

Factors Facilitating Consumers Intention to Adopt Mobile Payments: In A Nation with Digital Acuity

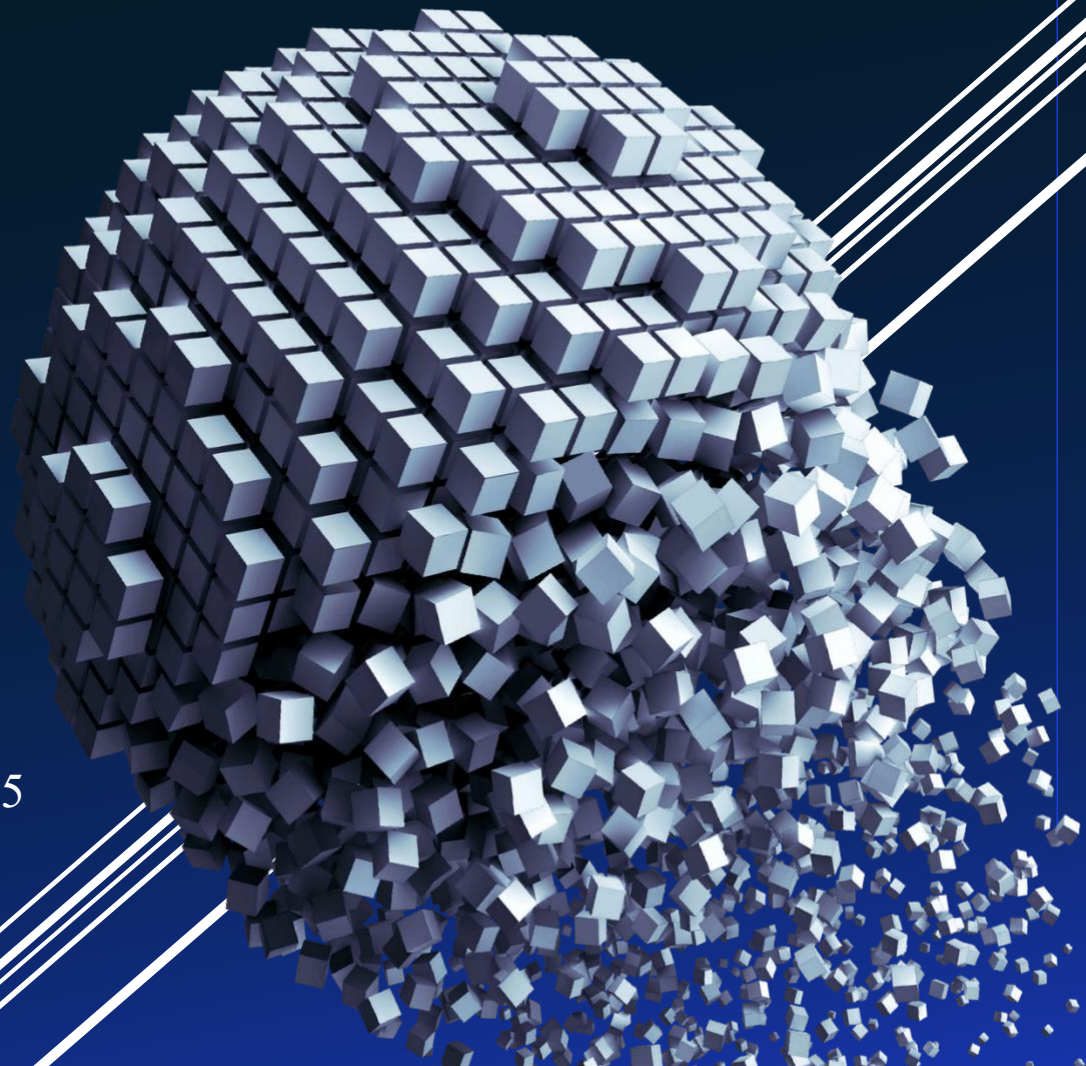
MSc in Business Administration and E-Business

Master's Thesis
By

Jonathan J. Lees (130387), Nemanja Golubovic (101602),
Faraz Jahoor (130410)

Supervisor: Weifang Wu

Pages: 142
Characters: 323,505
15th March 2021



Abstract

This thesis intends to identify the factors affecting mobile payment adoption intention by propositioning a conceptual framework based on the second model of the Unified Theory of Acceptance and Use of Technology (UTAUT). In addition to the UTUAT2 model three constructs were supplemented and the constructs were divided into ‘System-Centric factors’ and ‘User-Centric factors. This was done to more effectively evaluate what factors had the most impact in the user’s behavioural intention to adopt mobile payments in Denmark. The proposed research framework was then empirically tested via a concurrent mixed methods approach. Which involved collecting data from 91 survey respondents and using a structural equation modelling (SEM) technique for the analysis. Whilst simultaneously conducting four interviews with mobile payment experts, two industry professionals and two academic scholars. The subsequent analysis involved a series of thematic coding, which enabled a following comparison and contrast exercise. Both the quantitative and qualitative results exhibited (in order of the most impact), that the Performance Expectancy (PE), Perceived Security (PS), Effort Expectancy (EE), Facilitating Conditions (FC), Trust, and Personal Innovativeness (PI) constructs were all concluded to have a significant positive impact on behavioural intention to adopt mobile payment services. Alternatively, the two User-Centric factors Social Influence (SI) and Habit were concluded to not qualify as constructs that influence behavioural intention to adopt mobile payment services. The findings of this thesis also identified ‘Culture’ as a potential influencing factor on intention to adopt mobile payments services, presenting the opportunity for further research. In addition, the findings of this study contributed imperative theoretical findings that can be utilised to enrich the existing body of literature. Lastly, this thesis intended to offer practical managerial contributions through the identification of the most vital factors affecting behavioural intention to adopt mobile payment services. Which enables contemporary managers in mobile payment businesses to streamline and rationalise their future customer acquisition and retention strategies.

Acknowledgements

We would like to express our gratitude to our thesis supervisor Weifang Wu who has guided us throughout the thesis process. Thank you for your vital insights, knowledge, and contribution to our thought-provoking discussions which enabled us to overcome challenging stages of the thesis. It was an enjoyable experience to have Weifang as our academic supervisor.

We would also like to express our gratitude to George, Ellen, our parents and our siblings for providing us with continuous encouragement throughout the years of our master's degree and throughout the duration of writing this thesis, their support has been invaluable.

Table of Contents

1. Introduction	7
1.1 Motivation	8
1.2 Research overview and research objectives.....	9
1.3 Research Scope	10
1.4 Thesis Roadmap.....	11
2. Preliminary.....	12
2.1 Origin of Mobile payment services.....	12
2.2 Mobile payment definitions	13
2.3 Overview of mobile payments.....	15
2.4 Mobile payment services perspectives and trends.....	15
2.5 Mobile payment services technologies, capabilities and applications	17
2.5.1 Payment of Digital Goods	18
2.5.2 Carrier billing	18
2.5.3 Electronic/Mobile commerce	19
2.5.4 Proximity payment	19
2.5.5 Person-to-person Payment & Mobile money	21
2.5.6 Mobile Payment Market Players.....	21
2.6 Technology Acceptance Theories	24
2.6.1 Technology Acceptance Model.....	25
2.6.2 Diffusion of Innovation	26
2.6.3 Unified Theory of Acceptance and Use of Technology.....	28
2.6.4 Unified Theory of Acceptance and Use of Technology 2.....	30
3. Literature Review.....	33
3.1 Literature Review Strategy	34
3.1.1 Review Approach.....	34
3.1.2 Literature Search and Scope	34
3.1.3 Descriptive Analytics of the Literature.....	35
3.1.4 Table of search phrases and literature	38
3.2 Literature Review Concepts.....	41
3.3 Expanding Literature Concepts	56
3.4 Research Gaps.....	64
3.5 Concept Matrix	66
4. Theoretical Model.....	67
5. Methodology.....	73
5.1.1 Philosophy of Science.....	73
5.1.4 Data collection strategy.....	78
5.1.5 Primary Data.....	79
5.1.6 Sampling Strategy.....	80
5.1.7 Quantitative data collection design: Questionnaire	81
5.1.8 Exploratory study.....	83
5.1.9 Research strategy	84

5.1.10	Validity and Reliability	85
5.1.13	Non-standardized semi-structured open-ended interviews	87
5.1.14	Interview Guide	89
6.	Analysis.....	91
6.1	<i>Quantitative Findings</i>	91
6.2	<i>Qualitative Insights</i>	118
7.	Discussion.....	137
7.1	<i>Limitations</i>	151
7.2	<i>Further Research</i>	153
7.3	<i>Theoretical Contributions</i>	155
7.4	<i>Managerial Implications</i>	157
7.5	<i>Reflection on the Master's Thesis and its relation to the E-Business graduate programme</i>	159
8.	Conclusion	160
9.	Bibliography.....	163
10.	Appendix	169

List of Figures

<i>Figure 1 - Thesis Roadmap</i>	11
<i>Figure 2 - Segments of Mobile Payments (Lerner 2013)</i>	17
<i>Figure 3 - Technology Acceptance Model (Davis 1989)</i>	26
<i>Figure 4- Diffusion of Innovation (Rogers 1962)</i>	27
<i>Figure 5- Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003)</i>	29
<i>Figure 6— Unified Theory of Acceptance and Technology Use 2 (Venkatesh et al., 2012)</i>	30
<i>Figure 7 - Percentage of Research theories in Literature</i>	36
<i>Figure 8 - Percentage of Data Collection Method in Literature</i>	37
<i>Figure 9 - User-Centric Factors</i>	69
<i>Figure 10- System-Centric Factors</i>	70
<i>Figure 11- Theoretical Model</i>	72
<i>Figure 12- Education</i>	93
<i>Figure 13 - Payment Behaviour</i>	94
<i>Figure 14 - Gender By Experience</i>	95
<i>Figure 15 - Use Frequency</i>	96
<i>Figure 16 - Structural Equation Modelling</i>	98

<i>Figure 17 - Performance Expectancy item #3 by Gender</i>	<i>100</i>
<i>Figure 18 - Descriptive Staistics of Facilitating Conditions.....</i>	<i>106</i>
<i>Figure 19 - Perceived Security item #6 by age (percentage)</i>	<i>108</i>
<i>Figure 20 - Descriptive Statistics of Trust.....</i>	<i>110</i>
<i>Figure 21 - Habit item #1 by experience (count)</i>	<i>114</i>
<i>Figure 22 - Revised Theoretical model.....</i>	<i>117</i>

<i>Table 1- Search Phrase: Mobile Payment Adoption.....</i>	<i>40</i>
<i>Table 2- Search Phrase: Mobile Payment Usage.....</i>	<i>41</i>
<i>Table 3 - Pragmatism (Saunders et al. 2019)</i>	<i>74</i>
<i>Table 4 - Interview Profiles</i>	<i>90</i>
<i>Table 5- Demographics</i>	<i>92</i>
<i>Table 6 - Descriptive Statistics of Performance Expectancy</i>	<i>99</i>
<i>Table 7 - Descriptive Statistics of Effort Expectancy.....</i>	<i>101</i>
<i>Table 8 - Descriptive Statistics of Effort Expectancy (Percentage).....</i>	<i>102</i>
<i>Table 9 - Descriptive Statistics of Social Influence.....</i>	<i>103</i>
<i>Table 10 - Descriptive Statistics of Facilitating Conditions</i>	<i>105</i>
<i>Table 11 - Descriptive Statistics of Perceived Security</i>	<i>107</i>
<i>Table 12 - Descriptive Statistics of Trust.....</i>	<i>111</i>
<i>Table 13 - Descriptive Statistics of Habit</i>	<i>112</i>
<i>Table 14 - Descriptive Statistics of Personal Innovativeness</i>	<i>115</i>
<i>Table 15 - Hypotheses Supported/Rejected</i>	<i>116</i>

Abbreviations:

TAM – Technology Acceptance Model

UTAUT – Unified theory of acceptance and use of technology

DOI – Diffusion of Innovation

TRA – Theory of Reasoned Action

TPB – Theory of Planned Behaviour

CAGR – Compound Annual Growth Rate

P2P – Peer-to-peer / Person-to-Person

C2B – Consumer-to-Business

M-Payment – Mobile Payment

FinTech – Financial Technology

RFID – Radio Frequency Identification Technology

NFC – Near-field communication

PDA – Personal digital assistant

POS – Points of Sale

ATM – Automated teller Machine

WAP – Wireless Application protocol

SMS – Short Messaging Service

M-commerce – Mobile Commerce

E-commerce – Electronic Commerce

E-wallet – Electronic Wallet

QR – Quick Response

SEM – Structural Equation Modelling

GDPR – General Data Protection Regulation

EMV – Europay, Mastercard & VISA

IS – Information systems

IOS – iPhone Operating system

1. Introduction

In recent years there has been increasing global developments in Financial Technology, as the payment industry is undergoing a revolution. This has provided a plethora of opportunities for businesses to provide solutions to problems and create unprecedented value. Throughout history, companies have been on the pursuit of enhancing consumers daily financial activities and capitalising in the process. Transitioning from cash to credit cards and now to one specific area of interest that is experiencing exponential growth in its global adoption and use, is mobile payment. The mobile payment technology market is expected to grow at a Compound Annual Growth Rate (CAGR) of 55% and is estimated to reach a value of around \$5,500 billion by 2026 (Globe Newswire, 2020). These statistics make a convincing argument for why mobile payments are regarded as one of the principal categories in financial technology services. Due to the perceived benefits of mobile payments, firms were quick to adapt and dominate markets. As a result, the market is extremely saturated, especially in Denmark. Despite this market saturation and growth in the area of mobile payment services, a major problem is a lack of definitive research in Scandinavia on the factors that influence consumers' intention to adopt and use mobile payment services the most. The central research question to this thesis is:

What factors influence consumers' behavioural intention to adopt and use mobile payment services?

Thus, this thesis will aim to contribute to the existing mobile payment services adoption and usage research. It achieves this by presenting a thorough description and analysis of the traditional adoption and usage factors that are postulated to enrich and impede mobile payment adoption. Whilst concurrently presenting new factors that have been extended through Venkatesh et al. (2012) Unified Theory of Acceptance and Use of Technology second model. Using the UTAUT2 model as a foundation to our thesis, we have been afforded the opportunity to augment the contemporary technology adoption theories through the lens of mobile payment services in a Danish context. Through this auxiliary examination of the level of influence each factor has on the consumers behavioural intention to adopt and use mobile payment services, we have developed and built upon the existing body of knowledge in the academic community and provided measurable action items that managers can use in a practical sense. Thus, facilitating enhanced strategic organizational decision making in the realm of mobile payment adoption and usage in the future.

Further aims of this thesis are to contribute to literature on mobile payment adoption in a Scandinavian context. According to a 2019 report conducted by Deloitte, the Nordic market comprising of Denmark, Norway, Sweden, and Finland, is one of the most technologically capable areas in the world, with most of its citizens having extremely high levels of digital acuity (Deloitte Report, 2019). Yet the existing literature on mobile payment adoption in a Scandinavian context is extremely limited in comparison to the actual mobile payment adoption rates, making using data in a Danish context an exciting prospect that could lead to new discoveries and future research.

1.1 Motivation

“For the global payments sector, the events of 2020 have reset expectations and significantly accelerated several existing trends. The public health crisis and its many repercussions—among them, government measures to protect citizens and rapid changes in consumer behaviour have changed the operating environment for businesses, large and small, worldwide”.

(McKinsey Global Payments Report, 2020).

The following section will address the researcher’s motivations for the investigation into the factors affecting the adoption and usage of mobile payment services. Deloitte described the Nordics as:

“The Nordics have become digital leaders within mobile payments and are leaders in the race towards cashless societies.” (Deloitte Report, 2019). Which leads to the collective primary motivation of all three researchers which was to address the research gap on the topic within digitally matured countries. We identified that despite Scandinavia’s high level of digital acuity and elevated mobile payment adoption rates, the domestic literature was not present to a sufficient standard. There is a large amount of literature based in developing countries such as China, India, and countries within Africa. The literature that is in developed countries, is predominantly from the US, which is characterised by high technological capabilities but low mobile payment services adoption rates, differing from the Nordic context.

The earlier literature from the beginning of mobile payment services inception primarily investigates the barriers to mobile payment adoption, which was the foundation to most of the following research papers. The motivation of this thesis was to pivot the perspective and add contrast to the earlier body of

knowledge by investigating the factors that increase the mobile payment adoption, not prohibit. In addition, we found motivation through the notion of contributing to the existing body of knowledge which can be used in a corporate context by providing evidence of which factors can be attributed to organizational success. Enabling the constructive future use of these factors for actionable measures that firms in future markets can augment in their repertoire when incorporating future mobile payments strategies. To conclude, through the notion of identifying a problem and working collectively to contribute to the future solutions, we feel this gives us an element of constructive value.

1.2 Research overview and research objectives

This study aims to identify the factors which influence individuals' mobile payment adoption. The research focus is from the individual users' point of view, in order to obtain a more comprehensive understanding of the individuals' motivations behind the adoption and usage of mobile payment services.

Additionally, the research question will be examined by the presented research objectives.

1. *Explain and conceptualize which factors, consumers consider when adopting mobile payment services from a theoretical standpoint*
2. *Statistically illustrate which factors consumers consider for adoption of mobile payment services, as well as highlighting the similarities and differences among literature, theory, consumers and experts.*
3. *Contribute to the field of mobile payment research, which is limited in a Scandinavian context, as well as contributing to the theoretical framework of adopting information services.*
4. *Offer managerial insights for services within FinTech, Mobile Payment and digital technologies.*

1.3 Research Scope

The scope of this research centres on the factors for adoption and use extracted from academic journals and a theoretical framework. The research will measure and examine the behavioural intention to adopt and use mobile payment services, but not measure the continuous use aspect statistically. However, respondents will be asked about their payment behaviour on how often they use mobile payments.

The thesis will predominantly cover peer-to-peer (peer-to-peer) and consumer-to-business(consumer-to-business) mobile payment (mobile payment) services and does not investigate closely related fields such as mobile banking, mobile commerce and payment applications that can be used in other contexts than mobile payment. As the thesis focuses on mobile payment adoption from a consumer-centric perspective, mobile payment merchant account providers and in-store apps are not included in this thesis.

The geographical scope of the study is directed towards a Danish setting, therefore, only respondents residing in Denmark were asked to participate in the survey, as well only Danish-based scholars and Danish based professionals were interviewed. Thus, the thesis will cover mobile payment providers operating in the Danish market.

1.4 Thesis Roadmap



Figure 1 - Thesis Roadmap

Brief Explanation of each chapter

The rest of the thesis is structured as followed:

Chapter 2 provides precursory information that provides contextual and necessary background information for the thesis. For example, a technical breakdown of the mobile payment services, underlying technologies origins, definitions, perspectives and trends. infrastructure, transaction types, supporting technologies.

Chapter 3 presents a number of theoretical frameworks in the realm of information technology adoption which were considered for the authors' own conceptual model.

Chapter 4 presents a comprehensive literature review on the research of the adoption of mobile payments services and their application to the market. The literature highlights and contains relevant concepts to this paper and will extend the theoretical framework at the end of the literature review.

Chapter 5 considers the methodology of the study, dwelling into research design, approach and strategy as well as examining the reliability and validity of this study.

Chapter 6 involves a detailed analysis of the primary data collected. The chapter will be divided into quantitative and qualitative results, and separately investigate which factors consumers and interviewees found to drive mobile payment adoption and use.

Chapter 7 discusses the findings of the analysis in order to pinpoint which factors consumers consider for adoption.

Chapter 8 considers the limitations of the study and what future research should focus on.

Chapter 9 offers concluding remarks as well as theoretical contributions and managerial implications of this study.

2. Preliminary

2.1 Origin of Mobile payment services

Mobile Payment Services first emerged in the late 1990's when new market players began symbiotically combining the internet with personal finance (Rampton, 2016). To grasp how vast the industry is going to be, the history and evolution of mobile payment services must be highlighted. Since millennia, humans have relied on payment systems from bartering, trading, coins, and now electronic payments. The underlying theme of these payment systems is the pursuit for payments that are convenient and transactional (ibid). Convenience being a heavy contribution to the birth of mobile payment services. Although the concept of eradicating a cash-based society has long been present, the technology to execute the concept has only been readily available and feasible in the 21st century. mobile payment services have originated from the first electronic payments such as the first online payment in 1994 and have utilised the technological advancements of different applications within FinTech (ibid). Specifically, Near-Field Communication (NFC), which is a wireless communication technology that permits a data transfer using Radio Frequency Identification Technology (RFID) (Mauree, 2013).

The origins of the name 'mobile payment services' was designed to be self-explanatory to make it easily differentiable from payment variations such as card or cash payments (Hollow, 2019). Despite this, there seems to be some confusion amongst consumers as to what constitutes a mobile payment system. For instance, Slade et al. (2013) argue that the high complexity of the mobile payment environment, with various offerings from different uncoordinated providers has left users confused. One explanation for the confusion could arguably originate from the fact that in recent years, many companies have entered the mobile payment market to attract consumers by providing innovative payment solutions. Online stores, merchants, brick-and-mortars, grocery shops are just a few examples of companies that eagerly have sought to get the mobile payment tag associated with their brand to attract customers.

2.2 Mobile payment definitions

According to Raina (2014), mobile payment services encompass all the different technologies that are provided to users, as well as all the functions that the payment service provider(s) conduct to commit payment transactions. In contemporary literature, there also seems to be a wide consensus amongst scholars on the definition of mobile payments, namely that they are defined as “a *subset of electronic commerce where at least one of the transaction participants uses mobile communication techniques.*” (Kreyer, Pousttchi, & Turowski, 2002, p.10).

However, it is possible to create a more detailed definition of mobile payment services. Scholars working within the mobile payment field agree that the main function of mobile payments is the transactional process of monetary value, may it be payments for goods, services, or bills (Chandra, Srivastava, & Theng, 2010; Kreyer, Pousttchi, & Turowski, 2002; T. Dahlberg et al., 2007). A vast majority of the definitions accredit mobile devices as the key feature of the process and refer to them as either mobile phone, smartphone, or personal digital assistant (PDA) (Kreyer et al., 2002). A mobile payment is conducted through a mobile payment instrument i.e., a mobile credit card or from a mobile wallet (T. Dahlberg et al., 2007). More specifically, Chandra et al. (2010) argues that any payment transaction which uses a mobile communication device (i.e., mobile phone) to launch, process, and confirm the transaction can be categorised as a mobile payment system. Within the domain of mobile payment systems, scholars argue that an important distinction can be made between, (1) systems that enable payments in proximity of a payment terminal or similar, and (2) systems that enable payments and transactions independent of the location of both sender and receiver (Chandra et al., 2010). For instance, in defining the full range of mobile payment systems and applications, Chandra et al. (2010) argues that mobile payments can be broadly classified into two principal categories: remote mobile payment systems and proximity mobile payment systems.

The former category entails mobile payment solutions that facilitate transactions which can be conducted anywhere and independent of the location of the user. A key characteristic of remote mobile payments is that they remove spatial time constraints, thereby providing users with more flexibility and freedom compared to traditional payment solutions such as credit cards (ibid). Moreover, remote mobile payment

systems can be further categorised depending on the type of transaction being made. Remote mobile payments are predominantly used for three kinds of transactions. The first kind of transaction is payments to a mobile service provider for purchases of mobile services and contents like ringtones, news, etc. The second kind entails payments for items purchased online using either a web browser as a medium for the transaction, or a payment application such as MobilePay or PayPal. Lastly, the third kind of transaction enabled by remote mobile payment systems involves transmission of monetary funds from one individual to another individual, also termed as peer-to-peer payments (peer-to-peer). peer-to-peer mobile payment transactions are facilitated through mobile applications issued by banks, which enables users to transfer funds from their own bank account to other users' bank accounts (Chandra et al., 2010).

The latter category contains mobile payment applications that facilitate local or "nearby" transactions, whereby a mobile phone communicates with a Point-of-Sale (POS) terminal or an automated teller machine (ATM) using low power wireless connectivity protocols such as Bluetooth or other near field communication technologies (NFC) (ibid). Near-field communication technology is currently the leading proximity technology that enables the user to pay using certain mobile devices within a five-centimetre radius which can recognise the technology when placed near the reader at the point-of-sale (Chandra et al., 2010). One example of proximity-based mobile payment is micro-payment applications where the mobile device communicates with a vending machine or ticketing kiosk to conduct the purchase. In this example, monetary value is either stored in the mobile device as digital cash or is charged to the credit card through a mobile service provider (ibid). Another example of a proximity mobile payment solution is Apple's own self-developed payment application named 'Apple Pay'. The application allows iPhone users to digitally store their credit card on the mobile phone as a "mobile wallet", from which users can conduct payments through the revolutionary NFC-technology when in proximity of a point-of-sale terminal. Chandra et al. (2010) further states that other examples of mobile payments in this category include: withdrawals of money from ATMs, mobile parking payments, and payments at POS in physical stores. A further explanation of the various types of mobile payment applications will be presented in the next subchapter.

2.3 Overview of mobile payments

A mobile payment transaction can be conducted in several ways, all depending on the type of technology and service used for the procedure (Kreyer et al., 2002). The most dominant types of mobile payments include wireless application protocol billing (WAP), Near-Field Communication (NFC), cellular networks, direct subscriber billing, direct credit cards, and preferential rate SMS (Lin et al., 2019). These types of mobile payment solutions have achieved their dominant market position because they enable users to conduct mobile payments in ways that are quick, flexible and convenient. However, whilst mobile payment transactions between consumers and businesses (consumer-to-business) usually rely on the above-mentioned types, peer-to-peer (peer-to-peer) transactions are generally performed through a separate mobile application, varying internationally. Due to rapid advancements in the technology behind mobile payment systems, coupled with strategic alliances between banks and mobile phone operators, mobile payment systems can now in an efficient way handle financial transactions through mobile networks, as well as through various other wireless technologies such as NFC, QR-codes, Bluetooth, and Wi-Fi (Lin et al., 2019).

2.4 Mobile payment services perspectives and trends

Following from a report conducted by the European Commission, it was disclosed that mobile payment services in the past ten years have experienced strong growth as technologies have evolved and financial users have adapted to trends that are more efficient safe FinTech (European Commission , 2020). The report forecasts the global usage of mobile payments to grow from 348 billion US dollars to 1.3 trillion dollars by 2022. The most prominent impactful global players are Apple Pay, Samsung Pay, and most commonly in China is WeChat Pay (Daxue Consulting, 2021). This could be argued for many reasons, however, the report suggests the most predominant reason is convenience, as they integrated e-wallets into their phones to increase the adoptability (Businesswire.com, 2019).

A recent report conducted by Statista showcased the size and perspective of the global mobile payment market with the number of mobile payment users in 2019 close to a billion users and a predicted growth of 1.31 billion users in 2023 (Statista, 2020).

Specifically, in the context of the Danish mobile payment market, industry forecasts have predicted intensive competition, as new market entrances are beginning to mark their spot. Due to the range of the Danish mobile payment market and the digitally inclined population, MobilePay stands to compete with various actors across different platforms. MobilePay's strong position among peer-to-peer services has the potential to be challenged by the likes of Apple Pay and Google Pay in the near future. Furthermore, other tech companies are similarly beginning to enrol peer-to-peer payment features in target markets. Facebook Pay is integrated into messenger and marketplace in other countries and could pose a great threat towards MobilePay's monopoly-like situation within the peer-to-peer market (Deloitte Report, 2019).

The Danish mobile payment market is not only challenged by international players, as an increasing number of Danish retailers are starting to offer merchant specific apps, which would heavily influence the payment situation for in-store purchases. Most recently, Netto and COOP, two of the biggest retailers have introduced a scan-and-go function for their mobile apps (COOP, 2021). Due to the heightened level of competition, incumbent providers, as well as new entrants must further innovate their solutions in order to remain competitive. Developing new value propositions or even cooperating in order to acquire or retain the existing user base.

The activities and happenings of mobile payments have attracted practitioners since its inception and are highly coveted in the world of academia. Academics have studied factors for failures and success (Pousttchi et al., 2009), and they have investigated consumer acceptance (Schierz, Oliver , & Bernd, 2010). La Polla et al. (2013) as well as examining the different procedures and technologies of mobile payments, whilst scholars such as Pousttchi et al. (2009) conceptualized and explained business models behind mobile payments. Lastly, Kaufmann (2008) investigated the users and how their issues developed from various perspectives.

2.5 Mobile payment services technologies, capabilities and applications

In defining the full range of mobile payment use-cases, applications and capabilities, Lerner (2013) positions four core segments in the continued development of payment solutions. These core segments are based on their size, significance and development in the mobile payment market. Lerner's segments provide a clear distinction between the different types of mobile payments.

These four core segments are: 'Payment digital goods', 'Electronic/mobile Commerce', 'Proximity payments' and 'person-to-person'. Furthermore, the subcategories of 'Carrier Billing', 'Mobile Wallet', 'Mobile NFC', 'Mobile Barcode' and 'Mobile Money' will all be covered due their direct significance towards mobile payment solutions in today's digital era.

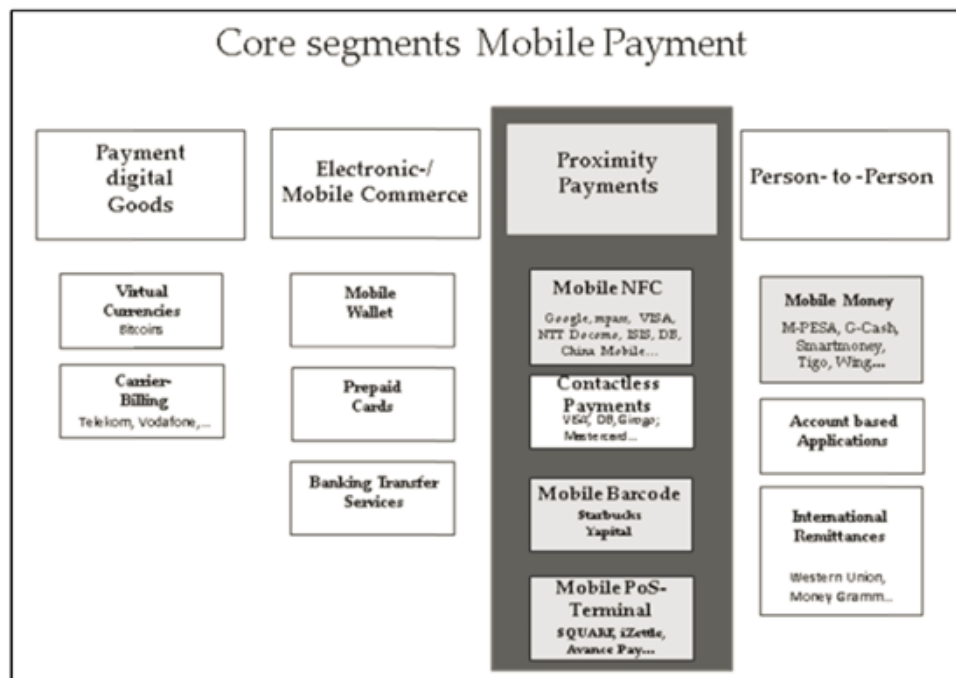


Figure 2 - Segments of Mobile Payments (Lerner 2013)

2.5.1 Payment of Digital Goods

Digital good

The first mobile payment segment revolves around payments for digital goods. Purchasing digital goods through the medium of a mobile phone typically does not require the user to submit credit card information as the billing occurs through the user's monthly phone subscription. Also, mobile payments in this segment does not require credit card information because of the low transactional values of most digital goods. As an example, Lerner (2013) argues that this segment typically entails mobile payment purchases through carrier-billing, which will be further explained beneath.

2.5.2 Carrier billing

Carrier billing is a remote mobile payment method which allows users to pay for online goods, products, and services with their mobile devices (i.e., mobile phones) through SMS payment (Raina, 2014). In this "pay by mobile" option, the cost is directed towards the telecommunications carrier and the users are then charged through their monthly telephone bill. Carrier billing is considered the first example of mobile payments (Kreyer et al., 2002). When first introduced in 1997, mobile payment was a unique payment method that initially was used by consumers to purchase soft drinks from Coca Cola vending machines as part of a marketing campaign to boost the company's brand awareness and sales (IBM, 2018). Shortly after, the telephone manufacturer Nokia introduced mobile payments that allowed consumers to purchase ringtones through SMS. The introduction of carrier billing as a mobile payment method was an important step in the development of present-time mobile payment applications, because of its widespread popularity that has since given rise to new and more advanced mobile payment methods. Carrier billing relies on a particular technology named WAP, and WAP uses the telecom operator's billing infrastructure. In Denmark, the use of SMS payments is still somewhat employed, such as through transportation tickets and voting on TV shows. These SMS payment services are provided by telecom operators which take approximately a 50% cut (Hedman, 2015).

2.5.3 Electronic/Mobile commerce

Mobile commerce, also sometimes referred to as m-commerce, is the use of wireless mobile devices such as mobile phones to execute commercial transactions (T. Dahlberg et al., 2007). M-commerce is regarded as a subset of e-commerce that enables consumers to purchase, sell, trade, and market goods or services by using a mobile device. Similar to using a credit card for any electronic commercial purchase through a computer, mobile commerce constitutes any purchases conducted on mobile phones through an application or browser.

Mobile Wallet

Lerner (2013) categorise mobile wallets under the mobile commerce segment. Essentially, mobile wallets function by using an application which digitally “stores” the financial information provided, such as credit card/debit card or PayPal information (Leong et al., 2020). Even though Lerner separates mobile wallets, barcodes and NFC-payments in different segments, however, mobile wallet applications such as MobilePay and Apple Pay, which rely on QR codes and NFC-technology, can both be categorized as mobile wallets (Choi et al., 2020). Since Lerner’s 2013 definition, mobile payments, especially the practice of mobile commerce and the mobile wallet, have evolved significantly.

2.5.4 Proximity payment

Proximity mobile payments are payments in which the payer and the payee are in close proximity to each other. A proximity mobile payment takes place through a proximity technology, such as NFC, Quick Response (QR) codes, or Bluetooth technology. The technology then acts as the communicative linkage between the two devices, allowing for the transaction. To conduct a proximity mobile payment, the phone must be NFC-enabled, and must also have the latest version of the payment application issued by a financial institution. The user’s payment account information is encrypted and stored into a secure location in the phone. Moreover, proximity payments leverage the financial industry’s payment infrastructure, which is why the payment and settlement processes are the same as traditional credit card payments. In a real-life payment scenario, the phone utilises the built-in NFC-technology to communicate with the merchant’s contactless POS system. As previously mentioned, proximity payments involve all mobile payment transactions in physical retailers at their point of sale (POS) terminals.

Near-Field Communication

Near-field communication (NFC) is a form of wireless data transmission protocol that enables short-range communication between devices. The use of NFC payment is associated with contactless payment and is typically used in point-of-sales scenarios and falls into the ‘proximity mobile payment’ category as explained earlier. Juo (2013) characterizes NFC mobile payment services as the integration of mobile communication systems and NFC technology. Including the extension of existing mobile commerce technology to conventional bricks-and-mortar stores, multiple vendors provisioning collaborative technology-mediated services, and finally, the importance of a value-creating potential provisioned by innovation services (Mao, 2019). NFC mobile payment is also commonly associated with mobile wallets. Smartphone manufacturers such as Apple, Samsung and Huawei utilise NFC-technology as the connectivity linkage between consumers’ mobile phones and point-of-sale terminals in physical stores.

Mobile Barcode / QR Codes

Quick-Response code (QR) payment is a payment method where the payment is executed by scanning a QR code from the camera on a mobile phone. QR code payment is predominantly used in a consumer-to-business purchase context, for example in convenience stores. QR-code templates are placed near products at stores or point-of-sale terminals, whereby consumers can initiate payments through their phones. QR code payment has enjoyed widespread popularity, especially in China, where QR codes are the means of mobile payment. Interestingly, in comparison to China, the most common method for mobile payments in Western societies is NFC-technology (Guo et al., 2018). QR code payments' high level of user penetration is a result of the swiftness, easiness and security that it provides consumers. In China, AliPay and WeChat Pay are by far the most popular providers of QR payments (Daxue Consulting, 2021). This could arguably be due to the fact that, in China, leading e-commerce companies such as Alibaba, Baidu and Tencent are the providers of QR payments, and it is them who initiate mobile payments rather than phone and telecom companies as it is seen in the West (ibid). Furthermore, peer-to-peer services in Scandinavia, such as MobilePay, have developed QR-code payments to diversify its operations and enter the consumer-to-business market, where Apple Pay currently is the dominating player.

2.5.5 Person-to-person Payment & Mobile money

According to Lerner (2013), peer-to-peer payment is the only segment that does not centre on consumer-to-business payments. peer-to-peer payments have no mercantile aspect, as the transaction is entirely between individuals. Peer-to-peer payment is considered an upgrade from the more traditional solution, mobile banking (ibid). In Denmark, peer-to-peer-mobile payment applications are by far the most popular form of mobile payment, with 85% of the Danes using MobilePay as the preferred choice of mobile payment service (Statista, 2020). The extensive popularity of the peer-to-peer segment can arguably be accredited to the fact that consumers find peer-to-peer mobile payments convenient, fast, and easy-to-use (ibid). In addition, most peer-to-peer applications are compatible with many banks and credit unions, providing users with the freedom of transferring funds to competing banks without any fees involved. In sum, peer-to-peer payment facilitates the transferring of money from account to account through mobile applications, which Lerner classifies as account-based applications.

Mobile money revolves around peer-to-peer transactions that are categorized under the bank transfer system. Peer-to-peer transactions share similarities with the bank transfer system of mobile financial services, solely focusing on transfers between individuals. This type of mobile payment aligns with the initial notion of Scandinavian Mobile payment Services e.g., MobilePay, Swish and Vipps. A credit card is affiliated with a phone number and used as a login to operate (Deloitte Report, 2019). The transfer system is set up by the banks in the Nordic market, who have developed the peer-to-peer apps. peer-to-peer mobile payments also have a basis outside of Scandinavia, with PayPal's subsidiary Venmo being directly targeted toward smartphone users. However, what distinguishes Venmo from its Scandinavian peers, is that it is not tied to a bank account, but rather a PayPal account.

2.5.6 Mobile Payment Market Players

In the sphere of mobile payment services there are different aspects to examine. As previously stated, mobile payment services often fall into different categories, all depending on the type of technology and transaction. The following section will look into the biggest incumbents in Scandinavia; Swish, Vipps and MobilePay, whilst also examining the upcoming competition from tech-giants like Apple and Android-based making their move into the Scandinavian mobile payment market.

MobilePay

MobilePay has the highest concentration of users in Scandinavia with 85% of the Danish population using the service (Yougov, 2019). The company separates itself from its Nordic peers as being initially developed by Danske Bank, and subsequently becoming a separate organization and not vertically integrated into another. This organizational structure also translates to their international position. MobilePay is the only peer-to-peer company that has managed to establish into another market, such as the Finnish. MobilePay is similarly the most popular peer-to-peer service in Finland, yet only 20% of the Finnish population are using it (ibid). MobilePay have similarly added consumer-to-business services through QR-codes at points-of-sale terminals. Furthermore, MobilePay also launched MobilePay Box and WeShare for private collections and joint wallets (Deloitte Report, 2019). MobilePay also has a strong presence in the Danish e-commerce realm with tickets and restaurants providing online MobilePay purchases. The Danish market for consumer-to-business mobile payment is especially centred around groceries and household items, highlighting that MobilePay has a strong market for in-store purchases. According to recent numbers, MobilePay was used by 99 percent of Danes between the age of 20 and 29 in 2020 (Statista, 2020).

Swish

Swish by Getswish was launched in 2012 as the first peer-to-peer mobile payment service, which was launched as a one-sided platform and has the same-side network effects. However, Swish has since 2013 made it possible for non-smartphone users to receive money, but not to send money (Damsgaard, 2016). Sweden has one of the highest percentages of weekly mobile peer-to-peer money transfers as well as the highest in-store mobile payment rates (Deloitte Report, 2019). Making the Swedish market fairly comfortable for Swish. 95% of the Swedish population have heard of Swish, which would indicate a good penetration of the Swedish market, with more than 82% active users (Yougov, 2019). From 2012 to 2018, the overall usage of cash in Scandinavian countries has decreased, with Sweden having the lowest level of cash in the total money supply (Deloitte Report, 2019). Furthermore, Swish have evolved from exclusively focusing on peer-to-peer payments to also developing Swish Företag for in-store purchases as well as Swish Handel for web shop purchases (YouGov, 2019).

Vipps

Vipps was established by Den Norske Bank in 2015 and is now owned by a number of Norwegian banks. Norway has the highest level of peer-to-peer payments in the world. With 78% of Norwegians using the app, and 94% of Norwegians having heard of it (Yougov, 2019). Vipps has evolved from peer-to-peer payment to consumer-to-business through electronic commerce and invoice payments within the app. Vipps also denotes a large emphasis on security, by merging with electronic ID solution BankID to further authenticate, identify and verify users through electronic signatures. This type of peer-to-peer payment is used for larger transfers (bankid, 2020), as well as with BankAxept that provides the most payment solutions for Norway in a joint network.

Apple Pay

Apple Pay was launched in 2014 as a consumer-to-business mobile wallet. Through the collaboration with major banks and Europay, Mastercard, & VISA (EMV), Apple was able to launch a disruptive technology to counter other alternatives to credit cards. Using NFC-technology, Apple has been able to differentiate its mobile payment application from its peers such as Scandinavian and Chinese mobile payment services which rely on QR-codes. According to a Quartz report, NFC is the most convenient and safest technology (Quartz Report, 2020). Moreover, Apple iPhones' NFC also prohibits other mobile payment services to use similar payment methods, thus they must resort to QR-codes for POS purchases. Therefore, Apple Pay has seen a large percentage of users. According to research from Statista, Apple Pay was used at least once within the last 30 days among 50% of respondents as well as 26% using the app for purchases daily (Statista, 2020).

Android-based payment services

There are two Android-based payment services: Google Pay and Samsung Pay. Google Pay is a result of Android Pay and Google Wallet collectively merging their payment portals to gather Android users on one platform in 2018. Google Pay is also downloadable on Samsung and iPhone, in order to directly compete with other NFC payments types.

The global market share of Samsung Pay and Google Pay is 100 million users each, compared to 227 million Apple Pay users (Statista, 2020). Google Pay has in recent years heavily improved their features and offer a variety of new services aside from NFC payments in order to compete with the likes of Apple Pay. Such as peer-to-peer, QR-codes, and a receipt functionality. A recent article from The Verge stresses *“Google pay is now a direct competitor to a wide array of other apps and services, including Apple Pay, Samsung pay, PayPal, Venmo ... That is a lot of companies that will have to contend with Google making a high-profile push into their market”* (Dieter Bohn, 2020). Despite not having a large market share compared to Apple Pay, their palette of services can heavily compete with those of Apple Pay.

To recap, the market of mobile payment services when it comes to peer-to-peer functionality is very unsaturated, local players dominate most of their geographical market e.g., in Scandinavian markets the leading market players have been used by approximately 80% of the population. The means of revenue for these Nordic players relies on consumer-to-business transactions, which are heavily challenged by the growth of Apple Pay, who solely focus on consumer-to-business transactions.

2.6 Technology Acceptance Theories

How and why individuals adopt new innovations has motivated a great amount of research. In this subchapter, the different technology adoption theories and models that were considered for this research are introduced. Although the authors of this study decided to only use one theoretical framework, the frameworks listed inspired the research. In the end, the chapter introduces the UTAUT2 model that was selected as a theoretical lens to interpret the findings of the literature review, as well as to guide the analysis of data, and to subsequently interpret the results.

2.6.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) was introduced by Fred D. Davis (1989) for his doctorate proposal with the aim to improve the understanding of users' computer usage behaviour. More specifically, TAM is argued to be tailored for modelling user's acceptance of information systems or technologies (ibid). The model was proposed from the perspective of behavioural science, but the model also integrates expectation theory and self-efficacy theory. TAM has aided scholars and practitioners in understanding user acceptance processes to support the invention, design and adoption of information systems (IS) (Hu et al., 2019; Davis, 1989). The model (see Figure 3) posits that users' attitudes towards actual usage of a system is a determinant of whether he or she will use the system.

User attitude towards actual usage of a system is in the model defined as a function that divides the factors affecting individual behavioural attitudes into two constructs: perceived usefulness and perceived ease of use. Together, these two constructs are argued to have a significant impact on the adoption of new technologies (Davis, 1989). Davis (1989) defines perceived usefulness as "*The degree to which a person believes that using a particular system would enhance his or her job performance*" and perceived ease of use is defined as "*the degree to which a person believes that using a particular system would be free the effort*" (Davis, 1989, p.10). According to TAM, the two determining factors, perceived usefulness and perceived ease of use, are influenced by external variables. These external variables usually take the form of social factors, cultural factors and political factors that affect actual usage behaviour (Surendran, 2012).

The attitude towards usage has to do with the user's evaluation of the desirability of using an information system application. Actual system use is defined as the likelihood of a person actually using the application (ibid). A critique of the TAM model is that it excludes other important external and structural factors that are in place prior to when TAM constructs apply (Lunceford, 2009). Such overlooked factors can take the form of i.e., price and cost structures, social influence, and facilitating support. For this thesis, using the TAM model would limit the users' behavioural intention to adopt a technology to only a few factors, and undermine important contextual conditions.

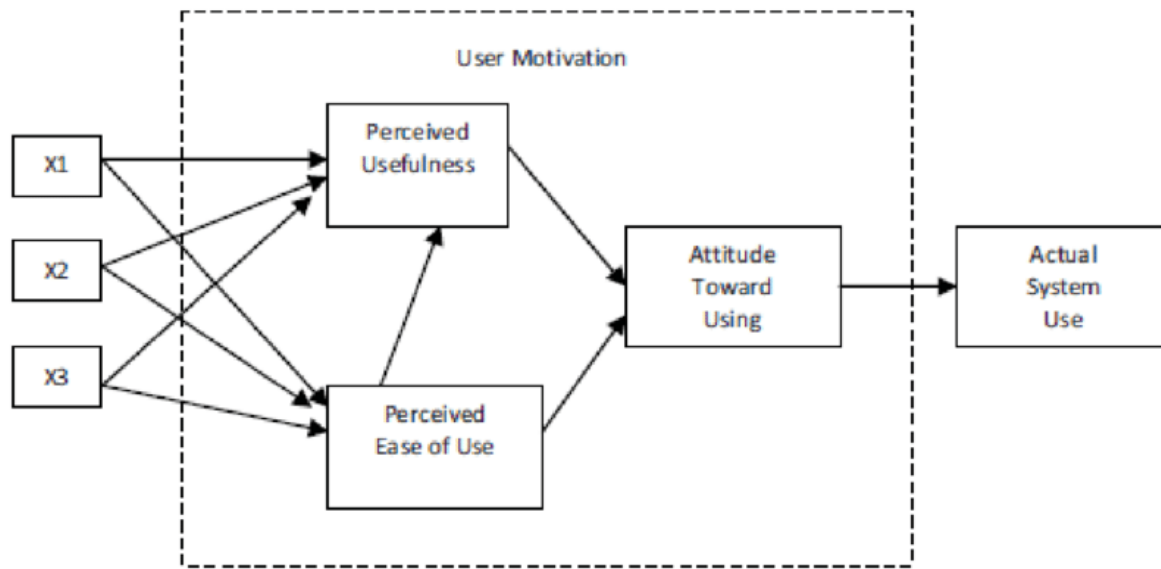


Figure 3 - Technology Acceptance Model (Davis 1989)

2.6.2 Diffusion of Innovation

Another theoretical field considered for this thesis was the Diffusion of Innovation theory (DOI). Developed by E.M. Rogers in 1962 with roots in social science, the DOI has its focus on the adoption rate of innovations and aims to explain how an idea or technology gains momentum over time and diffuses through various parts of the population, or in social systems such as organisations or societal groups (Rogers, 1962). The theory proposes that four main attributes of innovation determine the adoption rate of an innovation: relative advantage, compatibility, complexity, trialability, and observability (ibid). The variables that determine the adoption rate of innovations are presented in figure 4 below. Rogers (1962) argues that the central influencing variables which determine adoption rate, all centres around the type of innovation decision, communication channels spreading the innovation, the social structure in which the innovation is spread, and change agents' efforts in spreading the innovation. The process is to a high degree dependent on human capital in the sense that the innovation must be widely adopted by the masses in order to be self-sustained. In other words, the innovation must reach critical mass, a point at which the base of adopters is large enough for the innovation to be able to sustain

itself. The DOI theory is often applied in marketing processes that focus on tailoring communication to individuals based on what stage in the individual-decision process they are in. This enables practitioners to control more efficiently the methods used to increase the adoption rate.

The DOI theory was not chosen as the theoretical framework because the intention of the theory is not within the scope of this thesis. Although the DOI theory proposed by Rogers (1962) could have been used to explain why the adoption of mobile payments spreads faster in some societal groups compared to others, it is not the focus of this thesis.

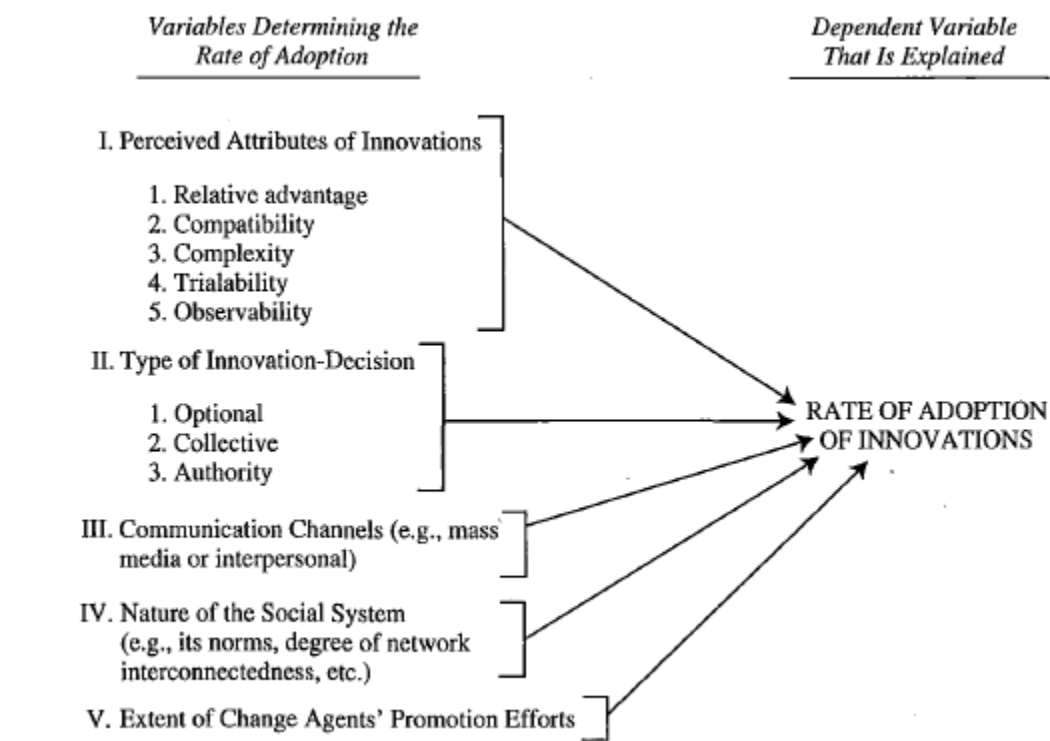


Figure 4- Diffusion of Innovation (Rogers 1962)

2.6.3 Unified Theory of Acceptance and Use of Technology

The UTAUT model created by Venkatesh et al. (2003) is the result of a synthesis of the eight most prominent acceptance theories and models into the Unified Theory of Acceptance and Use of Technology (UTAUT). In particular, the UTAUT is based on components from the Motivational Model, the Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), the Diffusion of Innovation theory (DOI), and the Social Cognitive Theory.

