017). *The EU General Data Protection Regulation (GDPR).* Springer Cham.

Warren, S. D., & Brandeis, L. D. (1890). The Right to Privacy. *Harvard Law Review*, pp. 193-220.

Westermeier, C. (2020). Money is data – the platformization of financial transactions. *Information Communication & Society, 23*(14), 2047-2063. doi:https://doi.org/10.1080/1369118X.2020.1770833

Xu, H., Dinev, T., Smith, J., & Hart, P. (2011). Information Privacy Concerns: Linking Individual Perceptions with Institutional Privacy Assurances. *Journal of the Association for Information Systems, 12*(12). doi:DOI: 10.17705/1jais.00281

Xu, H., Hock, H., Tan, B., & Agarwal, R. (2012). The Role of Push-Pull Technology in Privacy Calculus: The Case of Location-Based Services. *Journal of Management Information Systems*, 123-154.

Appendix 1

Construct	Item code	Questions	Source
Control variable	Covariates	What is your age	Developed for this study
Control variable	Covariates	What is your gender	Developed for this study
Control variable	Covariates	What is your highest education?	Developed for this study
Control variable	Covariates	Do you have any expertise in payment data and how it is stored/used within Banks?	Developed for this study
Control variable	Covariates	How often do you use mobile/card payment methods online and in stores?	Developed for this study
Dependent variable	Attitude_Data_Usage	The bank collects and can use your payment data (purchase information) for various purposes. What is your attitude toward this?	(Trafimow D., 2004)
Transparency	Transp_Database	It is important for banks to - allow me to find out what	Awad, N. F., & Krishnan, M. S. (2006).

		information about me they keep in their databases.	
Transparency	Transp_Retention	It is important for banks to - tell me how long they will retain information they collect from me.	Awad, N. F., & Krishnan, M. S. (2006).
Transparency	Transp_Purpose	It is important for banks to - tell me the purpose for which they want to collect information from me	Awad, N. F., & Krishnan, M. S. (2006).
		Please state how much you agree or disagree with the following statements. I would be more willing to allow collection of my purchase infromation (i.e. information that can reveal a lot about my personality and preferences.	

		) if the banking app..*	
Level of control	Level_Cntrl_Choose	allowed me to choose ahead of time what the bank can learn about me, with the collection of my purchase information	Awad, N. F., & Krishnan, M. S. (2006).
Level of control	Level_Cntrl_Stores	allowed me to control from which stores or websites my purchase infromation will be collected	Awad, N. F., & Krishnan, M. S. (2006).
Level of control	Level_Cntrl_Opt_Out	allowed me to turn off the collection of my purchase information whenever I want	Awad, N. F., & Krishnan, M. S. (2006).
		'To what extent do you judge the use of payment information acceptable in this situation?	

Perceived benefit Personalization	PersBen_Dig_Receipt	The bank ensures that all information that you see on your purchase receipt is also available on your banking app (i.e. purchased products, receipt number, store name, store address). So you don't have to keep your purchase receipts.	Developed for this study
Perceived benefit Personalization	PersBen_Contactless	The bank has noticed from the payments data that you (and others) are increasingly making contactless payments and is ensuring that contactless payments are increasingly possible	(NFPS, 2015)
Perceived benefit Personalization	PersBen_Spec_Offer	The bank has noticed from your payments data that you	(NFPS, 2015)

		go out for dinner a lot. The bank sends you special offers from a specific restaurant. Your payments data remain at the bank.	
Perceived benefit Personalization	PersBen_Spec_Res_Offes	The bank has noticed from your payments data that you go out for dinner a lot. The banks informs a specific restaurant, allowing it to send you special offers. Your payments data remain at the bank.	(NFPS, 2015)
Perceived benefit Personalization	PersBen_Insurrance	You are at Schiphol Airport because you are going on a holiday trip. Before you leave, you withdraw some money at the airport. A few minutes later you receive a	(NFPS, 2015)

		text message from your bank asking if you wish to take out travel insurance.	
Perceived benefit Financial	FinBen_Loan	You want to take out a loan from your bank. Your payment information includes details reflecting that you spend more or equal to what you earn, such as salary. To protect you against financial disadvantages, your bank decides on the basis of your payment details whether you will grant the loan and, if so, what interest rate you must pay.	(NFPS, 2015)
Perceived benefit Financial	FinBen_Saving_Tips	The bank has noticed that you have little or no money left at	(NFPS, 2015)

		the end of each month and sends you savings tips	
Perceived benefit Financial	FinBen_Invest	The bank has noticed that your payment information shows you spend far less than you earn, such as salary. The bank advises you to consider investing and refer you to their investment department.	Developed for this study
Perceived benefit Financial	FinBen_Invest_1	The bank has noticed that your payment information shows you spend far less than you earn, such as salary. The bank advises you to consider investing and refer you to their investment department.	Developed for this study