The UTAUT model identifies four key determinants of user intention and usage: (1) Performance Expectancy, (2) Effort Expectancy, (3) Social Influence, and lastly (4) Facilitating Conditions; and presents four moderators of relationships: (1) gender, (2) age, (3) experience, and (4) voluntariness

- Performance Expectancy: *The degree to which using a technology will offer benefits to consumers in performing certain activities.*
- Effort Expectancy: *The degree of ease associated with consumers' use of the technology.*
- Social Influence: *The degree to which a user perceives that significant persons believe technology use to be important.*
- Facilitating Conditions: *The degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the technology.*

(Adapted from Venkatesh et al., 2003, p.447)

According to Venkatesh et al. (2003), the constructs Performance Expectancy, Effort Expectancy and Social Influence were theorised and found to influence behavioural intention to use a technology, whilst behavioural intention and Facilitating Conditions determine actual technology use (ibid). According to research, the UTAUT model contributes with meaningful managerial tools for the evaluation and development of strategies for introducing new technologies, i.e., mobile payment technology (Ricardo et al., 2016). The UTAUT model aims to assess the prospect of success for new technology interventions and aids scholars and practitioners to more deeply understand the drivers of technology acceptance and use.

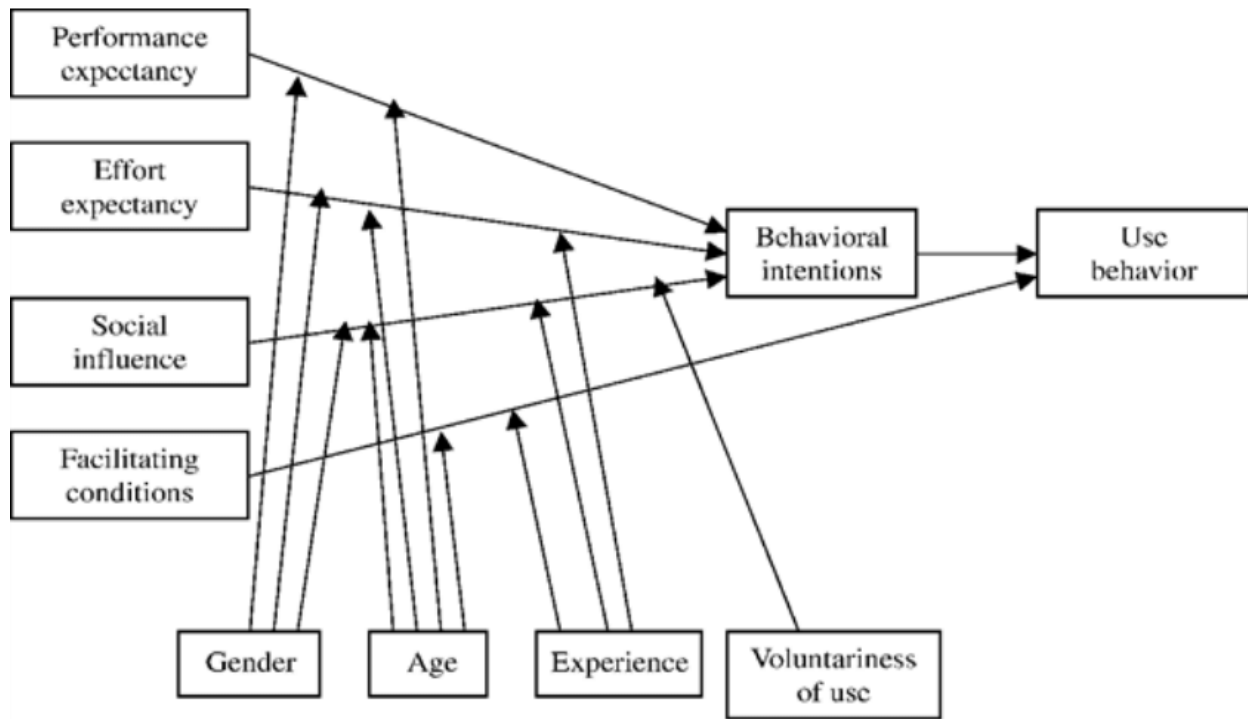


Figure 5-Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003)

The Unified Theory of Acceptance and Use of Technology (UTAUT) is arguably one of the most applied theories in the field of technology adoption literature (Raina, 2014). Numerous research studies in the field of information technology (IT) have utilised the UTAUT to explain adoption of various technologies such as the study on E-government services adoption (Alshehri, 2012), the study on mobile library adoption and staff preparedness (Sarah-Jane Saravani, 2015), and the study on usage intention of mobile payment technology in Korea (Lin et al., 2019). Indeed, the wide spectrum of studies employing UTAUT argue in favour of its generalisability. For instance, Venkatesh et al. (2003) states that in longitudinal studies of user's acceptance of technology, the UTAUT model explained 77% of the variance in behavioural intention to use a technology, and 52% of the variance in technology use (Ibid). In comparison, the eight models individually explained 17% to 53% of the variance in use of various information technologies (ibid).

2.6.4 Unified Theory of Acceptance and Use of Technology 2

For this thesis, it was decided to employ the UTAUT2 model as the theoretical lens for investigating user adoption of mobile payments. The model was chosen as it was found fitting for this thesis' scope and context, namely, to investigate what factors drive individuals to adopt mobile payment services.

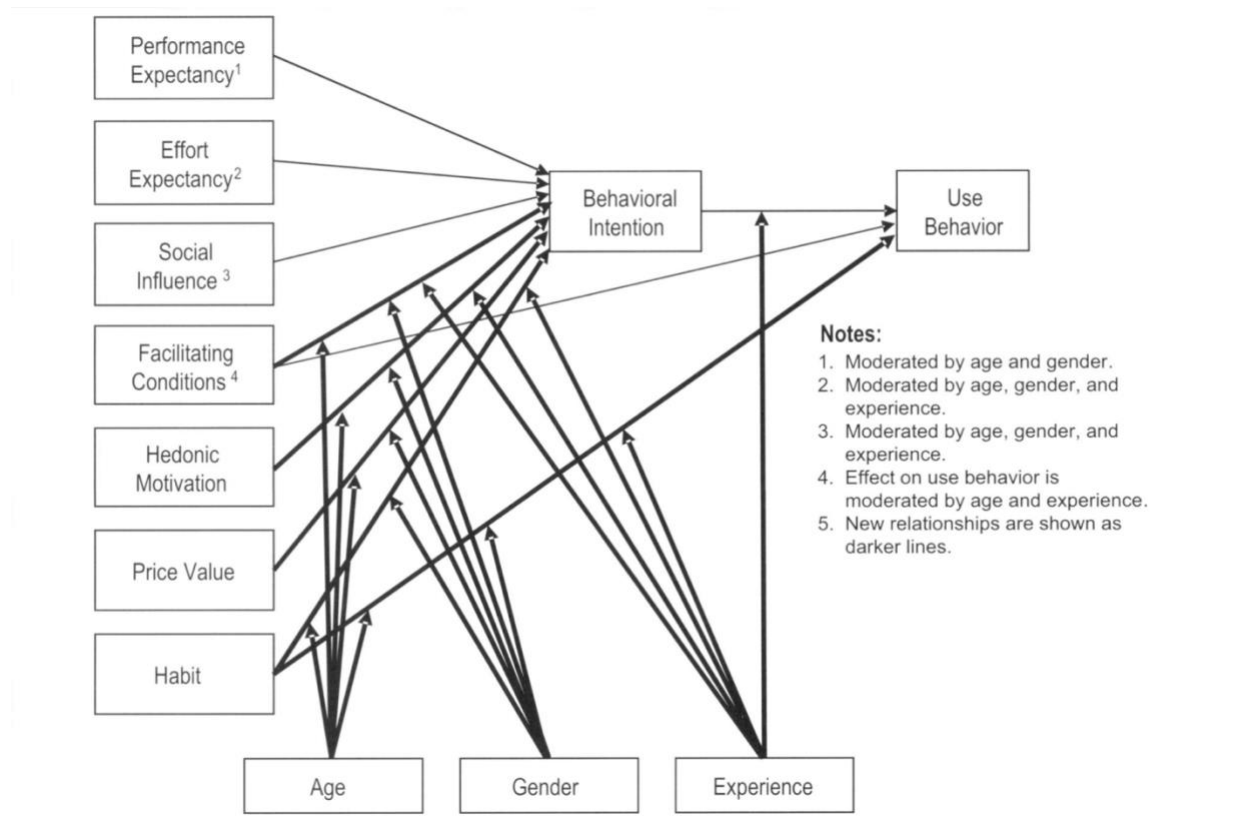


Figure 6— Unified Theory of Acceptance and Technology Use 2 (Venkatesh et al., 2012)

The UTAUT2 framework was introduced by Venkatesh et al. (2012) as an extended version of the original UTAUT but tailored specifically to explain technology adoption and use in a *consumer context*. This means the UTAUT2 holds consumers as a unit of analysis, whereas the original UTAUT focused on employees in an organizational context (ibid). The extended version identifies new key constructs and relationships which are verified by prior research on consumer technology adoption (ibid).

In comparison to the original framework, the UTAUT2 differentiates itself based on three modifications: (1) It identifies three new additional key constructs that helps predict technology adoption in a consumer context, (2) it alters some of the existing relationships in the original conceptualisation of UTAUT, (3) the UTAUT2 introduces new relationships between constructs and moderators (ibid).

The UTAUT2 incorporates three new constructs influencing the adoption and usage of new information technology: *hedonic motivation*, *price value*, and *habit*. The first construct is *hedonic motivation* (intrinsic motivation). Venkatesh et al. (2012) define hedonic motivation as the enjoyment or happiness resulting from using a technology. However, Hedonic Motivation was not included in this thesis due to its limited presence in literature, as well as the fact that the nature of the use of mobile payment services being opposite to hedonic motivation. The second construct, *price value*, is defined as consumers' "*cognitive trade-off between the perceived benefits of the applications and the monetary cost for using them*" (Venkatesh et al., 2012, p.161). However, the construct of price value was excluded in thesis' theoretical model, due to its limited presence within mobile payment services, and the fact that there is no cost associated with mobile payment use.

Lastly, the third incorporated construct, Habit, is defined as "*the extent to which people tend to perform behaviours automatically because of learning*" (Venkatesh et al., 2012, p.161). The authors introduced Habit based on the premise that previous studies have stressed the role of habit as a strong predictor of both intentions to use a technology and continuous technology usage (Ibid). For this study, habit is of particular interest for the purpose of explaining consumer acceptance of mobile payment, as previous studies have found a positive correlation between habit and behavioural intention to adopt mobile payment (Ho, 2015; Keramati et al., 2016). For example, the study by Defranco (2016) employed UTAUT2 to investigate consumer adoption of mobile payment, and results suggest that habit had a significant effect on behavioural intention to adopt mobile payments among working adults.

Aside from the three new constructs, which positively correspond with usage intention and behaviour, Venkatesh et al. (2012) introduces three moderators that influence the strength of the constructs: Age, gender, and experience. As an example, Venkatesh et al. (2012) hypothesize that gender will moderate the effects of the construct Facilitating Conditions on behavioural intention. The authors state that prior

research has shown that men are willing to spend more effort to overcome constraints and difficulties, whereas women tend to focus more on the process to achieve their objectives. Consequently, Venkatesh et al. (2012) argue that "*men tend to rely less on Facilitating Conditions when considering use of a new technology, whereas women tend to place greater emphasis on external supporting factors*" (Venkatesh et al., 2012, p.453). Linking this to the current study on mobile payments, it will be interesting to examine how big of an effect these moderators (i.e., gender) will have on the relationship between Facilitating Conditions and behavioural intention to adopt mobile payments.

The authors of this study firmly believe that the UTAUT2s repeatedly confirmed and empirically validated robustness by leading research supporting the generalisability of UTAUT2 and its main effect. For instance, Venkatesh et.al. (2012) states that in longitudinal studies of consumers' acceptance of technology, the extensions proposed in UTAUT2 generated considerable improvements in the variance explained in behavioural intention (approx. 56% to 74%) and technology use (approx. 40% to 52%) (ibid). However, although researchers using the UTAUT2 agree that the constructs proposed influence adoption, they argue that adaptations for specific contexts are needed because the theorised relationships are not universally applicable to all cases (ibid).

This has resulted in a majority of literature employing the UTAUT2 adding additional constructs to the model. Such extensions are welcomed by Venkatesh et al. (2012) as they argue that "*these extensions of UTAUT2 have been valuable in expanding our understanding of technology adoption and extending the theoretical boundaries of the theory*" (Venkatesh et al. 2012, p. 158). Extensions of UTAUT2 generally include new constructs and moderators adjusted to specific contexts, for example a specific industry, technology, or user group. Furthermore, Venkatesh et al suggests that future research should apply UTAUT2 in different countries, across different age groups, and on new technologies. The authors also recommend that future researchers employing UTAUT2 should attempt to identify new relevant factors to extend UTAUT2, thus giving support for this thesis. As mentioned, the UTAUT2 model has been extensively used to explain individual acceptance and use of information technology (IT). In the context of mobile payment acceptance and usage research, the UTAUT2 has on numerous occasions proven to be an effective analytical lens for the examination of mobile payment adoption.

For this reason, the authors of this study were convinced that the model could address the research question and be applied for the objectives of the thesis.

3. Literature Review

The substantial increase in mobile payment studies and articles published in the last few years has made the research process more complicated and time-consuming (T. Dahlberg et al., 2007). Where the early studies on mobile payment mainly contained a narrow scope and limited subjects due to its novelty, recent research on mobile payment now covers a wide array of different subjects, aspects, and contexts (ibid). Consequently, this has brought a greater need to describe, synthesise, evaluate, and integrate the plethora of articles in mobile payment research (ibid). A methodological review of past literature is a pivotal endeavour for any academic research (Watson, 2002), whilst it also helps researchers to build a firm foundation for advancing knowledge, reveal relationships, gaps, contradictions, and inconsistencies in the literature (Urbach et al., 2009). This holds especially true in the field of mobile payment research, as mobile payment studies often have produced contradictory results, depending on various factors like the theoretical models employed, moderators, constructs, data collection sample sizes, data collection periods, countries, and contexts (ibid).

The purpose of the literature review is to synthesise different sets of research pieces from existing literature on mobile payment adoption in order to provide a holistic review that identifies the most applied concepts described in the literature, as well as their significance. The literature review introduced in the succeeding chapter narrates an overview of the most meaningful knowledge in contemporary literature. The knowledge and insights obtained from the literature review facilitated a much deeper and clear understanding of the problem formulation put forward in this thesis. A comprehensively conducted review of existing scientific literature enables us to develop a well-founded rationale for arguments and claims proposed in the thesis (Wray, 2011). The following chapter is structured in a coherent manner. First, the literature review strategy is explained. Second, the relevant reviewed literature is presented in a concept-centric manner. Third, the identified concepts are categorized accordingly to the UTAUT2 constructs, culminating in a conceptual framework grounded in literature. Finally, the chapter will end with a summary of the literature review.

3.1 Literature Review Strategy

3.1.1 Review Approach

The literature review can be categorised under Rowe's second dimension of literature review typologies, where the aim is to "*Understand the phenomenon as a whole, its overall meaning and its relationships from the parts to the whole through the revision of related concepts*" (Rowe, 2014, s. 243). To understand the phenomenon of mobile payment adoption holistically, this is obtained through reviewing the literature in a concept-centric arrangement (Watson, 2002). The literature review is organised based on resemblances between the author's findings. Subsequently, these commonalities are then categorised into upper-order concepts that correspond with the constructs devised in the UTAUT2 model (ibid).

The literature selection process was based on Urbach et al's (2009) approach and contained three steps: (1) identification and selection of literature sources; (2) selection of an appropriate time frame; and (3) selection of topic-related papers appearing in the specified time frame. Prior to the first step put forward by Urbach et al. (2009), the authors generated a list of search keywords to use in the search process. The predefined keywords guided the search process and helped to concretise the focus areas in the literature related to consumer adoption and usage of mobile payments.

3.1.2 Literature Search and Scope

Guided by Watson's (2002) recommendations, the authors began the literature review by identifying relevant literature on mobile payment adoption through a keyword search in leading electronic databases such as ACM Digital Library, Springer, JSTOR, Science Direct, and Emerald. Leading information systems journals such as MIS Quarterly and Information Systems Journals (ISJ) were also used to identify research papers addressing the problem formulation. During the search process a search log was created to keep track of what keywords had been used in which databases. The search log helped the authors to systematically organise and categorise articles whilst searching, and ensured that duplicated articles could be detected, thereby providing transparency to the process. To make sure that all relevant articles were captured, search engines such as CBS library, Google Scholar and Scopus were used to cover publications in databases not previously used.

The authors reviewed the literature through a systematic scan of academic journals, articles, books, databases and conference databases. It was decided to create a demarcation between sources on (1) mobile payment adoption, and (2) mobile payment usage as they address two separate stages in the consumer adoption process. To search the literature, following keywords were used: mobile payment(s), adoption, intention to use, mobile payment acceptance, proximity payment(s), NFC payment(s), QR payment(s), continuance intention, intention to adopt mobile payment, mobile payment usage, consumer adoption of mobile payment, and consumer(s) usage of mobile payment. Related areas such as: mobile banking, e-commerce, internet banking, m-commerce ecosystem, m-commerce strategy, and mobile services were excluded. Moreover, after each read article the authors moved backwards by reviewing the citations for the articles as well as reviewing other work of the author (Watson, 2002). Conducting a systematic search is a prerequisite for making sure that a relatively complete census of relevant literature is accumulated, which is why the authors of this thesis decided to adopt this method (ibid). The systematic literature search identified 102 articles. The gathered articles were then subject to a set of inclusion criteria to assess their eligibility and applicability for the literature review.

The inclusion criteria were:

- (i) the time span was set to be between January 2004 to October 2020, and articles had to be published and available online within the time frame,
- (ii) the unit of analysis was set to be at the individual (user) level, meaning that articles focusing on merchants (organisational level) or industry (national) level were excluded,
- (iii) the studies had to employ empirical research that used empirical evidence in the form of either qualitative or quantitative data. This ensured that a methodological linkage could be established between the literature and this thesis, thereby contextualising and justifying the methodology chosen in this thesis (Saunders et al., 2019).

3.1.3 Descriptive Analytics of the Literature

The systematic literature search identified 102 literature articles which were analysed and broken down to identify the prevalent trends. The nature of this exercise was done in order to analyse the current literature and perhaps where the deviations in the literature types could be revaluated. For example, the pie chart below clearly identifies that the papers data collection is 81% quantitative. Which means that

there are perhaps future opportunities for future scholars to explore the qualitative data method. This could potentially create the opportunity for new findings coming from a different perspective. Figure 7 shows the percentage breakdown of the theories or models that were used in the literature. With a 31% majority using TAM as their theoretical model. In Dahlberg's (2007) study, his literature analysis identified a trend. He revealed that 30 mobile payment publications were based on empirical research methods, whilst 43 were conceptual based and had not actually proved concrete evidence, just hypotheses.

He later identified a paradigm shift within the descriptive analytics of the literature in his 2015 critical review of mobile payment research and discovered that whilst the conceptual articles dominated the earlier years, the ratio of empirical versus conceptual has changed incrementally over the years until 2014, where the cumulative number of empirical articles passed the number of conceptual studies (Dahlberg et al., 2015). In addition to this, the researchers of this thesis performed a descriptive statistical analysis which supports Dahlberg's et al. (2015) findings. Figure 8. below from this thesis' descriptive literature analysis clearly supports Dahlberg's notion of a paradigm shift from conceptual to empirical studies.

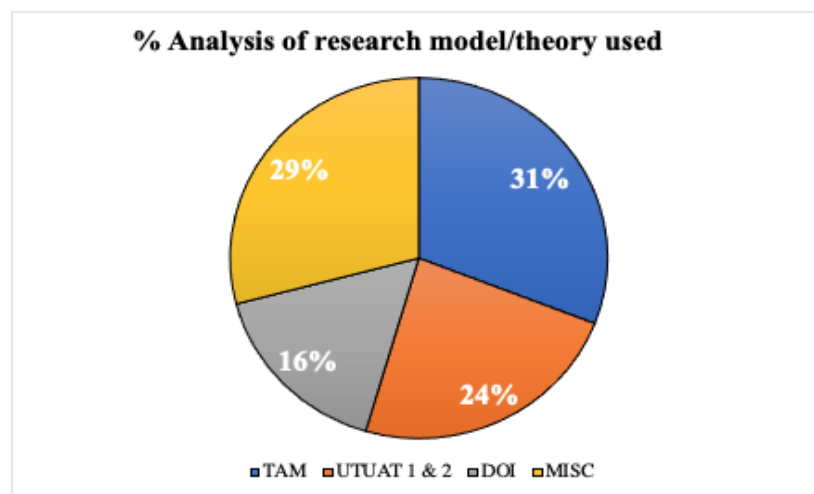


Figure 7 - Percentage of Research theories in Literature

The evidence to support this is that 81% of the literature is now empirical and quantitative. With only 16% being qualitative studies and 3% being mixed methods of qualitative and quantitative. Figure 7

highlights the percentage breakdown of the theories or models that were used in the literature. With a 31% majority using TAM as their model, the next 29% of the collection being miscellaneous theories used by authors, such as TRB, or TRA. The 31% TAM majority could be explained due to the majority of the literature coming from the early 2000's where it is clearly evident that there is a significant prevalence of TAM as being the favoured model.

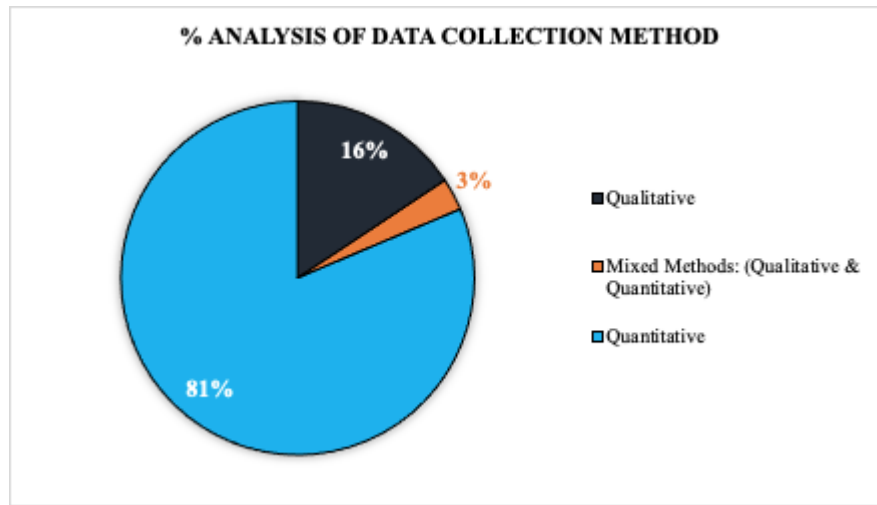


Figure 8 - Percentage of Data Collection Method in Literature

However, the literature shows a paradigm shift in the most popular model used. A pattern began to emerge that the more contemporary the study, there was an increased likelihood that it was either the UTUAT or UTAUT2 model being used for the study.

3.1.4 Table of search phrases and literature

Search Phrase: Mobile Payment Adoption				
Other Search Phrases: Mobile Payment Acceptance, Mobile payment Adoption rate, Acquiring Mobile Payment, Mobile payment research quality				
Author/ Publication	Topic	Data collection type	Theoretical Model used	Extended
Mallat (2007)	Consumer adoption	Qualitative	DOI, Consumer Life cycle theory	N/A
Cabanillas et al (2019)	P2P Mobile Payment Acceptance (Behavioural)	Quantitative	UTUAT, TAM	Extended UTUAT
Qasim et al (2015)	Drivers of Mobile Payment acceptance (network externalities)	Quantitative	UTUAT	Extended
Dahlberg et al (2015)	Quality of mobile payment research, consumer adoption	Qualitative	N/A	N/A
Cabanillas et al (2015)	Influence of age on adoption	Quantitative (Behavioural)	TAM	Extended
Andreev et al (2012)	Drivers & Inhibitors of MP adoption	Quantitative	TAM	Extended
Cabanillas et al (2017)	MP Acceptance	Quantitative	TAM, Neural Network Model	Extended TAM
Chandra et al (2010)	Trust in consumer adoption	Quantitative	UTAUT	Extended UTUAT
Bachfischer & Steele (2004)	Understanding acceptance of MP	Qualitative	TAM	Extended
Yang et al (2014)	Perceived risks in MP acceptance	Quantitative	N/A	N/A
Keramati et al (2012)	Behavioural & technical factors affecting adoption	Quantitative	CFA	N/A
Rubio et al (2020)	Explanation of P2P payment systems	Quantitative	TRA, TAM, TPB, TAM 1&2, UTAUT 1&2	Extended
Cabanillas et al (2020)	Adoption of Apple Pay	Quantitative	TAM	N/A
Gao et al (2017)	Trust in consumer adoption	Quantitative	ISS, TCE	Extended
Patil et al (2018)	Digital Payment Adoption	Qualitative	TAM, UTUAT	Extended TAM
Agnieszka et al (2004)	Factors affecting user's acceptance	Quantitative	TAM	N/A
Slade et al (2013)	Exploring consumer adoption through UTUAT2	Qualitative	UTUAT2	Extended
Pousttchi, Kreyer et al (2003)	MP Procedures	Qualitative	N/A	N/A
Pal et al (2019)	Factors affecting MP adoption & use	Qualitative	TAM	Extended
Karimi et al (2019)	Impact of mood on decisions regarding MP adoption	Quantitative	Mood Behaviour model, Affect Infusion Model	N/A
Kerviler et al (2016)	Adoption: Risk & Convenience	Qualitative	N/A	N/A
Koenig-Lewis (2015)	Enjoyment & social influence on adoption	Quantitative	TAM, UTUAT	N/A
Zhao et al (2019)	Financial incentives on NFC MP adoption	Quantitative	TAM	Extended

Zhou (2011)	Effect of trust on adoption	Quantitative	TAM	Extended
Upadhyay et al (2015)	Adoption Issues	Quantitative	GHSOM	N/A
Wu et al (2017)	Consumer acceptance of MP	Quantitative	TAM	N/A
Lwoga & Lwoga (2017)	User Acceptance, security, system features, & gender	Quantitative	TAM	Extended TAM
Hu et al (2019)	Adoption Intention of Fintech for Bank users	Quantitative	TAM	Extended TAM
Zhen Shao et al (2019)	Trust in the platforms	Quantitative	IDT	Extended
Kalinic et al (2019)	P2P Acceptance	Quantitative & Neural Network	TAM & UTUAT 2	Extended
Palvia & Dai	Mobile commerce in China & US	Quantitative	TRA/ TAM	N/A
Hua Xin et al (2013)	Influence of trust on adoption	Quantitative	TAM	Extended
Adams & Chen (2005)	User acceptance on MP	Quantitative	TAM, IDT	N/A
Hayashi (2012)	Mobile Payment what's in it for the customers	Quantitative	N/A	N/A
Amoroso et al (2011)	Mobile Wallet consumer adoption	Qualitative	TAM	Extended
Kaur et al (2020)	Innovation resistance theory y on MP	Quantitative	IRT	N/A
Talwar et al (2020)	Point of MP adoption & beyond	Quantitative	ECT, ISS, TCE	N/A
Yan et al (2020)	QR code and mobile payment	Quantitative	TAM	Extended
Schierz et al (2009)	Consumer acceptance of MP	Quantitative	TAM, IDT	N/A
Lai-ying et al (2013)	Determinants of NFC	Quantitative	TAM	Extended TAM
Teo et al (2003)	Why consumers adopt MP	Quantitative	UTUAT	Extended UTUAT
Hongxia et al (2011)	Drivers & Barriers in acceptance of MP in China	Quantitative	UTUAT	Extended UTUAT
Dastan & Gurler (2016)	Factors affecting adoption	Quantitative	N/A	N/A
Abrahao et al (2016)	Intention of adoption	Quantitative	UTUAT	N/A
Tai & Li (2015)	Intention of adoption, Vietnam	Quantitative	TAM	N/A
Verkijika (2020)	Understanding acceptance of MP	Quantitative	Social cognitive theory (SCT), Regret theory	N/A
Liao & Yang (2020)	MP online retail models	Quantitative	N/A	N/A
Boden et al (2020)	Credit card vs MP in terms of convenience	Quantitative	N/A	N/A
Chong et al (2012)	Consumer adoption decision predictions, empirical examination between China & Malaysia	Quantitative	TAM/DOI	Extended
Cobanoglu et al (2015)	Are consumers ready for MP adoption	Quantitative	TAM	Extended TAM
Gong et al (2020)	Web to MP transition, effects of status quo inertia	Quantitative	Status Quo bias theory, TAM, DOI	N/A
Mallat et al (2008)	Exploring merchant adoption of MP systems	Qualitative	N/A	N/A
Pham & Ho (2015)	Attractiveness of alternatives for NFC adoption	Quantitative	TAM	Extended TAM
Cocosila & Trabelsi (2016)	Risk in MP adoption	Quantitative	N/A	N/A

Al-Saedi et al (2020)	General UTUAT for M-Payment Adoption	Quantitative	UTAUT	Extended UTUAT
Leong et al (2020)	Mobile wallet barriers to adoption	Quantitative	Innovation Resistance Theory	Extended
Pal et al (2015)	Empirical analysis of adoption of MPS	Quantitative	TAM	N/A
Bailey et al (2015)	MP adoption in the US	Qualitative	TAM	N/A
Dennefy et al (2015)	Trends in MP adoption	Qualitative	Contingency theory	N/A
Piotr Lis (2017)	Comparative analysis of successful MP adoption in developing countries (TAM)	Qualitative	TAM	N/A
Shaik et al (2014)	MP Adoption	Quantitative	TAM	Extended TAM
Yan et al (2015)	Empirical analysis of adoption of MPS	Quantitative	TAM	N/A
Akturan et al (2012)	MP adoption within the youth market	Qualitative	TAM	N/A
Hillman	Trust and mobile commerce in North America	Qualitative	N/A	N/A
Mombeuil (2020)	Investigation into factors affecting mobile wallet adoption	Quantitative	N/A	N/A
Singh et al (2020)	Determining factors in adoption in India	Quantitative	TAM & UTUAT 2	N/A
Guo et al (2016)	Analytical framework for m-payment	Quantitative	Contingency theory & Configuration	N/A
Lai & Chuah (2010)	Analytical framework for adoption in retailing	Qualitative & Quantitative	TAM	N/A
Tan et al (2014)	NFC credit card	Quantitative	TAM	Extended TAM
Mclean et al (2020)	Consumers attitudes towards m-commerce applications	Quantitative	TAM & UTUAT	Extended
Oliveira et al (2016)	Understanding determinants of adoption	Quantitative	UTUAT2 & DOI	Extended
Thakur et al (2014)	Adoption & usage in India	Qualitative	UTUAT 2	Extended UTUAT 2
Johnson et al (2016)	Privacy risk of adoption	Quantitative	DOI	Extended

Table 1- Search Phrase: Mobile Payment Adoption

Search Phrase: Mobile Payment Usage				
Other Search Phrases: Mobile Payment integration, Mobile payment interaction, Mobile payment utilisation, Mobile Payment use, Mobile payment employment. Behavioural Intention				
Jia et al (2014)	Tech Usage habits of mobile payments	Quantitative	TAM	N/A
Zhou (2014)	Gender influence on behavioural intent of MP usage	Quantitative	Innovation Diffusion Theory (IDT)	N/A
Kim et al (2009)	Factors influencing use	Quantitative	TAM	Extended TAM
Liu et al (2019)	Factors affecting MP behaviour	Quantitative (Meta-analysis)	UTAUT	Extended
Cao et al (2017)	Users' intention to continue using MP (trust)	Quantitative (analysing satisfaction)	UTUAT	Extended
Arvidsson (2013)	Consumer attitudes	Quantitative	TAM, DOI	Extended
Gao et al (2018)	User usage intention of QR code payment in China	Quantitative	GHSOM	N/A

Zhang et al (2018)	Factors influencing embracing or shunning MP	Quantitative	TAM, UTUAT	Extended TAM
Ramadan et al (2017)	Mobile Payment Usage for Arab consumers	Qualitative & Quantitative	N/A	N/A
Gong et al (2020)	Brand equity, consumer loyalty of MP	Quantitative	Network Effect Theory	N/A
Assimakopoulos (2013)	Profile & Attitudinal characteristics of MP users	Quantitative	N/A	N/A
Lin et al (2019)	Antecedents of MP usage	Quantitative	Cost benefit theory	N/A
Zhou (2014)	Determinants of mobile payment continuance usage	Quantitative	N/A	N/A
Morosan et al (2016)	Intention to use	Quantitative	UTUAT2	Extended
Yang et al (2014)	Factors hindering usage	Quantitative	N/A	N/A
Shang Gao et al (2019)	Continuance & usage intention	Quantitative	UTUAT	N/A
Yaun et al (2020)	Determinants of MP, loyalty	Quantitative	N/A	N/A
Wang & Lai (2019)	Innovation diffusion of two-sided MP Platforms	Qualitative & Quantitative	DOI	Extended
Park et al (2020)	Roel of anxiety, & social influence in usage	Quantitative	TAM, UTUAT, TRA	Extended
Lee et al (2019)	Reciprocal relationship between user/retailer perception	Quantitative	TAM, IDT	Extended
Nelloh et al (2019)	Users keep using MP. Focus on trust and Cognitive perspectives	Quantitative	TAM	N/A
Choi et al (2020)	Consumer preferences of attributes of MPS in South Korea	Quantitative	N/A	N/A
Kaur et al (2020)	Why do people use m-wallet	Quantitative	Innovation Resistance Theory	N/A
Gross (2016)	Impediments to mobile shopping continued usage	Quantitative	N/A	N/A
Kujala et al (2017)	Expectations of service of MPS	Quantitative	N/A	N/A
Ting et al (2016)	Ethnicity factors in MP usage	Quantitative	Extension of TRA called TPB	Extended
Cabanillas et al (2020)	Assessment of Mobile technology use in the emerging market in India	Quantitative	TAM, UTUAT, TPB, & IDT	N/A
Jung et al (2020)	MP service usage: US consumers motivations and intentions	Quantitative	UTAUT	N/A
Khalilzadeh et al (2017)	Security factors in NFC in restaurant industry	Quantitative	UTUAT & TAM	N/A

Table 2- Search Phrase: Mobile Payment Usage

3.2 Literature Review Concepts

The concepts introduced in the following subchapter represent the most prominent factors from extant literature that influence user's adoption of mobile payment systems. The key concepts function as connections between research articles, broader patterns, and underlying themes in the existing body of knowledge.

3.2.1 Performance Expectancy

Definition: “The degree to which using a technology will provide benefits to consumers in performing certain activities”

Concepts: Perceived Usefulness, Relative Advantage,

3.2.1.1 Perceived Usefulness

Consumer perception of the usefulness of mobile payment systems was found to be one of the most frequently studied concepts among authors in the literature (Dahlberg et al., 2015). Thus, establishing a variety of interpretation across studies. Perceived usefulness was first conceptualised in Davis’ TAM (1989) but has since then been conceptualised under *Performance Expectancy* by Venkatesh et al. (2003) in the UTAUT framework. In Davis’ TAM, perceived usefulness refers to consumers’ perceptions regarding the outcome of the experience with the technology, i.e., consumers will contemplate whether to adopt a technology based on how useful it is when used for accomplishing a task (Davis, 1989). Similarly, Ho (2015) categorized perceived usefulness as the first characteristic of adopting a new technology that would enhance performance. Additionally, in recent years scholars have found that usefulness is associated with individuals’ productivity, as well as how convenient the technology is (Zhou, 2012; Cabanillas et al., 2020).

Since Davis first introduced perceived usefulness as an antecedent in TAM, there has been extensive evidence proving the significant effect of perceived usefulness on adoption intention (Leong et al., 2020; Mao, 2019; Zhou, 2012). Due to the exposure and saturation of the smartphone market, usefulness is often guided by how skilful and innovative the users are. The more skilled and innovative individuals are, the more useful mobile payment will be for them.

The wide array of different mobile payment applications and services, sometimes even within one application, is a large indicator of the usefulness of mobile payments. Usefulness has not only been identified as a vital antecedent in a peer-to-peer mobile payment context, but also in a consumer-to-business mobile payment context, signifying the commercial potential for merchants to offer mobile payment apps that are easy to operate. For example, a recent study by Yan et al., (2020) on in-store QR-

code purchases concluded that usefulness was the main contributing factor for consumers' intention to adopt such mobile payment solutions. Yan et al. (2020) also found usefulness an important factor for consumers' acceptance of NFC-based mobile payment solutions, thereby establishing usefulness as a vital antecedent across multiple mobile payment technologies.

With regard to NFC-based mobile payment services, such as, Apple Pay, several studies reported that the usefulness of such services was found to be the strongest determinant for consumers' intention to adopt (Pal et al., 2015; Singh et al., 2020; Cabanillas et al., 2020). The strong emphasis on the usefulness of NFC-based mobile payments is largely since the mobile payments are meant to directly substitute contactless card payments, thereby establishing that for mobile payments to become consumers' preferred choice, they must be as convenient and useful as credit cards.

In the study by Cabanillas et al. (2015), the authors found that especially younger users value usefulness highly when contemplating on adopting mobile payment. The authors further argue that the higher the usefulness of a given mobile payment service, the fewer the difficulties the users would experience, and this would lead to a higher intention to adopt among study participants. The findings reported by Cabanillas et al. (2015) correlates well with those by Venkatesh et al. (2003), who stated that usefulness, which is a subcategory of UTAUTs' Performance Expectancy, will have a stronger influence among younger users. Both Cabanillas et al. (2015) and Venkatesh et al. (2003) highlight the importance of extrinsic rewards as a factor for why usefulness is more prevalent among younger users: *"younger users will give greater importance to extrinsic rewards (equivalent to the perceived usefulness) and will have fewer difficulties to process complex stimulus"* (Venkatesh et al., 2003, p.467).

For gender differences, Venkatesh et al. (2003) stated that based on societal differences, men are generally more task-oriented than women. In turn, this means that concepts such as usefulness and performance expectancy, which emphasises the utilitarian aspect of technologies, are more salient for men (Venkatesh et al., 2003). Furthermore, Cabanillas et al. (2015) concur with the statement from Venkatesh, as findings from their study points to evidence that the impact of usefulness was particularly stronger for male participants. The study by Cabanillas et al. (2015) contributed to existing research with crucial knowledge on the role of gender differences in mobile payment adoption, as their study

illuminated that the usefulness of mobile payment services posed as one of the largest differences between male and female participants when contemplating to adopt mobile payment.

Literature has established that prospective adopter's perceived usefulness of mobile payments plays a vital role for their intention, mainly due to the many user-friendly mobile payment features such as: personalisation, ubiquity, network stability, and instantaneous transactions (Dahlberg et al., 2015). Moreover, literature has contemplated whether the effect of perceived usefulness is equally impactful for early adopters and late adopters. Kim et al. (2009) investigated this in their study which the authors examined the effect of certain determinants on both early and late adopters of mobile payments. Interestingly, it was found that late adopters regarded usefulness as a crucial aspect for their intention to adopt, whilst early adopters did not consider usefulness that imperative for their intention to use. The findings reported by Kim et al. (2010) concur with those of Venkatesh et al. (2012), who found Performance Expectancy and usefulness to be the only constructs and concepts that were not moderated by experience.

However, Zhou (2012) and Talwar et al. (2020) both found usefulness as an indicator for continuous use, and Zhou (2012) specifically labels Performance Expectancy as the primary factor for continuous use. As a greater part of existing literature is predominantly occupied with the initial stages in mobile payment adoption, the research by Zhou (2012) and Talwar et al (2020) sets a clear contrast between other studies by stating that usefulness is only an influencing factor for continuous usage, rather than adoption. However, in the study by McLean et al. (2020) on consumer acceptance of mobile payments, the authors discovered that usefulness was in fact a determining factor for the participants in both the initial stage and the post-adoption stage, thereby contradicting the findings reported in the study by Zhou (2014) and the study by Talwar et al. (2020).

3.2.1.2 Relative Advantage

The concept of relative advantage was initially put forward by Rogers (1995) in his DOI-theory and is defined as "*... the degree to which an individual perceives a new innovation to be better than the precursor to that innovation*" (Rogers 1995, p.212). The relative advantage of a new product or service compared to existing ones is one of the most important factors influencing consumer acceptance

(Arvidsson, 2013). The concept of relative advantage was initially put forward by Rogers (1995) in his DOI-theory and is defined as "*... the degree to which an individual perceives a new innovation to be better than the precursor to that innovation*" (Rogers 1995, p.212). The relative advantage of a new product or service compared to existing ones is one of the most important factors influencing consumer acceptance (Arvidsson, 2013). Previous studies conducted in a mobile payment context supports this claim, as many suggest that relative advantage is an influencing factor in consumers' adoption and usage of mobile payments (Mallat, 2007; Slade et al., 2013; Johnson et al., 2017). In the qualitative mobile payment study by Mallat (2007), the relative advantage of mobile payments was found to be one of the strongest predictors of both intentions to adopt and usage intention among interviewees. The relative advantages that mobile payments offer over traditional payment solutions, as mentioned by interviewees, includes ubiquitous payment possibilities, time and location independent payment possibilities, and convenience (ibid).

Moreover, Mallat (2007) also discovered that relative advantage was an influencing factor in consumer's choice of payment method in both physical and online stores. Similar findings were also reported in the study of Kim et al. (2010) in which they state that the unique attributes of mobile payments include "*...mobility and reachability, which provide mobile payments with advantages over online payments.*" (Kim et al., 2010, p.313). Johnson et al. (2017) argues in their study that for mobile payment to take over existing payment solutions, mobile payment service providers must clearly showcase such examples that signifies the advantages which mobile payment has over predecessors (Ricardo et al., 2016; Lin et al., 2019). Arvidsson's (2013) study found the concept of relative advantage to be a critical factor for the adoption of mobile payment services and argues that the findings are not surprising as "*consumers are bound to compare the new service with the existing means of payments they use today*". (Arvidsson, 2013, p.164). The results from Arvidsson (2013) are in line with the discussions put forward by Mallat (2007) and supports Dahlberg et al.'s (2008) proposition that studies on mobile payment services must acknowledge the impact that established payment solutions have on the adoption of mobile payment services. In other words, if the new service is not better than the payment service currently used, consumers will simply not see any reason to start using it (Arvidsson 2013).

3.2.2 Effort Expectancy

Definition: "Effort Expectancy is the degree of ease associated with consumers' use of technology." (Venkatesh et al., 2012, p.450).

Concepts: Perceived ease of use

3.2.3 Perceived Ease of Use

In a mobile payment context, the concept of perceived ease of use is defined as the degree to which individuals find mobile payments easy or difficult to use (Davis 1989). More specifically, it is associated with consumer's assessment of the effort required in the use of a technology over time (Venkatesh et al. 2003). Perceived ease of use is by many authors considered a crucial and determining factor in the adoption of not only mobile payments, but any technology, because the concept constitutes a user's subjective understanding of the effort required to use a technology (ibid). Indeed, ever since Davis (1989) introduced ease-of-use for the first time as an antecedent for adoption, the concept has been rigorously tested and validated across many different technology contexts, hereunder mobile payment technology, where ease-of-use has been deemed one of the most essential factors for mobile payment adoption (Dahlberg et al. 2008).

In his research on understanding consumer attitudes towards using mobile payments, Arvidsson (2013) employed a research model that combined concepts from two well-known adoption theories: Diffusion of Innovation theory and the Technology Adoption Model. The hybrid-approach towards the research model enabled the author to overcome individual deficiencies posed in the two theoretical frameworks and helped to facilitate a more holistic study of the factors influencing consumer adoption of mobile payments.

The results obtained from the study by Arvidsson (2014) points to evidence that the statistically most significant variable influencing consumers' attitude toward adopting mobile payments was ease of use (ibid). Furthermore, Arvidsson (2014) concluded that the significant importance of "ease of use" can imply that consumers perceive the adoption process as a learning experience which is highly affected by their ability to learn how to use mobile payments.

Similar to Arvidsson (2014), other scholars have also found evidence that supports the idea that adoption is a learning process, in which the level of easiness strongly impacts the outcome. For example, in the study by Kim et al. (2010), the authors attempted to categorise mobile payment users into early and late adopters to examine if the different factors equally affected both groups. Results from the study indicate that perceived ease of use was the strongest predictor of intention to use mobile payment. Results from the study by Kim et al. (2010) is consistent with previous research by Venkatesh et al. (2003) who states that “*Effort-oriented constructs (i.e., ease of use) are expected to more salient in the early stages of a new behaviour.*” (Venkatesh et al., 2003, p. 450). Interestingly, an inconsistency was found in the literature regarding the effect of perceived ease of use on intention to adopt mobile payment. For instance, the research by Gurler (2016) employed the TAM model as the research model, and tested the proposed relationships using structural equation modelling on 225 survey respondents; the empirical findings from the study points to evidence that ease of use was in fact not a determining factor for adoption (Ibid). Similar results were reported in the study by Chandra et al. (2010) who proposed a “Trust-theoretic” mobile payment adoption model grounded in literature. The authors empirically tested the model and concluded that perceived ease of use was not an influencing factor in the adoption of mobile payments.

The research by Kalinic et al. (2019) studied the moderating effects of gender on peer-to-peer mobile payment acceptance by using an integrated TAM model. In their study, Kalinic et al. (2019) divided male and female participants up in two groups according to their gender, and the study concluded that the perceived ease of use construct did not have a significant impact on either of the two groups. Interestingly, this finding is contradictory to results reported in prior research on the role of gender in technology acceptance, as Venkatesh et al. argues that “*Prior research supports the notion that constructs related to Effort Expectancy (i.e., ease of use) will be stronger determinants of individuals’ intention for women.*” (Venkatesh et al., 2003, p. 350).

The occasionally conflicting results in extant literature on the impact of perceived ease of use on intention to adoption suggest that consumers' intention to adopt mobile payments is a multifaceted process shaped by the chosen technology, service, and context in which the research is conducted (Dahlberg et al., 2007). However, given that mobile payments represent an alternative payment solution to established payment methods such as credit cards and cash, it is paramount that consumer's view mobile payment services as being at least as easy to use as current methods of payment (Johnson et al., 2017). Moreover, the concept

of ease of use is an important factor in users' assessment of mobile payments because it gives value in-use and decreases the complexity of the mobile payment system (ibid). In a critical and extensive review of mobile payment literature, (Dahlberg et al. (2015) cited perceived ease of use as the most frequently studied adoption factor, thus justifying the concept's inclusion in this thesis research model.

3.2.4 Social Influence

Definition: “The extent to which consumers perceive that important others (e.g. family and friends) believe they should use a particular technology.” (Venkatesh et al., 2012, p.451).

Concepts: Social Influence, Network Effects

Venkatesh et al. (2012) defines Social Influence as the degree to which individuals perceive the importance that others use new technologies. Social influence holds an imperative role in adoption literature, mostly due to the discovery that nonusers have been found to look at their peers as guidance for adoption, as well as be subject to social pressure in order to adopt (Pal et al., 2015; Cabanillas et al., 2015; Mao, 2019).

The importance of Social Influence differs significantly from country to country, as it throughout this literature review has been stated that geographical and national differences have had a large impact on the importance of each concept and construct. Zhang et al. (2018) and Palvia (2009) cross-cultural studies showed that social influence had a significant impact on Chinese consumers but not on American consumers. Palvia (2009) specifically found no evidence of social influence being a factor for mobile payment adoption among American consumers. Likewise, the study by Zhang et al. (2018) also showed the largest discrepancy between Chinese and American consumers. Both studies highlight Hofstede's cultural dimensions of individualism and collectivism He argues that typically American individuals have an association with Individualism, whilst Chinese individuals are associated with the opposite viewpoint of Collectivism. Highlighting the difference between cultures values and norms (Hofstede Insights, 2021).

In terms of gender influence on Social Influence, Venkatesh et al. (2003) mentions that Social Influence has a higher effect on women and especially, older women. Cabanillas (2014a; 2015b) has two separate studies looking into the moderating effects of age and gender. Cabanillas et al. (2014a; 2015b) gathers social image and subjective norms into his external influences, which the author deemed as a significant factor for intention to adopt. However, he continued to find minor differences between the moderating factors of gender and age. On the contrary to Venkatesh' claim of age and gender moderating social influence, Donald L. Amoroso (2014) discovered that social influence had limited effect on gender and was in fact a higher factor for younger people. In the study conducted by McLean et al. (2020), Social Influence was identified to have a sole impact on adoption and none towards continuous usage. Venkatesh et al. (2003) concurs, as the authors demonstrated that the effect of Social Influence predominantly was of relevant importance in the early stages of adoption. Furthermore, a Chinese study Guo et al. (2018) indicated that Social Influence had a significant impact on continuous use of QR codes, due the popularity of QR codes in China, and QR codes being the means of payment (ibid).

In summary, the impact of Social Influence has been largely discussed in extant literature. While the constructs' impact was discovered to vary depending on the type of m-payment technology under scrutiny, the literature produced consistent findings on the level of impact of Social Influence in particularly Asian contexts. Thus, providing indicative evidence that cultural and social values and norms are vital factors to consider when conducting not only mobile payment adoption research, but technology adoption as a whole.

3.2.4.1 Network Effects

The idea of network effects is typically related to the digital economy in peer-to-peer settings, where the value and functionality of a service is dependent on how many are using it (Arvidsson, 2012). In terms of mobile payments, network effects can arise when more users download an application that functions in a peer-to-peer setting, creating critical mass. Which can be expanded to a consumer-to-business setting with merchants accepting these applications, thus creating a cross-sided network effect.

The concept of network effects has not previously been captured in either of Venkatesh's (2003; 2012) models, nor in any other technology acceptance models. Despite this, the influence of network effects has been prevalent in literature surrounding mobile payments for decades. Consumer adoption of mobile payments has been argued to largely rely on the number of other consumers and businesses adopting and using the service as well (Mallat, 2007). Interestingly, early literature suggests that network effects used to be considered a hindering factor because it was assumed it would lead to discontinuation of mobile payment use (Mallat, 2007). As a small number of retailers are not creating a critical mass for mobile payments, they are reluctant to install mobile payment solutions. Simultaneously, users are not adopting mobile payments due to lack of solutions in stores (ibid).

In modern times numerous studies have covered the impact of network effects, both direct and indirect, on mobile payment acceptance. The idea of direct network effects is that the value of the network increases exponentially for all participants, as other participants join the same network. In a mobile payment context, this would mean that the value of the given mobile payment system increases for existing users as newer users adopt the service (Abu-Shanab, 2015). Network effects are by some scholars argued to exert effects on mobile payment adoption, as the total number of mobile payment users will increase, if the established user-base is already vast in numbers. Alternatively, indirect network effects refer to the increase of users when complementary services are installed (Guo et al., 2018). An example of indirect network effects in a mobile payment sphere, would be that of NFC-enabled mobile payment systems. For instance, Google, Samsung- and Apple Pay all function as complementary features which are connected to the consumer's smartphone, thus creating an opportunity for these providers to tap into their already-existing user-base by making their payment solution a complementary service and an action of indirect network effects (Lai, 2020).

Initially seen as a barrier for adoption Mallat (2007), more recent studies (Lai, 2020) are highlighting that Network Effects is an important antecedent for adopting mobile payment services.

3.2.4.2 Facilitating Conditions

Definition: “Consumers’ perceptions of the resources and support available to perform a behaviour.” (Venkatesh et al., 2012, p.453).

Concepts: Facilitating Conditions, Mobility, Compatibility,

3.2.4.3 Facilitating Conditions

Facilitating Conditions is defined as the level to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh et al., 2003). Thompson et al. (1991) describes Facilitating Conditions as objective factors that users can observe and recognise, and that enhances the user experience. An example of Facilitating Conditions in a mobile payment context would be variants of computer support. Such as, when a specific person or chatbot is available to assist with system difficulties, or built-in support features, feedback and tutorials (Thompson et al., 1991). Facilitating Conditions as a construct was first mentioned in Venkatesh’s UTAUT model and was later revised in Venkatesh’s (2012) UTAUT2 model. In Venkatesh’ original UTAUT model, experience and age are the only moderators affecting the strength of Facilitating Conditions, and the construct is also the only construct that affects post-adoption user behaviour. Facilitating Conditions are one of the concepts which was added to the original UTUAT to overcome the criticisms of the first adoption theories. Which was criticised due to narrow focus on user’s internal belief systems and less on system specific characteristics (Defranco, 2016).

Following an empirical study from Chong et al. (2012), it was identified that Facilitating Conditions contributed to the adoption of mobile payment services. Their study identified that this was due to user’s appreciation of the variety of services which enhanced the user experiences and made it easier to use. As users identified the variety of services as a useful support network which enabled the user to overcome fears of adoption. However, their study suggested that the current services of mobile payments offered to users might be limited when compared to an e-commerce environment. Yadav (2016) also supported the notion that Facilitating Conditions has a positive influence on the adoption of mobile payment services following from the findings of their quantitative study.

Oliveira et al. (2016) argued that Facilitating Conditions constitutes significant predictors of the user's intentions to adopt mobile payments. The authors stated that the importance of Facilitating Conditions is due to its contributory factors to the continued use of mobile payments. For instance, mobile payment services would not be possible in the absence of a supportive infrastructure of conditions which facilitate the necessary interactions for task completion. An additional study that supports this notion came from the conclusion of (Defranco, 2016). Their empirical study on the relationship between hotel customers and NFC mobile payments discovered that there is a positive relationship between hotel consumers' Facilitating Conditions regarding NFC mobile payments and their intentions to use NFC mobile payments in hotels. This was due to the Facilitating Conditions providing a higher functionality, due to supporting infrastructure.

Yi et al (2006) study results discovered that consumers are willing to learn new mobile payment systems, irrespective of complexity, providing the system is acceptable at the hedonic individual level as the basis. However, it was identified as less important to have on the broader contextual level in terms of the existing Facilitating Conditions. An additional source supporting this argument comes from the study by Yang et al. (2015) in which 400 respondents participated. The above literature identifies the relevance of Facilitating Condition and its significance of impact on the intention of using mobile services, as user's understanding of mobile payment functionality and proper support-features were identified as the most useful facilitating conditions. Thus, making Facilitating Conditions a highly contributory factor the outcome of this study.

3.2.4.4 Mobility

The concept of Mobility refers to the notion of 'anywhere and anytime' computing (Pal et al., 2015). Mobile payments ubiquitous capabilities are uniquely different and in sharp contrast to traditional payment services, where transactions have previously been carried out via wired internet services (Pal et al., 2015). This also illuminates the fact that due to these value-adding factors; mobile payment technology can provide users with more freedom, ease of use, and flexibility, and such unique features create unprecedented value for adopters. Furthermore, Pal et al. (2015) stated that due to these unique

features, such as the omnipresence, on-demand experience, mobility has a positive impact on the perceived ease of use and the perceived usefulness of mobile payments, which contributes heavily to user adoption. Steele (2004) also supports this view and identifies mobility as a unique feature of mobile payments when compared to other payment types. This indicates that user's perceived mobility of mobile payments positively impacts their intention to adopt mobile payments.

In the empirical study by Zhou (2012), the authors discovered that user's perceived mobility exerted a positive and significant impact on their intention to adopt mobile payment. This was concluded following from a collection of survey data collected from mobile payment users regarding their perceptions on mobile payment. The authors' discovery on the impacting role of mobility revealed the need for further research and validation on mobility's role as a determinant for mobile payment adoption. Furthermore, the authors also identified a direct correlation between mobility and the user's attitude. Mobility affected the user's attitude through a direct influence on the perceived ease of use. Lastly, Schierz et al. (2010) also supported the notion, and stated in their empirical study that mobility is the most likely variable with the greatest impact on user's intention to adopt mobile payments, mostly due to the freedom and accessibility that mobile payment services provide them (Lwoga, 2017).

3.2.4.5 Compatibility

The concept of compatibility refers to how well a technology fits an individual's lifestyle, working, needs and values (Ho, 2015; Venkatesh et al. 2003). Originally captured as a construct in Roger's (1996) Innovation Diffusion Theory, compatibility has proven to be a predictor of consumer's behavioural intention to adopt mobile payments across many contexts (Oliveira et al., 2016; Mallat, 2007). In the study by Ho (2015), the authors examined the effects of product-related and personal-related factors on consumers' intention to adopt NFC-payments through statistical measures and found that the greater the compatibility of new mobile payment services with consumers' existing mobile phone habits, the more likely they will form the intention to adopt mobile payments (Ibid). Cobanoglu et al. (2015) examined consumer adoption of NFC-payments in the hospitality industry, and came to a similar conclusion: namely, that compatibility with lifestyle was the strongest predictor of consumer's intention to adopt mobile payments. The insights obtained from the study by Cobanoglu et al. (2015) demonstrate that compatibility plays a crucial role for the adoption of mobile payments. Similar findings were reported in

the study by Mallat (2007), in which the author found that the effects of compatibility are highly dependent on consumer's ability to integrate mobile payments into their daily purchase habits.

Slade et al. (2013) examined the UK nonuser's intention to adopt remote mobile payments by deploying an extended UTAUT model with consumer-related constructs as the theoretical lens of the paper. A key insight from the study is the discovery that there are significant differences in the factors affecting nonuser's intention to adopt remote mobile payments and proximity mobile payments respectively. For instance, study results suggested that participants perceived remote mobile payments as more compatible and easier to use, because the payer and payee are free of constraints such as time and place, and the technology used for remote mobile payments is less novel, thereby making it easier for users to integrate remote mobile payment into their daily activities. (Ibid). In contrast, participants found proximity mobile payments less compatible with their needs, habits and lifestyle, and this directly affected their intention to adopt. The authors state the reason for this is because proximity mobile payments rely on a more sophisticated technology (i.e., NFC), which consumers have much less experience with. To overcome such barriers and increase the compatibility of mobile payments with user's habits and needs, Slade et al. (2015) propose a solution in which developers could look to integrate and combine proximity mobile payment with remote mobile payment applications, to realize the ubiquitous potential of mobile payments. Similar insights and findings were reported in the study by Moroni et al. (2015) where the authors emphasise the need for a cooperative and integrated mobile payment application that facilitate both remote and proximity mobile payments.

The findings reported in extant literature signify that mobile payment systems' level of compatibility with consumer's existing purchasing habits relies on both the mobile payment providers' ability to develop services that accommodate consumer's existing habits, as well as consumer's ability to integrate such services into their daily activities (Mallat, 2007).

3.2.5 Habit

Definition: “The extent to which people tend to perform behaviours automatically because of learning” (Venkatesh et al., 2012, p.161).

Concepts: Habit

With Venkatesh’ revised UTAUT2 model (2012), Habit plays a large role in understanding consumer technology adoption and use. Venkatesh et al. (2012) argues that stored intention which influences behaviour is impacted by stronger habits and the continuous use is affected by automaticity. Habit has a direct effect on usage and indirect effect on behavioural intention. Alongside Facilitating Conditions, Habit is the only other construct that affects continuous use and behavioural intention (ibid).

Zhou’s (2012) study relates Habit to flow associated with using the mobile payments and incorporates different dimensions such as control and concentration. These dimensions highlight the cognitive elements that are reflected in Venkatesh’ importance of Habit. Zhou (2012) solely focuses on continuous use and found that flow was the largest factor for continuous use of mobile payments. Furthermore, Keramati et al. (2016) states *“It is important to consider what factors drive users to adopt new mobile payment or create a Habit for them doing so”* (Keramati et al., 2016, p. 1490). Nevertheless, Keramati et al. (2016) states that Habit itself is a behavioural variable, and its effect could be strengthened through operators providing privileges that would moderate consumers’ habits.

Neustaedter (2017) presented a three-week diary for their interview participants, which consisted of both existing and new users. To keep track of their shopping routines, their study found that existing users, more so than new users, considered mobile payment a habit. Furthermore, the existing users were also using mobile payments in different scenarios like person-to-person payment and in-store purchases. Indicating that the more experience consumers had with mobile payments, the more they considered it a habitual activity. Venkatesh et al., (2012, p.18) also highlights how habit is moderated by experience, and states that *“... Habit will have a stronger effect on intention and use for more experienced consumers”*. This is also exemplified with the fact that habit influences technology use, the more consumers consider mobile payment a habit, the more likely they are to continue to use it.

Furthermore, habit is created through repetition, and the longer the repetitive action, the more the consumers become subject to lock-in mechanisms that can function as a barrier for behavioural changes (ibid). Similarly, Leong et al. (2020) studied mobile wallet resistance, and found that the existing habit towards credit card and cash is a barrier for mobile payment adoption. Furthermore, most studies on mobile payment habits have not investigated habit as a concrete factor for mobile payment (McLean et al., 2020; Neustaedter, 2017), but the practice of mobile payment being a habitual activity. Cao et al. (2018) did not find any significance among age and experience in terms of continuous use, however, they did find a relationship between gender and continuance intention “*Specifically, females are more inclined to continuance usage than males. It could be that the shopping and consumption behaviours of females are more frequently than males, and mobile payments simplifies the payment process*” (Cao et al. 2017, p. 469). Cao et al. (2018) does not explicitly mention Habit, but the fact that shopping and consumption behaviours are more frequent among female users can be indicated as a more Habitual routine.

3.3 Expanding Literature Concepts

This section will include new concepts and constructs, which has not been captured and conceptualised in Venkatesh’s UTAUT2. These concepts have a prevalent presence in mobile payment literature as being essential factors for consumer adoption of mobile payments.

3.3.1 Perceived Security

In the context of mobile payment research, existing literature highlights the vital importance of including and analysing the role of Perceived Security as an antecedent for adoption (Mallat, 2007; DeFranco, 2016; Arvidsson, 2013). A significant number of studies in the mobile payment adoption context have employed Perceived Security to research security-related factors not represented in the UTAUT2 framework, and to increase the explanatory power of the employed model (Kim et al., 2009; Slade et al., 2013). For instance, Slade et al. (2013) found that Perceived Security was one of the principal reasons for the low adoption of mobile payments in Western societies. Johnson et al. (2017) supports the claim, and further argues that it is imperative that future research on mobile payment adoption examines security-related factors to increase the predictability of fintech technology adoption.

Put simply, if mobile payment systems regularly are subject to data breaches, hacking attacks, or sensitive data compromises, consumers will become reluctant to adopt mobile payments, thus creating a major impediment for the adoption of mobile payments (Slade et al. 2015; Khalilzadeh et al. 2017; Cabanillas et al. 2014).

The study by Oliveira et al. (2016) researched the determinants of consumer's mobile payment adoption and intention to recommend the technology. The authors extended their initial research model based on a combination of UTAUT2 and DOI theory with a Perceived Security construct, as well as an intention to recommend construct. Since mobile payments involve the transferring of monetary value, a personal and sensitive form of financial information, security concerns may very well become a barrier to mobile payment adoption (ibid). The inclusion of security-related constructs significantly reinforced the predictability of the results and provided a deeper understanding of one of the most significant resistance factors in mobile payment research (ibid). For example, the results point to evidence that the combination of the DOI theory with the UTAUT2 and the perceived technology security construct remarkably increased the model's explanatory power to predict behavioural intention to adopt from 60.5% to 69.1%, thus supporting its inclusion in this thesis' theoretical model (ibid).

A key finding from the study is the results indicating that for technologies involving sensitive and personal data, such as mobile payment technology, the technology's capability to secure transactions was found a direct determinant of consumer's intention to adopt the technology (Arvidsson, 2013; Khalilzadeh et al., 2017). Similar findings were reported in the study by Andreev et al. (2012), who found that mobile payment's full potential would be realised if consumers' privacy and security concerns are mitigated, because the authors established that a higher level of security results in higher intentions Defranco (2016). The authors further argued that viable solutions to such security concerns could be in the form of transparent security measures for users of mobile operating systems (OS), in-app feedback mechanisms, or stronger access control measures for accessing mobile payment applications (ibid).

Khalilzadeh et al. (2017) examined determinants of NFC mobile payment technology adoption by employing an integrated research model which combines constructs devised in established adoption models such as UTAUT and TAM. Besides the constructs already captured by theory, the authors also incorporated security-related factors such as security, risk, and trust. The proposed research model was

tested by the application of quantitative methods on survey data collected from 412 respondents. The objectives of the study are stated to be: (1) to improve the explanatory power and predictive accuracy of the UTAUT model in technology acceptance studies; (2) to investigate the effects of risk, security, and Trust on consumers' intention to use NFC mobile payment technology (Ibid).

In regard to the objectives of the study, results obtained suggest that the integrated research model explained 87% of consumers' intention to use NFC mobile payments. In comparison, empirical results of the UTAUT and UTAUT2 explain approximately 70% of the variations (Venkatesh et al., 2003;2012). Moreover, the authors credit the inclusion of security, risk, and trust as factors for the models' heightened explanatory power, thereby providing justification for their inclusion in future adoption studies.

Another insight gained from the study by Khalilzadeh et al. (2017), was the fact that participants who had previous experience with NFC mobile payments, were the ones who valued security the most, even more than participants without prior experience. The insights obtained from the study is contrary to results reported in other studies showing that security-related factors are most dominant for nonusers of mobile payment, and fintech adoption in general (Johnson et al., 2017; Kim et al. 2010). As a key finding highlighted by the authors, two out of three most important determinants of intention to use NFC-based mobile payments are security-related constructs. Interestingly, the findings showed that security-related constructs were more salient for males than for females, as security was found to be a direct determinant for male's intention to adopt. In contrast, this was not the case for female participants.

The results obtained from the study by Khalilzadeh et al. (2017) did not only provide valuable insights into the moderating role of demographics on security-related factors, but also contributed to the existing body of knowledge by augmenting established adoption theories with security-related constructs to increase predictability of consumer's adoption intentions. Based on these accounts, as well as existing literature's call for additional research on the effects of security-related constructs on mobile payment adoption, the authors of this thesis decided to augment the research model with the inclusion of a "Perceived Security" construct.

3.3.2 Perceived Risk

Perceived risk is argued to be one of the most central factors in the mobile transaction environment, because it is greatly affected by financial and security concerns (Park et al.2018; Slade et al., 2013). According to Bauer (1960) consumer behaviour can be treated as an instance of risk taking and risk reducing behaviour. Researchers have extensively studied and established that consumers' risk perception is central to their evaluation and adoption behaviours (Shin, 2010). Perceived risk is a construct that measures consumers' beliefs of the uncertainty regarding possible negative consequences. More specifically, perceived risk in a mobile payment context is defined as "*the consumer's belief about the potential uncertain negative outcomes from the online transaction*" (Kim et al., 2009, s. 9). As such, research has shown that purchases and transactions through mobile phones and the internet are perceived as more risky than traditional brick-and-mortar purchases (Shin, 2010).

Correspondingly, extant literature has emphasised the need for analysis of the effect of perceived risk on consumer's attitudes towards mobile payment adoption (Kalinic et al., 2019; Slade et al., 2013; Cabanillas et al., 2020). As mobile payment technology involves the disclosure of financial information and transferring of financial funds, consumer's perception of the potential risks is argued to represent a significant inhibitor for the adoption of mobile payments (Kalinic et al., 2019). Similarly, Shin (2010) found that fear of monetary loss and low consumer risk tolerance plays a significant role in the limited diffusion of mobile payment adoption among consumers and urges future researchers to study the effects of consumer's risk perceptions more closely. Moreover, Johnson et al. (2017) posits that while complex infrastructure and widespread availability of alternative payment methods are basically structural barriers to the adoption of mobile payments, security and privacy risk concerns represent more attitudinal barriers, and these can be manoeuvred. Manoeuvring consumer's risk perception firstly demands thorough research on the interrelationship between perceived risk and behavioural intention, before specific practical measures can be advised to mobile payment providers and marketers (Shin, 2010; Slade et al. 2015).

As such, several studies in contemporary mobile payment literature have undertaken research that addresses prospective consumer's perceived risk of mobile payments. For instance, an additional study conducted by Slade et al. (2015) modelled consumers' adoption intentions of remote mobile payments in the UK by employing an extended version of UTAUT with additional consumer-related constructs such as innovativeness, risk, and trust. The hypothesised constructs were tested by the means of quantitative data collected from 268 survey respondents. The study results suggest that a clear demarcation exists between what mobile payment systems currently offer, and what the UK consumers need. For example, the authors highlight the effects of perceived risk for consumers' intention to adopt mobile payment as a neglected aspect. A theoretical contribution of the study by Slade et al. (2015) is the inclusion of constructs that represent individual characteristics like innovativeness, perceived risk, and Trust.

A critique of the established adoption theories (i.e., UTAUT and TAM), is that they have a deterministic approach, as Slade et al. (2015) argues *"MP adoption studies have predominantly utilised Davis' (1989) Technology Acceptance Model, which has been criticized for having a deterministic approach without much consideration for users' individual characteristics."* (Slade et al., 2015, p.860). With the inclusion of constructs representing individual characteristics such as perceived risk, the authors' extended UTAUT model explained 67% of the variance in behavioural intention to adopt remote mobile payments (Ibid). As a final practical implication of their study, Slade et al. (2015) reiterates the importance for developers and marketers of mobile payments to utilise Trust-building measures like satisfaction guarantee policies to help reduce consumer's risk perception (Ibid). The findings reported in the study by Slade et al. (2015) are vital additions to the body of knowledge in mobile payment research because they authenticate the theoretical extensions of technology acceptance models applied to the consumer context with risk constructs (Dahlberg et al., 2008; Slade et al., 2015).

Constructs that have been used to examine perceived risk include privacy concerns (Johnson et al. 2017; Arvidsson, 2013; Slade et al., 2015) and security concerns (Khalilzadeh et al. 2017; Shin 2010). Though some studies have differentiated perceived risk into several risk dimensions such as perceived social, performance, financial, security, time, and privacy risks, the effects of perceived risk as a singular construct on behavioural intention has been proven significant. Following the example of previous studies using perceived risk in mobile payment adoption research (Johnson et al. 2017; DeFranco, 2016),

the research model developed in this thesis captures risk perception as an overall construct encompassing privacy and security risk and will be grouped under “Perceived Security”.

3.3.3 Trust

The importance of Trust as a factor for adoption of mobile payment services has been examined heavily in mobile payment literature. Early studies of mobile payment also highlight the significance of trust for adoption. Steele (2004) extends the Technology Acceptance Model with Trust and elaborates that trust in a mobile payment setting is captured by the provider’s ability to make the payment system reliable, and anonymous. The reputation of the provider is also highlighted as a trust element for consumers (ibid.)

Many scholars have incorporated Trust into their own UTAUT and UTAUT2 research extensions (Slade et al., 2013; Qasim & Abu-Shanab 2015; Teo et al., 2020). Teo et al. (2020) found Trust to be the only extended construct to UTAUT, similarly it was deemed the most influential for mobile payment adoption. Slade et al. (2013) investigates the moderating effect of the factors in the UTAUT model and found that older women with less experience have a higher chance of adopting mobile payments based on Trust. Cabanillas et al. (2014) concurs and states that there is a stronger relationship between women and Trust. As well as Trust having a larger effect on younger users in mobile payment adoption.

The specific concept of initial Trust is prevalent in much of mobile payment literature. (Waechter, 2015) states initial Trust is one of the most important factors for new consumers when making their first purchase. Trust is positively influenced by elements of the interface layout, such as application and website characteristics and specifically system & information quality. The system quality relies on vendors and their competence. While information quality, which has the largest effect for consumer’s trust, stems from internet sources and friends having experienced mobile payments. Furthermore, reputation is another important signifier for adoption, because a trustworthy reputation can reduce uncertainty and risks by knowing the brand of payment and vendor. Xin et al. (2013) and Chandra et al. (2010) states the importance of perceived reputation of the mobile service provider, due to mobile service providers having a large consumer base, their reputation is vital for further adoption of mobile payments through Trust. This is because if consumers have had a bad experience with a service provider in another area, they will not move towards mobile payment adoption.

When looking into the moderating variables, experience has the most widespread effect on Trust based on literature examining trust on a continuous level. Slade et al., (2013, p.16) argues in her extension of UTAUT2 that: “*As experience can facilitate Trust then it is likely that experience will moderate the effect of Trust on behavioural intention so that Trust is more salient for those with less experience*” (ibid). The quote illustrates that Trust is a particularly influential factor for users with less experience, while continuous usage will enhance the user’s trust. However, Neustaedter’s (2017) study showed that existing users had security concerns with mobile payment that eventually can lead to a decrease in Trust on a continuous level. The cognitive process among individuals is vital for continuous usage, and Cao et al. (2018) argues that continuous use is based on a Trust-transfer perspective in which consumer’s trust formation in mobile payment is based on cognition. The psychological effect of Trust has a large impact on usage: “*It is closely related to the psychological trust whereas cognitive, emotional and behavioural plays an important role on technology.*” (Nelloh et al., 2019, s. 1158). Nelloh et al. (2019) argues that cognitive-based Trust has a large effect on privacy, security and information quality. The more the mobile payment provider can encourage trust, the higher the consumer’s intention to adopt mobile payments.

3.3.4 Personal Innovativeness

Personal Innovativeness is defined as a user’s willingness to try the latest information technology and the construct is conceptualised as a characteristic or personality trait (Agarwal, 1998). Personal Innovativeness has in extant literature been identified as a significant influence on users’ intention to adopt mobile payments, whilst there has been limited research on its effect on continuous usage. Agarwal (1998) were amongst the first authors to study Personal Innovativeness and observe its effects on IS based technology. The authors argued that users with greater Personal Innovativeness have a higher chance to have progressive attitudes towards IS adoption, when compared to less innovative consumers given the same level of belief. They stated that this is because they are usually risk takers and have the tendency to break the general rules (Agarwal, 1998). In the empirical study of Kim et al. (2010), their findings identified a user’s Personal Innovativeness as a considerable influence on the user’s perception of the technology’s functionality due to their openness and confidence to identify features and aids.

Cabanillas et al. (2020) also exclaimed it encouraged the user confidence to adopt new mobile payment technologies. In the paper of Rubio et al.(2020), their study also concluded that Personal Innovativeness was one of the significant variables that considerably influenced user's intention to use mobile payment systems. Following from a study by Zhang et al. (2018), their empirical evidence supported the view that Personal Innovativeness affects user's adoption of mobile payments, and Personal Innovativeness has an impact on user's evaluation of a technology's usability. They also highlighted that proactive users are more likely to have a positive attitude towards modern technologies that require the acquisition of new skills. They went further to say that Personal Innovativeness has a partial facilitating relationship with behavioural intention through perceived usefulness (Zhang et al., 2018). Their study also identified differences in the level of Personal Innovativeness between the age variable with cultural elements also. Their study concluded that predictably the higher the age of the user the less likely they were to have a high score of Personal Innovativeness. The younger the users, the more willingness they had to accept modern technologies.

In addition to these factors, Zhang et al. (2018) also disclosed gender's moderating role. They concluded that males had a heightened sense of Personal Innovativeness with mobile payment technologies when compared to female participants. It was predicted this was due to males having less focus on implications of chance (ibid). Lu et al. (2011) determined that gender has a substantial controlling effect where males had the highest adoption rates compared to females. They stated this was due to men having an increased level of openness to ideas, and that they are bolder to try new technological products (ibid). The above insight is similar to Venkatesh's et al. (2015) study, when they said that men more than women are willing to devote more effort to overcome different constraints in order to attain their goals. Whilst women tend to focus more on the process to achieve their goals which can prohibit their Personal Innovativeness (Venkatesh et al., 2015). As previously mentioned, Personal Innovativeness is tied to willingness, and it was Agarwal (1998) who were the firsts to coin the concept.

Ho (2015) described users with heightened sense of Personal Innovativeness as being more willing to integrate modern technologies into their daily routines, because they challenge the uncertainty around contemporary technologies. This was due to their elevated levels of self-confidence and ability to tackle risk. As a result, the authors argued that users with an increased sense of innovativeness had a stronger

desire to adopt mobile payments. Lastly, Tan et al. (2014) also disclosed that users with a high level of Personal Innovativeness are more likely to be risk takers with more positive beliefs about the benefits of mobile payments. Which in turn increases the likelihood of adoption. In addition to adoption literature many scholars discuss the effect of Personal Innovativeness on the behavioural intentions of users to use the technologies. Lwoga (2017) identified in their quantitative study of 292 survey respondents, that users with proactive attitudes towards mobile payment technologies, are more likely to be influenced by their perception of the technology's practicality. In turn, this positively influenced their intention to use mobile payments (ibid).

Interestingly, their study also identified gender influences on the effect of compatibility and Personal Innovativeness. The male participants in the study were identified to be more personally innovative towards technologies, which correlated with a higher intention to use. The authors tested the effect of Personal Innovativeness on usage with two items, which were the same as one of the first studies on the effect of Personal Innovativeness which was conducted by Agarwal (1998), this was done due to the effectiveness of their findings. Thakur et al. (2014) explained that present literature has authenticated the substantial influence of Personal Innovativeness on the anticipated functionality and the anticipated effortlessness. Thakur's et al. (2014) study also identified that Personal Innovativeness affects adoption readiness, which in turn further creates usage intention. In addition, the authors stated that due to Personal Innovativeness being ubiquitous throughout the IS market, Personal Innovativeness performs an imperative part in foreseeing intentions for usage of technological innovation. Thakur et al. (2014) and Kim et al. (2010) described innovative individuals as "communicative, curious, dynamic, venturesome, and active information seekers", and discovered that Personal Innovativeness can play a prominent role in the intention to adopt mobile technologies.

3.4 Research Gaps

The purpose of the literature table (1&2) enabled the researchers to structurally review existing literature and identify any potential gaps. The objective here was to gain information on the literature trends, for example, showing the most popular keyword (concepts) in the title. Another example would be, which was the most predominant used primary data collection method, quantitative or qualitative? The information established serves as justification to the use of methods and approach used for this thesis.

Watson (2002) argue that a literature review is an essential part of any study, as it identifies what was discovered, whilst simultaneously offering clarification on where the knowledge or practices are particularly lacking. This section will address the latter as it enables future studies to then address the identified research gaps. One of the most significant research gaps that was identified was that there were considerably more papers on the adoption of mobile payment when compared to papers on mobile payment continuous usage. An additional research gap identified was that deficiency in extant literature is the almost exclusive focus on system-specific attributes of most technology adoption models. As such, the research model proposed in this study addresses and overcomes this limitation by the inclusion of constructs that conceptualise the user's individual differences (i.e., Trust). A further limitation in the literature research is that nearly all the models are interpretations and adaptations built upon applicability to other topics. None are specifically designed for mobile payment systems; they are more generally applied to see where the best fit is.

This creates discrepancies in the potential authenticity and opens areas for more targeted improvement. In addition, mobile payments have evolved so much since 2003 until present, that the percentage of applicability in comparison to the current mobile payment services situation has changed. The scope of the literature from studies across the globe vary in situational applicability due to the difference in socio-economic, demographic, and cultural factors. For example, the results from a study conducted in Tanzania, compared to the United States, have different variables to produce accurate concrete findings. Dahlberg et al. (2015) also supported this notion, when they stated mixing articles from developing countries to developed markets could create confusion regarding the progress of mobile payment research. This is due to mobile payment services from developing countries are extremely unlikely to penetrate developed markets due to their pre-established sophisticated financial and telecom markets (Dahlberg et al., 2015).

The last research gap that was identified was that in comparison to other international studies, there is an extremely limited quantity of research studies conducted in Denmark. Most of the literature found conducted in Denmark was not necessarily academically produced; it was made by consultancy firms. Which meant that the papers lacked theoretical perspective and did not have specific focuses on, for

example, consumer adoption or behaviour, they had more generalised understanding which lacked the specific necessary applications to illuminate the field of mobile payment and to add value.

3.5 Concept Matrix

An organised summary of the knowledge, ideas, and findings gathered from the literature review is presented in the concept matrix in table (Appendix A). The concept matrix enabled the researchers to establish which articles dealt with a particular research theme, and allowed the researchers to identify, classify and assess facts thematically (Lubbe, 2012). Moreover, the purpose of the concept matrix is to summarise aspects of knowledge particularly important to this thesis, and to provide an eagle's eye perspective of the current state of the body of knowledge on mobile payment adoption research (Watson, 2002).

We balanced the human side and the interaction side of the research while being aware of the context in which the research is conducted. In defining what concepts to research, we deconstructed the research question to identify concepts therein, as well as investigating concepts we became acquainted with in all stages of the thesis. In addition, the concept matrix enables us to identify gaps in the research, as when dealing with novel technologies, there is an element of unexpected barriers that can be difficult to identify prior to conducting a data collection. Therefore, the concepts do not address all proportions of possible barriers, however, they do discuss the most current and frequently referred problem areas to be found in the literature. The concepts presented in the concept matrix are categorised based on the constructs devised in the UTAUT2. In this sense, each identified concept adheres to a specific UTAUT2 construct. If a concept identified from literature was not already captured by a construct devised in the UTAUT2 (i.e., Perceived Security), the concept would be assigned to its own new category and represent an extension of the UTAUT2.

As mobile payment technology still is a relatively novel, the authors acknowledge the fact that concepts identified from the literature review might not cover all the factors influencing consumer's adoption of mobile payments, however, they do represent the most prevalent factors discussed in literature.

In conclusion, it was found that there exists a high level of consensus among researchers that these factors, including Perceived Risk, Personal Innovativeness, Perceived Security, and Trust, have considerable impact on consumer's intention to adopt mobile payments.

4. Theoretical Model

In this subchapter, we will firstly introduce and explain the theoretical model developed for this thesis. Afterwards, we will move to the specifics by elaborating on the hypothesised interrelationships between independent variables, the dependent variables, and moderators. Constructs will be explained in the order which they appear in the theoretical model, i.e., Performance Expectancy will be the first, Effort Expectancy second, and so forth. The proposed theoretical model (Figure 12). is based on Venkatesh's UTAUT2 model as the theoretical foundation but has been extended by integrating additional concepts grounded in literature. The framework takes the individual user as the unit of analysis, whilst the constructs represent factors that are hypothesised to influence the adoption and usage of mobile payment systems.

The theoretical model represents how we as researchers make logical sense of the relationships among the several factors that have been identified as important to the research problem. The framework flows logically from the documentation of previous research in the problem area (Uma Sekaran, 2016). In summary, the theoretical model depicts the interrelationships between the independent variables and the dependent variable, which are believed to be important for the dynamics of the situation being investigated. The framework helps the researchers to postulate or hypothesise and ascertain certain relationships, and to improve our understanding of the dynamics of the situation (ibid).

As it can be seen in the theoretical model, constructs listed on the vertical axis are categorised into two distinct groups: *system-centric factors*, and *user-centric factors*.

Constructs assigned to the former group all emphasise attributes of a mobile payment system. For example, Performance Expectancy refers to an individuals' belief that a mobile payment system will help him or her to perform and accomplish tasks (Venkatesh et al., 2012). Likewise, Perceived Security refers to an individuals' belief that the mobile payment system has installed security-measures that will prevent

the loss of personal and financial data when executing transactions and payments (Khalilzadeh et al., 2017). The latter group, *user-centric factors*, contains all the constructs that are of attitudinal nature. In contrast to system-specific factors, which emphasise the utilitarian value that mobile payment systems provide, the User-centric factors measure the users' internal subjective perception of accepting mobile payment systems. For example, *Trust* reflects a user's internal perception of the mobile payment system's trustworthiness and is measured as the extent to which an individual believes that using mobile payments is safe.

The categorisation of constructs into system and user-related factors has previously been used and verified by scholars researching not only mobile payment acceptance, but technology acceptance in general (Kim et al. 2009; Oliveira et al. 2016). For example, the study by Kim et al. (2009) examined the impact of factors that influence the adoption of mobile payments, and the authors categorised factors into two groups: individual differences, and mobile payment system characteristics (Kim et al., 2009). Likewise, the study by Lwoga (2017) also studied user acceptance of mobile payment by using UTAUT as the theoretical base, however, in their research model constructs were categorised into user-centric factors, security factors, and mobile payment system characteristics (Lwoga, 2017). A similar approach was adopted by Keramati et al. (2016), who categorised factors affecting mobile payment adoption into behavioural and technical factors.

4.1 System-Centric factors

Firstly, **Performance Expectancy** is operationalised in the same way as in the original UTAUT2. This means that Performance Expectancy influences behavioural intention just as in UTAUT2, and its effect on behavioural intention is moderated by age and gender. Secondly, **Effort Expectancy** is also operationalised in the same way as in the original UTAUT2, meaning Effort Expectancy is hypothesised to influence behavioural intention, whilst its strength is moderated by age, gender and experience.

Thirdly, **Facilitating Conditions** is hypothesised to influence both behavioural intention and subsequent use behaviour, whilst its effect on both constructs is moderated by age, gender and experience. All these hypothesised relationships are the same as in the original UTAUT2.

Fourthly, **Perceived Security** is hypothesised to affect both behavioural intention and use behaviour, while the strength of its influence is hypothesised to be moderated by age and gender. Furthermore, the inclusion of Perceived Security as a new construct represents an extension of the original UTAUT2 framework. The strong relationship between Perceived Security, behavioural intention, and use behaviour has been verified extensively in prior mobile payment literature (Park et al., 2018; Shin, 2010; Cobanoglu et al., 2015; Slade et al., 2013), thus providing justification for its inclusion in this thesis' theoretical model. In this thesis, Perceived Security is a multi-dimensional construct that consists of related underlying concepts such as: Perceived Security and Risk.

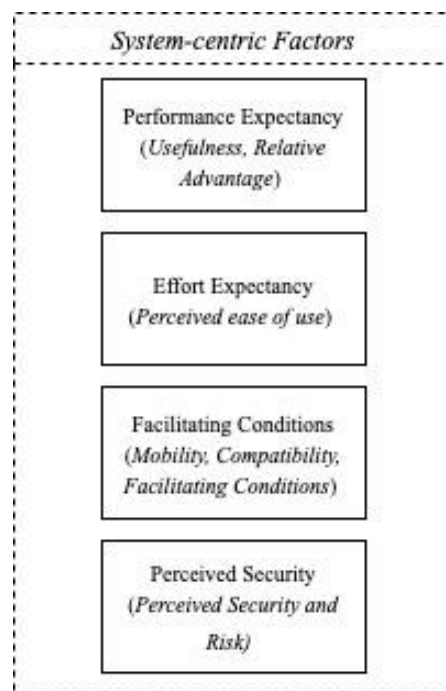


Figure 9 - User-Centric Factors

4.2 User-Centric factors

Moving further down the vertical axis we see four constructs that have been grouped together under *User-centric Factors*.

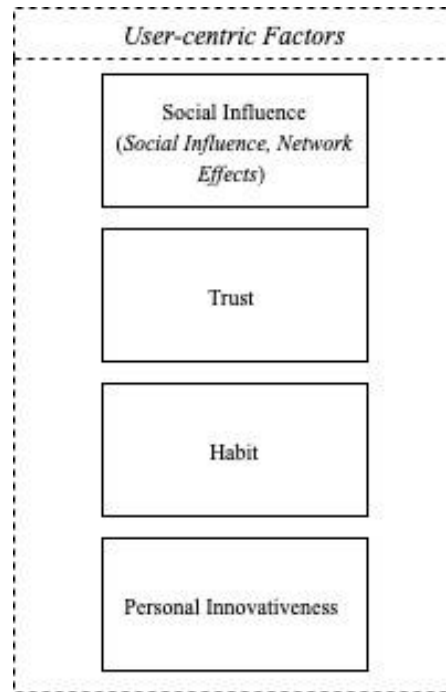


Figure 10- System-Centric Factors

The first construct in the User-centric factors, **Social Influence**, is hypothesised to be a direct determinant of behavioural intention, whilst the strength of its effects is affected by age, gender, and experience.

The second construct, **Trust**, is a new additional construct that has not already been conceptualised in Venkatesh's UTAUT2. However, it has been argued that the most influential issue that consumers evaluate when contemplating online exchange is trustworthiness (Park et al., 2018). Moreover, Trust in technology has been linked to user technology adoption, signifying the role of Trust as a significant concept (Park et al., 2018; Shin, 2010). For these reasons, we believe that the higher level of Trust the consumers place in mobile payment services, the more likely they will form an intention to adopt mobile payments. Thus, Trust is hypothesised to positively correlate with both behavioural intention and use behaviour, whilst its effects are moderated by age and gender.

The third construct, **Habit**, is conceptualised in the same way as in UTAUT2, meaning Habit positively correlates with behavioural intention and use behaviour, and its effects are moderated by all three moderators: age, gender, and experience (Venkatesh et al., 2012). The fourth and final construct, **Personal Innovativeness**, is a new additional construct not previously captured in UTAUT2. However, previous research has verified that the higher the innovativeness level of a user, the greater the predisposition to feel comfortable with the technology and realise the benefits of the technology (Oliveira et al., 2016). In a mobile payment context, Personal Innovativeness is explained as the individuals' willingness to try new mobile technologies, i.e., mobile payments (Kim et al., 2010). Such willingness to try new technologies stems from the fact that innovative individuals are active information seekers, open to new ideas, and therefore, innovativeness will play a determining role in the intention to adopt new mobile technologies (ibid). Moreover, Personal Innovativeness is conceptualised as a personal trait, which is why it is placed under *user-centric factors* in the theoretical model. Based on the aforementioned accounts, we hypothesise that Personal Innovativeness will have a positive influence on behavioural intention to adopt mobile payments; whilst the strength of the relationship will be moderated by age and gender.

4.3 Theoretical Model

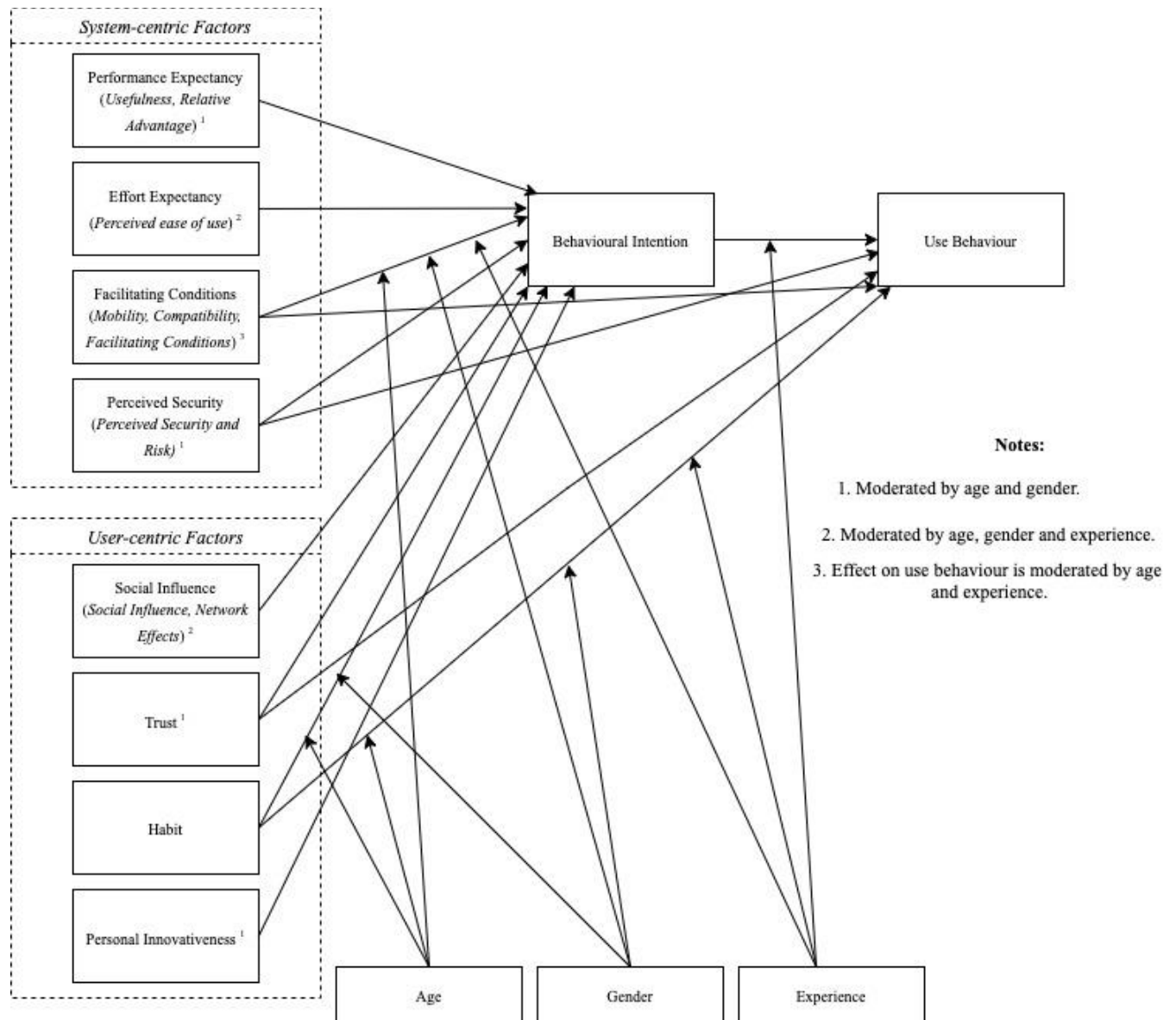


Figure 11- Theoretical Model

5. Methodology

5.1 Research Design

This chapter will present the methodological tools used for the collection and handling of empirical evidence related to the problem formulation. Seeing that the purpose of this thesis is to examine factors that influence consumers' intention to adopt and use mobile payment systems, the thesis has until now been based upon a rather theoretical foundation led by existing literature on mobile payment systems and technology adoption and usage. Consequently, the forthcoming chapter will address the methodological considerations which this thesis is based upon.

5.1.1 Philosophy of Science

As this thesis aims to obtain knowledge on consumers' behavioural intention to adopt and use mobile payments, which mobile payment providers can translate into actionable measures, it was decided to adopt pragmatism as the philosophical underpinning for the thesis. Saunders et al. (2019) argue that for a pragmatist, the research process often begins with a problem, and aims to provide practical solutions that inform future practice (Saunders et al., 2019). This reasoning can be identified in the current thesis. For instance, research was initiated to understand and examine what factors influence consumers' acceptance and use of mobile payment systems, and the aim is to contribute with practical solutions in the form of findings that may be used to support the development of appropriate mobile payment service business models, marketing campaigns, as well as systems design.

As a philosophy, pragmatism combines elements of other philosophies such as interpretivism and positivism but dismisses the notion that researchers are compelled to exclusively pick either of them. By its very nature, pragmatism embraces plurality of methods which allow researchers to choose the methodological approach that works best for the research problem (Vibha Kaushik, 2019). This stance has its source in pragmatism's ontology, where *"knowledge is socially shared as it is created from socially shared experiences"*, conveying that research should be undertaken from different perspectives to obtain a holistic understanding (Vibha Kushik, 2019, p.4). For this reason, pragmatism is often associated with a mixed-methods or multiple-method approach, as is the case in this thesis. Historically, pragmatist scholars have altogether rejected the notion that empirical inquiry can access reality by only

using a single scientific method. This stance is reflected in pragmatism's orientation toward solving practical problems with whatever tools researchers deem necessary. For example, Vibha Kaushik (2019) argues that pragmatism's endorsement of plurality of methods convey that "*the focus is on the consequences of research and on the research questions rather than on the methods*". However, this does not suggest that pragmatists always employ multiple methods just for the sake of it, but rather they apply the method or methods that "*enable credible, well-founded, reliable and relevant data to be collected that advance the research*" (Saunders et al, 2019, p.136).

Sekaran & Bougie (2016) describe pragmatist research as a process where "*concepts and meanings (theory) are generalisations of our past actions and experiences, and of interactions we have had with our environment*". A philosophical underpinning of pragmatism is that it recognises that there are many ways to interpret the world and undertake research, and that a single point of view can never give the entire picture (Saunders et al., 2019). This approach is extremely helpful to solving a business challenge, because it takes different points of observation on the research and the object of investigation. Another philosophical underpinning of pragmatism is that it considers truths as *tentative*, and thus changeable over time. This means that research results should be provisional truths, and not definite results. Pragmatists lay strong emphasis on the relationship between theory and practice. Theory is derived from practice, which then is applied back to practice to achieve *improved* practice (Sekaran and Bougie, 2016).

Ontology	External, multiple viewpoints, view chosen that best positions the researcher to answer the research
Epistemology	Knowledge based on experience is true both subjective meanings and observable phenomena constitutes acceptable knowledge, focus on practical applied research; informed future practice as contribution
Axiology	Value-driven research, values important in interpreting results, the researcher can adopt both subjective and objective points of view
Common data collection techniques	Following research problem and research question, mixed or multiple method design, qualitative and quantitative

Table 3 - Pragmatism (Saunders et al., 2019)

As it can be seen in table 13 above, in terms of epistemological, ontological, and axiological assumptions, pragmatism allows researchers to choose the combination that most comprehensively positions them to answer the research question. Furthermore, pragmatism allows the use of both qualitative and quantitative data collection methods, and it strives to integrate both objectivism and subjectivism, as well as facts and values (Saunders et al., 2019).

5.1.2 Research approach

A research project starts with the approach to theory development. Which theory is going to be used, what type of information collection is used in your primary and secondary data collection methods. *“The extent to which you are clear about the theory at the beginning of your research raises an important question concerning the design of your research project”* (Saunders et al. 2019 p. 144). There are three approaches to theory development (Ibid). The deductive approach that leads to theory falsification or verification, the inductive approach that centres on theory generation and building, and abduction that incorporates existing theory to modify or build to that existing theory. In the early stages of this thesis, the authors decided to rely on the UTAUT2 framework as the theoretical backbone of the study, which means this study has a deductive and abductive approach to theory development.

Saunders et al. (2019) points out that the abductive approach is commonly practiced in business and management research, similar to this thesis. As deduction is described as moving from theory to data, and induction is described as going from data to theory, the abductive theory approach goes back and forth, combining deduction and induction (Dean A. Sherpherd, 2016). In this thesis, concepts were derived from the UTAUT2, as well as from literature and testing our propositions through survey questionnaires as previously mentioned, thus applying a deductive approach. However, by collecting interviews from professionals, we are similarly using an abductive approach, by going back and potentially modifying the existing UTAUT2.

Mikko Ketokivi (2010) states that abduction starts with the observation of a ‘surprising fact’, while going back and forth between literature and interviews. The researchers might find interesting findings in both stages. A surprising fact in the case of mobile payments would be how some concepts contribute to mobile payment adoption and usage. For instance, a number of scholars found that the Social Influence

of other people using mobile payments would be a larger factor than for example Performance Expectancy and Effort Expectancy. Maanen et al. (2007) furthermore, proposes that theories differ from one another when observing surprising facts. For instance, looking at the theoretical base of UTAUT2, which states that Social Influence is a factor for technology acceptance, the theory of diffusion of innovation has not conceptualised social influence as a factor. Furthermore, the theoretical approach of abduction relies on finding new concepts that can possibly modify an existing theory. In our case, the inclusion of Personal Innovativeness, Trust and Perceived Security Risk all serve as surprising facts. Furthermore, Saunders et al. (2019) argues that these surprising facts can occur throughout the entire research process. During interviews new concepts and surprising findings will be found, and previous concepts will be validated and/or falsified.

In this thesis, abduction explores the phenomenon of mobile payment acceptance and explains themes and patterns through the concepts tied to theoretical constructs. By investigating consumers behavioural intention and subsequent use behaviour, the secondary data collection through the literature review can help explain the themes, patterns and concepts discovered through literature (Saunders et al., 2019). Furthermore, these patterns are shown in a theoretical model, illustrated earlier as an extension of UTAUT2, and revise or affirm the model after primary data has been collected.

Easterby-Smith et al. (2012) mentions three reasons for the importance of theory development. Firstly, it requires the researchers to make an informed decision on research design. This happens through overall configuration of a research that involves questions about the data collected and how the data is interpreted and analysed in order to answer the initial research question of “*What factors influence consumers' behavioural intention to adopt and use mobile payment services?*”. Secondly, the researchers have to look into which research strategies and methodological choices work for the particular study. Thirdly, the knowledge of the different research traditions enables the authors to adopt a research design and theory that can cater for limitations and constraints e.g., in our case limited access to Danish studies or even limitations to obtain interviews due to the ongoing Covid-19 lockdown.

Saunders et al. (2019) sees the combination of the two approaches in abduction to be advantageous. However, approaches are rarely split equally when it comes to theory approaches. In this thesis, we heavily rely on deductive methods, mostly due to the presence of UTAUT2, deductive approaches often

also have a larger amount of literature like how literature within mobile payments is extensive. However, in order to take an abductive approach on this stand, we must investigate the theoretical model based on existing literature. The literature on mobile payment systems in a Danish context is limited. Most articles identified through the literature review have a geographical standpoint, like this thesis. Conducting a thesis on Danish consumer's mobile payment behaviours enables us to adapt the existing theory of UTAUT2 to a Danish context.

The data collection and longitude of it also differs between the abductive and deductive approaches. Deductive data collection is often described as a one-take. One can do all the data collection in one go and based on the findings the theory can either be verified or falsified. Deduction is thus a low-risk strategy; however, the only problem would be the number of non-respondents, i.e., surveys that have not been fulfilled (ibid). On the other hand, the abductive approach occurs over time, as the analysis starts to emerge gradually. This is since miss-matching patterns can occur in data collection and theory. If the literature states something that is not coherent with the data collection, another sample may be added in order to modify and even verify parts of existing theory (ibid). In our case, since we are conducting a study in a Danish context, the initial survey results will not be discarded if it shows unmatching patterns between theory and data collection.

5.1.3 Deductive reasoning

Mikko Ketokivi (2010) argue that the logic behind deductive inference is that when premises are true, conclusions are similarly true. One generalizes from the general to the specific, thereby narrowing the scope. *“Research starts with theory often developed from your reading of the academic literature and you design a research strategy to test the theory you are using a deductive approach”* (Saunders et al., 2019, p.145).

Blaikie (2009) presents a list of six sequential steps that the deductive approach follows. First, one must put forward an idea, premise or hypothesis. This proposition then can be examined e.g., through statistical measures to show relationships between concepts and variables. In this thesis, the researchers are employing an online self-administered questionnaire in combination with semi-structured interviews, to

examine the existing concepts in UTAUT2. It is also possible to construct a theory, however, as this thesis already is based on a theoretical framework, the researchers are planning to extend it rather than to construct a new theory. The second step consists of exploring existing literature and/or specifying the settings, which the theory is expected to hold and deduce testable propositions/hypotheses relating to each construct. Third, the researchers will examine the premises and logic of the arguments and compare them with existing theory to see if it provides a better understanding. As the thesis already has managed to conduct a literature review that explores existing literature within the field of mobile payments, each proposition is related to each concept.

The thesis will compare the literature with the theory of UTAUT2 to ascertain a greater grasp of the theory and concepts. The fourth step in the deductive approach is to collect data to measure and analyse the concepts and variables, as well as test the premises. As this thesis is practicing a mixed-method approach to data collection, the quantitative and qualitative data helps to test the premises of mobile payment adoption from two different angles. The fifth and sixth step in the deductive approach centres on the results. If the data results are not consistent with the literature, the test must be modified or rejected, and the process has to restart. On the other hand, if the results of the analysis can be aligned with the premises, ideas and/or hypotheses, the theory is verified. In this thesis, the researchers will examine existing constructs in the UTAUT2, as well as new constructs identified from the literature review and confirm them through data collected from surveys and interviews.

5.1.4 Data collection strategy

A comprehensive amount of empirical material has been collected in order to obtain a solid basis for understanding mobile payment systems in general, and to particularly analyse antecedents of individuals' adoption and usage of mobile payment systems. The different types of data were collected and inspected iteratively throughout the research process. First, it was necessary to obtain comprehensive background information on mobile payment systems and technology acceptance in order to direct the research. Secondary data sources such as publications from Information Systems Journal (ISJ), MIS Quarterly, and relevant previous research articles were examined to obtain insight into the relevant context. For this thesis, the existing literature was particularly helpful in developing the theoretical model presented in the previous chapter. Second, several interviews with professionals from MobilePay offered invaluable

insight into the industry's effort to understand and engage both current and potential users of mobile payment systems. These insights were important for analysing if current mobile payment solutions are aligned with actual customer needs.

Nonetheless, to make sure that the information obtained from the interviews were applicable to the thesis, the interview guide was based on the preliminary propositions derived from the literature review and later integrated into the theoretical model mentioned in the previous chapter. The theoretical model helped to focus the interviews to address the problem formulation, thus influencing the data collection and analysis. Third, following the interviews, a self-administered questionnaire, as well as professional interviews, helped the researchers to triangulate the insights from the interviews in order to critically evaluate the data and ensure validity.

5.1.5 Primary Data

In order to understand the dynamics that arise in situations where consumers and technology interact with each other, it is necessary for us as researchers to reflect upon our choice of methods for empirical data collection. According to Saunders et al. (2019), the choice of primary data collection method usually falls between survey, interview, experiment, or the field observational method (Saunders et al., 2019). However, it is important to choose the method(s) that best correspond with other parts of the research design in order to ensure a coherent link throughout the research methodology. In this thesis, the empirical data was collected using a concurrent mixed-method data collection strategy. A concurrent mixed-methods approach focuses on collecting, analysing, and mixing both quantitative and qualitative data in the same phase of a study (Uma Sekaran, 2016). In this thesis, the qualitative data was collected by interviewing professionals from MobilePay, as well as interviewing scholars with expertise in mobile payment research, whilst the quantitative data was collected from consumers by using an online self-administered questionnaire. Both the qualitative and quantitative data is based on the theoretical model presented in chapter 3.4.1, thereby allowing the researchers to interpret and compare the two sets of data simultaneously. An advantage of mixed methods is that it allows the researcher to interpret both sets of results to provide a richer and more exhaustive response to the research question in comparison to the use of a single method design (Saunders et al., 2019).

The motivation behind the choice of methods used to address the research question is based on a few accounts. First, as previous studies on UTAUT2 and mobile payment acceptance mainly have been hinged on questionnaire data from consumers (Dahlberg et al., 2015; Venkatesh et al., 2012), the employment of a mixed methods design arguably provides more agency to the participants, and as a result may contribute with new findings to the existing body of knowledge. Second, by adding a qualitative element to the research, this thesis responds to the recommendations outlined by previous mobile payment research; *"Another means to support the development of mobile payment knowledge could be the use of mixed-method approaches"* (Dahlberg et al., 2015, p.274). The sources of evidence will be presented and reviewed beneath.

5.1.6 Sampling Strategy

As this thesis follows a concurrent triangulation design, in which the quantitative and qualitative phases occur simultaneously, it raises certain challenges for the researchers when it comes to sampling (Saunders et al., 2019). For instance, it is vital to consider certain aspects such as: how to choose potential sample subjects, how to specifically target and contact them, and what procedure will be used to ask questions and collect answers (ibid).

The qualitative component consists of semi-structured interviews with professionals from MobilePay, and interviews with scholars in the mobile payment field. The interview sampling has been conducted with the aim of gaining empirical knowledge on the current measures and actions that mobile payment service providers take to incite consumer adoption of mobile payment services. The interview-participants were selected partly because of their direct affiliation with mobile payment services, but also because of their enlightened opinions, views, and knowledge which constitutes a rich data source for this thesis' research objective (Uma Sekaran, 2016).

The quantitative component consists of a survey questionnaire containing questions that are aligned with the theoretical framework presented earlier. The quantitative sampling strategy follows a combination of different approaches in sampling, mostly inspired by the two non-probability techniques convenience and judgemental sampling (Saunders et al., 2019). According to Saunders et al. (2019), the most important element when choosing a sample selection technique is *"The logical relationship between your*

sample selection technique and the purpose and focus of your research" (Saunders et al., 2019, p. 301). Consequently, the authors internally discussed the approach and collectively agreed that the chosen sample selection techniques were appropriate for this thesis' focus and purpose. Prior to engaging in data collection, two formal criteria were established for the respondents of the questionnaire:

1. The participants own a smartphone.
2. The participants have a bank account.

The sample frame of the survey was Danish consumers, who are currently using or have previous experience with mobile payment services. However, in order to obtain as broad a range of data as possible, the questionnaire was distributed through the researchers' own personal network as well as public social media channels to reach average consumers who may not possess a profound mobile payment knowledge.

5.1.7 Quantitative data collection design: Questionnaire

The quantitative part of the data collection consists of an online self-administered questionnaire, which was employed to collect data using a convenience sample of 91 Danish resident's mobile payment users. For this purpose, it was decided to employ the survey development software called Qualtrics (Appendix B). The survey software is offered to CBS-students cost-free with the purpose of enabling students to create and execute online surveys for research purposes. This study's questionnaire is specifically oriented towards understanding and identifying the factors that influence consumers' acceptance and use of mobile payment systems. Several other researchers have utilised this method to study the adoption of mobile payment systems (Kim et al., 2010; Johnson et al., 2017; Oliveira et al., 2016; Lin et al. 2019). Surveys are a great method for collecting a wide variety of quantitative data from the preferred target population in a short period of time. They are often used to gain a richer understanding of consumers' opinions and preferences whilst they allow the researcher to cover a wide geographical area through the internet as a medium (Uma Sekaran, 2016). A beneficial aspect of survey data is the consistent data it generates, which in turn, facilitates a higher reliability of the data collected (Saunders et al., 2019). For

instance, reliability can be ensured if the survey data can be analysed in a consistent, transparent and replicable way, so another researcher may follow the same approach and achieve the same results (ibid). The aim of this thesis questionnaire is to understand what factors the consumers place importance on. Subsequently, the information that can be elicited from the questionnaire will be used to address the research question, as well as to identify new potential factors to examine. Employing an online self-administered questionnaire with predetermined questions allowed the researchers to collect data in a standardised form from a sizable population of respondents in an economical way. The questionnaire data collection procedure consisted of three steps: designing and creating the questionnaire; pre-testing and adjusting the questionnaire; and lastly, distributing the questionnaire for the collection of empirical data.

The design of the questionnaire is divided into two parts: the first part includes demographic items concerning age, gender, educational level, and previous experience with mobile payment systems. The background questions help to establish demographic characteristics of the respondents and will provide helpful information for the upcoming analysis. The second part involves questions that are designed in accordance with the constructs devised in the UTAUT2, as well as concepts gathered from the literature review on previous UTAUT2 mobile payment studies. As such, the questions were designed with the purpose to obtain insight upon all the factors devised in the theoretical model. By taking inspiration from questionnaire items connected to the theoretical models' determinants that have previously been tested and verified in mobile payment literature, a higher level of reliability can be given to the research approach.

To ensure a high quality of questions and questionnaire design that addresses the research objectives, the questionnaire instrument was pre-tested and modified prior to distribution for data collection. The initial version of the questionnaire was adjusted by pretesting with a professor from CBS with expertise in UX and UI. Pretesting with an expert helped to minimise errors and to attain content reliability (Saunders et al., 2019). Validity of the questionnaire was heightened by using questions based on validated items from previous studies on UTAUT2 and mobile payment acceptance. After revising the questionnaire, a pilot-test was conducted. The several phases of questionnaire development resulted in a final version of the instrument that were optimised for the research objectives and aim of this thesis.

The questionnaire consists of 35 items corresponding to the eight constructs, the dependent variable behavioural intention and use behaviour in the theoretical model: For an overview of the questionnaire items (Appendix B). A multiple-item method was used to measure responses from the participants, in which each question is quantified by using a 5-point Likert scale from 1 = (strongly disagree) to 5 = (strongly agree) Moreover, all answers are re-coded so that a higher value answer (4-5) conveys a positive response, while a low value answer (1-2) conveys a negative response. The scale is adapted from the original UTAUT2 study by Venkatesh et al. (2012).

5.1.8 Exploratory study

As far as the nature of this thesis is concerned, it could be argued that the thesis firstly started off exploratory, as the thesis looked to explore new avenues and themes. Exploratory research is useful for clarifying what is the nature of the problem. Robson (2002) argues that an exploratory research style can be useful to identify the situation of a topic or to seek new insights on pre-established ones. Exploratory research predominantly utilizes semi-structured qualitative interviews with open-ended questions to explore other avenues that the research may perhaps not go if the research was from a quantitative perspective. This thesis shall be using this approach to interview experts on the subject matter enabling us to explore deeper avenues. In addition, this thesis will aim to explore new levels of influence of factors through the utilisation of a quantitative survey approach which will hopefully allow the researchers to identify relational trends between socio demographic factors of the user type. This paragraph concludes that the research will incorporate an exploratory research style due to its applicability and heightened degree of appropriateness to this thesis, enabling the thesis to ascertain more targeted in-depth data.

5.1.9 Research strategy

Saunders et al. (2019) describes the research strategy as: *“The plan of how researchers will attempt to answer their research question. It is the methodological connection between the philosophy and subsequent choice of methods to collect and analyse data”* (Saunders et al, 2019, p.57).

When choosing the research strategy for a research project, there are a multitude to choose from such as, case studies, ethnography and grounded theory etc. To decide which research strategy was a more complete fit, we investigated each strategy to make an internal assessment on the best fit to our research design and our research question. This thesis will be of a mixed-method nature, with an interview-based research style being one source of data to this research project, and a survey instrument also being conducted simultaneously to provide a different type of data from a different source type. The mixed-method approach was chosen due to the belief of the further depth the varied data forms could provide the research question, in comparison to a singular method research strategy approach, with the acquisition of valuable data through semi-structured in-depth interviews, with professional experts on the subject matter and the use of widespread user surveys. Furthermore, using semi-structured interviews enables the data to have less of a chance of narrowing the scope of the interviews, whilst still providing more in-depth insights, the interview is still being able to be guided in the right direction, but there are less limits to what data can be collected (Denzin, 2009).

The major advantage to using surveys in a parallel fashion to an interview-based study, is that it enables the study to add a different data type for comparison. Additionally, surveys are flexible and dependable. The flexibility is due to the number of approaches that surveys can be created and administered, and the dependability of surveys is due to the anonymity of the survey's respondents can give potentially less influenced insights and opinions in the phenomena being researched, when compared to face-to-face interviews where the respondents may feel less inclined to be truthful about certain questions. Through this mixed-method approach, both data accumulation types will be able to be analysed and compared, thereby enabling the researchers to provide more holistic insights into the research question at hand (Saunders, et al., 2019).

There are many authors that also support the perceived benefits of a mixed-method strategy and describe the mixed-methods strategy as a combination of qualitative and quantitative designs which provides a more complete comprehension of a research problem than either approach alone (Denzin 2009). The researchers firmly believe that the mixed-method approach of interviews and survey-based research strategies link well to the research philosophy approach of pragmatism. As pragmatism's focal point is essentially to find what works best, the researchers feel that this can be optimised and achieved through a mixed-method approach, which looks to use whichever method possible to achieve maximum results.

5.1.10 Validity and Reliability

Primarily the terms' reliability and validity must be defined. They are in essence the centre of the judgement of a study. Firstly, reliability is the notion of the level of replicability and the consistency of the study. Secondly, validity refers to the adequateness, and correctness of the measures used for the study. For example, are the measures as specific as intended, are they sufficiently accurate to provide in depth analysis (Saunders et al., 2019).

5.1.11 Reliability

From a qualitative perspective reliability can be an issue to enforce, due to the diverse paradigms (Carcary, 2009). Hence, Jansen (2010) suggests the essence of reliability for qualitative research lies with consistent consistency (Jansen, 2010). In order to achieve internal reliability and provide a consistent outcome, all the researchers for this thesis were involved in the interview process, where the data was collected and analysed. The extent of agreement between the researchers was then looked at, which in turn, led to the evaluation of the level of agreement on the data and the analysis. A way that we ensure external reliability throughout this thesis, is by ensuring full transparency of our methods and techniques, in terms of the types used and the factors surrounding the methods that may or may not have had an impact. We ensured that we were methodically rigorous in our approach in order to mitigate the risks of participant error. The quantitative reliability was examined through several different methods. *“The reliability of the questionnaire depends on the reliability of the measurement, which refers to the stability and consistency of the measurement results.”* (Bryman, 2013, s. 140). Reliability in quantitative settings centres on whether the items in the survey will produce somewhat the same results if done multiple times.

Cronbach's Alpha is throughout literature the most common and accurate way to correctly measure item reliability (Taber, 2017). Cronbach's Alpha is often used in Likert-scale questionnaire surveys, similar to this study, and specifically measures how closely related concepts, in the same construct, are to each other. In order to measure Cronbach's Alpha, we have used STATA, and found that all constructs had at least a Cronbach's Alpha of at least 0.728 (appendix C), which indicates a high reliability (ibid.).

5.1.12 Validity

The primary way the researcher's ensured a heightened sense of validity throughout the thesis, is through the use of well-established and extensively validated concepts within the theory of UTAUT2. With the supplementary constructs coming from additional well-established theories. The researchers recognised the potential for biases in the respondents and attempted to avoid the guiding of survey respondents by camouflaging the true intent of the reason behind our questions. In addition, since we, as the researchers, have prior experiences with mobile payment technology, we recognised that there would be some element of personal bias, at the very least through subconscious past experiences that we would have to identify and eliminate. These biases can be found throughout the whole process, however, Pannucci et al. (2010) argues they have the most predominant effect in the sampling or testing stages by selecting or encouraging one outcome or answers over others. The major issue is that bias is not a dichotomous variable, meaning in this case, the interpretation of bias cannot be limited to a simple, is it present or not? (Pannucci et al., 2010).

Firstly, the types of bias must be identified, and these are split into two types of bias Respondent and Researcher Bias. An example of the most significant respondent biases is 'Acquiescence bias', where the respondent can agree and be positive with whatever the researcher presents. This is mitigated by replacing questions that suggest there is a right answer in order to gain the respondents true opinion. An example of researcher bias is 'Confirmation bias'. This is when a researcher forms a hypothesis and uses the respondent's information to confirm that belief. This is mitigated by continually re-assessing the impressions of respondents and challenging predetermined assumptions (Saunders et al., 2019). However, we recognise that some degree of bias will always be present, despite best efforts.

In order to maintain external validity, we ensured that the variables surrounding and involving the questionnaire respondents were limited and controlled, such as: they were all mobile users, had a bank account, and were in a certain age group. This was to make it representative and easily transferable to future studies. However, we had to ensure that there were not too many socio specific factors that would prohibit the thesis in its future development. A further way we have aimed to increase the thesis' validity, is through increasing the number of questionnaire respondents. With increased respondents than initially agreed, we have opened the opportunity for data to become more consistent across vaster numbers of samples, the data is then seen as more reliable (Leung, 2015). Triangulation is the notion of utilizing multiple sources of evidence to collect data on the same topic. In doing this, findings can be more widely substantiated and further validity can be assured. This is due to a variety of methods being used to collect data on the same topic which creates varied samples. We ensured that this could be achieved by utilizing a mixed method approach. Incorporating quantitative based surveys and qualitative based semi structured expert interviews into the data collection allowed the researchers to ascertain the sufficient validity necessary for project progression and quality (Yin, 2003). Central to triangulation is the notion that varied methods lead to the same results, increasing the confidence and credibility of the research findings (Rothbauer, 2008).

However, when compared to quantitative methods validity approaches, qualitative can seem less concrete and defined. This is due to the lack of statistical analysis that can be used (Saunders et al., 2019). Our primary tactic to ensure validity in the quantitative data was through using a large sample size of 91 survey respondents, this was done to mitigate the risk of getting narrow results.

5.1.13 Non-standardized semi-structured open-ended interviews

The qualitative primary data follows a semi-structured, non-standardised interview typology. In a semi-structured format, the researcher has several themes and questions that must be covered in the interview (Saunders et al., 2019). This varies from interview to interview, but some questions are replicated in different interviews. Furthermore, additional questions may help to further explore and elaborate on insights related to the research question and research objectives (ibid). Particularly in this study's case, scholars and MobilePay professionals were asked similar questions, with the objective of comparing opinions from professionals and scholars on which factors they deemed influential for mobile payment

adoption. Moreover, with regard to the interviews with the CBS scholars, it was deemed appropriate to scrutinise their publications on mobile payment research prior to the interviews, in order to focus the questions around particular areas of knowledge.

According to Saunders et al. (2019), when preparing for semi-structured interviews, the researcher must consider the following preparations: level of knowledge, developing interview themes, supplying information to the interviewee before the interview, and the intended interview location. First, the researcher's knowledge emerged from reviewing relevant publications in extant literature on mobile payment adoption, technology acceptance, and information systems. This was done with the objective of establishing a well-rounded and academic framework, both on the topic of mobile payment services, as well as technology acceptance and usage models, not only UTAUT, but other acceptance models and theories as well (ibid). Furthermore, with regard to interviews with MobilePay professionals, it was considered necessary to obtain deep background knowledge on pertinent elements about MobilePay to enhance the quality of questions prior to the interview. Pertinent elements about MobilePay could include financial data, profit and revenue projections, consumer demand and characteristics of the installed user-base, organisational practices and routines, and general history of the company.

Secondly, prior to the interview, the researcher must develop interview themes and supply information to the interviewee. Each interviewee was provided a list of themes and questions, from which the interview would centre around. Interview themes centred around each determinant in the theoretical model as well as concepts derived from reviewing current literature: *“Interview themes may be derived from the literature that you read, the theories you consider, your experience of a particular topic.”* (Saunders et al., 2019, p.402,). These themes simultaneously reflect upon the main variables of the thesis. Saunders et al. further argues that researchers may begin the interview with an introduction to the themes and variables, or general questions about the research.

Finally, Saunders et al. (2019) also argues that the location of the interview can pose as an influential factor for the data collection. However, since the ongoing Covid-19 pandemic, the parameters of the interview process were irrefutably changed. The implication of this has been that each interview was conducted through internet-mediated video call software, which in turn meant that the interviewees would feel more comfortable as the interviews were conducted from their own office or home.

5.1.14 Interview Guide

The interview guide (Appendix B) is designed with the purpose of being able to connect the primary data through expert interviews and interviews with the MobilePay professionals in order to obtain insights to the research question and topic of this thesis. Each interview guide consisted of questions related to each concept in the theoretical model. Instead of asking directly about the constructs, the questions were based on themes for each construct. This was also a method for probing questions (Saunders et al., 2019) that had specific significance to the research topic. Similarly, the researchers asked open questions to get more extensive and developmental answers, where the interviewee can answer with as little bias as possible (ibid). The open questions generally also concerned factors which Danish consumers might consider the most important when contemplating to adopt mobile payments. Since three of the interviewees were working academic scholars, all their articles regarding the topic of mobile payment services were read prior to the interviews, and many of the questions in the interview guide would be about specific areas in their papers. During these interviews, citations from their publications were quoted and interviewee were asked to elaborate.

5.1.15 Interview profiles

The interviews were conducted in a two week-span. Given the nature of the research context, only Danish-based experts and representatives were interviewed. Furthermore, the landscape of the Danish mobile payment market, MobilePay being the only prominent Danish service, also resulted in interviews from either MobilePay professionals or academic scholars.

	<i>Date</i>	<i>Interview Length</i>
<i>Interviewee Name</i>		
Jan Damsgaard	Friday, 15 January 2021	43 minutes
Jonas Hedman	Monday, 18 January 2021	38 minutes
Kalina Stefanova Staykova	Friday, 22 January 2021	57 minutes
Peter Kriegbaum Kjærgaard	Wednesday, 27 January 2021	50 minutes

<i>Interviewee Name</i>	<i>Role of Interviewee</i>
Jan Damsgaard	Professor at Copenhagen Business School (CBS)
Jonas Hedman	Professor at Copenhagen Business School (CBS)
Kalina Stefanova Staykova	Professor at CBS & former PhD student and employee at MobilePay
Peter Kriegbaum Kjærgaard	Head of communication & press at MobilePay

Table 4 - Interview Profiles

Since the focus of this thesis dwells into consumer's adoption and usage of mobile payments, the interviewees were mostly asked about this specific focus area. Jonas Hedman, a CBS professor, with expertise within digital platforms and mobile payments and has published work on NFC and mobile payments. Jan Damsgaard, head of digitalization at CBS, has written publications on specifically the Danish market of mobile payments. Co-authoring with Jan Damsgaard, Kalina Stefanova Staykova have contributed to these papers, as well as being a master's Thesis and Ph.D. Student and former employee at MobilePay. Finally, Peter Kriegbaum Kjærgaard serves as the press secretary and head of communication for MobilePay.

The interviewees were specifically chosen in order to provide a more detailed holistic, yet targeted view. Through the utilisation of academic and professional perspectives as information sources this

thesis has been able to provide a combination of real-world experiences and real-world theoretical applications. Through widening the scope of the data type, more depth is added.

5.1.16 Transcribing

The interviews (appendix E) were conducted through the means of either a phone call, or through Microsoft Teams. For the English-speaking interviews with Jonas Hedman and Kalina Stefanova Staykova, the transcription software Otter.Ai provided speech to text conversion, however, the interviews were subject to thorough revision and scrutinization to get a complete understanding of the responses. The Danish-language interviews with Jan Damsgaard and Peter Kriegbaum Kjærgaard were also recorded through otter.ai, but manually transcribed, and then translated in the analysis.

6. Analysis

The upcoming analysis will present the empirical findings. The introductory part will consist of the demographics and payment behaviours among survey respondents. Secondly, the hypothesised relationships between the factors and behavioural intention will be displayed through the Structural Equation Model. Finally, the quantitative and qualitative findings will be analysed.

6.1 Quantitative Findings

6.1.1 Demographics

The survey analysis of this thesis is founded on 91 survey respondents. Respondents were gathered through all three of the researchers' personal networks. The potential repercussions of the decision have been discussed in the methodology. Table 5 below succinctly summarizes the demographics of the survey respondents. In terms of the gender ratio of male to female, there is a 60/40 split. Secondly, in terms of the age of the respondents, most of all respondents (60%) was aged between 25-34, thereby making this age category the most prevalent of all age groups. As the survey was distributed through the researchers' own personal networks, the demographic characteristics of the respondents is expected to somewhat resemble those of the researchers. Another explanation could be that 33% of all master students in Denmark are aged from 25 to 34, which explains why this age group is heavily represented in this survey

(Danmarks Statistik, 2021). The second largest age group was respondents aged between 18-24, while the third largest age group with 14% was 35-44. The representation of older adults found in the survey could be rationalised due to the use of parents and other familiar members throughout each network. Alternatively, even though the older ages of the sample made up a combined 22% of the respondents, we would have preferred more of an even split of sample respondents to provide more depth and breadth to the data by being able to identify a more accurate widespread difference in affecting factors between the age groups.

Variables		Frequency	Percentage
<i>Gender:</i>	Male	54	59.30%
	Female	37	40.70%
<i>Age:</i>	Under 18	2	2.30%
	18-24	17	18.00%
	25-34	53	58.40%
	35-44	12	13.50%
	45-54	6	6.70%
	55-64	1	1.10%
	65+	0	0.00%
<i>Total:</i>		91	

Table 5- Demographics

6.1.2 Educational Factors

Figure (12) below offers a clear breakdown of the educational level of the survey respondents. The highest educational level with 45% is a master's degree, which has already been analysed and explained above. However, this could also be further explained due to a master's degree being the most popular degree that the people of Denmark finish their studies on if they begin higher studies (Djøf, Defacto, 2019).

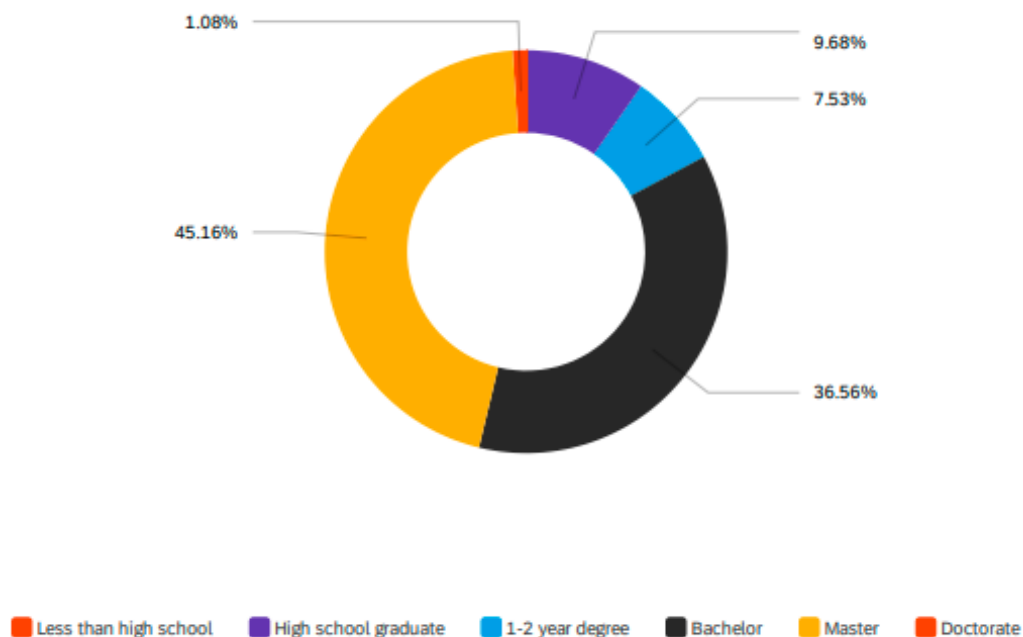


Figure 12- Education

6.1.3 Payment Behaviour

Figure 13 below provides an overview of the respondents' previous experience with mobile payment services, measured in years. With regard to the number of years with previous mobile payment experience, a vast majority of the respondents answered they have over four years of experience, representing 75%. The high percentage is arguably indicative of Denmark being one of the quickest countries in the world to accept new innovations (Bambora.com, 2019). Particularly in the context of mobile payment solutions, Denmark is seen at the forefront, most noticeably due to the introduction of

MobilePay in 2013 (Deloitte Report, 2019). With a 90% national penetration rate in just six years, MobilePay has not only solidified their position in the market, but they have also affected the Danish consumers' payment preferences to such a degree that Denmark has become the leading Nordic country when it comes to using mobile payment services for online purchases (Bambora.com, 2020). In general, it can be argued that the high representativeness of respondents with four or more years of experience is an outcome of the widespread diffusion of not only MobilePay, but mobile payment services, and mobile technology in general. Referring to figure (13) below, 14% of the respondents have between 1-3 years of experience, while 8% have less than one year of experience.

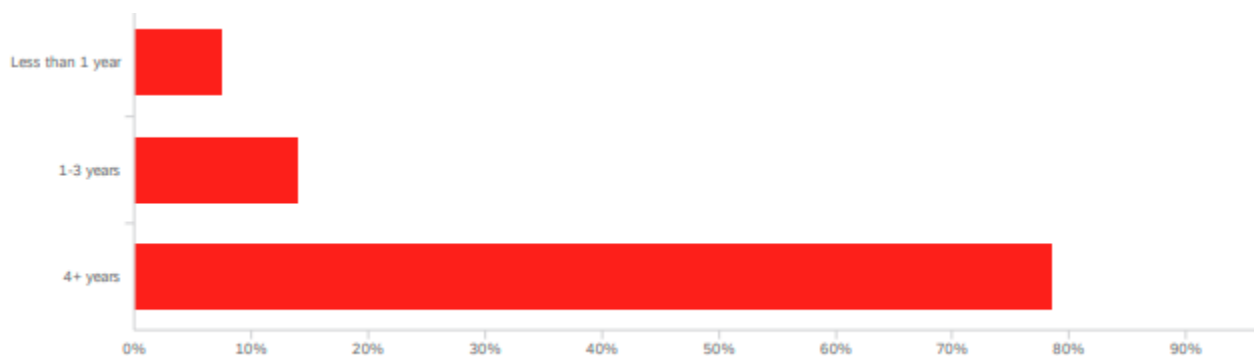


Figure 13 - Payment Behaviour

When looking at the moderating effect of gender, it becomes evident that females have the most experience with mobile payment services, as 82% of the female respondents answered they have four or more years of experience, while the same category for males is 76% (Figure 14). In comparison to a nationwide Nordea survey conducted in 2019, which showcased that women generally use mobile payment far more often than men (86% female vs. 74% male), there is a tendency showing that women more often use mobile payments. The reason for this could be that women tend to shop through their smartphone more often than men do, and thus are more inclined to pay through mobile payment applications.

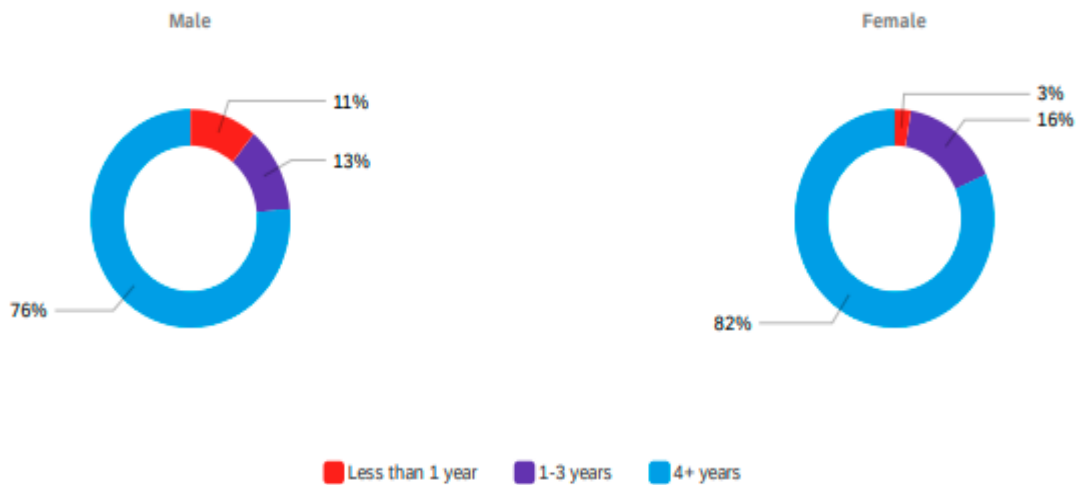


Figure 14 - Gender by Experience

Moving deeper into the respondents' payment behaviour, figure 15 below provides an overview of the respondents' service provider preferences, as well as their usage frequency measured from "never" to "daily". Beginning at the left side on the x-axis, it can be observed that GooglePay and SamsungPay constitute the respondents' least preferred choice of provider, as 38% answered they never used GooglePay, and 39% answered they never used SamsungPay. A possible explanation for this could be that both SamsungPay and GooglePay have entered the Danish market at a late stage compared to first movers like MobilePay and Apple Pay, and therefore have not yet reached a large installed base of users. Also, it can be argued that because GooglePay and SamsungPay both classify as mobile wallets, they are in direct competition against other mobile wallet applications such as Apple Pay, which holds the position of being the leading mobile wallet application in Denmark (Deloitte Report, 2019). Furthermore, a viable explanation for the low sum of Android-based mobile wallet users found in this survey, could be that 62% of Danes are iPhone-users (Statista, 2020), and as iOS-based mobile wallets (Apple Pay) are incompatible with the Android-system, users are subject to lock-in mechanisms that prevent them from accessing competing mobile wallets.

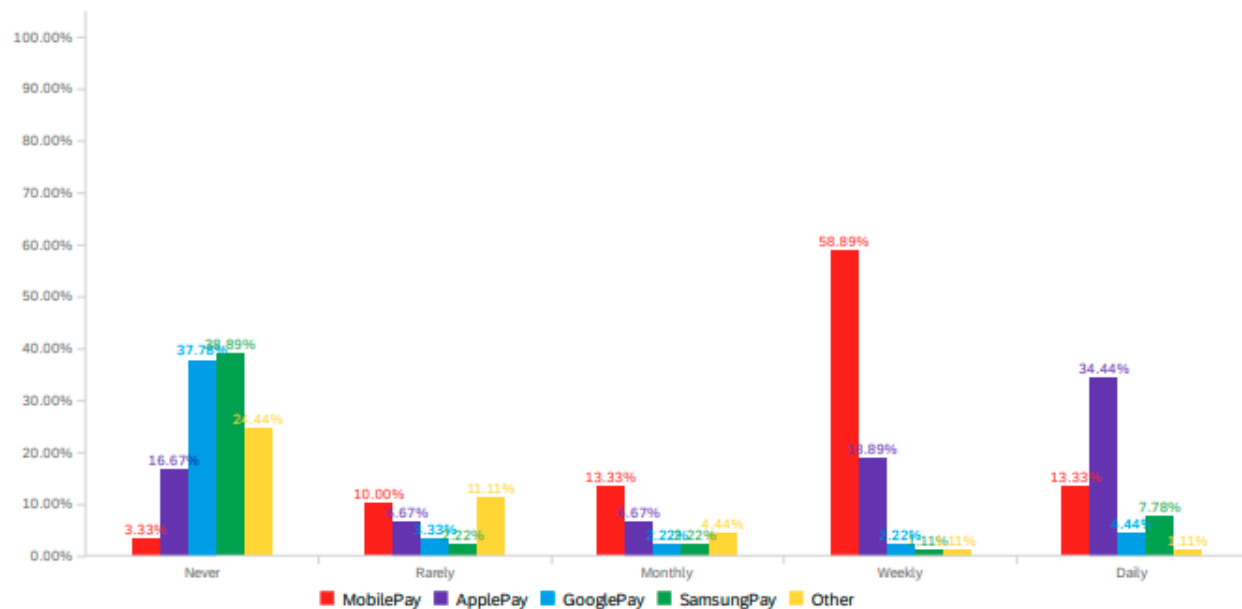


Figure 15 - Use Frequency

Referring to figure (15) above, the next category “rarely” shows an overview of the mobile payment services which the respondents use on rare occasions. Here 10% of the respondents answered that they use MobilePay on rare occasions, 7% answered Apple Pay and 11% answered they rarely use other alternative types of mobile payment services than those listed. Next category on the x-axis, under “monthly”, it can be observed that 2% of the respondents use SamsungPay and GooglePay at least once a month, respectively. Moreover, 7% answered they use Apple Pay at least once a month, whilst MobilePay comes in at 13%. Moving on to the “weekly” category, it can be observed that 59% of the respondents use MobilePay on a weekly basis, thereby establishing MobilePay as the preferred choice of service by a large margin. The results also suggest that Apple Pay is the respondents’ second-most utilised service, with 19% answering that they use Apple Pay on a weekly basis. This finding relates well with the trend seen in recent years where the proportion of purchases using mobile wallets has significantly increased, with annual rates of 8% (Deloitte Report, 2019).

Despite the general upsurge in mobile wallet purchases, only 1% of the respondents use SamsungPay, and 2% use GooglePay. Regarding the last category on the x-axis, under “daily”, it may be noted that Apple Pay is the respondents’ preferred choice of mobile payment service for daily use, as 34% answered they use Apple Pay on a daily basis, whilst 13% answered MobilePay. This is an interesting finding

because the payment preferences of the respondents are influenced by the differing value propositions of Apple Pay and MobilePay, respectively. For example, Apple Pay's value proposition to users, is to leverage its own existing technological infrastructure to provide a seamless payment experience with focus on ease of use and peace of mind (Deloitte Report, 2019). As such, it can be argued that Apple Pay functions as a complementary product, or a so-called value-added service, to Apple's core offerings, whereas MobilePay's peer-to-peer service in itself is the core-product, as exemplified by MobilePay CEO Mark Wraa-Hansen: “*..creating MobilePay as a separate product with its own value proposition, instead of using it as a built-in module in the banks' online banking applications, was the right choice*” (Deloitte Report, 2019). Since its conception, MobilePay has diversified its business operations to balance the number of participants and the range of features and functionalities by developing complementary services such as WeShare, MobilePay Box and QR-payments. Such value-added services create unprecedented opportunities for the users, and this could be a likely explanation for the general popularity of MobilePay found in this survey. Moreover, the fact that Apple Pay predominantly is used in a consumer-to-business context, i.e., paying for groceries, could also be a viable explanation for the spike in Apple Pay's daily usage frequency. Regarding the other mobile wallet service providers, SamsungPay comes in at second with 8% of the respondents choosing this service, whilst 4% answered they use GooglePay daily. In summary, the findings reflect well the development seen in the Danish mobile payment market over the past few years, where both peer-to-peer and consumer-to-business mobile payments have experienced annual double-digit growth (11%) (Deloitte Report, 2019).

6.1.4 Structural Equation Modelling

There are many different research techniques to use when examining survey results. In this study, the authors have used Structural Equation Modelling (SEM) due to its applicability with theoretical based research” *structural equation modelling requires specification of a model based on theory and research*” (Suhr, 2006, s. 1). In order to test the constructs of the extended UTAUT model, each construct was hypothesized to have positive influence on behavioural intention.

The purpose of the Structural Equation Model is to have comprehensive approach to testing these hypothesizes about relations among observed and latent variables (Hoyle, 1995). In relation to our theoretical framework, all constructs are categorized as latent variables, while the observed variables, are

the measurement items. The structural Equation model can measure three different relationships between variables “(1) Association, e.g., correlation, covariance. (2) Direct effect is a directional relation between Two variables, e.g., Independent and dependent variables. (3) Indirect effect is the effect of an independent variable on a dependent variable through one or more intervening or mediating variables” (Suhr, 2006 p.2). As this thesis is looking to investigate and test the positive relationship between the independent variables, the constructs, with the dependent variable, behavioural intention, proposal 2 has been applied.

The majority of scholars in this thesis’ literature review has likewise applied to Structural Equation Modelling to determine the factors for behavioural intention. In order to determine the relationship between the constructs of UTAUT2-extension with Behavioural Intention The survey results were extracted from Qualtrics to Excel and imported to Stata in order to create the Structural Equation Model with the feature SEM Builder.

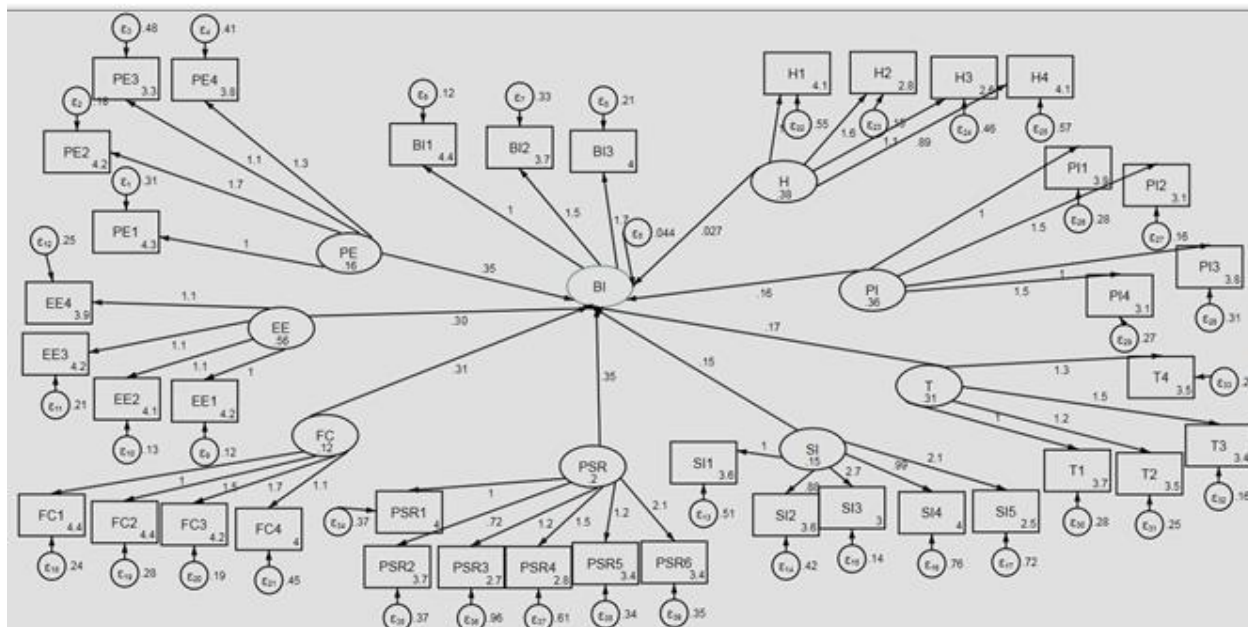


Figure 16 - Structural Equation Modelling

6.1.5 Performance Expectancy

Performance Expectancy is defined as the degree to which using a technology will provide benefits to consumers in performing certain activities. The construct refers to how useful respondents perceive mobile payments to be, as well as how advantageous it is compared to other payment types. The Structural Equation Modelling showed that Performance Expectancy ($\beta = .350$; $p < 0.05$) has a positive relationship with behavioural intention, therefore H1 can be accepted. The coefficient showed that Performance Expectancy was the strongest indicator for behavioural intention to adopt and use mobile payment service.

The survey similarly illustrated that Performance Expectancy had one of the highest mean scores based across all constructs. Specifically, regarding the respondents' answers to item one, which is connected to the concept of 'usefulness': "*I find mobile payment useful in my daily life*", the results show that the construct received a mean score of 4.27, corresponding to "*strongly agree*". Another notable point illuminated by is that item number three, which is connected to the concept of relative advantage, received a mean score of 3.85, meaning that respondents in general agree that mobile payments are as useful as cash or credit card.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I find mobile payment useful in my daily life.	3.00	5.00	4.27	0.68	0.46
2	Using mobile payments helps me accomplish my payments quickly.	2.00	5.00	4.21	0.79	0.63
3	Mobile payment increases my productivity.	1.00	5.00	3.34	0.87	0.75
4	Mobile payment is more useful than other types of payments.	2.00	5.00	3.86	0.83	0.69

Table 6 - Descriptive Statistics of Performance Expectancy

With regard to the measurement item 3: “*Mobile Payment increases my productivity*”, the survey results show that mobile payment and increased productivity had limited importance, with a mean score of 3.34. The displayed results indicate that the respondents did not consider the productivity aspect as important as other utility-aspects connected to Performance Expectancy. However, important to note is that results indicate a large discrepancy between male and female respondents when it came to whether they perceived the use of mobile payment would increase their productivity (PE Item #3 Breakout by Gender).

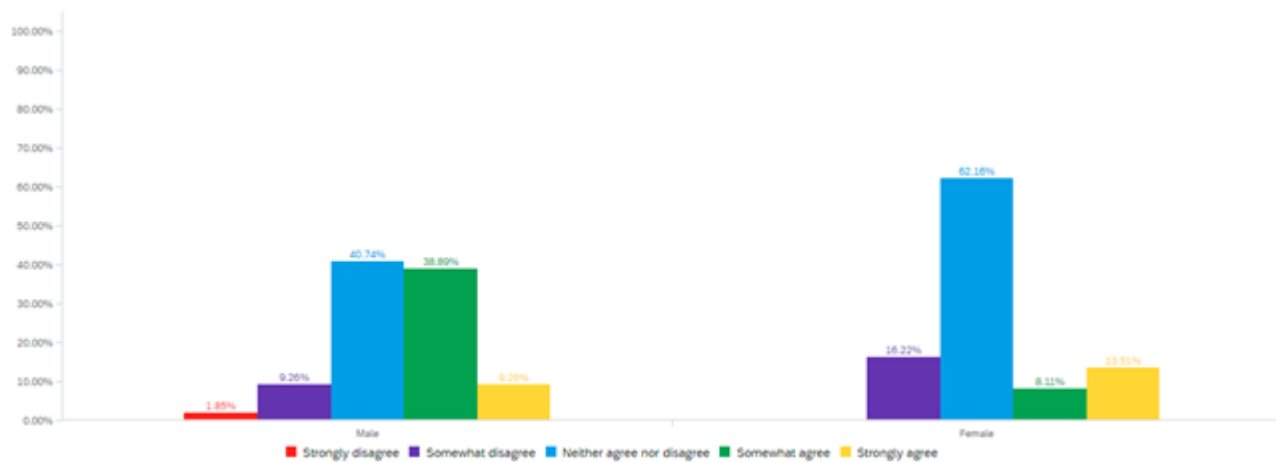


Figure 17 - Performance Expectancy item #3 by Gender

Figure 17 above shows the results specifically connected to question number three, categorised by gender. Looking at the table it becomes evident that approximately 48% of male respondents were either somewhat or strongly agreeing to the statement that mobile payments increase their productivity, as opposed to 21% of female respondents. These results are coherent with work by Venkatesh et al. (2003), who found a similar difference between males and females in Performance Expectancy: “*Research on gender differences indicates that men tend to be high task-oriented and therefore, performance expectancies, which focus on task accomplishment are likely to be especially salient to men.*” (Venkatesh et al, 2003, p.450). Relating the question of productivity to task accomplishment, there is a visible difference among male and females’ use of mobile payments.

6.1.6 Effort Expectancy

Effort Expectancy highlights the user's perception of the ease of use of the system, as well as how easy to operate it actually is. To clarify, it is simply how convenient and easy-to-use the technology is (Venkatesh et al., 2003). The relationship between Effort Expectancy ($\beta = 0.300$; $p < 0.05$) and behavioural intention was positive, thereby confirming H2. Alongside the accepted hypothesis, the average mean score of all the items connected to Effort Expectancy is 4.3 (table 7) meaning there is evidence to support that respondents of this survey generally agree to statements related to Effort Expectancy

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	Learning how to use mobile payment is easy for me.	2.00	5.00	4.18	0.81	0.65
2	My interaction with mobile payment is clear and understandable.	2.00	5.00	4.16	0.88	0.78
3	I find mobile payments easy to use.	2.00	5.00	4.24	0.89	0.80
4	It is easy for me to become skilful at using mobile payment.	1.00	5.00	3.97	0.97	0.93

Table 7 - Descriptive Statistics of Effort Expectancy

The analysis of survey items evidently showcase that respondents find mobile payments easy to use, however, they believe they possess mobile skilfulness slightly less. With 85% agreeing or strongly agreeing that mobile payment services are easy to use, and 82% either agreeing or strongly agreeing that mobile payments are clear and understandable. Whilst slightly less with 73% of respondents either agreed or strongly agreed that it is easy to become skilful with mobile payments (table X). One of the respondents in the additional comments, discussed the effort required by saying: “*Mobile payments are easy to use, but so are credit cards*”, showing a minimal difference in the effort cost required.

#	Field	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1	Learning how to use mobile payment is easy for me.	0.00% 0	5.49% 5	8.79% 8	48.35% 44	37.36% 34
2	My interaction with mobile payment is clear and understandable.	0.00% 0	6.59% 6	12.09% 11	39.56% 36	41.76% 38
3	I find mobile payments easy to use.	0.00% 0	7.69% 7	7.69% 7	37.36% 34	47.25% 43
4	It is easy for me to become skilful at using mobile payment.	1.10% 1	7.69% 7	18.68% 17	38.46% 35	34.07% 31

Table 8 - Descriptive Statistics of Effort Expectancy (Percentage)

With regards to the moderating effect of age on Effort Expectancy, the survey analysis demonstrated that the older the survey respondents, the lower their mean score, meaning the higher the effort that must be put in. For example, the mean score for the measurement item related to the ease of use for respondents aged between 18–24-year-olds is 4.53, and when this is compared to results of the 55–64-year-olds, there is a stark contrast with a mean score of 2.00, a difference of 2.53 points (Appendix D). The findings align with those of Venkatesh et al. (2003), when they found evidence in their research paper suggesting that there was a strong moderating effect between the age moderator and the suspected Effort Expectancy in learning new information technologies. The justification for their finding was that “*An increased age has been associated with a difficulty in processing complex stimuli and allocating attention to information, both of which are necessary when using software systems*” (Venkatesh et al., 2003, p.450). In our survey findings, it appears that the pivot point for Effort Expectancy and age is at 25-34 years old, after that the perception that there is more effort required increases. When looking at how gender moderates the influence of Effort Expectancy, the survey responses did not yield any significant differences, as was the case with the moderating role of age (Appendix D). In the questionnaire items that represent perceived ease of use, there was a marginal increase of 0.23 in male respondents’ mean score, and a 0.13 increase in the mobile skilfulness item. The relevance of this shall be discussed and evaluated later in the analysis.

6.1.7 Social Influence

Social Influence is defined as the extent to which consumers perceive that important others believe they should use a particular technology (Venkatesh et al. 2012). The hypothesised relationship between Social Influence ($\beta = 0.152$; $p > 0.05$) and behavioural intention was not confirmed, thereby rejecting H3. Thereby signifying that the respondents of this survey did not consider Social influence a factor for behavioural intention to mobile payment services. Similarly, the survey shows a relatively low combined mean score of 3.36, and a high standard deviation across all questions indicating that the respondents were divided on the importance of Social Influence (Table 9). To question item five: “*I use mobile payments to improve the way I am perceived by my peers*”, this received the lowest mean score in the entire survey, with a mean score of 2.55. Thus, indicating that respondents’ perceptions are not influenced by their peers, when considering mobile payment adoption. Nevertheless, the relatively high standard deviation also indicates that Social Influence functions as an influencing factor for some, and not for others.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	People who are important to me think that I should use mobile payment.	1.00	5.00	3.67	0.80	0.64
2	People whose opinions that I value prefer that I use mobile payment.	2.00	5.00	3.57	0.72	0.51
3	The use of Mobile payment would help me feel acceptable among my friends.	1.00	5.00	3.03	1.10	1.22
4	The more my friends and network are using mobile payment systems the more valuable it is.	1.00	5.00	3.98	0.94	0.88
5	I use mobile payments to improve the way I am perceived by my peers.	1.00	5.00	2.55	1.14	1.30

Table 9 - Descriptive Statistics of Social Influence

Looking into measurement item three and five, it may be observed that the higher the age of the respondents, the less likely they are to agree on whether their mobile payment use is affected by social pressure from peers. A possible explanation for the limited significance of Social Influence among older respondents could be that older people do not surround themselves with friends and peers in the matter as younger people. Therefore, Social Influence has no impact on whether older people should adopt mobile payments. However, from a theoretical perspective, Venkatesh et al. (2003) offers a contrasting argument that Social Influence is to a higher degree among older people: “*Research has found Social Influence to be more significant among older workers ... our results suggest that Social Influences do matter.*”. (Venkatesh et al. 2003, p.469).

Furthermore, the measurement item under Social Influence with the highest mean score was: “*The more my friends and network are using mobile payment services, the more valuable it is.*” This measurement item, which is not examined in Venkatesh’s original research, is causally linked to the concept of network effects within Social Influence, and received a mean score of 3.98, conferring that respondents generally seemed to agree to the statement (table 9).

6.1.8 Facilitating Conditions

The hypothesised relationship between Facilitating Conditions and behavioural intention was positive ($\beta = .314$; $p < 0.05$), thereby confirming H4. As a refresher to the reader, Facilitating Conditions as an umbrella definition is the consumers' perceptions of the resources and support available to perform a behaviour or use a technology, and Venkatesh et al. defined Facilitating Conditions as the level that the individual consumer believes that an organizational and technical infrastructure exists to support the use of the system (Venkatesh, 2003). Additional concepts to reaffirm are compatibility and mobility. Simply put, compatibility is the notion of how well a technology fits with an individual’s lifestyle, working needs and values (Pham & Ho, 2015; Venkatesh et al. 2003). Mobility is the notion of using ‘anywhere and anytime’ wireless technology. The contributing features of mobility as a concept are defined as providing users with more freedom, ease of use, and flexibility, ensuring a certain omnipresence to the technology.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	3.00	5.00	4.47	0.60	0.36
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	1.00	5.00	4.44	0.73	0.54
3	Mobile payments are compatible with my lifestyle.	2.00	5.00	4.23	0.73	0.53
4	I can get help from others when I have difficulties using mobile payments.	2.00	5.00	3.94	0.78	0.61

Table 10 - Descriptive Statistics of Facilitating Conditions

Aligning with the hypothesis that was accepted, the average mean score of all the items within Facilitating Conditions were relatively high, with a score of 4.27, making it the highest mean among all constructs. One could argue that this is evidence of the respondents believing that there are conditions in place that will support their adoption and use of mobile payments. Intriguingly, and similar to Effort Expectancy, there was a decreased percentile of agreeable response from question one through to four.

The analysis evidently showcased that users found that they have the necessary resources, support and features to carry out mobile payment transactions with a strong score of 95% of respondents either agreeing or strongly agreeing. Furthermore, 94 % of respondents also agreed that mobile payment increased their mobility. With a slightly lower percentage 85% of users agreed or strongly agreed that mobile payments are compatible with their lifestyles. Interestingly, in the fourth measurement item on the available support network there was a 24% decrease compared to the first facilitating condition question on available resources. 71% of respondents from question four either agreed or strongly agreed that they can receive help from others when they have difficulties using mobile payments. Figure 18 below clearly showcased the change in data.

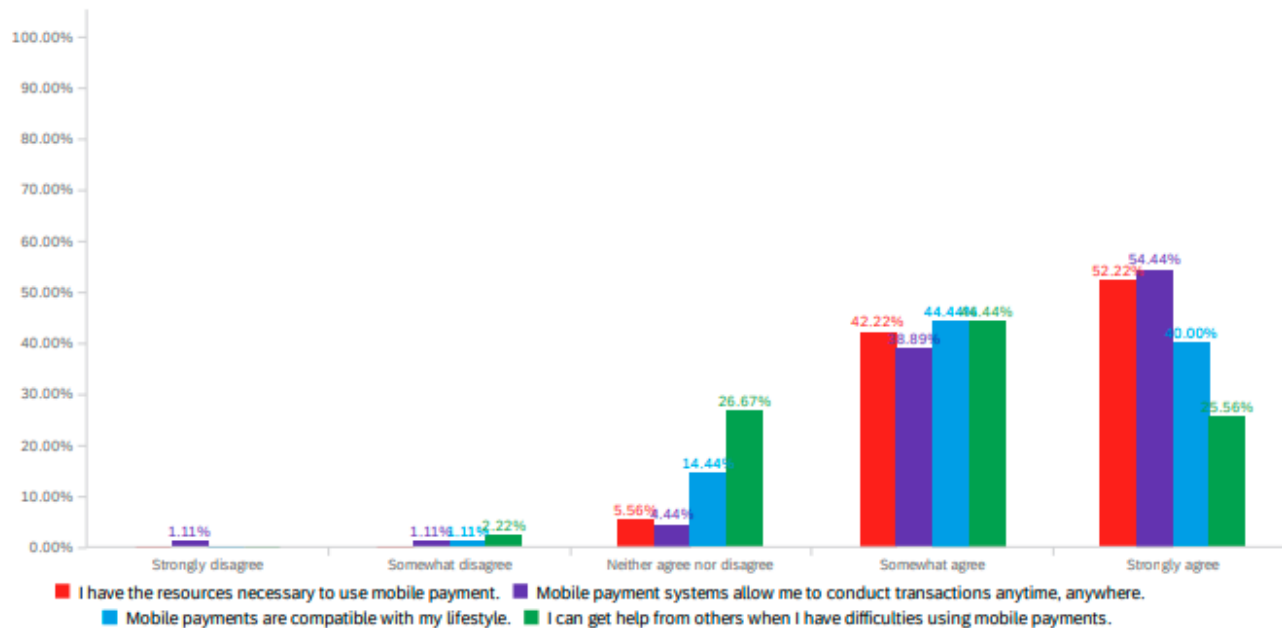


Figure 18 - Descriptive Statistics of Facilitating Conditions

In terms of the moderating factors' effect, the survey results did not show any significant differences between the age groups of the respondents in terms of their belief of the effect of Facilitating Conditions. Despite the insignificant differences, there is still a positive mean score between all ages, meaning that most of all ages believe and strongly believe that Facilitating Conditions and its concepts have a positive impact on their mobile payment's adoption (Appendix D). These findings contrast with Venkatesh's et al. (2012) hypothesis that the influence of Facilitating Conditions will be moderated by age, such that the effect will be stronger for older consumers with increased experience. When looking at the moderating effect of experience, it becomes clear that the more experience the users had, the more they agreed that they have the resources, the mobility, the compatibility, and the support network to use mobile payments. The results of this survey's Facilitating Conditions items provided average mean scores for the experience moderator, however, even though they were not as significant as Venkatesh's (2012) findings, they were still in alignment.

6.1.9 Perceived Security

The hypothesised relationship between Perceived Security and behavioural intention was positive ($\beta = .345$; $p < 0.05$), thereby confirming H5. To reiterate the theoretical explanation for this determinant, Perceived Security is defined as: "An individuals' belief that the mobile payment service has installed security-measures that will prevent the loss of personal and financial data when executing transactions and payments" (Khalilzadeh et al., 2017). By definition, this determinant relates to how secure the users perceive mobile payment services to be, as well as their perception of the risks associated with using mobile payment services.

Table 11 below provides an overview of the respondents' answers connected to the Perceived Security' construct. Delving deeper into the table, it may be observed that the mean score for all items range in-between 2.79 to 3.99, which means that the respondents have generally disagreed to the Perceived Security instrument items. Based on this, it would seem as though the respondents are somewhat sceptical when it comes to how secure and risk-free, they perceive mobile payment services to be.

More specifically, it can be observed that survey instrument item number three and item number four, which focuses on whether the respondents find mobile payment services risky, has the lowest mean scores of all with 2.79 and 2.84, respectively.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I feel secure about mobile payment transactions being performed.	1.00	5.00	3.99	0.75	0.56
2	The provider takes security measures to protect my payments.	2.00	5.00	3.76	0.70	0.49
3	There is no potential of monetary loss if I make a purchase with mobile payment systems.	1.00	5.00	2.79	1.14	1.29
4	There is no significant risk when making purchasing using mobile payment.	1.00	5.00	2.84	1.03	1.06
5	Privacy on mobile payment is well protected.	2.00	5.00	3.38	0.80	0.64
6	Mobile payment is as secure as cash and credit card payment.	1.00	5.00	3.36	1.11	1.23

Table 11 - Descriptive Statistics of Perceived Security

Interestingly, when comparing instrument items causally related to mobile payment security with the instrument items addressing risk perception, the results show that even though respondents consider mobile payment services somewhat secure, they still feel hesitant. Such hesitancy could originate from the fact that the mobile payment market is highly dynamic and fragmented, with new players regularly entering, and this causes disorientation. Moreover, as mobile payment revolves around transferring of financial funds, the respondents' risk perception works as an inhibitor. When examining the moderators' effect on the relationship between Perceived Security and behavioural intention, age was found to be particularly moderating the relationship. The data shows that the older the respondents, the less they seem to agree with instrument items related to the security of mobile payment services. For example, as can be seen in figure (19) below, the total percentage of respondents in all age groups who have answered "Somewhat agree" declines the older the age group, thereby suggesting that the older respondents, the more they tend to have a negative attitude towards Perceived Security and risk.

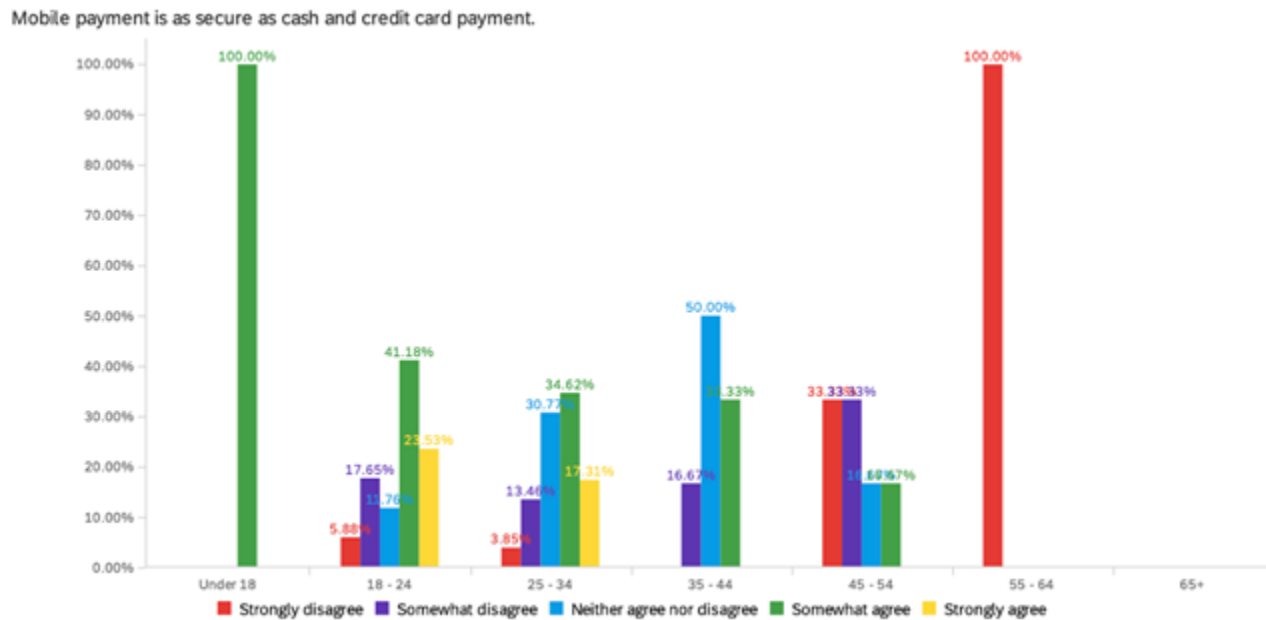


Figure 19 - Perceived Security item #6 by age (percentage)

In general, respondents in the age group 45-54 had the lowest mean score of all age groups in the survey, with mean scores ranging from 1.67 to 3.50, which translates into a disagreeing score. The standard deviation for this age group was also the lowest of all, signifying that most of the responses gather around the mean.

6.1.10 Trust

The hypothesised relationship between Trust and behavioural intention was positive ($\beta = .172; p < 0.05$), thereby confirming H6. However, despite Trust's statistically confirmed relationship with behavioural intention, the construct was measured to be the least influential among all constructs. In the context of mobile payment, Trust is the notion of how much faith users have in the company, process, and product itself. Trust is a construct that is not found in Venkatesh's UTAUT2 and is a concept which has been added to this thesis, following suit of many other leading scholars who have incorporated Trust into their UTAUT2 extensions.

Figure 20 below transparently identifies the percentage of user acceptance of the items. Each item still has a positive response in the agreeing category. As it may be observed, item one has a 70% acceptance rate, however, item two then decreases to a 52% response of agree or strongly agree, item 3 has a 53% agreement score and lastly item four has a 54% agreement score. These percentages are only marginally positive, which is highly indicative of user uncertainty on surrounding factors influencing Trust when compared to initial constructs in Venkatesh's original model such as Effort Expectancy.

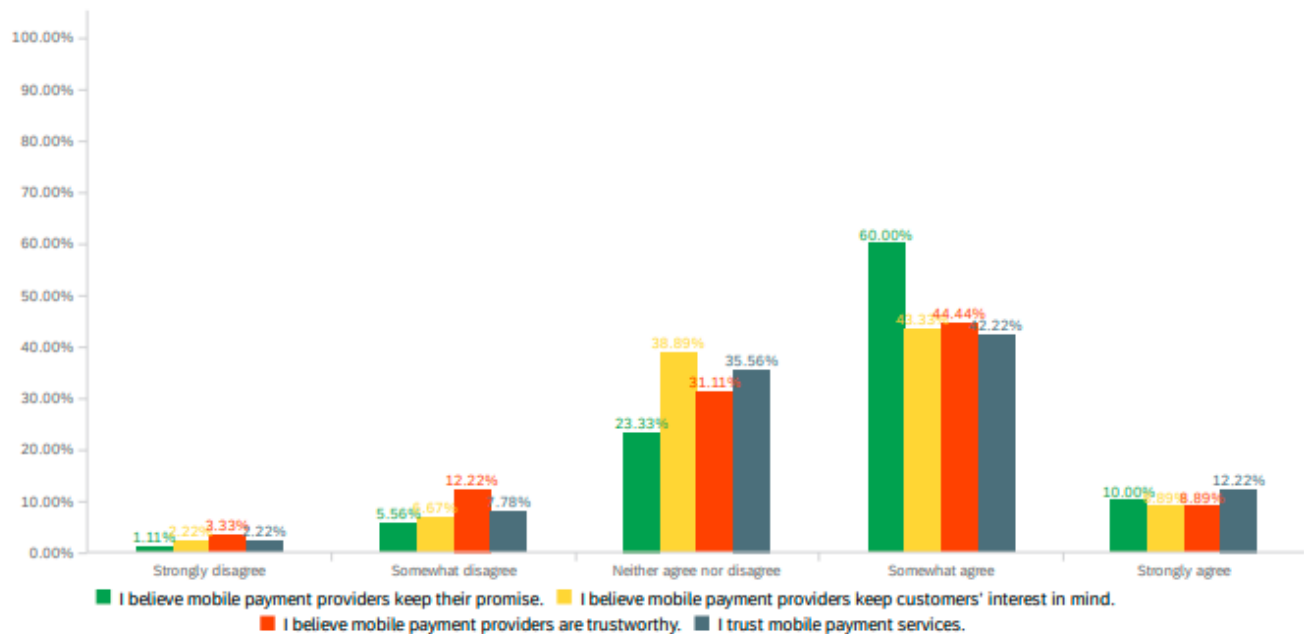


Figure 20 - Descriptive Statistics of Trust

Moreover, after the interpretation of the survey data, it became apparent that like the overall percentage of user responses, the mean scores of the questions had decreased also. The average mean score of all the Trust items was a medium score of 3.55. This is evidence of a relatively agreeing result from the respondents, however, it does not showcase a strong indication of the concept of Trust impacting adoption of mobile payments. Moreover, the respondents still place Trust in mobile payment services, but only to a certain extent. In addition, table (12) below depicts the different descriptive statistics of the Trust instrument items, and when looking closer at the mean score for all items, it is evident that they only differ marginally from each other.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I believe mobile payment providers keep their promise.	1.00	5.00	3.72	0.76	0.58
2	I believe mobile payment providers keep customers' interest in mind.	1.00	5.00	3.50	0.83	0.69
3	I believe mobile payment providers are trustworthy.	1.00	5.00	3.43	0.93	0.87
4	I trust mobile payment services.	1.00	5.00	3.54	0.88	0.78

Table 12 - Descriptive Statistics of Trust

This could arguably be indicative of the entire Trust level across the items as it was the same and therefore that they overall agree. The item which respondents agreed with the most as briefly analysed above was measurement item 1: *'The belief that mobile payment providers keep their promise'*, with a mean score of 3.72. This is somewhat indicative of mobile payment user attachment to banks and their negative connotations still, and perhaps the idea that users would like to Trust banks wholeheartedly, however, the two factors prohibiting this are that the transactional entity is money, which is considered imperative to most, and lastly, the past indiscretions of the banks that have been insidiously reported are ubiquitous across international media platforms. When looking at the moderating effect of age, the results suggest that Trust is of impactful when it comes mobile payment adoption. Younger people agreed to trusting payment services while older people tended not to. (Appendix D).

6.1.11 Habit

The hypothesised relationship between Habit and behavioural intention was not confirmed ($\beta = .027$; $p > 0.05$), thereby rejecting H7. To re-establish the theoretical explanation for this determinant, Venkatesh et al. (2012) defines Habit as “*the extent people tend to perform behaviours automatically because of learning*” (Venkatesh et al., 2012, p.158). Habit is often related to automaticity and has two types of conceptualization. First, Habit is viewed as prior behaviour and secondly, Habit is measured to the extent that users consider their behaviour to be automatic.

When evaluating the results below (table 13) the respondents clearly had variations in their perceptions of Habits’ impact on their intention to adopt mobile payments. Questionnaire items number one and four, which directly addresses if the respondents thought that mobile payment has become natural and a Habit for them, both received mean scores above four, translating into an agreeing score, whilst items addressing technology dependency disclosed mean scores of 2.84 and 2.58, translating into a slightly disagreeing score. Indicating that respondents consider their use of mobile payments as a Habit and an act they do naturally, however, they do not consider themselves to be dependent on mobile payments.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	The use of mobile payment has become a habit for me.	1.00	5.00	4.08	0.95	0.89
2	I am dependent on using mobile payments.	1.00	5.00	2.84	1.04	1.09
3	I must use mobile payments.	1.00	5.00	2.58	0.96	0.92
4	Using mobile payment has become natural for me.	1.00	5.00	4.10	0.92	0.85

Table 13 - Descriptive Statistics of Habit

With regard to the moderating effect of age, the survey results suggest that specifically younger respondents tended to agree with questions connected to Habit, whilst the older respondents tended to agree less (Appendix D) From a theoretical perspective, Venkatesh et al (2012) argues that “*Once older consumers have formed a Habit by repeated use of a particular technology, it is difficult for them to override their Habit to adapt to a changed environment.*” (Venkatesh et al., 2012, p.165). This reasoning may also be identified in the outcome of this survey, as the results suggest that older respondents with less experience also happen to be those who consider their use of mobile payment less of a Habit. The older adults of this survey may have other pre-existing payment habits which are difficult to override, and this can arguably account for why they do not consider their use of mobile payments a Habit.

Delving into how previous experience moderated the relationship between Habit and intention to use, survey results indicate that previous experience exerted a noticeable influence. For example, figure (21) shows that the more experience the users had, the more they tended to agree to their use of mobile payment being a habitual act for them. Furthermore, the moderating variable of experience and Habit are distinguished by the fact that experience is necessary, but not sufficient in forming Habits, and experience results in forming different levels of Habit depending on the familiarity and extent of use for that specific technology. Habit is still a perceptual construct that reflects prior experience.

The use of mobile payment has become a habit for me.

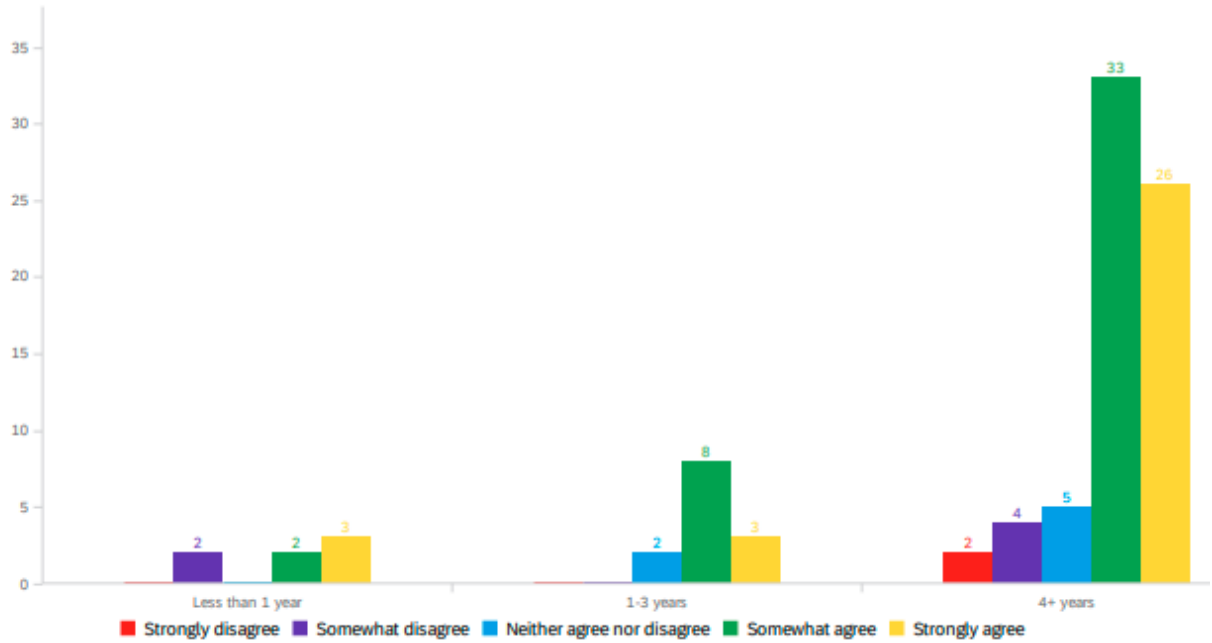


Figure 21 - Habit item #1 by experience (count)

6.1.12 Personal Innovativeness

The hypothesised relationship between Personal Innovativeness and behavioural intention was positive ($\beta = 0.155$; $p < 0.05$), thereby confirming H8. As previously explained in the theoretical model of this study, the notion of Personal Innovativeness is taken from Agarwal (1998), who defines Personal Innovativeness as “the willingness of an individual to try new information technology” (Agarwal, 1998, p.25). Personal Innovativeness is important because it represents specific differences between individuals, and previous research has shown that the success of an innovation depends on individual differences as much as other factors in an adoption decision (Cabanillas et al., 2014). Looking into the results of the survey (table 14) with regard to Personal Innovativeness, the average mean score for all instrument items was 3.52, showing that respondents were somewhat in agreement to statements concerning their level of innovativeness.

Item number one: *‘If I find out about a new type of information technology, I will try it.’* and number three: *“I like to try new information technologies”* both items received a high mean score of 3.96 and 3.86, respectively.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	If I find out about a new type of information technology, I will try it.	2.00	5.00	3.96	0.80	0.64
2	I am usually one of the first among my circle to explore new information technology.	1.00	5.00	3.16	1.00	1.00
3	I like to try new information technologies.	2.00	5.00	3.86	0.82	0.68
4	I know more about new information technology products before other people do.	1.00	5.00	3.10	1.05	1.11

Table 14 - Descriptive Statistics of Personal Innovativeness

This displays that the respondents of this survey are generally willing to try new information technologies, including mobile payments. Furthermore, with a standard deviation at 0.8, 0.82, respondents were relatively clustered around the mean, and no respondents were strongly disagreeing to the statements. Conversely, measurement item two *“I am usually one of the first among my circle to explore new information technology”* and measurement item four *“I know more about new information technology products before other people do”*, saw a significantly lower mean score at 3.10 and 3.16.

With regard to the moderating effect of age, the survey results suggest that answers across all age groups were closely clustered around the same score, indicating that age differences yielded marginal variance. However, when specifically looking at measurement item two and measurement item four, which relates to how innovative the respondents consider themselves to be, the results suggest that the younger the age of the respondents, the more innovative and proactive they considered themselves to be. Put simply, respondents under the age of thirty-five were the ones who agreed the most to statements concerning their level of innovativeness, whereas respondents above the age of forty-five were the ones who disagreed the most (*appendix D*)

6.1.13 Revised Theoretical Model

Following the findings from the quantitative analysis, we can revise the theoretical framework, to show which constructs have a positive influence on Behavioural Intention to adopt and use mobile payment services. The following table (15) shows which hypotheses were supported and which were rejected

The hypothesized relationships have been displayed through the arrowed lines in our Theoretical Framework:

Factor Type	Hypothesis	Supported/Rejected	Coefficient	P-value
System	H1: Performance Expectancy has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	SUPPORTED	0.35	0.02
	H2: Effort Expectancy has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	SUPPORTED	0.3	0.04
	H3: Facilitating Conditions has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	SUPPORTED	0.314	0.02
	H4: Perceived Security has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	SUPPORTED	0.345	0.008
User	H5: Social Influence has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	REJECTED	NS	NS
	H6: Trust has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	SUPPORTED	0.172	0.04
	H7: Habit has a positive influence on consumers behavioural intention to adopt and use Mobile Payment services	REJECTED	NS	NS
	H8: Personal Innovativeness has a positive influence on consumers behavioural to adopt and use Mobile Payment services	SUPPORTED	0.155	0.04

Table 15 - Hypotheses Supported/Rejected

The revised theoretical model beneath showcases the confirmed and rejected hypothesised relationships.

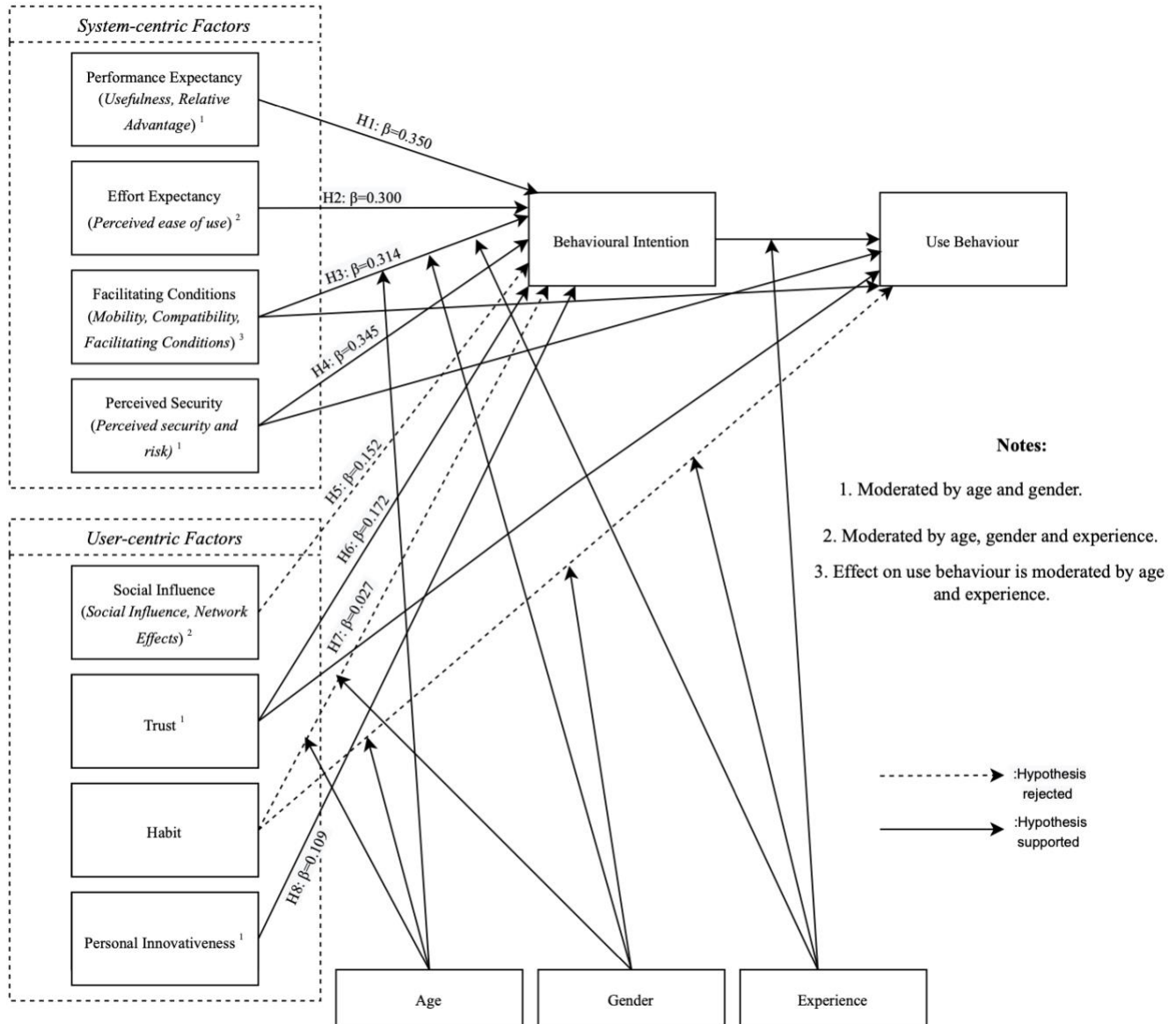


Figure 22 - Revised Theoretical model

6.2 Qualitative Insights

The following subchapter is dedicated to presenting and analysing the main qualitative insights obtained from the interviews (Appendix E) on the constructs devised in the Theoretical Model.

6.2.1 Performance Expectancy

With regard to the hypothesis that Performance Expectancy has a positive relationship with Behavioural Intention, all interviewees considered Performance Expectancy as one of the most prevalent indicators for adoption. This can also be observed through the number of mentions of the construct in the interviews. For instance, Kjærgaard considers MobilePay more useful than regular bank transfers in a peer-to-peer setting, as he argues *“Suddenly there was an option for quick transfers ... in a fast way.”* (Kjærgaard Interview, 2021). Kjærgaard compares MobilePay with mobile banking transfers and sees it as a much faster alternative. When aligning such statements to the quantitative results, it is evident that the survey respondents also agreed to the statement that mobile payments make purchases faster, indicating individuals value the pace of payments as one of the most important benefits of mobile payments.

Head of digitalization at Copenhagen Business School Jan Damsgaard, similarly, says mobile payments is a better option:

“Today, all peer-to-peer transactions are MobilePay. And a lot of the internet shopping is also MobilePay. When you pay with a credit card, you must type in a lot of different digits and your cvv code and the expiration date. With MobilePay you just type your phone number and pay. It works very well and is extremely easy.”

(Damsgaard Interview, 2021).

Damsgaard further argues that MobilePay has a competitive edge over credit card payments in an online sphere. Along with Damsgaard, MobilePay professionals Kalina Staykova and Peter Kjærgaard () also consider MobilePay more advantageous than credit cards, when it comes to online payments. However, when scholar Hedman was asked if credit cards had an advantage over MobilePay, he said, *“Yes to a*

large extent I agree that tap and go with a card is quite convenient, it is quite fast. But If you start using, say mobile payments, maybe in other contexts, then you might just start using it in the same in-store context as well. Because you have a better traceability of your payment.” (Hedman Interview, 2021). Hedman considers credit cards more convenient than MobilePay in physical stores, but still mentions that different contexts matter.

It is important to consider the context of the payments in order to assess the usefulness. Even though the scholars and MobilePay professionals have stated that when performing online payments, mobile payments are more advantageous to use than cards. For in-store purchases, credit cards are most successful, as Damsgaard says *“Among merchants, the credit card is the market leader”* (Damsgaard Interview, 2021). Even former MobilePay professional Staykova acknowledges the success of credit cards over mobile payments: *“Contactless Dankort, I think is quite dominant, and nothing beats this experience yet. There is another player, Apple Pay that is gradually overcoming MobilePay among merchants”* (Staykova Interview, 2021). Both Staykova and Damsgaard clearly stated mobile payments in the form of MobilePay have a relative advantage over credit cards in the sphere of online shopping, however, in the realm of physical point-of-sales transactions, credit cards, and even Apple Pay are successful due to user experience and functionality.

On the other hand, MobilePay professional Kjærgaard still argues that mobile payments are faster and more useful than credit cards. *“On first thought we think cards are easy, but if we stop to think of the processes of retrieving the card and using it etc. It's not as easy as you first think”* (Kjærgaard Interview, 2021). When compared to the survey results, the respondents identified the usefulness of mobile payments, which was causally related to relative advantage, as imperative for their intention to adopt.

Another interesting finding from the interviews is that the interviewees tended to compare different types of mobile payments services with credit card purchases and among services themselves, distinctly stressing the importance of relative advantage in a saturated market. An example of a relative advantage is that Apple Pay is beginning to overtake MobilePay in their own domestic market:

“There is another player. That is gradually overcoming MobilePay, among merchants is Apple Pay, and there is data that suggests that Apple Pay has more transactions than MobilePay” (Staykova Interview, 2021).

When specifically looking into the merchant sales, Apple Pay has an edge. Coherent with our survey, respondents found the measurement item related to how useful mobile payment is for their daily lives, the most important. Furthermore, the survey also demonstrated that individuals were using Apple Pay daily compared to other mobile payment services: *“Apple Pay is the only service that is paid through with NFC, so they have a huge competitive advantage”* (Damsgaard Interview, 2021). According to Damsgaard the reason for the high use of Apple Pay is the relative advantage they have through NFC-technology in merchant stores.

6.2.2 Effort Expectancy

Regarding the role of Effort Expectancy as a factor for adoption, MobilePay professional Staykova stated that one of the primary advantages which MobilePay had over competitors such as Swipp, was the ease-of-use element. Moreover, MobilePay’s ease-of-use element came from the fact that it was originally not necessary to use Nem-id (Danish authentication system) or any other type of authentication such as a social security number. These security authentication methods did not arrive until MobilePay and their user audiences had already grown to critical mass. Interestingly, Staykova stated the fewer authentication steps to be *“Largely considered as one of the most influential drivers for user adoption, especially when compared to mobile banking and Swipp.”* (Staykova Interview, 2021).

Staykova furthered the theme of convenience by highlighting the fact that MobilePay’s success over Swipp was due to MobilePay launching as one inclusive app, meaning users experienced fewer barriers to adoption with MobilePay when compared to Swipp. This presented the opportunity for MobilePay to solidify its presence in the market through first mover advantages followed by system-measures to increase the convenience. Furthering the notion of Staykova’s point on convenience, Kjærgaard states that: *“I really think **convenience for the user is key**, they have to keep making services that are SMART (Specific, Measurable, Achievable, Realistic, Timely)”, to increase the user convenience through smarter integration.”*. It would therefore seem as though Kjærgaard recognises convenience and ease-of-use as important factors for the adoption of mobile payment services.

In terms of ease-of-use, Staykova illuminated that mobile payment services' primary benefit is how easy it is to use. Which is fully utilised and highlighted in online digital payments, she stated that:

“MobilePay has an exceptionally good online procedure that eliminates difficulties and provides users with a faster, easier service. Making them currently the market leaders for online payments in Denmark’.

(Staykova Interview, 2021).

This procedure is the notion of simply entering your phone number at the checkout when shopping online and approving on your phone. In the interview with Kjærgaard, he also supported Staykova’s point and stated:

“When it does not take place through physical payment, then we have made a solution that is incredibly convenient for the smaller players.”

(Kjærgaard Interview, 2021)

Alternatively, Staykova states it depends on the payment scenario, stating that the ease of use and convenience elements of MobilePay do not have an impact in an in-store environment, such as a Supermarket, because the convenience and ease of use is eradicated due to the faster process of NFC-technologies such as Apple Pay, which enables users to pay via two clicks on the side of their phone. Evidence from the survey that supports this claim is when analysing the MobilePay users in the survey, it is clear to see that their usage is more on a weekly-basis and less on a daily-basis, compared to NFC-enabled mobile payment services. Which is resembling Staykova’s above point that MobilePay is less convenient than Apple Pay on a daily local paying basis for example in a supermarket but is more useful in an online context. Where you might pay with your phone number using MobilePay on a weekly basis.

Continuing Staykova’s point on NFC mobile payments, Damsgaard states that convenience is an important factor, because by increasing the ease of use and convenience of mobile payments, you mitigate users’ displeasure of wasting time in checkouts. He states that the convenience is increased due to the use of mobile phones, which today are generally always on hand in a pocket, whereas wallets due

to their size have transitioned to bags or left at home. By increasing the convenience, you increase the likelihood for adoption and continued use (Damsgaard interview, 2021).

In terms of similarities between the Effort Expectancy results from both the quantitative and qualitative data sets, the survey data showed that the respondents who used Apple Pay had a higher daily use of mobile payments, and found that the higher their use, the more they agreed on the ease of use and how convenient mobile payment were. This is in accordance with Damsgaard point above, that Apple Pay users' higher usage frequency could be attributed to the higher convenience of using Apple Pay and other NFC-technologies when using your smartphone, as most people's phones are usually on their person.

In the interview with Hedman, he believed the concept of ease of use is inferior and that the convenience part is more interesting. The perception of the convenience of mobile payment services is make or break. He stated that convenience is related to Habit, whilst he recognised the already pre-established convenience of tap and go contactless cards. However, humans are creatures of habit, and once we start to establish a habit of mobile payment services in other contexts, we are more likely to transition it to further contexts such as in store. Hedman further states that users then will have better traceability of their payments, when the payment processes are more uniform, which thus creates an aspect of convenience (Hedman, 2021). MobilePay professional Kjærgaard had a similar point to this when he said:

“When users gather around one solution such as mobile payments on the phone, it makes it easier for companies to create a synergy between the user and the product which then enables you to further refine and improve the solution, making mobile payments easier and more convenient for the user”.

(Kjærgaard, 2021).

The above quote could be interpreted as a suggestion that users align their payment methods and procedures, which creates convenience through platform improvements, due to the pre-established habits being broken to make room for future payment realignment. The interview also disclosed that Kjærgaards' views on the influence of the Effort Expectancy came down to cultural socio-economic factors as well. He stated that there are considerable complexities to mobile payments, and they are not well known in many other countries. He stated that *“The inhabitants of Nordic countries have an incredibly high digitalization.”* (Kjærgaard, 2021). Meaning that due to the very accustomed relationship

between Scandinavians and technologies, they are more likely to interpret the effort required to adopt, and how easy to use mobile payment services as much less than other nations and peoples. Kjærgaard also saw age as a moderator for Effort Expectancy, as he stated, *“The younger age groups are much more willing to adopt new technologies and are much quicker at learning different types of payment methods as they have grown up with it.”* (Kjærgaard, 2021). This stands out as an interesting point, as the other experts that were interviewed did not clearly express age as a moderator for Effort Expectancy and focused on other factors such as convenience and ease of use.

6.2.3 Facilitating Conditions

In the interview with Staykova, she argued that a contributing factor to the Facilitating Conditions that influenced the adoption of MobilePay in its inception was its “intuitive design”. Even though Danske Bank did not contribute to MobilePay’s image positively due to their past indiscretions, Staykova mentioned that the backing of Danske bank created Facilitating Conditions for the users of MobilePay by stating:

“Danske Bank aided MobilePay with the infrastructure, quality, it had the right resources. It had the capital.” (Staykova Interview, 2021).

This is indicative of the importance of having in place the Facilitating Conditions in place prior to adoption, to ease the transition into mobile payments services. Continuing the theme of Facilitating Conditions, Staykova expressed that a condition which further enhanced the usage of MobilePay was the established support network that was constantly available, and help lines were there to address users’ issues when they arose. Evidence from the survey to support this would be that 94% of MobilePay-users responded that they agreed or strongly agreed that they have the Facilitating Conditions in place to use mobile payments.

In the interview, Staykova also addressed the compatibility element of MobilePay. She explained that a factor which increased the popularity of MobilePay’s adoption was that it was not only available to Danske Bank customers, but to all the Danish bank’s customers, meaning anyone could adopt it and any bank customer could use it to send money to anyone and everyone the customer pleased. Staykova argues this level of compatibility to people’s lifestyle was a great motivator for users to adopt and continue to

use MobilePay. Similarly, to this point she discussed the notion that mobile payment services should increase their range to increase the reach of their service. By increasing the underlying capabilities of mobile payments through increased mobility, compatibility and Facilitating Conditions, they can increase their reach of their network through increased user adoption. In turn, this creates and links to the notion of network effects, and thus enhances the overall user experience and value. Furthering the notion of compatibility in the interview with Damsgaard, he argued that there is a huge influence of compatibility with the increase in the capabilities of the virtual mobile wallet on users' smartphones. Smartphone users can now not only have their bank cards, but their driving licenses, gym memberships cards, movie tickets, boarding passes, gift cards, and student ID's all in one place on your mobile. Mitigating the need for a physical wallet which takes up space and does not have tracking capabilities.

In the interview with Kjærgaard, he stated that it is imperative that mobile payment services have the capability to diffuse across a country geographically to increase the user base. He continued to say that Denmark, Norway, and Sweden have had this capability for decades due to them being digitally leading countries with well-established infrastructures that provide the Facilitating Conditions for users to adopt mobile payment services. The findings from the survey also support this, with the Facilitating Conditions responses analysis evidently showcasing that users found that they have the necessary resources, support and features to carry out mobile transactions with an extraordinarily strong agreement score of 94%. Kjærgaard explained that the 4G and 3G nationwide network capabilities would be examples of this infrastructure. These cellular network technologies enable users' instant access to mobile payment services which could also be considered a feature of mobility, the notion of anywhere, anytime computing. This also aligns and supports the survey results for the questionnaire item on mobility, where 93% of the respondents either somewhat agreed or strongly agreed that they can conduct mobile payments anytime, anywhere. An explanation for the high score in this thesis' survey arguably due to the extensive network infrastructure throughout Denmark. As an example, Kjærgaard mentioned that even since the 1990's Danish tax returns became digitized, then online banking, then mobile banking. Not only did this create a society that is very accustomed to new technologies, but it also created faith in individual beliefs that the organizational and technical infrastructure was there to support the use of the system.

Furthering the theme of geographical influence on Facilitating Conditions, Kjærgaard expressed that Denmark is a relatively dense country with a great transportation network, making it a facilitating condition that the distance to shops is short, and the transportation is made easier through availability. In turn, this means that when consumers visit stores, they do not have to buy in bulk which is an inconvenient endeavour, especially on public transport. This is suggestive of a level of compatibility with Danish lifestyles, as it matches well with the quantitative findings of the survey, which showed that 84% of users agreed or strongly agreed that mobile payments are compatible with their lifestyles.

Kjærgaard further concludes that due to the holistic pre-existing Facilitating Conditions in Denmark, users will be more likely to use mobile payment services more once they have been adopted, and convenience has been identified (Kjærgaard, 2021).

Kjærgaard then moves on the mobility aspect of Facilitating Conditions in Danish society, by illuminating the availability of mobile payment services integration in Scandinavian societies. For example, he states:

“Scandinavians have mobile payments for private payments, for cash registers, for gifts, money gifts, and normal gifts, they have for online web shops, and online train tickets. As I said, we have smaller to medium-sized stores, Myshop and lastly the 2 POS solutions as well...”

(Kjærgaard Interview, 2021)

This is suggestive of a facilitating capability that enables Danes to access and use Mobile payment services, anytime, anywhere.

6.2.4 Perceived Security

When asked about the importance of security and privacy-related factors for mobile payment adoption, a clear tendency was that all the interviewees agreed that security and privacy have become essential features of any mobile payment service, as reflected by MobilePay professional Staykova:

"I do agree with the fact that these factors [security & privacy] are becoming more and more important."

(Staykova Interview, 2021).

Even though both the scholars and professionals agree that security and privacy are fundamental necessities, which every mobile payment service should possess, there was a sharp demarcation in terms of whether they believed that such factors also influenced user's intention to adopt mobile payments: The two scholars disagreed, whilst the professionals acknowledged security and privacy as crucial determinants. For example, scholar Hedman dismisses the idea that Perceived Security exerts a strong influence on the individual's attitude toward adopting mobile payment, rather he argues that mobile payment systems have reached a level of security so high, that it no longer is the main factor for adoption:

"So, it [mobile payments] has kind of reached a threshold where they are so secure, that consumers don't even consider it a factor anymore."

(Hedman Interview, 2021).

Interestingly, when comparing the statement from Hedman to the survey results related to Perceived Security, similarities emerged. For instance, 70% of respondents agree that they feel secure about mobile payment transactions being performed, however, the Perceived Security construct received the lowest mean score out of all constructs in both system-centric and user-centric factors.

A possible explanation for this uncommon relationship, could be that the smartphone and smartphone-apps now have existed for such a long time that individuals now expect apps to be screened and approved prior to their launch in app-stores, and this might have rendered security as an insignificant factor for some individuals. Damsgaard supports this claim, as he argues:

"Security, it's such an obligatory prerequisite for apps nowadays that if you don't have it [security], you're not authorised to even offer your product."

(Damsgaard Interview, 2021).

When asked about why they thought security has become a relatively diminishing factor for users, the scholars highlighted digital acuity. Hedman explains that consumers, especially Danish consumers, have become so accustomed to mobile payments, and mobile technology in general, that if they consider an app not safe and secure, they will simply not download or use it:

"Put it this way, the people who are using mobile payments expect the system to be secure. If some people were afraid it was not secure, they would not use it."

(Hedman Interview, 2021).

Furthermore, the experts accredited the high digital maturity of the population as a contributing influence for the diminishing role of security as a factor for adoption. More specifically, Damsgaard pinpoints that the high digital maturity is a result of the increased digitalisation seen in the Nordics in the last decades, and that this process also has affected the banking industry. As banks increasingly are offering their services in a digitalised form, and since the trust in banks is exceptionally high in the Nordics (Deloitte Report, 2019). MobilePay professional Staykova agrees with the argument that digital services developed by banks yield more trust: *"There has also been a lot of research showing that the fact it was made by Danske Bank, and not another Fintech player, increased adoption."* (Staykova Interview, 2021).

As mobile payments revolve around the transferring of financial funds, one would assume that such fintech services would be subject to strict governmental rules and laws installed to heighten security and protect the users. However, this is not the case, as Kjærgaard, explains that a certain loophole in an EU directive made it possible for MobilePay, and any other start-up mobile payment provider, to lessen

authentication and security processes in the first two years of existence in order to quickly expand the number of adopters:

"Part of the reason was, in the two first years, there was a specific exemption in an EU Directive which meant that if you only allowed payments under a certain payment threshold, then you would not need to have all these user-authentication requirements. After the two years passed, we knew that we had to increase our level of security and authentication."

(Staykova Interview, 2021).

Staykova further emphasises this point: *"There was a loophole in the law that allowed us [MobilePay] to operate with fewer security measures. It was secure, it was just not secure with NemId and CPR, or that level of authentication it has today was not present back then."*

As MobilePay professional Staykova explains, the purpose with MobilePay's exploitation of the EU Directive was to deliberately cut down measures and steps of user-authentication to limit the number of users exiting the onboarding, and to increase the overall convenience for the users:

"Here you can talk about convenience, because you didn't have to put in CPR-number or NemId when signing up."

(Staykova Interview, 2021).

Based on this, one could argue that it seems as though MobilePay in its infancy prioritised convenience at the expense of security, because it was assumed that the strategy would rapidly boost the number of adopters. The measures taken by MobilePay reflects findings reported in literature, which suggest that certain user groups prefer digital services that are convenient and easy-to-use over those that prioritise security and authentication (Dahlberg et al., 2015). Interestingly, when comparing this to the competition between MobilePay and Swipp, it would seem as though MobilePay chose the right strategy, as Staykova explains:

“Swipp and MobilePay had an interesting battle, Swipp's main competitive advantages over MobilePay was that they focused on security. But if you look at the adoption numbers of the solutions over the years. You can see it did not really work for Swipp, but it worked for MobilePay”

(Staykova Interview, 2021).

Moreover, it has also been argued that the success rate of onboarding new users into any given system to significantly increase, the less authentication-steps users are required to go through when signing up (Whitteker, 2014). However, this does not mean that MobilePay consider authentication and security obsolete, quite on the contrary, there are more efforts being devoted than ever to safeguard users, as Staykova expressed:

“When I joined MobilePay, we didn't have any risk officers, but now I think there's several risk officers whose only job is to ensure that there are no risks when using MobilePay”.

(Staykova Interview, 2021).

Comparing the statement from Staykova with survey answers from respondents who were users of MobilePay, it would seem as though the respondents recognise MobilePay's efforts to reduce risks and heighten security. For example, 56% of MobilePay users agreed to the question if they thought their provider takes security measures to protect transactions, whilst 66% of MobilePay users strongly agreed to the question if they thought their privacy on mobile payments is well protected. Contrastingly, 33% of Apple Pay users agreed when asked if they believed their provider takes security measures to protect their transactions, and 33% of Apple Pay users strongly agreed that their privacy on mobile payments is well protected (Appendix F).

In essence, the four interviewees had mixed beliefs concerning Perceived Security's influence on user's intention to adopt mobile payments. The two professionals agreed to the hypothesis that Perceived Security positively influences user's intention, whilst the two scholars somewhat dismissed the notion that Perceived Security influence users' intention to adopt mobile payments.

6.2.5 Social Influence

The interviewees were divided on the matter of Social Influence regarding the adoption of mobile payment services. Only MobilePay professional Kjærgaard and CBS scholar Hedman considered it a factor for adoption. Kjærgaard argues that MobilePay had limited marketing in its initial two years, whereas the importance of Social Influence helped the growth of MobilePay.

“It became more of a word-of-mouth thing, similar to the snowball effect, which made it grow and grow in the beginning, when you met a friend, a dad or mum, you would ask them ‘you should download MobilePay [...] let me help you download it’ in that way people helped each other”
(Kjærgaard Interview, 2021).

Kjærgaard clearly argues that the reasoning for MobilePay’s early growth is Social Influence, friends and family were downloading MobilePay through their peers. Hedman also argues that adopting or using mobile payments can be driven by social values, if your friends are using it. He specifically mentions social prestige as one of the social values:

“On one hand, you have the social prestige. So, if you have a new phone, you show it to your friends, and they think ‘wow, that is damn cool’... one is getting individual prestige.”
(Hedman Interview, 2021).

In this part of the interview Hedman was specifically talking about social prestige in relation to Apple. The smartphone market, especially when it comes to Apple is about having the iPhone and you get the social prestige. Thus, indirectly, Apple Pay becomes a part of the social prestigious aspect. Developing on the point made previously, that Apple has made it tougher for NFC competitors of Apple Pay to solidify their position in the market because Apple have capitalised on the element of social prestige, giving them a uniquely strong position in Denmark. (Hedman Interview, 2021).

Compared to our survey questionnaire, measurement item one, *“People who are important to me think that I should use Mobile Payment”* scored a mean score of 3.67. This question aligns directly with Kjærgaard’s notion of people downloading mobile payments because they were advised by people close to them. Furthermore, Kjærgaard also mentions that Social Influence had a higher effect on the older generation, as they were taught by their grandchildren to download MobilePay

“Older people who are normally more worried and reluctant towards the use of digital platforms, got help from their grandchildren to download MobilePay, so they had an opportunity to transfer money to their grandchild at their birthday”

(Kjærgaard Interview, 2021).

This aligns with Venkatesh et al.’s (2012) points that older people rather than younger are more inclined to consider Social Influence as a factor for adoption of technologies. However, our questionnaire showed that younger users moderated Social Influence, and older individuals did not highlight Social Influence as a factor for adoption. A clear differentiation between Kjærgaard’s beliefs and our survey results

As previously mentioned, our survey showed a limited effect on Social Influence leading to adoption. With an average mean score of 3.36 across all items, making it the second lowest mean scores among all factors. This corresponds well with the fact that only half of the expert interviews are considering it a factor. However, in terms of the measurement item related to the newly added concept network effects: *“The more my friends and network are using mobile payment systems the more valuable it is”* which scored the highest mean score of 3.98, all the experts agreed network effects influenced the adoption of mobile payments. Staykova states *“I think people use MobilePay because of network effects. I use it because there are other people I can send [money] to in my network”* (Staykova Interview, 2021). One-sided network effects can be directly attributed to MobilePay’s success, according to Damsgaard and Kjærgaard. To reiterate, MobilePay’s high adoption rate was due to the one-sided network effects through peer-to-peer transactions. With MobilePay it was easier to transfer money for birthdays and to borrow money etc. All experts, similarly, say that the one-sided network effects established by MobilePay creates critical mass and transitions the company towards cross-sided network effects in a

consumer-to-business setting. Another important aspect of network effect lies within the notion of complementary services. For Apple, Apple Pay is a complementary service. Hedman argues:

“You have a combination of different types of network effects due the mass of iPhone users in Denmark, and then you have the network effects because of the sheer volume.”

(Hedman Interview, 2021).

In essence, the four interviewees had mixed beliefs concerning the influence of Social Influence on user’s intention to adopt mobile payments. Instead, the interviewees argued the impact of Social Influence could be attributed to closely related factors such as Network Effects and Social Prestige.

6.2.6 Trust

When analysing the interview with Kjærgaard it is clear to see that he identifies Trust as a very fragile factor that can be easily damaged. Implying the notion of a hundred years to build a reputation, and a day to break it, by saying:

“Since day one Danes have been preoccupied with safety, if there is one thing that can make a solution go from Trustworthy to not Trustworthy such as reading about fraud in the news it can really damage a company image”

(Kjærgaard Interview, 2021).

The above statement gives the impression that image of Trust is a vital factor to the adoption and usage of mobile payment systems. Continuing, Kjærgaard states that Trust is a very tribal element in the consideration of adoption and usage. Arguing for the herd mentality of *“Everyone has MobilePay, and it looks the same, thus people must be Trusting it.”* (Kjærgaard Interview, 2021). The first item results of Trust from the quantitative data supported Kjærgaard’s point of people believing mobile payments are trustworthy, with a 70% agreement rate of the statement that *“I believe mobile payment providers keep their promise”*.

In a contrasting view Damsgaard, expressed his views that he thought Trust was a factor with minimal impact. He believed that throughout the past despite organisations past indiscretions consumers have still largely continued to use the company's services. He provided examples such as the past scandals of Facebook, but they are still a huge multifaceted platform, a more relevant example he gave was the 2018 Danske Bank money Facebook scandal, he argued that their image was slightly tarnished, but it did not have a drastic impact to their customer base. In terms of the data identified in this study the first item from the Trust questions can be identified as an anomaly, as mentioned earlier it supported the importance of Trust with 70% acceptance rate. Whilst the responses from the next three Trust items showcased a very neutral response, supporting Damsgaard's view that it is perhaps not the most influential factor to consider in the adoption of mobile payment services.

Lastly, in the interview with Hedman he discussed Trust from more of a cultural viewpoint and identified that Scandinavians and Danes in particular hold a unique stance on Trust when compared to neighbouring countries. Arguably due to their socio-economic situation and history, they have been afforded the cultural aspect of Trust. Such as, their great standard of living and high equality, Danes have high wages and a great welfare system that has enabled them throughout years to develop this notion of Trust due to the lack of poverty. Hedman argues that in terms of history they have had a stable past hundred years when compared to for example the Germans, it truly highlights the uniqueness of the Danish situation. As Germans have been one of the slowest to adopt new technologies regarding money, he argues they are still very much a cash society with a lack of Trust, due to their historical past where their country saw hyperinflation, twice.

6.2.7 Habit

Habit as a factor for mobile payment adoption and use, had a widespread understanding among interviewees except Damsgaard. Kjærgaard and Hedman argue that mobile payment has not established itself as a Habit, but breaking the Habit of credit card use, should elevate the habitual use of mobile payments *"We're creatures of Habit. It's a question of breaking old Habits before entering something new"* (Hedman Interview, 2021). The entire notion of credit card payments has become a Habit for users, so individuals will not switch to another alternative unless they break their current habits. Kjærgaard similarly says, *"Cards are actually not that easy, we have just gotten used to it, that's why we think it's*

easy” (Kjærgaard Interview, 2021). Kjærgaard states that credit cards have been so accustomed amongst consumers. It has become a Habit for them to use credit cards, despite it not being as convenient. This also aligns with Venkatesh et al. (2012), as previously mentioned, Habit is a learned outcome, and only after longevity, it will break existing behavioural patterns. Hedman also states that due to the long history and culture of Dankort in Denmark makes it harder for consumers to break the Habit of credit card payments, and the added value of mobile payments must make consumers embrace the switch to mobile payments.

Alternatively, when asked about Habits, Staykova states that mobile payment must be incorporated into all aspects of payments in order to become a Habit.

“Habit definitely has to do with identifying all the different payment scenarios. If you can use MobilePay for other types of payments, such as government payment. That increases your usage in everyday life.”

(Staykova Interview, 2021).

Our survey results showed that mobile payments scored high on items of mobile payments becoming a Habit and natural for them to use. Furthermore, regarding items comparing mobile payments and credit cards in other settings than Habit, also see a slight edge towards mobile payment. Thus, our survey results indicated that consumers are already seeing mobile payment as a habitual routine, in contrast to interviewees, who see credit cards as a habitual barrier for the progress of mobile payments.

Another important aspect of Habit is the focus of its effect on technology use rather than behavioural intention. Venkatesh et al. (2012) states that Habit is one of only two factors which affects both adoption and use. Hedman also argues *“They don’t see it as a Habit. Habit is a behaviour.”* (Hedman interview, 2021). Indicating that Habit is not a factor for adoption, and cannot be aligned with behavioural intention, but rather solely technology use.

6.2.8 Personal Innovativeness

In the quantitative analysis, the results showed that Personal Innovativeness was a relevant construct, especially when it comes to the younger respondents, as well as how innovative the respondents in general thought they were. Relating the quantitative results to the findings from the interviews with scholars and professionals, it would seem as though both the respondents and interviewees accept the construct of Personal Innovativeness as a factor for adoption.

From the scholars' point of view, the construct plays an important role for the adoption of mobile payments, because differences in individuals' level of Personal Innovativeness should be considered to facilitate the acceptance of mobile payments:

"Tech-savvy individuals tend to be early adopters. So, I think they are always extremely important [for the adoption of mobile payments]. If they don't continue using a new technology, it will fade away."

(Hedman Interview, 2021).

The Hedman quote above illustrates the idea that the prospective success of technologies is to some extent hinged on innovative adopters, because they may act as "digital champions" who can advocate the benefits of a particular service, such as the capabilities and functionalities, to the wider public. The claims of the experts are supported by findings in extant literature, which show that not all individuals in a society adopt an innovation at the same time, and by recognising this, mobile payment providers can utilise early adopters for their own benefit because: *"Early adopters often function as opinion leaders who can encourage others to adopt the innovation by providing evaluative information."* (Rogers, 1962, s. 23). Such knowledge could well have profound implications for practice, as this could aid mobile payment providers in applying different strategies and campaigns depending on the user group and the diffusion stages of mobile payment acceptance. Kjærgaard argues that MobilePay has been developing multiple different service options with the aim to sustain the number of new adopters as well as existing users. Staykova supports this claim, as she expresses what kind of efforts MobilePay has made to sustain existing user's continuous use of MobilePay:

"So, the quest for MobilePay is to go and enable all these different payment methods. MobilePay has now developed gift boxes, they have subscriptions, they have many different things. And the whole idea is to make users use MobilePay more, and to use it more continuously."

(Staykova Interview, 2021).

With regards to how the MobilePay professionals perceived the Danes' level of innovativeness factor for MobilePay's high adoption rate, they argued that the Danish citizen's' high digital acuity functioned as a diffusing factor for the acceptance of not only MobilePay, but mobile payments in general, as expressed by Kjærgaard:

"There are also diffusing factors that are important, for example the Nordics, has been a leading area in digital acuity, because they have this geography that enables an expansion of networks such as 4G and 3G, and this has allowed us to obtain a base of users who are very technological capable."

(Kjærgaard Interview, 2021).

The MobilePay professionals also explicitly stated that users' age moderated their willingness to adopt and use mobile payments. For instance, Kjærgaard argues that older users tend to stick to safer solutions, whereas younger users are more daring to try new services and they are quick to learn multiple payment solutions. However, despite this moderating effect, the two professionals argued that the competence gap between younger users and older users was decreasing and this naturally had certain implications:

"...younger people prefer to pay digitally. However, the gap between younger users and older users is vastly diminishing, and during Covid-19 there has been a huge step forward."

(Kjærgaard Interview, 2021).

Regarding the inflicted implications caused by users' diverse age, Kjærgaard states that MobilePay have had to pursue different strategies for different age groups. The insights provided by the professionals on the effect of Personal Innovativeness correlates well with this thesis' findings, as well as those reported by Venkatesh et al. (2012), who argues that *"...younger users tend to exhibit a greater tendency to seek*

novelty and innovativeness, and older users tend to engage primarily with familiar solutions (Venkatesh et al, 2012, p.163).

In summary, through the interviews it was discovered that all interviewees consider Personal Innovativeness as an influencing factor for both the adoption and continuous usage of mobile payment services. From the scholars' point of view, Personal Innovativeness was considered a determining factor because innovative individuals are quick to adopt new technologies, and because innovative individuals play a crucial role as opinion leaders who may help to drive adoption even further. From the professionals' point of view, Personal Innovativeness was an important factor because acknowledging the notion that different users may have different levels of innovativeness, means that providers can specifically address the needs and wants of users, resulting in a higher value proposition.

7. Discussion

Quantitative & Qualitative Key Findings Table

The following table below transparently showcases the key insights from the qualitative insights as well as the quantitative findings.

	<i>Staykova</i>	<i>Damsgaard</i>	<i>Hedman</i>	<i>Kjærgaard</i>	<i>Coefficients & Significance</i>
<i>PE</i>	"Contactless Dankort, I think is quite dominant, and nothing beats this experience yet. There is another player, that is gradually overcoming MobilePay among merchants is Apple Pay"	"When you pay with a credit card, you have to type in a lot of different digits and your CVV code and the expiration date. With MobilePay you just type your phone number and pay. It just works effectively."	"To a large extent I agree that tap and go with card is quite convenient, it is quite fast."	"Suddenly there was an option for quick transfers ... in a fast way" "Apple Pay is the only service that be used to paid with NFC, so they have a huge competitive advantage"	.350 (Significant)
<i>EE</i>	"Largely considered as one of the most influential drivers for user adoption, especially when compared to mobile banking and Swipp." "This is convenience, because you didn't have to put in CPR-number or NemId when signing up." "MobilePay has an exceptionally online procedure that eliminates difficulties and provides users with a faster, easier service. Making them currently the market leaders for online payments in Denmark". "Intuitive design."			"I really think convenience for the user is key , they have to keep making services that are SMART (Specific, Measurable, Achievable, Realistic, Timely)", to increase the user convenience through smarter integration." "When it does not take place through physical payment, then we have made a solution that is incredibly convenient for the smaller players." "The inhabitants of Nordic countries have an incredibly high digitalization."	.300 (Significant)
<i>FC</i>	"Danske Bank aided Mobile Pay with the infrastructure, quality, it had the right resources. It had the capital."		"Population has a high digital acuity."	"Scandinavians have mobile payments for private payments, for cash registers, for gifts, money gifts, and normal gifts, they have for online web shops, and online train tickets."	.314 (Significant)
<i>PS</i>	"I do agree with the fact that these factors [security & privacy] are becoming more and more important."	Security, it's such an obligatory prerequisite for apps nowadays that if you don't have it [security], you're not authorised to even offer your product."	"So, it [m-payments] has kind of reached a threshold where they are so secure, that consumers don't even consider it a factor anymore" "People who are using mobile payments expect the system to be secure. If some people were afraid it was not secure, they would not use it."		0.345 (Significant)
<i>SI</i>	"I think people use MobilePay because of network effects. I use it because there are other people I can send [money] to in my network" "Because of Danske Bank, MobilePay had strong network effects."		"On one hand, you have the social prestige. So, if you have a new phone, you show it to your friends, and they think 'wow, that is damn cool' ... one is getting individual prestige." "You have a network effects due the mass of iPhone users in Denmark, and then you have the network effects because of the sheer volume."	"It was a word-of-mouth thing, like snowball effect, increasing growth, when you met a friend, you would ask them 'you should download MobilePay [...] let me help you download it' in that way people helped each other" "Elderly are more worried and reluctant towards the use of digital platforms, got help from their grandchildren to download MobilePay, so they had an opportunity to transfer money to their grandchild at their birthday." "Since day one Danes have been preoccupied with safety, if there is one thing that can make a solution go from trustworthy to not trustworthy such as reading about fraud in the news it can really damage a company image"	NS
<i>T</i>	"There has also been a lot of research showing that the fact it was made by Danske Bank, and not another Fintech player, it increased adoption."			"Everyone has MobilePay, and it looks the same, thus people must be trusting."	.172 (Significant)
<i>H</i>	"[Habit] definitely has to do with identifying all the different payment scenarios right. use MobilePay for other types of payments, such as government payment. That increases your usage in everyday life."		"We're creatures of habit. It's a question of breaking old habits before entering something new" "They don't see it as a habit. Habit is a behaviour."	"Cards are actually not that easy, we have just gotten used to it, that's why we think it's easy."	NS
<i>PI</i>	"MobilePay has now developed gift boxes, they have subscriptions, they have many different things. And the whole idea is to make users use MobilePay more, and to use it more continuously."		"Tech-savvy individuals tend to be early adopters. So, I think they are always extremely important [for the adoption of m-payments]. If they don't continue using a new technology, it will fade away."	"There are also diffusing factor that are important, for example Scandinavia, has been leading digital countries because we the geography for network expansion such as 4G and 5G, and this has allowed us to obtain a base of users who are very technological capable." "...younger people prefer to pay digitally. However, the gap between younger users and older users is vastly diminishing, and during Covid-19 there has been a huge step forward."	.155 (Significant)

The quantitative and qualitative empirical findings enable the authors to answer the overarching research question of this thesis:

What factors influence consumers behavioural intention to adopt and use mobile payment services?

Increased operational performance through utilitarian attributes is paramount to adoption

This thesis found Performance Expectancy to be the strongest determinant for behavioural intention to adopt mobile payment services. This was identified through the statistical measures, as the construct had the highest coefficient ($\beta = .350$).

A key finding elicited from the primary data, was the high degree of usefulness and the swiftness of mobile payments, which all contributed to the utilitarian aspects of mobile payments. In particular, the analysis revealed that the usefulness-aspect of mobile payments was found especially salient for adoption, because if consumers do not identify mobile payments as useful, they will not form an intention to adopt. From a theoretical standpoint, Venkatesh et al. (2012) also strongly emphasised the utilitarian value, as he argued Performance Expectancy has consistently shown to be the strongest predictor for behavioural intention (ibid). In addition, the above finding is in alignment with the existing body of literature (Leong et al., 2020; Pal et al., 2015; Zhou, 2012; Cabanillas et al., 2020).

Both the findings from the analysis as well as extant literature conclude that Performance Expectancy has a significant impact on users' behavioural intention to adopt mobile payment services (Kim et al., 2009; Oliveira et al., 2016). A justification for this conclusion is that due to the paradigm shift in consumers' needs and demands companies have had to ensure high performance levels of their product/service in order to increase prosperity in a competitive market.

Moreover, relative advantage was also highlighted in the analysis as a crucial factor for mobile payment adoption. The construct was particularly important for adoption, because it was demonstrated to provide a competitive edge over cash and credit cards which increased performance. This finding correlate well

with findings in extant literature, for example, Jung et al. (2020) and Arvidsson (2013) both saw relative advantage as a factor for adoption of mobile payments. Another point contributing to the overall importance of Performance Expectancy, is that due to Denmark's market saturation, consumers expect certain functionalities. If the pre-existing product or service is somewhat better, consumers will simply not adopt the new service. The primary data illuminated that mobile payments was identified as having a relative advantage through being faster and more convenient. Finally, with this increased level of usefulness, Performance Expectancy can be seen as a vital factor in the adoption of mobile payment services.

Minimal effort and maximum results are essential to achieve critical mass

Through the analysis, it becomes apparent that the hypothesised relationship between **Effort Expectancy** and **Behavioural Intention** was of significant strength, thereby establishing that Effort Expectancy positively influences respondent's behavioural intention to adopt mobile payments.

In particular, consumers' perception of how easy mobile payment is to use, to learn, and to understand, was found to have a strong influence on their intention to adopt. Similar findings stressing the importance of mobile payment-easiness was reported in the study by Kim et al. (2010). So, in essence, the perceived effort required to learn and use mobile payments significantly affects users' behavioural intention to adopt.

These findings are vital for the further development of mobile payment services, because they provide insights into user's mental expectations of the system. Recognising consumer behaviour allows service providers to divert efforts where it is needed, for example, to enhance the accessibility and operability of the systems' interface. In turn, this can help to shape a high utilisation of the service, which is an element that the findings also strongly emphasised (Bacao, 2021). Furthermore, Effort Expectancy-related concepts such as ease-of-use, self-efficacy, and simplicity were found as augmentative antecedents for users' adoption of mobile payments. The imperativeness of these concepts was also emphasised considerably within the extant mobile payment literature (Leong et al., 2020; Shin, 2010).

Theoretical arguments furthering the severity on the impact of Effort Expectancy is when Venkatesh et al. (2012) argued that the level of easiness related to using any given technology will determine its corresponding level of adoption. A further finding linking this thesis' results to the existing literature, is that user-friendly technologies, which are flexible, and easy to use, hold stronger incentivising attributes and features than those which are not. This supports the argument raised by Venkatesh et al. (2012) about the connection between ease-of-use and technology acceptance, through which the findings illuminate that users prefer technologies which are easy to use.

Financial security is a vital prerequisite for consumers

Through the analysis, it was established that the hypothesised relationship between **Perceived Security** and **Behavioural Intention** was of significant strength, meaning the construct of Perceived Security considerably affected users' positive intention to adopt mobile payment.

Furthermore, the primary data exposed that Perceived Security was more salient in older adults, signifying a generational gap. This supports the arguments made in the existing body of literature (Kalinic et al., 2019). In addition, the primary data identified users perceived risk as a factor that influences users' intention to adopt. Suggesting that users' risk perception is a part of their subjective evaluation and is dependent on the sufficient security mechanisms that surround mobile payment technology. Similar results have also been noted in extant mobile payment literature, for example the study by Cobanoglu et al. (2015), in which the authors found evidence supporting the affecting role of perceived risk in mobile payment adoption.

When interpreting the qualitative findings, it becomes apparent that the role of Perceived Security as a determinant received blended reactions. Albeit the interviewees acknowledged security and privacy as imperative attributes of any mobile payment technology, the hypothesis that Perceived Security positively affect adoption caused controversy, as not all interview participants agreed. Whilst arguments supporting the proposition centred on the belief that securing users' data and staying agile in an ever-changing technological landscape would result in higher user adoption, counterarguments revolved around that security has become so embedded in mobile payment technology that users no longer

consider it a factor. Relating such insights to results obtained in previous mobile payment literature, one could argue that security and privacy undoubtedly are becoming increasingly salient drivers for user's mobile payment adoption, as previous research has validated their importance across multiple contexts (Dahlberg et al., 2015; Oliveira et al., 2016; Johnson et al., 2017).

The appropriateness of integrating Perceived Security, risk, and privacy as one multidimensional construct under System-centric Factors, presented the researchers with the opportunity to empirically test and validate its proposed effect on respondents' intention to adopt mobile payment. With regard to the appropriateness of classifying Perceived Security under System-centric factors, such an arrangement may provide a clear and organised framework of factors pertinent to users' adoption of mobile payments for future studies. In doing so, managers reading this thesis may clearly see which factors to strategize around, may it be factors of functional value or personal value, thereby empowering them to divert time, effort and investments where it is most needed according to the user's needs. From an academic perspective, the results confirm the need to extend UTAUT2 by integrating a Perceived Security-factor to obtain a more comprehensive understanding of mobile payment adoption, according to the proposed model. Even though Perceived Security was omitted from the original UTAUT and UTAUT2, the constructs' inclusion in this thesis' theoretical model helped to increase the applicability of UTAUT2 to the mobile payment context today, as well as contributing to identifying the level of impact that each factor has on consumers' intention to adopt mobile payments.

Entrenched habitual practices prohibit adoption

Results from the SEM analysis demonstrated that Habit did not have a significant relationship with behavioural intention, thereby not accepting the hypothesis that Habit is a factor for mobile payment adoption. When looking at the survey results connected to Habit, it becomes evident that measurement items related to Habit received a low mean score and a high standard deviation score. This signifies that the respondents did not agree with statements connected to Habit, and they do not consider their adoption of mobile payments hinged on habitual factors.

Habits' insignificant impact on respondents' behavioural intention to adopt mobile payments was attributed to respondent's difficulty in breaking existing payment habits. This finding correlates with the findings of Venkatesh et al. (2012), which suggested that the more consumers have gotten used to a certain technology, the harder it is for them to break that Habit and start a new one. In addition, the notion is also supported by Leong et al. (2020), who states that the Habit of using credit card and cash is one of the biggest barriers for mobile payment adoption. This also stems well with the qualitative analysis of this thesis, when scholars identified existing Habits as a barrier. An explanation for this finding could be attributed to mobile payments being a relatively novel phenomenon, in which high levels of consumers' existing payment habits are deeply embedded in Danes daily routines, and therefore are difficult to break. Furthermore, Hedman also argues that with Denmark's extensive history with credit cards, it is difficult for Danish consumers to fully transition to mobile payments. A supporting theoretical argument would be when Venkatesh et al. (2012) stated that consumers with extensive experience will develop a cognitive lock-in that creates a barrier to changes in behaviour.

Competition necessitates increased compatibility to consumers' lifestyles

Following from the collective findings of the primary data, it is fair to state that the Facilitating Conditions survey results showcased invaluable information. The analysis highlighted the fact that Facilitating Conditions was among the most influential factors for adoption. These findings are also in alignment with the study conducted by Chong et al. (2012). The findings showed that mobility was a large reason for adoption, and use, as e.g., MobilePay can be used in different settings such as in-store, online, p2p. The mobility of MobilePay is highly stressed on the notion of mobile payment that can be performed anywhere anytime, such as how much consumers strongly believed mobile payments services increased their mobility. the capability to perform anywhere, anytime mobile payments can be deduced as an influencing factor in the consumers behavioural intention to adopt and use mobile payment services. These findings align with the study conducted by Pal et al. (2015).

The survey results determined that a dominantly large percentile of respondents believed they had the support network in place if they faced mobile payment difficulties. Indicative that because they have this support network, it becomes less of an obstacle to adopt and use, making the Facilitating Conditions of the sufficient support network an influencing factor in the adoption and usage of mobile payment

services. Possible explanations for the positive results in the survey could be attributed to a multitude of reasons. Firstly, a viable explanation for the significance of mobility is the increased demand, complexities, and output of consumers today, as the global economy grows so does the societal changes and competition level. What this means is that consumers are required to do more and at better standards wherever they can, so naturally they require the tools to achieve this. This then links to the increased competitiveness of firms to produce fresher, more advanced technologies. A quote that supports this potential explanation is when Kim et al. stated:

“In comparison with conventional e-commerce, in which transactions are conducted commonly via wire-internet, mobile computing provides users with more freedom and value, allowing them to access time-critical information and services regardless of time and place.”

(Kim et al., 2009, s. 313).

A plausible explanation for the degree that the respondents found the use of mobile payments so compatible to their lifestyles, working needs and values could be attributed to similar justification as above, due to the flexibility and availability of mobile payments they are compatible to consumers lifestyles by design. In essence, consumers' perception of the compatibility of mobile payments is that it makes mobile payment easier to use, and therefore, in turn increases the user's views of the usefulness of mobile payments. Moreover, the results also suggest that the respondents of this thesis considered mobile payments as a good fit to their needs and lifestyles. This finding is contradictory to the findings of Kim et al. (2009), Arvidsson (2013), and Pal et al. (2015), in which all three of their studies concluded that it did not have a significant impact. A viable explanation for this could be the antiquation of their studies. This thesis could potentially be an indication that providers have improved their value propositions to fit the needs and wants of consumers in today's market.

Arguably, at the time of their study, the functions and capabilities of their offerings were primitive, and had decreased functionalities, which naturally decreases the impact of compatibility.

In terms of the moderating variables' impact on Facilitating Conditions, experience was identified as the only influencing factor in the survey, as the more experience the users had with mobile payments, naturally the more they believed they had the resources, the mobility, the compatibility, and the support

network for mobile payment services. This could be explained due to the time spent with mobile payments the more they learnt, and familiarity was increased which in turn enhanced their user experience. The qualitative data correlates well with the quantitative results. Facilitating Condition, and its sub-constructs, had a strong influence on consumers' behavioural intention to adopt and use mobile payment services. The interviewees attributed the positive impact of the construct to several explanations. Firstly, they argued that the Facilitating Conditions were important for adoption because they enable the mobile payment services to function effectively through infrastructure and support networks, and to look enticing and increase hedonic motivation through intuitive design.

The qualitative data also supported the positive findings of the quantitative Compatibility results, and the interviewees explained that it had a major impact when there was an increased usefulness with an increased number of users. Further evidence that suggested Compatibility had a positive influence for respondents' adoption, would be when one of the interviewees highlighted the significance of the mobile wallet. Explaining that its impact is due to the usefulness alignment to people's lifestyles with having all cards virtually. A last finding from the qualitative analysis that explained why Compatibility is important, is how effectively mobile payments fit with developed countries lifestyles, which supports the potential explanation for the positive survey findings on compatibility, due to the increased demand and pace of lifestyles. Compatibility becomes more necessary as technologies and consumers demands develop.

With reference to the qualitative findings on mobility, it is evident that the sub-construct in the eyes of the experts has a strong influence on the adoption and usage of mobile payment services. This is because the qualitative data identified mobile payment services have achieved strong followings and critical mass through the sufficient infrastructure that ensures the mobility of the service. Furthering the point that mobility has impact not just through physical infrastructure to increase mobility of the service, but also the accessibility and availability of mobile payment services in stores and all locations. From a managerial perspective, mobile payment providers may find these contributory new findings useful in their future service offerings by focusing future efforts on streamlining the compatibility aspects of their products and services. This could be achieved through further virtual integration, from which they can capitalise on further consumer adoption and continued usage, thus enabling their companies to prosper and develop even further.

Adoption not governed by Social Perceptions

The statistical analysis of the hypothesised relation between Social Influence and behavioural intention was not confirmed, thereby rejecting Social Influence as a determinant for mobile payment adoption. The survey results suggest that factors for mobile payment service were not guided by perception of peers or subjective norms.

A possible explanation for the limited statistical significance of Social Influence demonstrated through the quantitative analysis can be explained by previous findings in literature. As many studies taking place in Asia concluded Social Influence as a factor for adoption, whilst countries similar to Denmark were not signifying the importance of Social Influence for adoption. The research by Zhang et al. (2018), as well as Palvia (2009) illuminated the differences between American and Chinese consumers. Zhang et al. (2018) mentions that the reason for the high emphasis on Social Influence in China can be explained by Hofstede's dimension of individualism/collectivism. Asian countries tend to score high on collectivism, which fuels the importance of social circles and influence thereof. Whilst Western countries, including Denmark, have a low emphasis on collectivism (Zhang et al. 2018).

Another finding of Social Influence was in regard to the concept of network effects was important for adoption. This specifically also has a lot to do with the Danish market, in which MobilePay, a peer-to-peer service, was a first mover and has created critical mass, unlike most other countries where most peer-to-peer either are non-existent or have a much smaller user-base than consumer-to-business. This is supported by Scandinavian study Arvidsson (2013) that mentions the notion of Network Effects in his Swedish study.

Provider credibility is key

It is evident from the statistical analysis of Trust, that the respondents predominantly agreed that they Trust mobile payment providers. However, the findings indicated that the respondents were showcasing sceptical levels of trust in financial technology, as a large percentile of survey respondents indicated a strong level of neutrality within their opinions on the level of Trust. This is evidence of Trust having a positive influence on the respondents when considering their adoption and continued use of new mobile

payments, however, there is still some apprehension. Similar findings on the influential impact of Trust on mobile payment adoption was reported in the study by Slade et al. (2013).

A possible argument for the degree of neutral responses on Trust could be accredited to the moderating factor of age. For example, when considering the fact that most of the respondents were of 25–30-years-old, with the next largest age percentile being from 18-24, it could be argued that these ages have grown up with technology and have been greatly accustomed to experiencing new technologies. With the increased familiarity to these technologies, users have the opportunity to develop experience, thus the potential fear of risks has decreased. Survey results that support this are in the age breakdown in the survey. Where the older respondents were less Trustworthy of mobile payments due to the lack of familiarity with technology, when compared to a younger user who has grown up with it. This has created the opportunity for banks and technology companies to capitalise on users' familiarity in order to build user Trust and increase adoption.

A viable explanation for Trusts' impactful influence on respondent's adoption intention, could be attributed to the level of competition or feasible alternatives in mobile payments. This is because firms recognize the competitive market and know that users can simply switch to other services or use another alternative, such as contactless debit cards. Therefore, if users cannot Trust banks or tech-companies to provide the features and level of service that the company promises, the users' Trust is significantly decreased. Thus, decreasing their intention. Alternatively, a potential explanation of the noticeable neutrality in answers related to Trust, could be attributed to the severity of finances and private data. For example, mobile payment providers' primary point is consumers finances, which are generally considered paramount to all consumers welfare and livelihood. Due to the gravity of the nature of mobile payment, it may therefore be explained that some users are not as certain in their Trust. This finding was supported by Donald & Remy (2012), which also emphasised the severity of Trust in connection to users' finances, which influences their intention to adopt.

The findings demonstrated that this level of Trust then must be continually maintained throughout the user's usage of the service. This was supported by Cao et al. (2018) when they provided a viable explanation to these findings, when stating that Trust has a direct positive influence on their perception

of the benefits of the service. As Trust is an emotional feeling that influences the decision-making process, the scholars in this thesis also highlighted the importance of reputation and argued for its significance in the adoption as reputation is vital. An argument in extant literature supporting this, would be the results obtained by Xin et al. (2013), who stated that “...consumers’ perceived reputation of the mobile service provider positively relates to mobile payment trust”. (Xin et al., 2013, s. 1).

Further arguments that indicate Trust is an influencing factor for the adoption of mobile payments, would be when the scholars described how the level of infrastructure and capital of providers builds consumers Trust, which has a direct impact on the adoption of mobile payment services. This is due to infrastructural features ensuring consistent performance and security, through the targeted use of their capital. This level of reliability ruminates in the consumers conscience, thereby increasing the likelihood of customer retention and brand loyalty through Trust. This finding aligns with Lin et al.’s (2019) conclusion that:

“Consumer’s perception of structural assurance and environmental risks of mobile technology have a strong influence on users’ trust of mobile payment.”

(Lin et al., 2019, s. 1).

Other arguments ascertained from the interviews highlighted that Trust was still a factor in the influence of adoption, however, it was heavily influenced by culture. A strong argument was made for this by showcasing historical cultural differences by the experts. This highlights the need for perhaps further research into the effect of culture on the adoption of mobile payments. This is backed by Palvias’ (2009) cross-cultural study where they found that only Chinese consumers rather than Americans were concerned about their privacy when adopting mobile payment services.

Alternatively, one of the experts offered an adversarial viewpoint, and stated that Trust was not an influence, and argued that people are more focused on the features of the service. The interviewee argued that despite frequent indiscretions of companies, users continue to go back, and the number of users does not change drastically, providing the other constructs and features are there. The validity of the statement can be attributed to the experience of the MobilePay employee who saw this happen first-hand. Thus, the

interesting contrasting above statement is substantiated by experience, and is considered appropriate to the outcome of this thesis's findings.

In terms of future managerial implications of the findings, it could be argued from the above data that balance swings in favour of Trust being an influential factor in the adoption of mobile payments. Meaning that firms should focus their energies on building Trust with their clients through reputation, sufficient infrastructure and cultural acuity in each market. In doing this they can capitalise on customer retention. Due to the quality of the above findings, the statistical analysis and opinions ascertained from the scholars and professionals, the appropriateness of integrating Trust in attempting to answer this thesis's research question was notably enhanced.

Innovative traits promote adoption intention

Following from the analysis it is evident that Personal Innovativeness, similar to Trust, were the only User-centric factors that were statistically confirmed to influence respondents' intention to adopt mobile payments.

With regard to findings from the qualitative data, the interviewees provided invaluable insights into their opinions on the effect of Personal Innovativeness. The consensus from both the scholars and the professionals was that consumers with a heightened sense of Personal Innovativeness have a greater probability of adopting mobile payment services. The scholars and professionals all argued that the younger the user, the more Personal Innovativeness they possess. A justification for this reasoning could be as mentioned previously, younger people grow up around technology and therefore have more familiarity, thus decreasing the barrier to innovativeness. This point is in alignment with the findings of Zhang et al. (2019) which is conducive to the conclusion of the impact that Personal Innovativeness has on users' intention to adopt.

The scholars and professionals argued that when users have a heightened sense of innovativeness, they are more likely to be advocates of the latest innovations within technology, this diffusion has profound effects on the adoption of mobile payments. An additional finding supporting this point was that the MobilePay professionals stated that firms were working on acquiring specific acquisition strategies of new and existing users who hold innovative tendencies. This can be interpreted that the companies see innovative users as influential actors in the acquisition of all customers.

Another finding of the qualitative data highlighted the significance of cultural differences, as the experts argued they have an influence on user's Personal Innovativeness. For example, the experts exclaimed that there is a high degree of digital acuity embedded deep within Scandinavian culture, which in turn creates more technologically capable consumers which can result in a heightened sense of innovativeness. Our findings of the impact of cultural differences on personal innovativeness was also supported by Zhang et al's (2019) cross cultural study between the US and China that found significant differences in innovativeness which was definitively attributed to culture.

In summary, Personal Innovativeness following from the analysis was established to have a positive influence on the respondents' intention to adopt mobile payment services. Thus, verifying its appropriateness in terms of providing evidence that is conducive to answering this thesis' research question. However, despite its identification as a positive influence, the degree to its influence was lacklustre in comparison to the System-centric factors in this thesis.

Although in the face of these lacklustre findings, the inclusion of Personal Innovativeness led to the identification of another applicable contextual factor. Which would add further depth in the explanation of the degree of influence on personal innovativeness in consumers' intention to adopt in future research. Namely, the moderating role of cultural differences, which this thesis exposed its indirect effect on users' intention of adoption.

Key Findings

Following from the discussion it is evident to identify which factors can be seen as impactful to user's adoption of mobile payment services. The analysis identified that all four of the system centric factors were the most impactful factors on the behavioural intention to adopt, and the discussion explained this was chiefly due to users and experts placing the most value on the utilitarian elements, when considering adoption. Primarily, the most significant finding was the confirmation of the hypothesized relationship between **Performance Expectancy** and behavioural intention. The conclusion of this finding was particularly attributed to both the users and experts valuing the level of the performance of a service due to the level of competition within market players. **Perceived Security** was identified as the second most vital construct. This was attributed to the alignment from the primary data and secondary data results

concluding its significance. This was explained due to the importance people place on finances and private data.

Despite the identified system-centric factors dominance, the discussion identified **Trust** as the most significant User-centric factor for users' behavioural intention to adopt. The discussion primarily attributed this to users' emotional investments affecting their perception of Trust, highlighting the gravity of reputation. The discussion also offered the potential for new avenues to be covered in the future by exposing culture as a potential factor. Contrasting key findings from the analysis that was justified in the discussion was that both the User-centric constructs **Social Influence** and **Habit** were rejected as factors that influence the user's behavioural intention to adopt mobile payments. These are key findings, as it showcases to the reader what factors future researchers should focus on.

7.1 Limitations

As this thesis was conducted in a Danish context, which is known for having one of the highest concentrations of mobile payments, the findings of this thesis may not be generally applicable for other countries with a lower mass of mobile payment users. This limits the contextual generalizability of the findings. This is a limitation that Venkatesh et al. (2012) similarly stressed in his study of mobile internet in Hong Kong, which also has a high concentration of mobile phones users. This contextual limitation is also further expressed in the literature review, as most of the studies took place in countries with much lower mobile payment market penetration than Denmark, which also emphasized the difference in which constructs were found important in this thesis compared to other researchers. Furthermore, the high concentration of peer-to-peer payments in the context of mobile payment in this thesis significantly differ from other studies in our literature that tended to be exclusively focused on consumer-to-business scenarios. This can also lead to this significant gap between literature constructs and our constructs. Another limitation revolves around publication date, as even though most studies in this research have highlighted that there has been significant change of scenario in the payment and mobile market since 2012. Especially in Denmark, which has made our results somewhat contrasting to certain parts of the literature, such as Social Influence not being a factor for adoption and the heightened sense of personal innovativeness among Danish consumers.

Moderators and the relationship between Behavioural Intention & Use

An important utilization of UTAUT2 is the relationship between Behavioural Intention and the constructs moderated by different variables such as age, gender and experience, as well as the relationship between Behavioural intention, Facilitating Conditions and Habit with technology use. Despite having an assumption of how different moderators affect the constructs through descriptive statistics, our study does not show how the moderating variables affect the relationship between the independent variables and the dependent variable Behavioural Intention. Despite most literature not statistically examining the moderating variables, Venkatesh et al. (2003; 2012), Davis (2000), and Cabanillas et al. (2014) all stressed the importance of moderating variables in their research. Similar to the moderating factors, there is a research gap of examining the direct effect of use technology. Despite statistical evidence showing how often and which mobile payment providers the respondents were using, the Structural Equation Modelling did not examine the variable ‘technology use’.

Primary Data Collection Gap

The data collection similarly confines certain findings from the survey and interviews. In terms of the quantitative dataset, the targeted segmentation mostly revolved around acquaintances in the same age group as the researchers, which resulted in a discrepancy in age group. This discrepancy in the moderating variables made it difficult for the researchers to generalize the findings related to demographics.

When looking at the survey, the majority of measurement items for existing constructs of UTAUT2 was applied to this survey. Some items might only have been applicable for Venkatesh et al. (2012) study of mobile internet instead of our research in regard to mobile payment, such as, how mobile internet increases respondent’s productivity. This item is mostly related to the original UTAUT, which centred around job performance, but still is incorporated into UTAUT2. Furthermore, there is also a certain limitation in regard to the number of measurement items for each construct, which in turn would affect the statistical measurement of the mean score and relationship between behavioural intention to adopt. For instance, the factors of Perceived Security and Risk were combined to one construct. Thus, creating six measurement items, in which the two lowest scores were strongly related and significantly dropping the overall mean score. In the research by DeFranco (2016), the authors similarly extended UTAUT with

security and privacy. However, the scales of measurement and constructs for privacy were divided into ‘general’- and ‘system-related’ privacy, not impacting the behavioural intention.

A further major limitation in terms of conducting primary data for this research relies in the presence of Covid-19, due to the lockdown all qualitative data has been conducted through telephone or internet-mediated interviews, which has led to certain practical limitations. Saunders et al. (2019) stresses the importance of observing participants and interviewees by picking up on hesitations, as well as non-verbal and visual cues which is not possible for telephone interviews. Furthermore, telephone interviews as indicated by Saunders et al. (2019) also makes the connection between interviewee and interviewer less personal, making it harder for them to establish a rapport and open up about issues as well as the interviewer not being able to control the conversation through telephone and internet-mediated interviews.

The generalizability of qualitative findings has been taken into consideration, by interviewing mobile payment scholars and MobilePay professionals, it has strengthened our generalizability as well as generally using a mixed-method design (Saunders et al., 2019). Nevertheless, using four completely different interviewees with variations in professional and academic background might also have found other aspects of the existing theory of UTAUT2 relevant for adoption. As well as interviewing representatives from Apple Pay Denmark, if possible, would have gotten a clearer understanding of their vision of the Danish payment market compared to MobilePay.

7.2 Further Research

As the design of the study centred on a concurrent mixed methods research, where quantitative and qualitative data are collected around roughly the same time, future research techniques could centre on a sequential approach (Saunders et., 2019). Using the qualitative methods to frame the survey questionnaire from an exploratory perspective, by adding items derived from the interviewees or using sequential explanatory technique, in which experts are interviewed about the quantitative results, and asked to explain these results (ibid).

In order to fully comprehend and measure consumers' behavioural intention to adopt and use mobile payment services, future research can ruminate more into the conceptualization and study of use. The measurement of use can be examined in continuation of a longitudinal study where the same survey has been repeated to extract and compare variables (Saunders et al., 2019). Similar to Venkatesh et al. (2012) using two-stage survey four months apart to specifically highlight and measure use behaviour. A diary method can also be used to scale mobile payment usage in a qualitative fashion, as was tried in the study by Neustaedter (2017). Participants would be asked to keep a journal over the mobile payment use and emphasize their reasoning for purchases related to the factors.

Future research may also revolve around comparing technologies and providers, as in this study there was a strong emphasis on multiple providers and technologies used for mobile payment. Making a comparative analysis of e.g., MobilePay and Apple Pay would give more depth to understanding mobile payment behaviours among consumers. Which technologies consumers are using and in which setting. This would also add to new levels of statistical measurements, by directly comparing two providers through f-tests and ANOVA. Further research could also apply other statistical measurements to examine e.g., the relationship between constructs themselves.

Further research may, besides the consumers' standpoint, examine adoption of mobile payment from the retailers' point of view. Dahlberg et al. (2006) also points out the limited research done in the field of mobile payment and merchants. Moreover, in the future, merchants would become a strong player and hold a large bargaining power over mobile payment providers and even mobile payment solutions becoming obsolete due to lack of merchant deployment. Dahlberg et al. (2006, p.9) also argues, "*Another important aspect to take into account is that merchants could become mobile payment service providers themselves*". Future research could thus investigate the merchants' point of view, as well as merchants as providers. The notion of merchants becoming mobile payment providers in the future is also emphasised in the thesis' expert interviews.

7.3 Theoretical Contributions

The subsequent section shall aim to outline and illuminate what this thesis has contributed to the existing literature, what opportunities of further development it has identified, the necessary theoretical reflections, and its aim to meet the demands of previous scholars in order to identify new avenues.

This thesis produces a multitude of contributions that support and develop existing theoretical perspectives; however, the spine of the thesis has been anchored to Venkatesh's et al. (2012) UTAUT2 model. Using this model over other models such as TAM has enabled the incorporation of further behavioural, innovation and technology theories (Venkatesh et al., 2003).

Which we have successfully extended the original model with additional constructs. The effects and influence of these additional constructs were then tested and validated in the quantitative analysis. Which we transparently identified the impact of each factor's influence on consumers' behavioural intention to adopt and use mobile payment services. This thesis has captivated Venkatesh's desire that: *"Future research can build on our study by testing UTAUT2 in different countries, different age groups, and different technologies"* (Venkatesh et al, 2012, p.173). As a sum result of this model extension, we have been able to achieve what Venkatesh et al. planned for future research when they said:

"Future research can identify other relevant factors that may help increase the applicability of UTAUT to a wide range of consumer technology use contexts."

(Venkatesh et al, 2012, p.173).

Through this new framework of determinants, the researchers of this thesis have created a distinguishable contribution to identifying the most influential factors that affect the adoption and usage of mobile payments. Examples of these theoretical contributions are that, due to the inadequacies of existing literature that looks at the adoption and usage of mobile payment in a Scandinavian context, by focusing on the Danish market, we have been able to help build on upon the limited existing body of knowledge to illuminate further findings and factors that influence consumers adoption of mobile payment services. This is specifically interesting because Scandinavia is a niche market which has a highly digital society, but the literature is limited. In addition, the qualitative analysis of this thesis enabled the researchers to

identify the impact of a new factor not previously considered. The data illuminated the influence of 'Culture' on nearly all factors. This information ascertained from this process highlights the need for the addition of cultural considerations in future research, and it was especially mentioned in a Scandinavian context. This aligns with the 2007 study conducted by Dahlberg et al. where they called for more inclusion of cultural factors in future studies. Adding further contributions and future avenues to explore, considering the existential lack of data and literature in Scandinavia presently.

Additional theoretical fulfilments that this thesis has contributed to, is Dahlbergs' et al. (2015) call for future researchers to incorporate a mixed methods approach in order to "*Support the development of mobile payment knowledge through the use of a mixed-method approach, such as a survey followed by interviews.*" (Dahlberg et al., 2015, p.274). Through the employment of a mixed methods research approach, the researchers of this thesis feel they have been able to incorporate a wider scope of data, presenting the opportunity to holistically illuminate the factors to adoption even more. By following Dahlberg's call to develop the existing knowledge through a mixed method approach, we have been able to collect a rich data set of quantitative and qualitative insights which have enabled the researchers to triangulate to more robust results.

A further theoretical contribution is that we categorised the constructs into user-centric (individual differences) and System-centric (technology related characteristics). Which were then integrated into the research model proposition. In doing this, when researchers are studying future research projects, involving new constructs, they should be able to easily relate them to either categorisation via their characteristics. This then facilitates more accurate categorisation in the future, contributing to the enhancement of the research quality.

To summarise, this thesis has contributed a targeted extension and modification of an already proficient theoretical model which has created new data on new markets, with new demographics, enabling the development of information to existing literature. Whilst simultaneously identifying areas for future research enabling future researchers to create deeper understandings of the level of impact of existing and new factors to the behavioural intention to adopt and use mobile payment services.

7.4 Managerial Implications

The proposed UTAUT2 extension and subsequent results of this thesis provides a firm foundation for offering insights and recommendations, which mobile payment service providers can utilise to successfully develop, promote and market mobile payment solutions. These offer superior user experience and a seamless customer journey. The main Managerial Implications are listed beneath:

- 1) Mobile payment providers should emphasise the development of the **functional values** of their service offering, and clearly articulate the **utilitarian value** that mobile payments provide consumers over existing payment solutions. As the empirical results show that respondents find the **System-centric factors** most salient, mobile payment service providers should devote appropriate efforts, time and investments into developing and designing an **easy-to-use** and **convenient** operating application which centralises around **performance enhancing** functions, capabilities and attributes that allow consumers to perform rapid and **effortless** mobile payments. In practical terms, managers and developers should design, or further develop existing solutions, that provide functional benefits which facilitate a seamless payment process for consumers on the move.
- 2) **Facilitating Conditions** was through the empirical analysis shown to be one of the most significant determinants for mobile payment adoption, thereby signifying the crucial role of having a strong focus on the **technical support** of the service. Mobile payment providers should acknowledge that adopters have different levels of knowledge, access to information, and other resources that facilitate their use of mobile payments. To accommodate adopter's different levels of needs and support, mobile payment providers should strategize around an **efficient underlying technical infrastructure** that adopters can draw help and support from if facing difficulties, obstacles or challenges when employing their payment solution. The role of back-end infrastructural help and support is especially necessary in the context of mobile payments, as the entire process necessitates the input of sensitive financial data and information, and any disruption in the flow of the payment sequence may deter adopters from task completion. In practical terms, a managerial takeaway from the empirical findings is the fact that if the adopters

are assured of always having a **technical and organisational infrastructure** ready to help in case assistance is needed, they will be more prepared to use mobile payment solutions.

- 3) Mobile payment providers need to acknowledge that the diffusion of their service is happening unevenly throughout society; meaning end-users have different levels of **Personal Innovativeness**, which influences how quick they are to adopt innovations and also dictates the amount of time needed to move from a knowledge phase to a decision phase. As such, mobile payment providers should conduct market segmentation and analyse the demand characteristics of various user groups to differentiate their offerings. Identifying segments of innovative consumers and recognising individual differences are vital for mobile payment managers and marketers, because they thereby can develop mobile payment solutions that address unfulfilled identified needs of different consumer segments, and launch different strategies and campaigns depending on the particular user group and diffusion stage. Indeed, by isolating and targeting innovative consumer segments and communities, mobile payment providers can create a positive image of their service and utilise these as communicative channels that advocate the tangible as well as intangible benefits of mobile payment to the wider public.
- 4) The thesis recognises that for technologies containing sensitive financial and personal data, the performance of privacy and security protection measures becomes increasingly imperative as user's **Perceived Security** acts as a direct determinant for their intention to adopt. The effect of security and privacy concerns is particularly stronger for mobile payment services based on newer technologies, such as Apple Pay and their NFC-technology, and as some users have limited experience with such new technology, service providers should devote effort to alleviate the inhibiting effect of user's **risk perception** by publicly accentuating security and privacy protocols and features of the system, or through seals of security quality from reputable brands such as iControl or the payment security solution company Elavon. Moreover, as the results from the **User-centric factors** demonstrated that **Trust** was a direct determinant for intention, managers of both bank-based and non-bank based mobile payment services should invest efforts to invoke greater **Trust** from consumers, for example, either by launching Trust-building campaigns or by

developing educational schemes and tutorials that showcase how the system protects and encrypts personal financial data and information.

7.5 Reflection on the Master's Thesis and its relation to the E-Business graduate programme

As part of our studies at Copenhagen Business School, we take a step back and revert upon the many invaluable learnings and methods that we have acquired throughout the E-Business programme. The variety of courses that we have had throughout the programme has unquestionably given us the ability to critically reflect, discuss and issue vigorous delivery upon academic subjects connected to the three fundamental pillars of the E-Business programme: Technology, Business, and Policy. Out of these three pillars, this thesis covers the two pillars of Business and Technology. The Business aspect is covered through the investigation of mobile financial services, hereunder pertinent elements such as: electronic payment systems strategies and tactics, organisational exploitation of industry dynamics, and value creation of e-business based solutions. The technology aspect is covered through the employment of IS-related theory and the investigation on factors influencing human-computer interaction.

The E-Business graduate programme aspires to educate students with knowledge and skills based on the highest international research in business and information technology issues within the E-business area. Within this field of research, we firmly believe that the knowledge and insights obtained from this thesis on the interplay between businesses, humans, and technology, can contribute to the existing stream of literature.

8. Conclusion

The aim of this thesis was to analyse the level of impact each construct has on consumers behavioural intention to adopt and use mobile payment services. This was done in order to contribute to the existing body of knowledge, in a global context but more specifically in a Scandinavian context. This was achieved through a targeted research design, by utilizing a concurrent mixed methods approach of quantitative surveys and qualitative semi-structured in depth interviews we could better triangulate the data to identify common threads.

We selected the use of Venkatesh's et al. (2012) Unified Theory of Acceptance and Use of Technology second model as the guiding foundation to this thesis, we built upon this model with our own extensions to personalize the model to this specific research aim. We selected this theory as the backbone to our research paper due to its profound adaptability and pre-existing theoretical depth, it is a model that has been employed globally in many research papers to investigate explanations behind technology acceptance, we therefore felt that by using UTAUT2 as opposed to other theoretical models we could achieve our research aim more definitively. In addition, after research we identified that UTAUT is one of the most concise models that merges a plethora of innovation, technology, and behavioural theories. We used the model by measuring the relationship the constructs had on consumers' behavioural intention to adopt and use mobile payment services, identifying any correlations that resulted from the application of the model. We used a vast variety of literature in order to enhance our understanding and create better future solutions to the research question. Therefore, our study aligns with the existing body of knowledge as it validates results from previous literature. In order to answer the research question to our best abilities we incorporated the most applicable methodology that we felt would sum the most accurate findings. The philosophy science we chose was pragmatism, we chose this philosophy due to its combination of interpretivism and positivism which also enables a plurality of methods which allows researchers to choose the methodological approach that works best for the research problem. This then enabled us to provide actionable measures that can be built upon or used elsewhere in the future. In terms of research approach, we chose an abductive research approach due to the combination of our concurrent mixed method research design, combining the inductive approach for interviews and deductive approach used for surveys.

We conducted the questionnaires in order to ascertain a more transparent image of the consumers perspective on the factors influencing the adoption and usage. To ensure an equilibrium in the data and add contrasting depth we used four mobile payment experts, ensuring specificity to the Danish market in the form of two MobilePay professionals, and two Scandinavian mobile payment scholars. The sum of these four experts enabled us to obtain insights of knowledge from invaluable sources from within the inside of the mobile payment market, which enabled us to utilise the advantages of both data strategies for the benefit of this research question. This benefitted the thesis by facilitating us to find correlations and triangulate data from both methods simultaneously, thus enabling us to contribute further to the existing body of knowledge. Lastly, in terms of our secondary data we used a comprehensive literature review to develop a foundation of understanding that could be used to support, verify or contrast with our findings.

In the analysis of the quantitative results, we were able to identify the constructs with the most and least impact, segregated them into System-centric factors or User-centric factors. This was achieved using a Likert scale of 1-5, five being the most agreeable response. This then allowed the average mean score of the measurement items to be calculated which identified which factors the respondents agreed with the most. In addition, we had a series of behavioural intention questions which identified the relationship of each independent variable's impact on the dependent variable. The Structural Equation Modelling analysis of the system centric factors showcased that Performance Expectancy had the most impact on user's behavioural intention to adopt, with Perceived Security coming second. The statistical analysis identified Effort Expectancy as the least influential, which was attributed to users expecting services to be easy to use as prerequisite to adoption. However, all the system centric factors coefficient scores were closely aligned, with only marginal differences.

In terms of the user-centric factors the analysis identified that Trust and Personal Innovativeness being the leading impactful factors whilst Social Influence and Habit were rejected as factors that influences user's behavioural intention to adopt. In the analysis of the qualitative findings, it can be concluded the primary findings from the interviews with the experts are that they saw Performance Expectancy and Effort Expectancy factors as the most impactful on the influence of adoption and usage on mobile payment services. So, in essence, they see the most utilitarian factors with the most impact. They argued that these are the most impactful due to them being the instinctive barriers to adoption, the notions of

how well it performs and how much effort is required in order to achieve this performance. The sum of these findings contributed heavily to answering the research question by using antecedent expert information to contribute to the existing body of knowledge and determine that Performance Expectancy and Effort Expectancy are arguably the most significant factors that influence the consumers behavioural intention to adopt and use mobile payment services.

Following from the discussion we were able to match the primary data analysis findings to the secondary data consisting of comprehensive plethora of the leading contemporary literature findings. Finding correlations and patterns between the two, and identifying contradictions, aiming to offer potential explanations. Following from this process we were able to conclude that the most impactful factors could be attributed to Effort Expectancy, Performance Expectancy and Facilitating Conditions. This process has proven paramount in helping to produce valuable data that can build on the existing body of knowledge and help answer the research question of which factors have the most influence on consumers behavioural intention to adopt and use mobile payment services.

In terms of the generalizability and applicability of the findings of this thesis. For the findings to be applicable, we feel that the market being investigated must have the similar digital acuity and similar socio-economic situations as Denmark. This is so that consumers have a similar climatization to technology and have the same capacities to adopt mobile payments as easily. Failing this is likely to achieve widely varied results, altering the impact of the factors found in this research thesis.

9. Bibliography

- Abu-Shanab, H. Q. (1. October 2015). *Information System Front*, s. 1021–1034.
- Agarwal, R. a. (2. February 1998). *Information Systems Research*, s. 204-224.
- Alshehri, M. A. (2. December 2012). *academica.edu*. Hentet fra academia.edu:
https://www.academia.edu/37974399/Using_the_UTAUT_Model_to_Determine_Factors_Affecting_Acceptance_and_Use_of_E-government_Services_in_the_Kingdom_of_Saudi_Arabia
- Andreev et al. (2. September 2012). *International Journal of E-Business Research*, s. 50-67.
- Arvidsson, N. (13. September 2013). *Emerald Insight*, s. 150-170.
- Bacao, Y. Z. (24. January 2021). *International Journal of Environmental Research and Public Health*, s. 1-22.
- Bambora.com. (4. December 2019). Hentet fra Bambora.com/articles:
<https://www.bambora.com/articles/what-you-need-to-know-about-payments-in-2020/>
- bankid. (5. March 2020). *bankid.com*. Hentet fra bankid.com: <https://www.bankid.com/en/>
- Bauer, R. (13. February 1960). *Conference of the American Marketing Association*, s. 389-398.
- Blaikie, N. (2009). Melbourne: Polity.
- Bryman, A. (2013). Leicester: Oxford University Press.
- Businesswire.com. (2019). Dublin: BusinessWire.
- Cabanillas et al. (23. April 2015). *Journal of Organisational Computing and Electronic Commerce*, s. 169-190.
- Cabanillas et al. (3. May 2020). *mdpi sustainability*, s. 1-15.
- Cao et al. (4. April 2018). *Emerald Insight*, s. 1066-2243.
- Carcary, M. (7. January 2009). *Electronic Journal on Business Research Methods*, s. 11-24.
- Chandra et al. (2010). *Communications of the Association for Information Systems* (s. 562-588).
Singapore: Association for Information Systems.
- Choi et al. (12. March 2020). Ulsan, South Korea.
- Chong et al. (3. April 2012). *Decision Support Systems*, s. 34-44.
- Cobanoglu et al. (1. February 2015). *Hospitality Review*, s. 1-12.
- COOP. (10. March 2021). *coopmedlem.dk*. Hentet fra coopmedlem.dk/scanogbetal:
<https://www.coopmedlem.dk/scanogbetal>

- Dahlberg et al. (17. July 2015). *Electronic Commerce Research and Applications*, s. 265-284.
- Damsgaard, K. S. (16. September 2016). *Journal of Theoretical and Applied Electronic Commerce Research*, s. 65-84.
- Danmarks Statistik. (12. February 2021). *dst.dk*. Hentet fra [dst.dk/statistik](https://www.dst.dk/statistik):
<https://www.dst.dk/da/Statistik/emner/uddannelse-og-viden/befolkningens-uddannelsesstatus/befolkningens-hoejst-fuldfoerte-uddannelse>
- Davis, F. D. (3. September 1989). *Management Information Systems Research*, s. 319-340.
- Daxue Consulting. (12. January 2021). Nanjing, China.
- Dean A. Sherpherd, R. S. (9. May 2016). *Journal of Management*, s. 1-15.
- Defranco, C. M. (12. February 2016). *researchgate.net*. Hentet fra [researchgate.net/publication](https://www.researchgate.net/publication/287798045-It's_about_time_Revisiting_UTAUT2_to_examine_consumers_intentions_to_use_NFC_mobile_payments_in_hotels):
https://www.researchgate.net/publication/287798045-It's_about_time_Revisiting_UTAUT2_to_examine_consumers_intentions_to_use_NFC_mobile_payments_in_hotels
- Deloitte Report. (2019). Copenhagen: Deloitte .
- Denzin, N. K. (17. March 2009). *Qualitative Research*, s. 1-20.
- Dieter Bohn. (18. November 2020). *TheVerge.com*. Hentet fra [TheVerge.com](https://www.theverge.com/2020/11/18/21571806/google-pay-relaunch-money-payments-finance-deals-offers-banking-plex?fbclid=IwAR1hOjXzVaNoE3g_fTC--uOEdIau7oZ7FR1LDQMR8ubxTjhi2GxPLgmEi5M):
https://www.theverge.com/2020/11/18/21571806/google-pay-relaunch-money-payments-finance-deals-offers-banking-plex?fbclid=IwAR1hOjXzVaNoE3g_fTC--uOEdIau7oZ7FR1LDQMR8ubxTjhi2GxPLgmEi5M
- Donald L. Amoroso, R. L. (12. March 2014). *International Journal of Economics, Commerce and Management*, s. 1-11.
- Donald, L. A., & Remy , M. W. (2. April 2012). *Journal of Theoretical and Applied Electronic Commerce Research*, s. 48-81.
- Easterby-Smith et al. (4. March 2012). *Management Research*, s. 1-16.
- European Commission . (2020). Bruxelles: European Union.
- Globe Newswire. (2020). New York: Globe Newswire.
- Guo et al. (19. January 2018). Hefei, China.
- Gurler, D. &. (20. February 2016). *Emerging Markets Journal*, s. 17-28.
- Hedman, S. H. (2. March 2015). *Electronic Commerce Research and Applications*, s. 305-318.
- Ho, T.-T. T. (15. November 2015). *Sciencedirect.com*. Hentet fra [Sciencedirect.com/science](https://www.sciencedirect.com/science/article/abs/pii/S0160791X15000457):
<https://www.sciencedirect.com/science/article/abs/pii/S0160791X15000457>

- Hofstede Insights. (14. March 2021). *hofstedeinsights.com*. Hentet fra hofstedeinsights.com/national:
<https://hi.hofstede-insights.com/national-culture>
- Hollow, M. (26. September 2019). *mpira.ub*. Hentet fra Munich Personal RePEc Archive :
<https://mpira.ub.uni-muenchen.de/40780/>
- Hoyle, R. (12. March 1995). *Basic Concepts and fundamental issues*, s. 1-15.
- Hu et al. (4. March 2019). *Symmetry*, s. 1-16.
- IBM. (7. February 2018). *ibm.com*. Hentet fra ibm.com/blogs:
<https://www.ibm.com/blogs/industries/little-known-story-first-iot-device/>
- Jansen, H. (11. May 2010). *Forum Qualitative* , s. 1-45.
- Johnson et al. (1. November 2017). *Computers in Human Behavior*, s. 111-122.
- Jung et al. (1. January 2020). *Computers in Human Behavior Reports*, s. 1-43.
- Juo, P. L.-J. (18. June 2013). Ling Tung, Taiwan.
- Kalinic et al. (22. March 2019). *Journal of Retailing and Consumer Services*, s. 143-153.
- Kaufmann, Y. A. (30. June 2008). *RESEARCH COLLECTION SCHOOL OF COMPUTING AND INFORMATION SYSTEMS* , s. 141-164.
- Keramati et al. (6. June 2016). *pnas.org*. Hentet fra pnas.org/content:
<https://www.pnas.org/content/113/45/12868>
- Khalilzadeh et al. (2. January 2017). *Computers in Human Behavior*, s. 460-474.
- Kim et al. (14. April 2009). *Computers in Human Behavior*, s. 1-13.
- Kreyer et al. (2002). *ISMIS 2002 Workshop on M-Services* (s. 10). Lyon: Munich Personal RePEc Archive.
- La Polla et al. (3. January 2013). *IEEE Communications Surveys & Tutorials* , s. 446-471.
- Lai, J. W.-y. (12. December 2020). *Elsevier*, s. 1-15.
- Leong et al. (4. April 2020). *International Journal of Information Management*, s. 50-62.
- Lerner, T. (2013). Mainz: Springer.
- Leung, L. (4. September 2015). *Journal of Family Medicine and Primary Care*, s. 324-327.
- Lin et al., . (2019). *MDPI* (s. 1-23). Jiaxing: Information Sharing on Sustainable and Resilient Supply Chains.
- Lu et al. (11. September 2011). *Information & Management*, s. 393-403.
- Lubbe, R. K. (5. May 2012). *Association for Information Systems*, s. 1-14.

- Lunceford, B. (30. January 2009). Mobile, South Alabama, U.S.
- Lwoga, E. T. (4. December 2017). *The Electronic Journal of Information Systems in Developing Countries*, s. 1-24.
- Mallat, N. (5. November 2007). *Journal of Strategic Information Systems*, s. 413-432.
- Maanen et al. (7. October 2007). *Academy of Management Review*, s. 1-15.
- Mao, J. Z. (19. November 2019). San Jose, California, U.S.
- Mauree, V. (2013). Geneva: ITU-T Technology Watch.
- McKinsey Global Payments Report. (2020). London: McKinsey Global Payments Report.
- McLean et al. (12. January 2020). *Journal of Business Research*, s. 139-157.
- Mikko Ketokivi, S. M. (2. September 2010). *Academy of Management Review*, s. 315-333.
- Moroni et al. (5. April 2015). *ACM*, s. 1-14.
- Nelloh et al. (19. January 2019). *Procedia Computer Science*, s. 1156-1164.
- Neustaedter, S. H. (16. December 2017). *Computers in Human Behavior*, s. 10-21.
- Oliveira et al. (2. August 2016). *Computers in Human Behaviour*, s. 404-414.
- Pal et al. (15. December 2015). *Procedia Computer Science*, s. 13-25.
- Palvia, P. (2. February 2009). *Information & Management*, s. 213-220.
- Pannucci, C. (4. August 2010). *Plastic and Reconstructive Surgery*, s. 126-150.
- Park et al. (2. July 2018). *Human Factors and Ergonomics in Manufacturing & Service Industries*, s. 31-43.
- Pousttchi et al. (9. June 2009). *Information Systems and e-Business Management* 7(3):363-393, s. 363-393.
- Quartz Report. (2020). London: Quartz.
- Raina, V. K. (14. February 2014). Research Gate. *Research Gate*, s. 186-222.
- Rampton, J. (17. June 2016). *Techcrunch.com*. Hentet fra Techcrunch.com:
<https://techcrunch.com/2016/06/17/the-evolution-of-the-mobile-payment/?guccounter=1>
- Ricardo et al. (5. September 2016). *Science Direct*, s. 221-230.
- Robson, C. (15. October 2002). *Creative Education*, s. 1-16.
- Rogers, E. M. (1962). New York: Free Press of Glencoe.
- Rothbauer, P. (5. September 2008). *The SAGE encyclopedia of qualitative research methods*, s. 892-894.

- Rowe, F. (4. January 2014). *European Journal of Information Systems*, s. 241-255.
- Rubio et al. (2. January 2020). *Behaviour and Information Technology*, s. 1-13.
- Sarah-Jane Saravani, G. H. (17. July 2015). *Sagepub.com*. Hentet fra Sagepub.com:
<https://journals.sagepub.com/doi/abs/10.1177/0961000615595854>
- Saunders et al. (2019). London: Pearson.
- Schierz et al. (May. December 2010). *Electronic Commerce Research and Applications*, s. 209-216.
- Schierz, G. P., Oliver, S., & Bernd, W. W. (3. June 2010). *Electronic Commerce Research and Applications*, s. 209-216.
- Shin, D.-H. (13. September 2010). *International Journal of Human-Computer Interaction*, s. 917-940.
- Singh et al. (20. February 2020). *International Journal of Information Management*, s. 50-68.
- Slade et al. (2013). *UK Academy for Information Systems Conference Proceedings* (s. 36-56). Swansea: Association for Information Systems.
- Statista. (24. November 2020). *Statista.com*. Hentet fra Statista.com/statistics:
<https://www.statista.com/statistics/1097937/share-of-mobilepay-users-in-denmark-by-age-groups/>
- Steele, A. B. (2. January 2004). *IADIS international Conference*, s. 270-288.
- Suhr, D. (11. August 2006). *Users group International Conference*, s. 20-31.
- Surendran, P. (2. August 2012). *International Journal of Business and Social Research*, s. 24-54.
- Taber, K. S. (7. June 2017). *Research in Science Education*, s. 1273-1296.
- Talwar et al. (23. July 2020). *Journal of Retailing and Consumer Services*, s. 1-12.
- Tan et al. (2. May 2014). *Telematics and Informatics*, s. 292-307.
- T. Dahlberg et al. (2007). *Electronic Commerce Research and Applications* (s. 1-17). Helsinki: Elsevier.
- Thakur et al. (27. May 2014). *Emerald Insight*, s. 1066-2243.
- Thompson et al. (1. June 1991). *Management Information Systems Quarterly*, s. 1-15.
- Uma Sekaran, R. B. (2016). Chichester: John Wiley & Sons.
- Urbach et al. (4. August 2009). *ideas.repec.org*. Hentet fra ideas.repec.org/a/spr:
<https://ideas.repec.org/a/spr/binfse/v1y2009i4p315-325.html>
- Venkatesh et al. (3. September 2003). *MIS Quarterly*, s. 425-478.
- Vibha Kaushik, C. A. (17. September 2019). *Ideas*, s. 1-17.

- Waechter, L. G. (23. November 2015). *Information Systems Frontiers*, s. 525-548.
- Watson, J. W. (2. June 2002). *jstor.org*. Hentet fra [jstor.org/stable:](https://www.jstor.org/stable/4132319?seq=1)
<https://www.jstor.org/stable/4132319?seq=1>
- Whitteker, W. (4. August 2014). *Global Information Assurance Certification Paper*, s. 1-25.
- Wray, M. W. (2011). London: Sage .
- Xin et al. (18. June 2013). *Association for Information Systems*, s. 1-14.
- Yadav, K. M. (3. August 2016). *Journal of Indian Business Research*, s. 227-244.
- Yang et al. (9. March 2015). *Industrial Management & Data Systems*, s. 222-233.
- Yin, R. K. (2003). New Hampshire: SAGE.
- Yougov. (10. January 2019). *Yougov.dk*. Hentet fra [Yougov.dk/find:](https://yougov.dk/find-solutions/reports/mobile-payment/) [https://yougov.dk/find-](https://yougov.dk/find-solutions/reports/mobile-payment/)
[solutions/reports/mobile-payment/](https://yougov.dk/find-solutions/reports/mobile-payment/)
- Zhang et al. (16. August 2019). *Mobile Information Systems*, s. 1-24.
- Zhou, T. (21. October 2012). *Decision Support Systems*, s. 1085–1091.

10. Appendix

Appendix A (Concept Matrix)

Concept matrix 1

Concept s→ ↓ <i>Citation</i>	Usefulness	ease of use	Relativ e Advant age	Network Externalit ies	Cos t	Mobili ty	Benefit	Compa tability	Payme nt Habit
Construct s	PE	EE	PE	SI	PV	FC	PV	FC	habit
<i>Mallat (2007)</i>		X	X	X				X	
<i>Pal et al (2019)</i>								x	
Slade (2013)			X		X				
De Kerviler et al. (2016)		X			X		X		
Zhao, Anong and Zhang (2019)	X	X							
Koenig- Lewis (2015)	X								
Aginieszk a (2010)	X	X			X	X			
Linglang		X					X		

Gao (2017)									
Patil (2017)	X	X							
Zhunzhun (2019)	X	X							
Keramati (2010)	X	X			X				X
Changsu Kim (2010)	X	X							
Arvidsson (2013)		X	X	x				x(ment ions)	
RUBio(2020)	X	X							
Cabanillas (2020)	X	X							
Johnson (2017)		x	X						
Kreyer, Key Pousttchi and Klaus Turowski(20039)		X			X				
Lwoga &Lwoga	X	X		X		x		x	
Ling, Wang Huang(use of cost benefit	r		X		X				

Wu, Liu and Huang(2017)	X									
Gong et al (2020)				x						
Cabanillas (2018)	X									
Zhang et al. (2018)	X	X								
Upadhyay & chattopadhyay (2014)	X	X								
Zhou (2011)		X								

Concepts→ ↓ <i>Citation</i>	Value	Visibility	Social Influence	Mobile user skillfulness	Personal innovation	Social norms/other people using it	Performance	Reputation/image	social Image	Positive Emotion	Financial gain/incentive
Constructs	FC	SI	SI	EE	FC(SI	PE	T	SI	HM	PV
Chandra (2010)								X			
Koenig et al. (2019)				X		X					
Rubio (2020)			X		X						

Karimi(2020)										X	
Pal et al. (2019)								X			X
Cabanillas (2020)				X	X						
De kerviler et al. (2016)	X					X				X	X
Cao et al. (2017										X	
Zhao, Anong and Zhang (2019)											X
Johnson (2017)	X	X									
Lwoga & Lwoga(2017)			X	x	X	X					
Lin Wang Haung (2018)	X		x(X			X		
Wu, Liu and Huang(2017										X	
Gong et al. (2020)	x							X			
Zhang et al.(2018)			X		X						
Upadhyay & chattopadhy ay (2014	x		x	x							

APPENDIX B (Items, Survey and Interview Guide)

Determinants	Definition	Items
Performance Expectancy	<i>The degree to which using a technology will offer benefits to consumers in performing certain activities</i> (Venkatesh et al. 2012)	<p>PE1: I find Mobile payment useful in my daily life</p> <p>PE2: Using Mobile payment helps me accomplish payments quickly</p> <p>PE3: Mobile payments increase my productivity</p> <p>PE4: Mobile payment is more useful than other types of payments</p> <p>Items adapted from (Venkatesh et al. 2012)</p>
Effort Expectancy	<i>The degree of ease associated with consumers' use of the technology</i> (Venkatesh et al. 2012)	<p>EE1: Learning how to use mobile payment is easy for me</p> <p>EE2: My interaction with mobile payment is clear and understandable</p> <p>EE3: I find mobile payment easy to use</p> <p>EE4: It is easy for me to become skillful at using mobile payment</p> <p>Items adapted from (Venkatesh et al. 2012)</p>
Facilitating Conditions	<i>Consumers' perceptions of the resources and support available to perform a behaviour</i> (Venkatesh et al. 2012)	<p>FC1: I have the resources necessary to use mobile payment</p> <p>FC2: I have the knowledge necessary to use mobile payments</p> <p>FC3: Mobile payment is compatible with other technologies I use</p> <p>FC4: I can get help from others when I have difficulties using mobile payments</p>

		Items adapted from (Venkatesh et al. 2012)
Perceived Security	<i>The degree to which a consumer believes that using a particular MP procedure will be secure (Shin, 2009, p. 1346)</i>	<p><i>PC1: I feel secure about the transaction performed using mobile payment</i></p> <p><i>PC2: The provider takes security measures to protect my payments</i></p> <p><i>PC3: There is no potential of monetary loss if I make purchase with mobile payment systems</i></p> <p><i>PC4: There is no significant risk when conducting purchases using mobile payments</i></p> <p><i>PC5: My privacy on mobile payments is well protected</i></p> <p><i>PC6: Mobile payment is as secure as cash and credit card payment</i></p> <p>Items adapted from (Shin 2009; Kim et al.2010; Johnson et al. 2017)</p>
Social Influence	<i>The extent to which consumers perceive that important others (e.g. family and friends) believe they should use a particular technology (Venkatesh et al. 2012)</i>	<p><i>SI1: People who are important to me think that I should use mobile payment</i></p> <p><i>SI2: People whose opinion I value prefer that I use mobile payment</i></p> <p><i>SI3: The use of mobile payment would help me feel acceptable among my friends</i></p> <p><i>SI4: The use of mobile payment would make a good impression on other people</i></p> <p><i>SI5: I use mobile payment to improve the way I am perceived by my peers</i></p>

		Items adapted from (Venkatesh et al. 2012)
Trust	<i>The belief that vendors will perform some activity in accordance with customers' expectations (Shin, 2009, p. 1346).</i>	<p><i>T1: I believe mobile payment providers keep their promise</i></p> <p><i>T2: I believe mobile payment providers keep customers' interest in mind</i></p> <p><i>T3: I believe mobile payment providers are trustworthy</i></p> <p><i>T4: I trust mobile payment services</i></p> <p>Items adapted from (Khalilzadeh et al. 2017)</p>
Habit	<i>The extent to which people tend to perform behaviours automatically because of learning (Venkatesh et al. 2012)</i>	<p><i>HA1: The use of mobile payment has become a habit for me</i></p> <p><i>HA2: I am addicted to using mobile payment</i></p> <p><i>HA3: I must use mobile payment</i></p> <p><i>HA4: Using mobile payment has become natural for me</i></p> <p>Items adapted from (Venkatesh et al. 2012)</p>
Personal Innovativeness	<i>The willingness of an individual to try out any new information technology (Agarwal and Prasad, 1998, p. 206)</i>	<p><i>PI1: If I find out about a new type of information technology, I will try it</i></p> <p><i>PI2: I am usually one of the first among my circle to explore new Information Technologies</i></p> <p><i>PI3: I like to try new Information Technologies</i></p>

Survey:

Intro

Welcome to the Mobile Payment survey!

We are three master students researching mobile payment behaviour and usage for our master thesis.
The survey is anonymous and takes 5 minutes to answer.

Please feel free to put additional comments in the text box underneath the question if you have any.

Thank you for your time!

Moderators

Age

- ☐ Under 18
- ☐ 18 - 24
- ☐ 25 - 34
- ☐ 35 - 44
- ☐ 45 - 54
- ☐ 55 - 64
- ☐ 65+

Gender

- ☐ Male
- ☐ Female

Level of education

- ☐ Less than high school
- ☐ High school graduate
- ☐ 1-2 year degree
- ☐ Bachelor
- ☐ Master
- ☐ Doctorate

For how long have you been using mobile payment services?

- ☐ Less than 1 year
- ☐ 1-3 years
- ☐ 4+ years

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I find mobile payment useful in my daily life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using mobile payments helps me accomplish my payments quickly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment increases my productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment is more useful than other types of payments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Learning how to use mobile payment is easy for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My interaction with mobile payment is clear and understandable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find mobile payments easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy for me to become skilful at using mobile payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
People who are important to me think that I should use mobile payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People whose opinions that I value prefer that I use mobile payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The use of Mobile payment would help me feel acceptable among my friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The more my friends and network are using mobile payment systems the more valuable it is.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use mobile payments to improve the way I am perceived by my peers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I have the resources necessary to use mobile payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment systems allow me to conduct transactions anytime, anywhere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payments are compatible with my lifestyle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can get help from others when I have difficulties using mobile payments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The use of mobile payment has become a habit for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am dependent on using mobile payments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I must use mobile payments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using mobile payment has become natural for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
If I find out about a new type of information technology, I will try it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am usually one of the first among my circle to explore new information technology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to try new information technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know more about new information technology products before other people do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I believe mobile payment providers keep their promise.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe mobile payment providers keep customers' interest in mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe mobile payment providers are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust mobile payment services.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel secure about mobile payment transactions being performed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The provider takes security measures to protect my payments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no potential of monetary loss if I make a purchase with mobile payment systems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no significant risk when making purchasing using mobile payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Privacy on mobile payment is well protected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobile payment is as secure as cash and credit card payment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I intend to continue using mobile payment services in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will always try to use mobile payment service in my daily life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to continue to use mobile payment services frequently.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please choose your usage frequency for each of the following mobile payment services:

	Never	Rarely	Monthly	Weekly	Daily
MobilePay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ApplePay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GooglePay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SamsungPay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Interview Guide:

1. Greeting

Alle:

Hej, Jeg hedder...

Kan du fortælle lidt om din position in MP/som professor

2. General

Alle:

Hvordan ville du beskrive den nuværende indenfor mobilepayment accept blandt forbrugerne generelt.

Er der nogle factorer du mener kunne påvirke user acceptance (hvilke factorer der kunne medvirke eller hindre forbrugere til ikke at bruge mobile betalingsløsninger)

3. PE

MP: Hvordan har I fokus på at mobile betalingsløsninger skal gøre det nemt for hverdagen

MP: Hvordan har i tænkt over at det skal være hurtigere at bruge mobilepay fremfor kontooverførsel,

MP: hvilke tanker har i gjort for forbrugerne når vi snakker om deres performance for mobilepay, (hurtig overførsel, leje, faktura), nu har I lavet en ny funktion der giver gavekort

JD/JH: Hurtigere at bruge NFC payments end credit card?

JH:

I value-added services, bliver perceived usefulness nævnt som det greatest impact for VAS. Er det også tilfældet i dag, også uden value-added services, hvor påvirker usefulness i dag faktorerne for mobile payment adoption blandt danske consumers.

JD:

Hvordan er usefulness en faktor for mobile payment både i one-sided and multisided platforms, Ydermere, conceptet af ss network effect may find a product or service more useful if similar consumer used that product as well

4. EE

MP::Når det kommer til mobile betalingsløsninger/MobilePay, har I haft stort indblik i at gøre det nemt for forbrugerne at bruge disse services og på hvilke måder

MP: hvor simpelt har I gjort det for forbrugerne at bruge disse mobilepay.

MP: Har der været en tutorial/guideline til at få til at bruge mobilepay

JD/JH: Hvor indan har NFC udbydere gjort det nemt for forbrugerne

JH:

Du nævner også at consumers see the payment process being easier and more efficient when Vasa re integrated with the mobile payment service.

Hvis vi nu ikke tænker på VAS, er 'easiest option' det der får danske forbrugere til at tænke mobile payments

5. SI/

JH: Når man kigger på danske muligheder for mobile betalingsløsninger, og sammenligner mobilepay og Applepay/NFC, hvor stor en forskel er der så i forbrugernes intention to adopt, når ens bekendte og venner/familie bruger mobilepay fremfor NFC muligheder.

MP/JH:

Til udbredelsen af mobilepay, hvor vigtigt har det været at have fokus på P2P overførelser, og især weshare. I digital theory snakker man om network effects og chicken/egg problemet, hvoraf antallet af forbrugere er vigtigt for produktet. Hvordan har I etableret så hurtigt i et P2P netværk

JH/:

Man snakker generelt om complementary services and indirect network effects i den forstand, at man skal have nye produkter til core, ligesom applepay til apple telefonen, muligvis mobilepay til danske bank funktionen, selv weshare til mobilepay.

Hvor vigtigt er det at kunne blive ved med at komme med complementary products til NE. O

JH/MP:

Hvor meget vægter den danske befolkning hvad deres venner og peers siger om brugen af mobile betalingsløsninger. Det er meget relevant i andre lande, især asiatiske lande, men ikke så meget i vesten. Men kan dette medvirke til at større network effects, fordi du direkte downloader fordi dine peers har det

JD:

You mention users gain from a platform depends on the number of other users of the same type who join the same platform.

Here its network effects, men man kunne sige at fordi ens venner har det, er det med til går network effects. Hvor meget vægter den danske befolkning hvad deres venner og peers siger om brugen af mobile betalingsløsninger. Det er meget relevant i andre lande, især asiatiske lande, men ikke så meget i vesten.

Men kan dette medvirke til at større network effects, fordi du direkte downloader fordi dine peers har det

JD:

Ydermere, conceptet af ss network effect may find a product or service more useful if similar consumer use that product as well

6. FC

MP: hvor vigtigt har det været for at gøre mobilepay kompatibelt med telefoner, og hvordan overordnet set har processen været at gøre det til en app at kunne overføre penge til hinanden.

MP: Også hvor vigtigt har support systemet været. Har forbrugerne mulighed for at kontakte jer.

MP: hvor vigtigt er det for at forbrugerne har det nødvendige viden og ressourcer for at bruge mobile pay

JH/JD: Hvilke ressourcer og viden skal man have få at bruge NFC baseret payments

JH/JD: Hvordan har NFC er kompatibel med andre services.

JH:

Ydermere, nævner du Compatibility også er en stor faktor for adoption, men ift forbrugerne livsstil, værdier etc. Men hvad med kompatibilitet ift selve appfunktioner, telefoner, POS.

JD:

I siger at "The collected data contained information about the launch of both solutions as well as information about their subsequent evolution, namely introduction of new features, user base, promotional campaigns and business models. ... the apps were also on the researchers phones so that better insights into the apps' functionality could be obtained"

Reach and range: mobility= anywhere and anytime

Forklar I paper, at reach and range kan sammenlignes med mobility?

JD/MP:

Du siger ift til Mobilepays reach og range at

Reach er alle banks customers, smes, large merchants, webshops, NFC/bluetooth, online og eksempelvis windows app og c2b.

Nu kan vi se at MP både bruges i c2b og p2p også i webshops også de fleste store butikker.

Hvad kan være det næste, hvad for consumers sammenhæng mellem reach og range. Hvorfor bruger flere i MP eller NFC apple pay i butikker end man gerne ville, og omvendt, hvorfor er det de bruger det?

JD: functionality is facilitating resources as well adding features such as WeShare

7. habit

JH:

Du nævner i VAS at i fremtiden vil der være mere fokus på risk, trust, habit og security, hvordan ser du det i dag? En for en, også iforholdt til alt andet end habit er en barrier, vi har selv lavet den extension til Venkatesh, hvor vigtigt er barriers som disse taget op med drivers som usefulness and ease of use?

MP: Når man kigger på mobilepay, er det noget at kunne gøre til en vane. Eksempelvis med husleje, fakturaer etc. Hvordan har i gjort det muligt for forbrugerne at bruge mobilepay på et vaneliggende niveau

MP: Hvilke expectations havde om at bruge mobilepay i dagligdagen og på et dagligt niveau. Især nu med jeres mulighed indenfor betaling i butik

8. PI

Mp/ALLE: Hvor vigtigt er det at forbrugerne har viden og erfaring fra andre informations teknologier til at nu bruge mobilepay både i p2p sammenhæng og i butikkerne.

JH: mener du at der er en sammenhæng mellem forbrugers tidligere teknologiske og adoption, du foreslår selv ” companies should focus on more tech-savvy consumers for initial adoption, once these early adopters have taken to the technology, the early and late majorities are likely to join once they that it work” er det selv tilfældet i dag, eller er vi nået et punkt I Danmark, hvor alle er ‘tech-savvy’

JD: er folk med tidligere erfaring inden for teknologi mere inclined til at adapte og blive ved med at bruge mobile payments, men kunne det også være en ulempe, idet hvis der kommer en bedre teknologi som biometric, i virkeligheden været med at stoppe ’continuous use’ så personal innovativeness muligvis kun er en

9. Trust/security risk

Hvor vigtigt har troværdigheden været fra MobilePays side ift transactioner

MP: Sammenlignet med kort og kontant, hvilke sikkerhedsmæssige anstandinger tager i for at gennemføre sikker transactioner, er det det samme i bruger til jeres bank transaktioner fra danske bank.

MP: hvor stor fokus er der på sikkerhed og risk, hvilke sikkerhedsmeasures tager I?

JD: Vi har snakket med din kollega Jonas Hedman, og han siger at I fremtiden, vil være focus på habit, security risk, og trust, hvordan ser du disse faktorer I dagen mobile betalings løsninger system, hvordan er barrier som security, risk og trust nu en stor factor, hvad vægter forbrugerne, nu når er det nemmeste og mest usefulness.

Og hvordan er habitual en vigtig faktor for mobilebetalingsløsninger, vi har snakket om venkatesh utaut2, som uddyber med habit, men hvordan kan det være en vane blandt danskere.

JD:

I Introducing platform interactions models for studying multi-sided platforms siger du at “C2b aple pay has failed to ignite as they do not address significantly important friction. They argue that cc such as visa and master are already providing efficient and securement payment methods, thus mobile phone doe not provide additional value to consumers in any way.

Hvordan can C2b service give additional value to both users and merchants?

Så siger du at ‘pingit have managed to obtain significant user base mainly from p2p transction rather than c2b transaction, this success can jeopardized in the futre if a payment platform cannot continue to evolve. Er det det same tilfælde for mobilepay? Nu har de prøvet med c2b, men hvor successfuldt er det?

10. behavioural intention

- hvordan vil mobilepay være i fremtiden

-hvad tænker forbrugerne når at få behavioural intention

11.

Continous use:

JD: Du siger at on sided platforms also allow the incumbents to mobilize their already existing user base and engage them”

JD: Network effects are strong, scale economies are significant and rentetion rate are high. Hvad kan ellers holde retention høj?

JD:

Du siger blandt andet “danske bank never considered launching as a two-sided platform, its initial plan was to start with the p2p feature, get critical mass, and expand by moving to c2b and then further on ... having secured the on-side after five months danske bank launched a pilot to allow consumers to use MP at selected food stalls, coffe shops and teaxis. Danske bank transformed mobile pay from on-sided to two-sided platform”

Hvor vigtigt er at med complementary products for at få forbrugerne til at blive? Eller hvad kan ellers være med til at få forbrugerne til at blive ved med at bruge mobile payments.

Du nævner også chicken og egg

For continuous use, er complementary and evolution of product necessary?

Potential new ones:

Social image of DB/MP

Add from what they say in their studies for reasons to Danish consumers to adapt it.

Maybe get an interview with consumer focus expert instead of payment focused expert (look for cashless society paper by Hedman?)

JH:

Du har stor focus på value-added services, i vores initial model af utaut2, var der price-value der betød hvad det ville koste, for forbrugerne, men det er det omvendte tilfælde i dag, hvor vi ser vi sparer penge på at bruge telefonen, også ift loyalty og branding. Hvor ville man se det på det danske markedet, nu ser vi at individuelle supermarkeds kæder bruger rabater gennem appen, men ikke noget der foreløbig sker gennem mobilepay eller applepay/NFC?

Er value-added services applicable til disse services som MP og Ap

Også ift network effects, NYE: branding/social image/

JH: forskel på NFC og p2p i kontekst af onesided og two sided platforms

Appendix C (Cronbachs Alpha)

```

3 . alpha PE1 PE2 PE3 PE4

Test scale = mean(unstandardized items)

Average interitem covariance:    .2661765
Number of items in the scale:    4
Scale reliability coefficient:    0.7529

4 . alpha EE1 EE2 EE3 EE4

Test scale = mean(unstandardized items)

Average interitem covariance:    .6321895
Number of items in the scale:    4
Scale reliability coefficient:    0.9327

5 . alpha SI1 SI2 SI3 SI4 SI5

Test scale = mean(unstandardized items)

Average interitem covariance:    .3291737
Number of items in the scale:    5
Scale reliability coefficient:    0.7286

6 . alpha FC1 FC2 FC3 FC4

Test scale = mean(unstandardized items)

Average interitem covariance:    .2105509
Number of items in the scale:    4
Scale reliability coefficient:    0.7318

7 . alpha H1 H2 H3 H4

Test scale = mean(unstandardized items)

Average interitem covariance:    .4825163
Number of items in the scale:    4
Scale reliability coefficient:    0.8055

```

```

8 . alpha PI1 PI2 PI3 PI4

Test scale = mean(unstandardized items)

Average interitem covariance:    .590056
Number of items in the scale:    4
Scale reliability coefficient:    0.8922

9 . alpha T1 T2 T3 T4

Test scale = mean(unstandardized items)

Average interitem covariance:    .4888889
Number of items in the scale:    4
Scale reliability coefficient:    0.8840

10 . alpha PSR1 PSR2 PSR3 PSR4 PSR5 PSR6

Test scale = mean(unstandardized items)

Average interitem covariance:    .3296359
Number of items in the scale:    6
Scale reliability coefficient:    0.7849

11 . alpha BI1 BI2 BI3

Test scale = mean(unstandardized items)

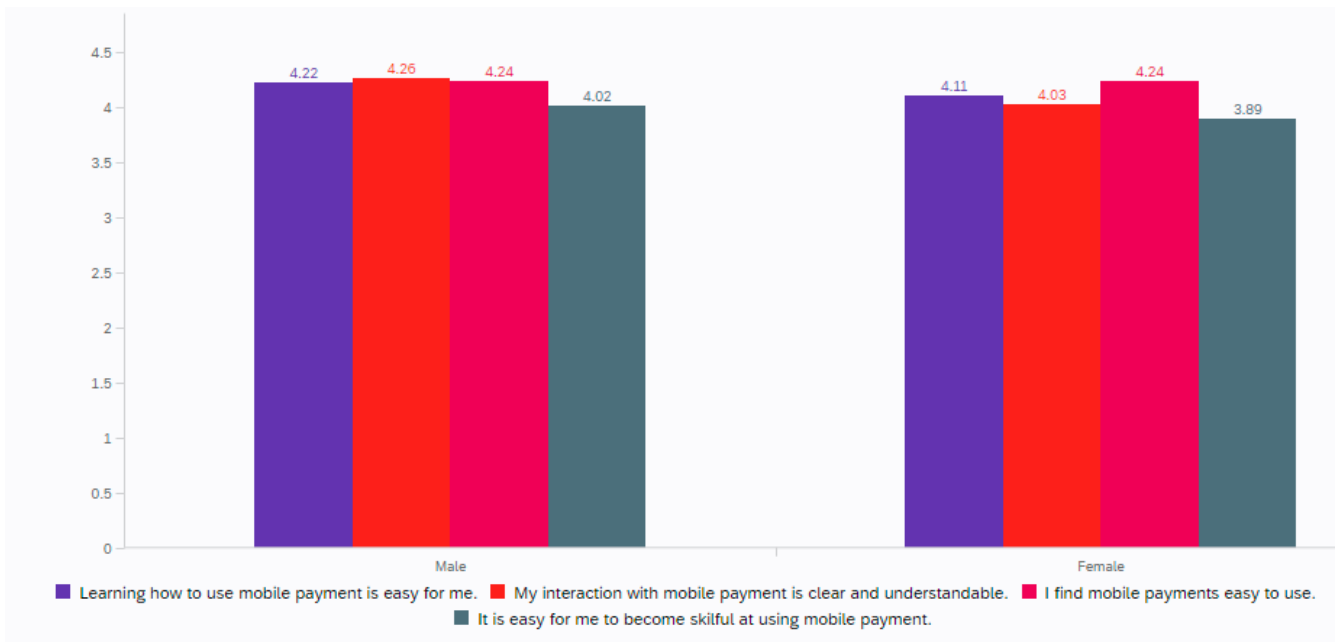
Average interitem covariance:    .4018674
Number of items in the scale:    3
Scale reliability coefficient:    0.8257

```

Appendix D (Effort Expectancy)

Learning how to use mobile payment is easy for me.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Under 18	5.00	5.00	5.00	0.00	0.00	2
2	18 - 24	3.00	5.00	4.35	0.59	0.35	17
3	25 - 34	2.00	5.00	4.34	0.67	0.45	53
4	35 - 44	2.00	5.00	3.92	0.76	0.58	12
5	45 - 54	2.00	4.00	2.83	0.69	0.47	6
6	55 - 64	2.00	2.00	2.00	0.00	0.00	1
7	65+	0.00	0.00	0.00	0.00	0.00	0



Facilitating conidtions

Under 18

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	5.00	5.00	5.00	0.00	0.00
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	5.00	5.00	5.00	0.00	0.00
3	Mobile payments are compatible with my lifestyle.	5.00	5.00	5.00	0.00	0.00
4	I can get help from others when I have difficulties using mobile payments.	5.00	5.00	5.00	0.00	0.00

18 - 24

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	4.00	5.00	4.53	0.50	0.25
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	4.00	5.00	4.59	0.49	0.24
3	Mobile payments are compatible with my lifestyle.	3.00	5.00	4.41	0.69	0.48
4	I can get help from others when I have difficulties using mobile payments.	2.00	5.00	4.00	0.91	0.82

25 - 34

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I have the resources necessary to use mobile payment.	3.00	5.00	4.58	0.60	0.36	52
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	2.00	5.00	4.44	0.69	0.48	52
3	Mobile payments are compatible with my lifestyle.	3.00	5.00	4.29	0.66	0.44	52
4	I can get help from others when I have difficulties using mobile payments.	2.00	5.00	3.92	0.76	0.58	51

35 - 44

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	3.00	5.00	3.92	0.49	0.24
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	1.00	5.00	4.08	1.11	1.24
3	Mobile payments are compatible with my lifestyle.	2.00	5.00	3.67	0.85	0.72
4	I can get help from others when I have difficulties using mobile payments.	3.00	5.00	3.67	0.62	0.39

45 - 54

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	4.00	5.00	4.17	0.37	0.14
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	4.00	5.00	4.50	0.50	0.25
3	Mobile payments are compatible with my lifestyle.	3.00	5.00	4.00	0.58	0.33
4	I can get help from others when I have difficulties using mobile payments.	3.00	5.00	4.00	0.58	0.33

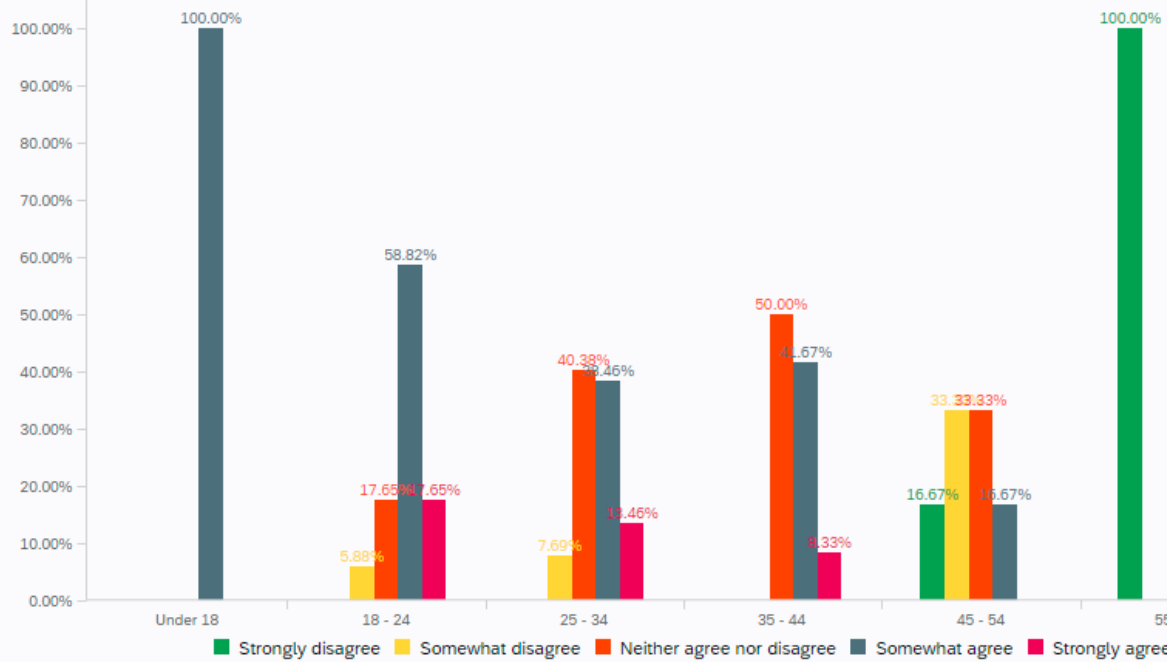
55 - 64

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance
1	I have the resources necessary to use mobile payment.	5.00	5.00	5.00	0.00	0.00
2	Mobile payment systems allow me to conduct transactions anytime, anywhere.	5.00	5.00	5.00	0.00	0.00
3	Mobile payments are compatible with my lifestyle.	5.00	5.00	5.00	0.00	0.00
4	I can get help from others when I have difficulties using mobile payments.	5.00	5.00	5.00	0.00	0.00

65+

(Trust – Quantatative)

I trust mobile payment services.



The use of mobile payment has become a habit for me.

#	Field	Under 18	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Total
1	Strongly disagree	0.00% 0	0.00% 0	50.00% 1	50.00% 1	0.00% 0	0.00% 0	0.00% 0	2
2	Somewhat disagree	0.00% 0	16.67% 1	33.33% 2	33.33% 2	16.67% 1	0.00% 0	0.00% 0	6
3	Neither agree nor disagree	0.00% 0	14.29% 1	42.86% 3	14.29% 1	14.29% 1	14.29% 1	0.00% 0	7
4	Somewhat agree	0.00% 0	13.95% 6	62.79% 27	16.28% 7	6.98% 3	0.00% 0	0.00% 0	43
5	Strongly agree	6.25% 2	28.13% 9	59.38% 19	3.13% 1	3.13% 1	0.00% 0	0.00% 0	32

Showing rows 1 - 5 of 5

I am dependent on using mobile payments.

#	Field	Under 18	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Total
1	Strongly disagree	0.00% 0	10.00% 1	50.00% 5	10.00% 1	20.00% 2	10.00% 1	0.00% 0	10
2	Somewhat disagree	0.00% 0	8.70% 2	60.87% 14	26.09% 6	4.35% 1	0.00% 0	0.00% 0	23
3	Neither agree nor disagree	0.00% 0	28.13% 9	53.13% 17	9.38% 3	9.38% 3	0.00% 0	0.00% 0	32
4	Somewhat agree	9.52% 2	9.52% 2	71.43% 15	9.52% 2	0.00% 0	0.00% 0	0.00% 0	21
5	Strongly agree	0.00% 0	75.00% 3	25.00% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	4

Showing rows 1 - 5 of 5

I must use mobile payments.

#	Field	Under 18	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Total
1	Strongly disagree	0.00% 0	0.00% 0	30.00% 3	20.00% 2	40.00% 4	10.00% 1	0.00% 0	10
2	Somewhat disagree	0.00% 0	23.53% 8	58.82% 20	14.71% 5	2.94% 1	0.00% 0	0.00% 0	34
3	Neither agree nor disagree	3.23% 1	16.13% 5	67.74% 21	12.90% 4	0.00% 0	0.00% 0	0.00% 0	31
4	Somewhat agree	9.09% 1	18.18% 2	63.64% 7	0.00% 0	9.09% 1	0.00% 0	0.00% 0	11
5	Strongly agree	0.00% 0	33.33% 1	33.33% 1	33.33% 1	0.00% 0	0.00% 0	0.00% 0	3

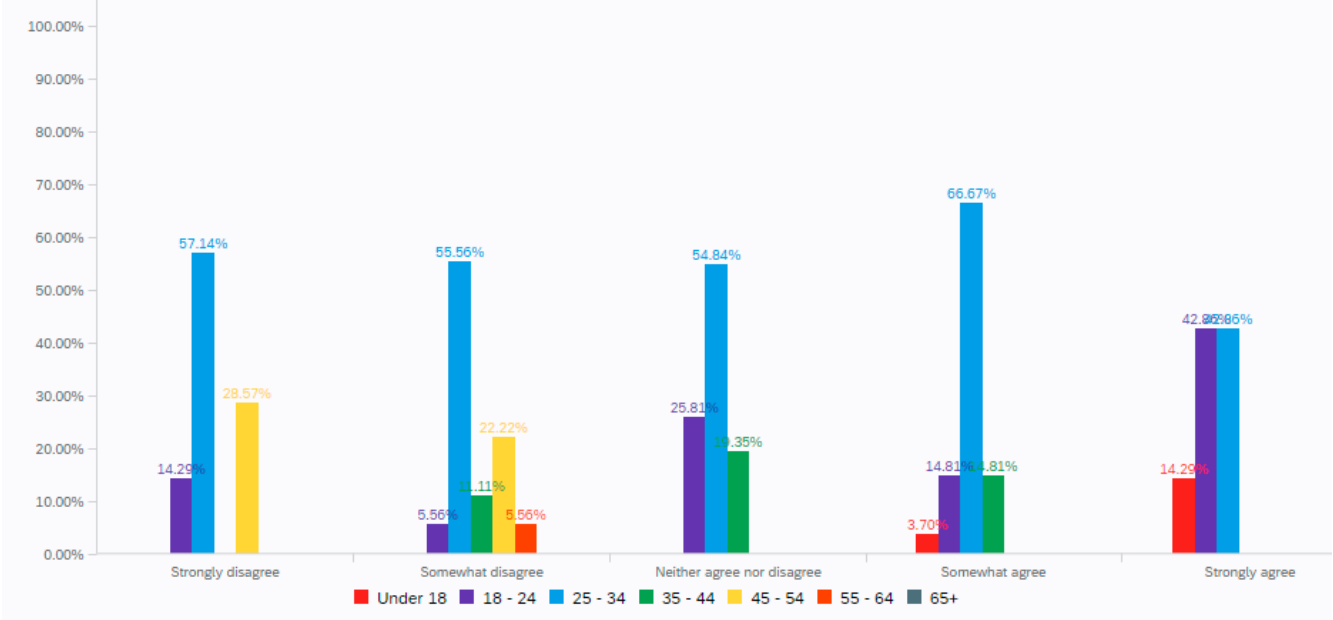
Showing rows 1 - 5 of 5

Using mobile payment has become natural for me.

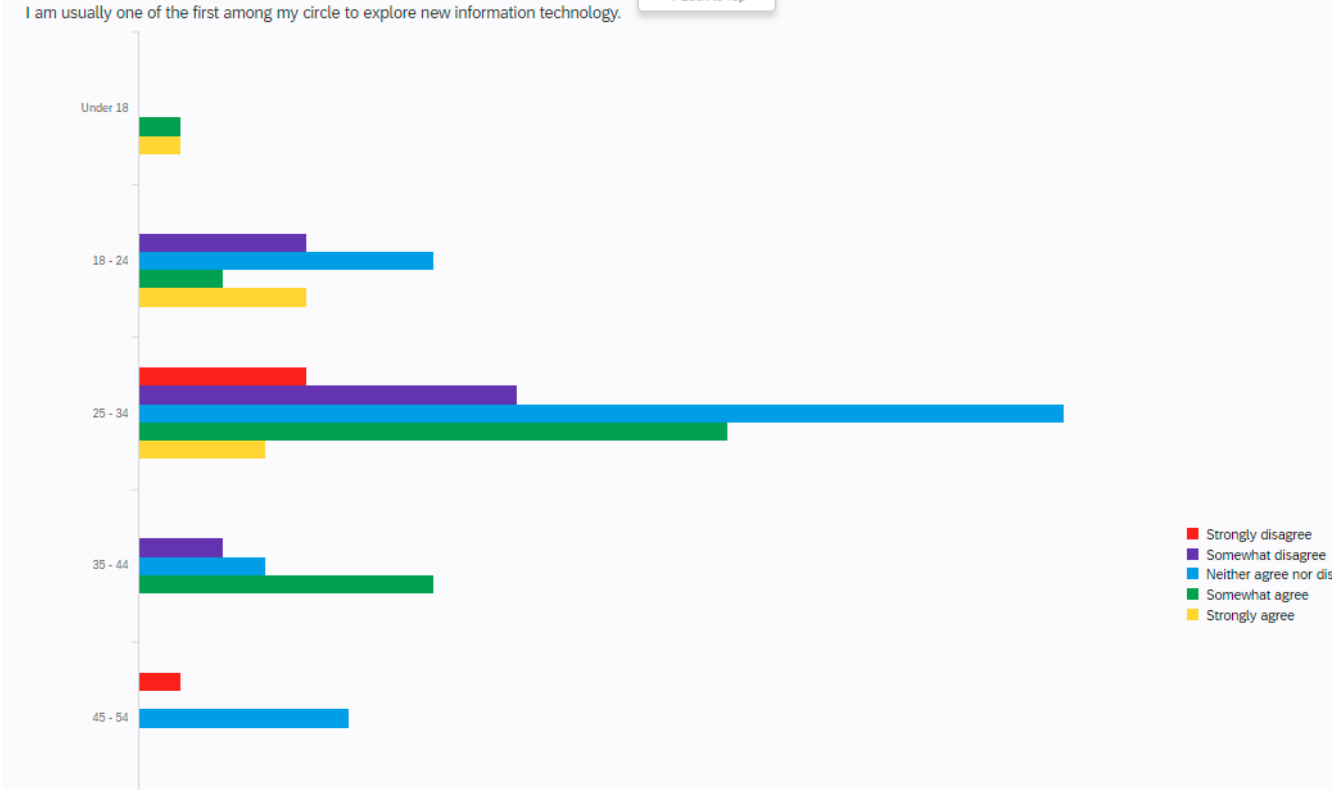
#	Field	Under 18	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Total
1	Strongly disagree	0.00% 0	0.00% 0	0.00% 0	100.00% 1	0.00% 0	0.00% 0	0.00% 0	1
2	Somewhat disagree	0.00% 0	0.00% 0	60.00% 3	0.00% 0	20.00% 1	20.00% 1	0.00% 0	5
3	Neither agree nor disagree	0.00% 0	15.38% 2	61.54% 8	15.38% 2	7.69% 1	0.00% 0	0.00% 0	13
4	Somewhat agree	0.00% 0	19.44% 7	66.67% 24	8.33% 3	5.56% 2	0.00% 0	0.00% 0	36
5	Strongly agree	5.71% 2	22.86% 8	48.57% 17	17.14% 6	5.71% 2	0.00% 0	0.00% 0	35

Showing rows 1 - 5 of 5

Habit item #1



personal Innovativeness by age



Appendix E (Interviews)

Jonas Hedman Interview

Interviewer:

I wanted to know a little bit more about the scope, especially when it's a Danish based study and so on. So, first of all, you talk a lot about value added services and mobile payments. How would you really define that? Is it just loyalty rewards and discounts? And how is it that it interacts with mobile payments?

Jonas Hedman:

If you take the case of MobilePay. It That could be one type of value added, but there also some other thing you can add. So I haven't been using MobilePay for a long time, because I have the wrong CPR-number, so I cant get access to MobilePay. I have a living address in Sweden. From whose perspective are you looking at?

Interviewer:

I'm actually looking at for the consumers perspective. So the surveys on the consumers, but we also want to know a bit about, you know, how it interacts with the experts. So are the experts actually providing what our survey is going to say? Are the survey going to provide something else?

Jonas Hedman:

Let me see if I can find this report. Here, it is. So we did a survey, what was the name of that. It is published as a report. Let me see if I can find that one. Ill attach it in the chat. A survey that we did based on this. Its based on a particular consumer oriented framework called the theory of consumption batteries, which assumes that decision a consumer do either, to buy something to adopt something, to use something is driven by different values. Functional value, what can you pay with a payment service? And something like that. There are social values if your friends are using it, which is a driver. You have some feedback or inspiration, have you send out the survey yet?

Interviewer:

Yeah, we actually have,

Jonas Hedman:

Then you can contrast your result with what we have.

Interviewer:

Okay, perfect. And also in terms of that, because for instance, you mentioned, if your friends are using it for payments, you will also use it. But also, your paper, you specifically mentioned something like loyalty rewards and discount as one of the specific value added aspects of mobile payments. But how would you actually see that in, let's say, the Danish market today? because right now, you don't really see the same type of, you know, discounts such as, you know, buying products with mobile pay or Apple Pay? Which is actually something that you see in Asia and the US How is that applicable to the Danish market?

Jonas Hedman:

The reason for that is legal constraints you've done that are different legal framework. inhibitors. Another one that we added without crystal that you have read. The other one is that has a technology adoption perspective with other consumptions of different types of theories, basically, they do have some similarities. So that is a little bit cumbersome, but you have some like barriers, whether you can use in store payments, you can request for money, that would be an added value added services. Then Then, of course, it could be some other types of services like you have more of those, like, of course, in the United States. But yeah, so this is what we have.

Interviewer:

Yes, yes. This is for the thesis. So this is basically our, you know, the section I'm using, I'm studying ebusiness. what we're actually trying to do here is that we also want to look at the different expert opinions, because I have noticed that he also wrote about near field communication. And we have also seen that basically going down the scope. Also another colleague says that for mobile pay, they first have to create a critical mass. And you also mentioned it in the value added services article. And then they can go on to NFC..Do you agree with that same point?

Jonas Hedman:

NFC is one technology to communicate with a phone or the payment through some device. And of course, you can communicate in different ways. You can communicate with an SMS, or that protocol, where you can use the Wi Fi as well as different ways a mobile payment service can communicate with their surroundings. So NFC is just one but it's not the sort of NFC and then you've put together there's been the best way haven't been To communicate. And I think I've seen that such enables you to do that type of payments, which I think is clearly the preferred choice of people to tap into, sometimes you need to enter your PIN code, but most of the time, depending on the amount and how many constraints.

Interviewer:

You also just mentioned, like, a few minutes ago about that your friends are using what's called mobile payments, and then your world also be inclined to use it. Do you see that also, because we talk about social prestige, you know, social influences a very dominant factor influence,

Jonas Hedman:

I would actually say that, in the other video that I did, we will talk about social aspects. So on one hand, you have the social prestige. So if you have a new phone, you show it for your friends. Then you have the network effects by your friends. It's two types of social drivers, one of getting individual prestige. And the other one is what appears to be two sets of social aspects, leading to increase.

Interviewer:

Okay. And also, from a Danish perspective directory, see that? Let's say people are using Apple and then Apple Pay, therefore, you're actually using it for prestige measurement, because you know, for a fact that people are using it for network effects, right.

Jonas Hedman:

So I think has gone down. Everyone has a smartphone today, but when it emerged, like 2008, there was too much prestige. I afford to buy Apple, Apple has a unique position in Denmark by having 50 plus percent of market share. So Apple Pay therefore, becomes really important because of its critical mass. Okay, so it is often less relevance in other countries, or they don't have the same strong position, then Google pay or Samsung Pay will be more dominant. Yep. And do you see that that's like, you know,

people consider that when they're adapting to it. So it's not because they are doing it for the functionality of it, but because they have Apple, they can have Apple Pay. Second order effect. looked into that.

Interviewer:

Yeah. And you also mentioned in the article that the importance of supplementary services. So you say supplementary services increase emphasizes the importance of value added services, and the post adoption success of mobile payments. So can you say that in some way that Apple Pay is maybe a supplementary service of the Apple phone, and therefore, it is the success of mobile payments? Because it's actually the apple brand that are providing it? Okay. Okay. Okay. But could you also argue that for, let's say, non companies, so let's say that mobile pay is a density bank, you know, feature, and people are using it, because of the fact that it's a density bank feature. That is not let's say something completely else. It's not the telecommunication companies. It's not something completely different, let's say something like PayPal.

Jonas Hedman:

Today in Denmark, people using mobile pay because everyone else is using mobile, basically. So of course, there are some uses of say, Samsung Pay. But it comes to Apple Pay. And then mobile phone oriented payments are more direct payments, and they don't have the functionality of transferring money between individuals. So you can see Even though people don't use as much

Interviewer:

And also when it comes to that, because you can actually say that it's an indirect network effects when Apple are providing Apple Pay, right? So they are using network effects in the indirect rate, because they're using it through their complimentary service, while mobile pay is directly. So you actually see something specifically as social effects like network effects as a factor, because you mentioned first network effects as a factor for social influence. But can you actually distinguish it in a sense that network effects have two variations Apple Pay as a complimentary service and mobile pay as the network effects direct cost combination different types of network effects due to the mass of iPhone users in Denmark, and then you have the network effects for sure sheer volume. They had that due to their first mover advantage. Mobile pay will have a strong position for quite a long time. And also in terms of that, as Jen also said that you create a critical mass through network effects through p2p payments, right? But how are mobile pay gonna challenge Apple pays position in the sea to be market? Like they are using the QR codes, they're using the webshops. But how can they challenge that? And how is the market does it look like that

Jonas Hedman:

value added services are not for consumers, it is for their business consumer those that accept mobile case, you can have it on your own, it's quite common if you have a mobile pay, you can pay me the mo pay when you do what need. Today, you should include both the payers and the pay. The errors are either in both can be businesses or private persons, different effects influencing the usage behavior of these different make a drawing of how these different networks relate to each other.. So there's something called system dynamics. And they have some really nice ways. So different types of feedback loops, and that is network effects. Those can be positive or negative to try to see if you have a multiple different payment platforms in the middle Africa, you can use cases and then you have different user groups. And they do in the sense that they compete on the platform how to work out different effects, these feedbacks could be very interesting. For system demand. I can see the

correlation with network effects with that. But they are explaining things. The end result is roughly the same. Netflix effects you have a economic econometric model. We don't have that to the same extent when it comes to feedback loops. But of course, you can apply metrics. That is not how it is Explain that we are using resources.

Interviewer:

Interesting. And I have the next part also that in one of the articles that you mentioned that companies should focus on tech savvy consumers for initial adoptions. Once these adopters have taken technology, the late and early majority are likely to join to see how it works. Here, you also talk about basically that people may be doing it because the tech savvy users are doing it. But wouldn't you say that even in Denmark, that tech savvy is such a high level that, you know, people are not really using it for tech savviness?

Jonas Hedman:

Everyone is tech savvy. seven year old innovation. That was an issue used by tech savvy people are early adopters. So I think they are always extremely important. If a question is, if if they don't continue using a new technology, it will fade away.

Interviewer:

And also, in terms of that, you say that, you know the difference between adoption and use it so you mentioned that, you know you can use it because your friends are using it. And you can adopt it because your friends are using it adopt it because the tech savvy people are using it. But is there any like distinction between the usage and the adoption? Is there the same like initial ideas, because what we actually found is that people keep using it for numerous reasons.

Jonas Hedman:

That isn't the same as adoption is very much for your initial price. And then whether you continue continuing theory, whether you continue to use that there are different mechanisms, whether you will test different drivers, whether you're going to test it out, or whether you will to embed it into your everyday life.

Interviewer:

Do you see any like factor for that that are specific that you can continue to use for continuous use.

Jonas Hedman:

Well, I think you adopt a new technology, much more out of say social procedure, network effects, network expectancy confirmation.

Interviewer:

And also in terms of that, do you see that factors that are you know, it's easy to use? And it's convenient? How probalan is that today? Like? Are people still adopting it I know it's easier maybe to use your credit card compared to you know, the mobile pay, but how is it? Is it maybe mobile payments that are becoming easier than the credit card?

Jonas Hedman:

I don't like the concept of ease of use itself is crappy. I think the convenience part is more interesting. Whether people perceive it convenient. But then also what is an obstacle for us to change from card to mobile, phone based mobile payments is basicailly. We're creatures of habits. It's a question of breaking old habits before we enter something new. So, yes to a A large extent I agree, that, yes tap and

go with card is quite convenient, it is quite fast. If you start using, say mobile payments, maybe in other contexts, then you might just use start using it in the same context in-store as well. Because you have a better traceability of your payments. Here comes the convenience aspect in mind

Interviewer:

And you mentioned that habit is about habit, how can mobile payment actually become an habit? And how do the consumers see it as a habit?

Jonas Hedman:

No they don't see it as a habit. habit is a behavior.. So, basically, you need to use x number of scans. But it actually takes quite a long time to break a habit.

Interviewer:

Okay, so it's kind of like a paradox, in a sense, right? Because the credit card is becoming such a habit that it's hard to break.

Jonas Hedman:

Moved from say cash and credit to debit cards. It was a process. Denmark has a long history of their debitcard.

Interviewer:

And you also mentioned in the article that, in the value added run that in the future, when mobile payments are more common, it will be more valuable to expand upon the model, which you've made and the value added one, and include factors such as risk trust, habit, and security? And, and I want to know, how is that changed from that time today? to people consider those aspects now?

Jonas Hedman:

And there are very few instances of where there are security risks without. So it has kind of reached a threshold where mobile payments are so secure, that they don't even consider as a factor. Yes. Put it this way that people who are using mobile payments, expect the system to be secure. Okay. And some people were afraid it was not secure, it will not be used. And that's also like, specific to the dangerous consumers because they're so inclined to safety. But is it also something that's prevalent in other countries?

Jonas Hedman:

trust the system much more than what Germans do. Because they have issues on 80 years ago, in Germany, or 75 years ago, there was a guy there. Where are you from?

Interviewer:

I'm from Denmark, I'm from Denmark, but they're from India and Pakistan. The funny thing is that I'm actually born in Germany.

Jonas Hedman:

In India, you have the different classes and so on, that has an influence on your behavior, do not do not. And you have the whole legacy of being relatively much more corrupt. And we are indebted to the sins that are very, very strong, contextual factors. So if you're sitting in Russia, you will expect to be

screwed. But if you're from Iraq, well, you have a slightly different privacy and security. And if you're in Afghanistan, they are dealing with any traces worse, the government strict and enforcing rules, so they can trace people in regards to payments. So those types of rights Dream important, therefore, it's difficult to compare countries or draw, you should not draw conclusions from one context to another context. It comes to this in a way perceived sensitive. Okay, so it's basically because also that we initially think security risk is so on such a like high, you know, low, four years ago, something like that. Now, there is no report, but that's besides the point. But it's a cash driven business. That just buying illegal stuff to just your baby. Okay.

Interviewer:

That's pretty interesting, actually. And also, when it comes to like, you know, the difference of trust security risk, is it basically the same or what are like the different like, because we are kind of like, missing the point with, you know,

Jonas Hedman:

in practice, they might have been a bit similar but different. Trust versus security, versus privacy. It's very different concepts with different explanations. Just keep them separate..

Interviewer:

In general, like, you see, factors that are kind of like missed out for people's use of mobile payments, like, how can mobile payments, basically trumps credit card? Okay, okay. Because I talked to Jan Damsgaard. And he basically said that, in a Danish perspective, Scandinavian perspective even is that now you can get your driver's license on the phone, right? This would actually be more inclined to use mobile payments, because other elements of your wallet is going to the phone. Do you agree with that

Jonas Hedman:

mobile wallets? mobile wallet, how to replace the wallet, money and so on? Do you even have wallet?

Interviewer:

I have like a card holder.

Jonas Hedman:

Okay. So the wallet as a thing is still applicable. Okay.

Interviewer:

So you already see that, but what about, let's say your driver's license and your Okay, in that sense, okay. And that sense? And also another thing is that he also mentioned that, was it called that, in the merchants point of view, you have an article, also about merchants? When will they stop using what's called? Exactly what Jan basically said was that the merchants are starting to make apps will make apps that you can put your credit card in, and you will just buy the thing with your app. And once you arrive at the store, it will basically be ready for you. Do you see that in the future?

Jonas Hedman:

It depends on how much extra value. That kind of behavior by paying with say brand specific apps is more common in Sweden, okay. Because Denmark has grown Denmark Sweden, we haven't had one

Meaning that people have different payment costs with different types of retailers, like ATMs and so on. Question is, is the market big enough? That you need to have millions of users? it's actually you know about creating the mass, right? Creating critical mass.

Interviewer:

And also just in general, let me see, you you mentioned, let's say, Sweden's, IKEA and h&m. But in Denmark, when it comes to like grocery shopping, or like, basically two big companies, and then supermarket Co Op, set like, they're all like concentrated, right? Wouldn't you just make an app for that supermarket chain? And you would just need two apps instead of having facets? and so on? Wouldn't it be easier in a sense?

Interviewer:

Okay. And also, in one of your colleagues articles, they mentioned something about reach and range. So mobile pays reach and range is you can use it in web shops, you can use it in what's it called in stores, you can use it p2p. But how do you see that when it comes to NFC payments, because you can only really use it in stores and web shops?

Jonas Hedman:

Yeah, but let's say Apple Pay, you can use that in web shops to see that sense of like that thing happening that it becomes more broaden. You know, you csou basically, connect, so I don't think that relevant. It's similar to magnetic strip.

Interviewer:

Yeah. Yeah, I actually think those were the questions I had. Thank you. Well, thank you. Bye.

Jan Damsgaard Interview Transcript

Interviewer:

Vi skriver om mobile payments i forhold til danske forbrugere. Vi har særlig fokus på forbrugerne, Vi har lavede surveys som vi har sendt ud, og så vil vi gerne lave en cross, sammenligningen med hvad firmaerne siger, hvad forbrugerne siger, samtidig med hvad forbrugerne siger.

Jan Damsgaard:

Jeg sender dig lige en artikel, jeg har skrevet, som sammenligner 6 forskellige mobil platforme i England, og hvad der gjort dem til success derovre. Hvilke linje, går du på?

Interviewer:

Jeg har læst lige din artikler fra CBS, og vil gerne spørge dig ind til dem.

Interviewer:

Hvis vi bare starter med interviewet. Du nævner blandt andet i dine artikler, at one-sided platforms inden for mobile payments går hen og bliver til two-sided eller multi-sided platforms. Man kan netop

se at mobilepay er gået fra p2p til qr codes i butikkerne, men der har dog ikke været så stor en slagkraft med c2b blandt MobilePay, der er ikke så mange der bruger mobilepay fremfor apple pay, og hvorfor er det således? Er det et spørgsmål om convenience? At flere danskere bruger applepay frem for mobilepay

Jan Damsgaard:

Mobilepay startede jo som en one-sided platform i samarbejde med SAPS, og da de havde så mange kunder, gik de ind Dansk Supermarked, der også kaldes Salling Group, og sagde kunne I ikke tænke jer at modtage betalings platforme, så man kunne betale med mobilepay i disse butikker, og det sagde de ja til. Og blev indført på hver eneste kasse i Dansk Supermarked, føtex og bilka og netto. Der kom der et lille stykke propitær ting, så man kunne betale med Iphone eller Android telefon. Og det var det var jo at Apple har jo låst adgang, så man ikke kan lave NFC betalinger, andet end Apple Pay hvis man havde deres telefon, i butikkerne. Det er meget mere normalt at betale med ApplePay i butik end det er at betale med MobilePay. Det var NETS der gik til dansk supermarked, og sagde de skal droppe det der sidder ved siden af terminalen (QR-codes). Få lavet noget, hvor du kan betale med din ApplePay hvis det er Iphone og google pay hvis det er en android telefon. I glemmer en ting, og det er internet handel. Her går Mobilepay virkelig sin sejrsgang.

Interviewer:

Du nævner blandt andet i din nye artikel fra 2020 Der er kommet det her mobile dankort fra nets, at du godt kan bruge med telefon fremfor qr-codes, så det gør det lidt nemmere at bruge mobil netkort end mobilepay. Hvordan ville du sammenligne, mobilepay, apple pay og dette mobil netkort

Jan Damsgaard

ApplePay er jo de eneste der kan betale gennem NFC, så der har de en kæmpe konkurrencemæssige fordel. Så vil jeg tilside stille Mobilepay med mobil dankort. Men da alle danskere har mobilepay, er der ingen grund til at skifte til mobil dankort.

Interviewer:

Du nævner blandt andet i din artikel om reach and range. De forskellige reaches og ranges man snakker om for 5 år siden, Hvordan har det ændret sig i dag, i forhold til Mobilepay's reach og range? Dengang var det ikke så populært at betale i butikker, men betalte mere frem og tilbage mellem folk, hvordan har det sig i dag? Nu kan du både betale i online stores, i butikkerne, hvordan ser hele scope ud?

Jan Damsgaard:

I dag betaler man jo, altså alle peer-to-peer er jo mobilepay. Og rigtig meget af internet handlen er også MobilePay. Når man betaler med kord, taster forskellige cifre ind og CVV kode og udløbsdato. Med MobilePay taster man bare sit telefonnummer ind og kan betale. Det fungerer rigtig godt og rigtig nemt.

Interviewer:

Er der andre måder man kan, hvad skal man sige, påvirke selve butikshandlen? Eller er det marked tabt? Når ApplePay har så stor en fordel

Jan Damsgaard:

De (mobilepay) prøver at integrere sig Og så når jeg tjekker ud til sidste kan jeg betale med mobilepay. Så mister de andre, en konkurrencemæssig fordel.

Interviewer:

Vi har fokus på venkatesh's UTAUT2 som vores teoritiske framework. Han siger blandt andet, at social influence er en faktor, for mobile internet i hans UTAUT2, og vi har også læst en masse artikler hvor de snakker om social influence i mpayments, men det er især i asiatiske lande, at man ser den her tendens, at der er fokus på hvad andre mener om deres brug mobilebetalingsløsninger. Er det noget man drage samme konklusion af i danmark?

Jan Damsgaard:

Andre kan jo ikke se det?

Interviewer:

Nej, men bare det at du bruger det. Det vi har fundet frem til, er fordi deres venner og peers bruger det (mobile betaling) vil du også bruge. Eksempelvis, hvis dine venner bruger applepay, derfor bruger du også Applepay. Er det også tilfældet i danmark

Jan Damsgaard:

Jeg tror ikke der er det store social influence påvirkning i danmark, hvis du spørger mig.

Interviewer:

Når man taler om network effects generelt, fordi dine venner har det, kan du selv downloade det, og derefter sende penge frem og tilbage mellem dine venner. Er det social influence, eller fordi det er nemmere?

Jan Damsgaard:

Hvis man nu MobilePays konkurrent Swipp, der tidligere var på det danske marked. Hvis du ikke havde swipp, kunne jeg ikke sende penge til dig. Derfor virkede network effects ikke så godt for swipp. Men hvis jeg nu havde mobilepay, og du ikke havde det, og jeg prøvede at sende penge til dig, ville der faktisk komme en SMS, hvor der ville stå, 'Jan damsgaard prøver at sende 100 kroner til dig', hvis du vil have fat i dem, så download MobilePay. Det virkede jo.

Interviewer:

Når man kigger, Danskernes indenfor teknologi, ligger den rigtig højt sammenlignet med andre lande. Når danskere er mere tilbøjelige til generelt at bruge teknologi, computere, telefoner, consoler, er de så mere tilbøjelige til at bruge mobile betalingsløsninger. Er vi nået et stadie i Danmark, hvor alle har det, hvordan kan det være at der kommet så stor en adoption af mobile payments i Danmark.

Jan Damsgaard:

MobilePay har nærmest haft en nordkoreansk tilstrøm. Vi har nået et punkt hvor nu kan flere ikke få mobilepay. Alle danskere bruger mobilepay i større grad.

Interviewer:

Vi har fokus på sammenhængen mellem behavioural intention og continuous use, du nævner blandt andet, at også at det med p2p firmare, som mobilepay, skal gradually gå hen til cross-sided eller multi-sided platform. Er det også tilfældet for folk, der vil blive ved med at bruge mobilepay eller andre app, at de er nødt til at ændre deres strategi ift hvad de tilbyder?

Jan Damsgaard:

Det er forskellen på om man skal tjene penge eller skabe en critical mass. Det der hedder switching costs, er jo meget lavere, så derfor skal have en multi-sided og flere 'sider' på, så det netop kommer højere switching costs. Så derfor gælder det om at få flere sider på. Derfor er det en fordel at få flere sider på, man kan se at de store firmaer frem, blandt andet med google pay og apple pay. Men hvad med facebook? Og deres betalingservice gennem messenger og facebookpay.

Det ville være rigtig smart. De kunne jo udkonkurrere mobilepay. Du kunne jo bare bruge facebook og messenger til facebookpay, og jeg bruger jo facebook og messenger langt oftere end sms og mobilepay. En anden ting er at, ApplePay behøver de nogensinde at tjene penge? Kan de bare være en tillægsservice til folk der har apple. OG det er jo nok tilfældet. OG de kan servicere det gratis indtil forevigt. Mobilepay, er omvendt et aktieselskab, og skal servicere et overskud. Da apple bare kan konkurrere på andre fronter og tjene penge på det.

Interviewer:

Ift sikkerhedsproblem, i artikel skriver du: 'applepay, visa and mastercard are already providing secure payments, ... then securement to mobilephones does not provide any additional value to the consumers' Kan man sige inden for sikkerhedsmæssige foranstaltninger inden for mobile betalingsløsninger, som ikke er understøttet af mastercard og visa, som forbrugeren tager hånd over til selve applePay?

Jan Damsgaard:

Sikkerhed, det er sådan en hygieenefaktor, Hvis man ikke har det, kan man slet ikke få lov til udbyde sit produkt. Der skal ikke mange ting for at det kan ødelægge platformens omdømme, og masse. Det applepay gør, at du bare betaler med dit credit kort, du har selv sat dit visa dankort ind i dit applepay. Så betaler du teknisk set med dit kreditkort hvergang du betaler

Interviewer:

For forbrugernes skyld, kan man sige at de har det her fokus?

Jan Damsgaard:

De siger det er for forbrugernes skyld, men det de gør, er at forhindre butikkerne få en relation til forbrugerne, fordi de netop ikke handler med dankortet De får samtidig også dataen over købet.

Interviewer:

Din kollega, Jonas Hedman har en artikel fra 6 år siden, hvor af han siger at der disse faktorer man har langt større fokus på i fremtiden. Hedman nævner specifikt, at security, risk og trust vil man have fokus på i fremtiden. Hvordan har det ændret sig i disse dage. Hvorfor var security, risk, og trust ikke faktorer for 5-6 år siden?

Jan Damsgaard:

Det bliver et mere modent marked, det er mere vigtigt. Når man først startede med at bruge mobilepay i 2013, så tænkte det man bare ”wow, det var fantastisk ikke” Der var ingen bekrymringer, og se var det var. Efterhånden, markedet blev mere udbredt, var der mere fokus på disse faktorer.

Interviewer:

Han nævner også habit som en af de fremtidige faktorer, sammen med trust, security og risk. Dette har vi faktisk fokus på, når vi kigger på vores literatre artikler og survey. Hvordan har habit, vaner en faktor i dag?

Jan Damsgaard:

Du skal gå ind og se min artikel (Find i mail eller teams), som også skrevet med Jonas hedman og mads bødker, hvor vi taler om mobile service adoption, hvor vi snakker om værdier ’navigating global market. er går vi netop ind og ser om det er en æstiske eller funktionelle

Interviewer:

Hvad er forskellen?

Jan Damsgaard:

Estiske, viser sig frem, i starten og så skal den overleve på den lange bane. Funktionelle værdier, i starten er det de æstiske værdier og derefter skal de overleve på de æstiske værdier. Det vi gjorde, at bedte folk om at skrive dagbog over hvordan de brugte deres mobiltelefoner i 40 dage. Det var lige efter iPhone var kommet, alternativet var at gå tilbage til ’tryktelefonen’ og gider ikke mere, og lader sin gamle Nokia telefon op igen.

Interviewer:

Er der nye faktorer der kan få folk til at vælge eller fravælge det, mobile betalingsløsninger. Eksempelvis branding? Hvordan har danske banks image, noget med folks opfattelsen af brugen af mobilepay, samme som apple og samsung, pga. image, sikkerhed etc. Det er jo store virksomheder der udbyder de her ting.

Jan Damsgaard:

Det er en minimal faktor Facebook har jo også haft en data skandale, men de vil stadig prøve at række deres betaling Hvidvaskningsskandalen i danske bank var også med til at suge flere mennesker væk, men jeg tror ikke at det betyder så meget. Hvis vi alle sammen gerne vil spise mere økologisk, så vælger vi stadig konventionelle varer.

Interviewer:

Vi snakkede om hvordan social influence ikke var en faktor i danmark, men en stor faktor i andre alnde. Er der så nogle specifikke faktorer i danmark, der påvirker danske forbrugeres brug af mobile payments, der er anderledes end andre lande. Eksempelvis er man i asien, er der særlig fokus på social influence, usa convenience. Er der noget i danmark der minder om det, eller der noget der for danskerne til at vælge mobilebetalingsløsninger end i andre lande?

Jan Damsgaard:

Der er en anden ting, og det er derfor utaut ikke er så special god til det her, alle de her tjenester er gratis.

Interviewer:

I det tilfælde, har vi faktisk fjernet det punkt der hedder price-value, da alt er gratis i Danmark. Du kan nærmest få penge for at bruge mobilebetalingsløsninger i vesten. Men er der så noget danskerne har særlig fokus? Er der forskel i konveincene. Du kan bruge mobilepay i butikker, online, du kan bruge det ved at sende penge frem og tilbage, mens de andre former for mobile betalingsløsninger som applepay kan du kun bruge i c2b. Er det en fordel at bruge mobile pay i forhold til andre? For eksempel du kan bruge det til weshare.

Jan Damsgaard:

I butikkerne går det kontaktløse dankort sin sejrsgang. Man handler mere i butik end at man sender penge til andre, og derfor kan man sige at applepay er mere fordelagtigt

Interviewer:

Hvornår når man det punkt, hvor man bruger sin telefon oftere end det kontaktløse dankort. Hvornår når man det punkt, hvor man lader vær med at bruge sit dankort/pung, så man kun bruger det sin telefon.

Jan Damsgaard:

Ja selvfølgelig. Det der er dræber teknologien. I december måned, kom det digital kørekort, og der gad man ikke at have pung med længere.

Interviewer:

Så der er rent faktisk en sammenhæng med de andre genstande du har din pung. Skal flyttes over til din telefon, før du kan bruge mobile payments fuldstændigt.

Jan Damsgaard:

Ja, i løbet af de første uge, hvor det digital kørekort blev implementeret var der jo, der var mange downloads. Det var dræber stødet til pungen. Min pung består af 6 kort, kreditkort, dankort, rejsekort, sygesikring, cbs kort. Så længe cbs har det der adgangskort, kommer jeg stadig til at bruge pungen. Så når det forsvinder, har jeg ikke længere behov pungen Visa og mastercard de bliver udfordret, nu når man ikke behøver det fysiske kort.

Interviewer:

Når man kigger andre moderator variables, er der forskel på alder, køn osv i Danmark, hvordan man betaler med mobilt.

Jan Damsgaard:

Der er lige blevet lavet en undersøgelse, hvordan folk betaler under covid19, og de unge mennesker betaler helst digitalt. Den forskel der er på dem og ældre, den snævre sig ind, og under corona er der blevet virkelig blevet taget et kæmpe skridt fremad. De betaler i meget mindre grad kontant, og helst digitalt. Weifung er god til utaut, det er en god ide at komme en god ide at komme med forskellige dataindsamlinger. Du kan ikke bare sammenligne 3/4 eskerperter, vi er jo ikke tilfældigt valgt. Men surveyet er bedre.

Interviewer:

Ift digitale kørekort, er kun blandt danskere, vil det ske internationtl, vil det ske internationalt; eller kun i danmark/skandinavien

Jan Damsgaard:

Der er som reelt en elevator op, mobile kørekort kan være dræberstødet. På europisk plan, et eu corona vaccineationskort det er også vigtigt.

Interviewer:

Er vi nået punkt i dk at det er nemmere at betale på mobile, det er en funktionalitet, man bruger bare sin telefon frem for sin pung, og man ikke så meget tænker over, at det er måske nemmere at betale med et tap. Det bare nemmere at gå rundt med telefon. Selve ideen om betaling er ved at blive obsulete, fordi du kan betale på mange forskellige måder.

Jan Damsgaard:

Adgangen til telefonen er anderledes, min pung lægger altid i min taske, men telefon har jeg altid i lommen. Det bare nemmere at få den frem. Hvis du nu forsteiller dig, du selv gå rundt i butikken og skanner selv dine varer. Her har du allerede din telefon fremme, så betaler du på den måde. Hvis du har set amazon go, hvor man betaler med butikken, uden der noget personale. Du gir dig til kende gennem din telefon i lommen, betalinge er en integreret del af din adfærd, så den bliver særskilt i superbrugsen, irma og andre ting kan du bare skanne dine varer.

Interviewer:

Vil man også se dette i danmarkt, ligesom med amazon go, og kina, men hvornår vil se det i danmark

Jan Damsgaard:

Man kan se det blandt andet i Irma, og der kan du skanne din varer ned i din kurv har du skannet dem, også i fakta, og så skal du swipe til sidste. Og det swipe viser man i kassen. Jeg tror der er mange der er trætte af at stå i kø

Interviewer:

dette vil være en app for selve retaileren, det er blandt andet ikke noget der har moget med apple eller mobilepay at gør Er det en nye wave der ved at komme

Jan Damsgaard:

Det vil de i hvert fald prøve på, men jeg ved ikke hvem der vinder. Hvis du tager sådan nogle amazon, så har de jo også de her shops. Som ligger fysisk. Data er nøglen til meget fremmadrettet.

Interviewer:

Hvis man nu kigger på det. Vil man næremst kunne sige, når man taler om mobile payments overordnet, både p2p og c2b.

Jan Damsgaard:

Du kan jo se at 3 parten kan direkte trække pengene fra din konto. Det vil sigfe, hvis du har en mcd app, så skal du ikke dit kreditkord ind længere, så ligger du dine konto oplysninger ind, så det

mcdonalds tager pengene direkte fra kontoen og går uden om creditkortene, debit kortene men også mobile kortene. Så forlader du slet ikke med mcdonalds, på samme måde som sats appen.

Interviewer:

Ser du også forbrugerne kommer til at bruge disse app, irma, fakta mcd, ligeså høj grad som mobilepay og apple pay og nfc. Kommer folk stadig til at stå i kasserne.

Jan Damsgaard:

Der bliver mulighed for at betale i kasserne hvis du har lyst til det, synes jo ikke at det er særlig værdiskabene at stå i kø i kassen. Jeg bestiller lige two big mac og fries, og så gir du adgang til at se din lokation, og så er der mad til jer, og så det er nemt.

Interviewer:

er det et spørgsmål om tid, eller kommer det til at ske?

Jan Damsgaard:

Jeg tror det rent faktisk kommer til at ske. Nu er mcdonalds jo begyndt at lave trykknapperne når man kommer ind, hvorfor er det ikke bare app i stedet?

Interviewer:

Vi hører på nye perspektiver.

Jan Damsgaard:

I kina, går man direkte fra cash til mobil, og leapfrogger creditcardet.

Interviewer:

Hvorfor er der fokus på mobile p2p, i skandinavien, og andre asiatiske lande er der ikke fokus på p2p

Jan Damsgaard:

Det har noget med timing at gøre.

Interviewer:

Det var det jeg havde, tak for interviewet.

Kalina Stoykova interview

Interviewer:

Thank you for doing this interview. So we're currently doing a project on mobile payment acceptance and use it in a Danish context. So we made a survey and made a couple of interviews and basically wanna compare the two types. And can you maybe tell me a little bit what you did at Mobile pay your experience, what it was about. What your experience at mobilePay, what your ph.d. was about?

Kalina Stoykova:

Could you maybe also tell about the survey and interviews you're making?

Interviewer:

Yeah. Okay, so we're currently doing interviews with experts from CBS, and we want to do interviews for mobile pay, and our survey is basically built on the utaut2 model so we have a couple of answers and questions that correlate to those factors. So currently we have basically extended the Utah model with security measures and so on, and whatnot, like compare and contrast, the interview with the survey results.

Kalina Staykova:

I can tell you're a little more about myself. I currently working as an associate professor at CBS. I did my Ph.d. at mobilepay so it was back to back. So I have a very good overview of MobilePay, the projects. I was apart of the innovation team at the mobilePay I have been following MobilePay very closely. I did my master thesis with them, I also have a couple of papers on the topic of mobile payment. My ph.d. is about platform change, so how they change. So how they change over time, and how they have evolve over time. And what other tasks and challenges Mobilepay faces. I also worked strategy at mobilepay, and at the beginning the entry strategy of mobilepay. I also worked with adoption.

Interviewer:

Okay, okay. So, you have a very good scope on mobile pay. Basically, can you tell me about you know the differences of mobile pay back then till today, so like what challenges were facing mobile pay back then, how are they, facing them today. In 2013, compared to now, like in the beginning process to now?

Kalina Staykova:

Very different challenges. They were in different environment. Also in terms of competition, but also in terms of user adoption. I think in the beginning. In the beginning. Mobilepay was launched as a peer-to-peer. First it was revolved around peers and later on to merchants The differences and the market difference. How do you make merchants adopt. Hold on, I'll try to make the sound a bit clear, because I've been trouble hearing you. Okay, how about now. Yeah, I think this is better. Okay, perfect And so, I want also wanted to know about like the determining factors for consumers choice of mobile pay. how does that differ today, between mobile pay and other platforms. In the Danish market? Are you familiar with swipp.

Interviewer:

Yes, I know Swipp, and vipps and swish as well in Norway and Sweden.

Kalina Staykova:

So for users. The main advangeous was throught to be ease of use. And you know in the beginning you did not have to use nem-id or any type of authentication, and you did not have to use CPR. That was largely considered to be one of drivers for user adoption. IN comparasion to mobile banking or even swipp. Also what made mobilepay popular, was that it was not only made offered for Danske bank customers, but also other banks in Denmark. So people who had Nordea, could also use mobilepay app to transfer money to one another. And other factor was that it was also a first-mover advantage. That mobilepay entered a few months before swipp entered the market. And that make you wonder if people would still adapt it [swipp]. Because of Danske Bank had are strong network effect, that Swipp couldn't match. When swipp launched, they did not launch as one app, the one app came later in 2015. In the beginning, it was each individual bank that was part of swipp. So Nordea, and nykredit or

whatever. And they enable opportunities with Swipp as a part of their mobile banking. And that made the process more complicated, and also resulted in a later launch. First it was in June 2013, and then Nordea in September 2013. And they [swipp] started doing it gradually. In the beginning it was only customers of two banks that could send money to each other. And Danske Bank was never a part of that. In the beginning, they never allowed cross payment with swipp others. From the get go that couldn't match. And I think the reason why it was not successful, was that. And again, I don't know how much you know about it when it's launched. They did not launch as one app. The one app came in at the beginning it was, each individual part of suite liquidated or whatever. They enable him to be doing these aren't available, that's made deposits outside. At the same time as the tours. Do they just start doing it gradually network effects that limited the possibilities of users to come back to one another so the beginning, each other at the beginning. Allow variability between customers so that. But I think it's really intuitive design.

Interviewer:

Okay, okay. So also about like, maybe being the first mover the fact that it's a Danish company compared to Swipp being, you know, not that you know prevalent because it has a Danske Bank backing, or does that have to do with anything that the fact that mobile pay had Danske Bank as a backing basically.

Kalina Staykova:

Yes and no. I think the market was a very different place. and the mobile payment solutions that people have been talking for quite some time. And the Danish market for example, there were initiatives way before banks with functions such Mobile payment. In there was a major telecom operator that launched something when 4g arrived, with an app called paythey launched later, but didn't succeed. They were the first ones. But I say that Danske Bank being behind mobile pay is a good and a bad thing, in a way that at time of 2012 Danske Bank had a very bad reputation amongst customers. They had a program called 'early customers' or something like that. Early customers programme. People conditions for users, and they had a very bad reputation. In terms of reputation, in terms of brand reputation. Danske Bank was not that contributing towards MobilePays image. However, Danske Bank helped with infrastructure, quality, it had the right resources. It had a capital. The brand image and the brand reputation was not an advantage for mobilepay.

Interviewer:

Good to know. That's actually very interesting. And also you mentioned, ease of use and how useful it is you can use it in different stores and so on.

Kalina Staykova:

Yes, I think you should find the distinguishing. And interview private users.

Interviewer:

Yeah, basically making a survey for private user.

Kalina Staykova:

just want to mention that when we go to adoption of a merchant. That's a very different story. Then ease of use, particular to go to supermarkets, for example, and that's the difference between adoption of mobile pay for what function. So if you about digital payment, that's very good, and when talk about

online payments, where MobilePay also have a very good service. Currently the number one leaders still in Denmark in online payments. Which is very good. In go to adaption in Supermarkets for example. If you go to fØtex, and you pay with MobilePay, people don't use it that much. And the different adoption factors that drive each of these adoption types. Like easy-of-use for online stores and easy-of-use for peer-to-peer transactions is very helpful. However, in merchant stores. It [MobilePay] Super long time to take out your phone and pay. Then you would rather just use your contactless card to pay. When you check-out, you can easily press you phone number in, when your shopping online.

Interviewer:

Do you think they can maybe get to that market, or is it already like being like it's maybe taken over by the contactless credit card?

Kalina Staykova:

Yeah. So, I one of the papers I'm working currently on now. You compete with different players on each market. You compete with online payments, you compete with differnet players, you compete with P2P, you compete with different players, and c2b and different players. Contactless Dankort, I think is quite dominant, and nothing beats this experience yet. There is another player. That is gradually overcoming MobilePay, among merchants is ApplePay. And there is actually data that suggest that ApplePay has more transactions then MobilePay. It has something to do with user experience, usability. I think MobilePay has tried to address that, they they changed technology, they worked with different solutions. It is just a very difficult programme(?) to tackle. It is a very difficult situation to be in. And I Think, and I don't know how familiar youre with it. A lot of the solutions MobilePay enabled in store were Bluetooth based. And ApplePay are based on NFC. The battle for A lot of transactions with large merchants are a bit lost. In Denmark, I don't MobilePay can match that competition yet. I think they will focus on another niche market. I think for applepay's NFC the fee for smes are too high, so therefore, MobilePay can offer a cheaper alternative. For merchants, adoption is different factor. It depends on how cheap the service is.

Interviewer:

Okay, okay, and how come is it that, let's say mobile pay have this advantage over ApplePay when it comes to online shops and web shops, how are they. Why come they are bigger than the credit card and or Apple Pay actually online.

Kalina Staykova:

Yeah, I think, when you shop online, youhave different payment methods being enabled, and MobilePay is one of them. I think it has to do with ease-of-use and convenience. When you shop with MobilePay online, it much easier. Than paying a debitcard. Nowadays, you have to have passwords, account number, expiration date, cvv digits and even nem-id. It really revolve around ease-of-use, and ApplePay had online transactions, in some countries, but not yet in Denmark. But maybe it is offered, but people are not that well aware of it. ApplePay is also used for peer-to-peer transactions in other countries, but not in Denmark yet. But if it comes to Denmark, it will change the peer-to-peer landscape.

Interviewer:

Do you see that actually that it[applepay] can become a peer to peer transaction in Denmark. And if so, is that a threat to MobilePay

Kalina Staykova:

I definitely see that. And that is that I will say that MobilePay has more than 93% dominance or something like that, in the Danish markets when it comes to users. Using it for peer-to-peer transactions. I think it could definitely, if applepay comes to the Danish market. ApplePay And apple in general already has a strong position in Denmark, and the Nordics. Users have already adopted applepay to pay for merchants like C2b. I also think you have to account that Apple. You have to think about that apple have to consider countries, were a lot of people have apple. I also think that Mobilepay maybe in five years wont con ,I think there's a high chance. That mobilepay wont exist in five years. Or not to dominate the market.

Interviewer:

Okay, okay. Interesting. Interesting. So, when it comes to just that, do you actually see that then that is huge disadvantage for mobile pay that so many Danish users have apple. Let's say it was maybe more split and more users had Samsung, Google, it would be an advantage for mobile pay?

Kalina Staykova:

The only difference now is the fact that most platforms cannot access the secure element on the iPhone. It's Apple's proprietary technology they don't share it. So that gives the technological advantage for ApplePay. But this will probably change, as you probably know that ApplePay is chased after by the European Commission, and one of the issues is actually, that it is anti competitive. not to give access to others, give access. If you're forced to give access to the company to use your NFC capabilities. That change probably changes the game within Mobile payment. This is the main issue, is of course, another issue is that MobilePay is not used for cross-border payments or international payments. That is a huge advantage that applepay has. Apple Pay's strategy is not local and regional, it's actually global. So, I don't see per se. The fact that, you know, that more People have iPhone. And something that is bad for mobilepay. It doesn't matter because Mobilepay also are for android phone, it used to be on windows phone, not anymore. But its fine, I think the biggest difference is the access to NFC.

Interviewer:

And also, like on another scope. Do you see that Danish consumers factor in like social prestige. So basically, people are using mobile pay because it actually sends so like some prestige level of the fact that I have money I can send money back and forth or something like that, because in Asia, a lot of people who use mobile payments actually do it for the social prestige of what their friends think you see the same here in Denmark with mobile payment.

Kalina Staykova:

No, I don't see that. I've never we haven't mentioned, or heard of it, either. I think for me, it's really just anyone that is uses it depends on convenience. I think people use mobilepay because of network effects.. I use it because there are other people I can send to in my network. It is not about social prestige, it is about convenience.

Interviewer:

And also, when you mentioned hear about the network effects, and you've mentioned it, I think it was the reach and range article that p2p had to move towards C2B to cover more sides. And you mentioned like we talked about already the Mobilepay to have done that, but how successful or mobile pay in

doing that in the process. Have they actually thought about that from the beginning when they launched the p2p that at some point they would use mobile pay in stores and online so on.

Kalina Staykova:

Yes they definitely thought about that. In the beginning was about what's the scope of our launch, do we want to do p2p, c2b do both, or only have one? And the reason why they only ended up with peer-to-peer. They were going to dominate, as they were going to have the first mover advantage. Swipp, Danske Bank and Pay at the time were competing, on where going to launch first. So in that situation you cannot use extreme amount of time on development and incorporate c2b. You just launch p2p to begin with. But. The idea has always been to open up to merchants, sooner or later. If you actually look into, they initially opened up to in a pilot to merchants in 2013. Which is approximately 5 months after the launch of mobilepay. It has always been in the scope. And then you can also see that small merchants like coffee shops operate very differently than like Føtex a big merchant. Where it is more difficult to operate I think that's why mobilepay. Started with very small shops, and niche markets. Coffee shops, food stores and then later expand to operate with other types of merchants. And then for each one of them you also designed a different technical solution and difficult to find a feature.

Interviewer:

Okay. And also when it comes to like other settings for it. Do you also see the fact that you know you mentioned before you didn't need to have name ID to create a mobile pay. In the beginning, is that like something that factor into the adoption of mobile pay. Like, it was so easy to adopt because you didn't have to fill in all these things.

Kalina Staykova:

Yeah. I don't know if you follow the story, but then it becomes, how do you say. At some point in 2015 they did introduce, nemid and CPR for particular amount of money you would transfer. At some point you had to be validated for nemid to use MobilePay. It came a bit later. I think it was 2014 or 2015 there was an article on fraud on mobilepay. An article was written about how insecure it was, fraud being committed. I think the discourse is slowly changing. So, and also for legal requirements probably on increased user authentication on nemid. After two years after its launch point so they slowly, gradually also went to an area, but I think for them what they did take our time with security measures to make it as secure as possible for Danish users. Incorporated nemid and CPR. So we've essentially because of legislation that it was two years you have to do it two years after you've launched it that they did it or how come they waited so long, or not long, two years, having these security measures. Mobilepay was secure from the beginning. It was secure, it was just not secure with nemid and CPR, or that level of authentication it has today, was not present back then. Technically MobilePay was just Mobile banking. In numerous layers. At the beginning, models they use a bit of flaws in the law. There was a loophole in the law that allowed to operate with fewer security measures. But that does not mean it was insecure completely, but not be high level of user authentication during the launch. After two years, you can operate without, but then you actually have to very very strong type of authentication. I think there was a daily limit based on regulation. They designed this solution. One of the other reason was it was allowed by law to have this mobile app without user authentication. It does not have to do with anything about security, it is better to call it user authentication. It was secure to use mobilepay. But the user authentication is much stronger with nemid today. Here you can talk about convenience, because you didn't have to put in CPR or nemid. Another reason has to do with the battle with swipp.

Swipp kept increasing their daily limit for how much you could transact from phone to phone. And they positioned that to be their competitive advantage, in the beginning you could with mobilepay only transact, probably something like 1000 dkk per day. That issue was around peer-to-peer. But if you want to buy a bicycle, you go to like a bicycle shop for example. The more the users of mobilepay grew, and spread out of other payments scenarios are becoming available like b2b and c2b, and the issue here was payment limit was setup by the underlining card-payment structure, that MobilePay was used which operated by Nets. Where nets said we cannot increase your limit, if you don't give us the user authentication. That was also a part, part of the whole thing for acquiring authentication. It was secure to use mobilepay, you cannot.. It is combination of many different things. But I think it is. I don't know if you make a difference in your research. About Security and strong user authentication? Mobilepay has always been very secure technically. But in terms of user authentication it has only become stronger after the launch

Interviewer:

Okay. And also, You mentioned that swipp. In the beginning, had a very secure, you had to have like a authentication and CPR and so on. While you didn't have to have it on mobilepay, you actually think that's a reason why people adopted. MobilePay more, you know, more than swipp because they didn't have to press the CPR numbers in or something.

Kalina Staykova:

Definitely. That removed the hassle. And also, think about most of the beginning, mobile pay was used for low value payments so no one expected you to transact more than, I think it was even less than 1000 kr. Initially when it was launched. And especially think of it now, even when you pay with contactless dankort, you don't need to use your pin for security measures. If it's below. 250 dkk. Maybe increased at some point. As I said the same thing is the biggest problem that comes when you actually use it for larger sums, you need a bit more authentication. I think that definitely the fact that you don't have to use nem-id. Make it not so troublesome to sign up for the solution. Or use it definitely contributed to the adoption early on. And I think that was interesting battle between swipp also and Mobilepay. Swipp actually existed for a long time, but security of their solutions, especially one on the bench level papers, If you look at the adoption number of their solution over the years. I don't think that's actually really the workforce was the greatest. It was for MobilePay. It was a competitive advantage that you didn't have to have to use them nemID and CPR to sign up for mobilepay at beginning contributed to the adoption.

Interviewer:

And the funny thing about that is that we talk to some other scholars and we talk a lot of articles that says that, you know, people would not sign up for mobile payments if you didn't have to authenticate your ID or CPR. How come is it that it's more common to not have these safety measures of, you know, social security number and name ID for the adoption, like shouldn't it be the opposite shouldn't people adopt more when they know that it's CPR, that it's an nem ID secure

Kalina Staykova:

Yes but that is what I'm saying is. There's a difference between security measures and customer authentication. These are two different things. The Security measures, so when I sign up with mobilepay

without nemid, it doesn't mean is not secure for users, some believe people can steal my data, that there no confidence. It was backed by Danske Bank, so I think they already trusted it, but if MobilePay was something completely on its own. It would have had a hard time to convince users download even with authentication. Customer authentication is made by nemid, is made to know who you are, is it meant for your identity. Customer authentication has a lot to do with preventing fraud, and has to do a lot. Without or not it is secure Whether or not the data has to be leaked, that is very different story. Nemid has a lot to do with that not happening, but I think that authentication and of course nemid helps it make it a lot more secure, also I think in general, it has always been secure, but the authentication just added more to it. It was just made more transparent

Interviewer:

And how do you see that what why did they see that consumers thought that mobile pay was already secured Was it because of the Danske bank connection?

Kalina Staykova:

Yes, I think so. There also a lot of research that showed that the fact that it was made by a Danske Bank over another fintech player. It is depended on their reputation and the trust they have.. that trust consumers have in them. This is what they do best over others. You know secure payment, they have procedure and technology in play that assures that everything goes smoothly. But I think that if you have a solution offered by a bank. It does kind of help your trust in the fact The other payments will also be executed.

Interviewer:

And also like before you mentioned that tentative bank actually maybe didn't have that good of a reputation. But how does that fit in, like, people still see it as a bank right so there has to be they don't scam you or anything. They just have a bad reputation that shouldn't be able to prohibit them

Kalina Staykova:

There are different things to consider, yes in the beginning Danske Bank did have a bad reputation. Then I think MobilePay was actually a way to go and get rid of that reputation.

It was actually in 2011, there was dropback in customers, but it was not like it didn't have any customer at all right. When mobilePay launched, they were the only solution on the market.

It was not like the bank was a sinking ship.

I mean it did have a very bad reputation, but it had have very bad reputation if you wanted a mortgage if you gonna other types of loans. But to you use mobilepay you had to be danske bank customer and that was a huge advantage.

It was also curious to see what was easy todo /easy to use?.

.I remember my colleagues, whenever you go to work and introduce yourself and say, Oh, I work for Danske bank, that was not that good thing, but if you said if you worked for mobile pay, people were like 'ooh very nice solution.

That's a very different thing right.

Danske bank as a brand, as a image definitely was not a good thing. I think it has to do a lot with treatment of customers. But it a completely different issue, its not like they didn't give them better rpices or something like that.

Okay. So that's about as advanced as the image, definitely was not. And I think it has to do a lot with that treatment of customers. It's not about, because it's not to keep your account. And it's not because they don't treat their customers better business give them good conditions and and give them good prices insurance.

Interviewer:

You know, people distinguish between adoption, and what's it called... adoption and usage, like what's the difference when people think about that, like usage, why do people adopt mobile payments, you mentioned one of them was like the convenience of it. The security measures that were already there but why do they continue to use it.. , what's the distinction.

Why do people adopt mobile provider people continuously use mobile pay

Kalina Staykova:

That is a question, everyone has asked. I think the factors that make you adopt and the factors make to continue to use it. Are also overlapping, but it is not enough. But think of it... that is also a problem with MobilePay, How often do you use mobilepay? In your weekly basis. Lets just look at your usage. Well.. if you look at mine, well I work for Mobilepay and I studied it. Maybe I use it for five payments in a month to my friends. And am I an adopter, yes. I am adopting it,

Am I using it continuously? Yes, you can definitely say that, but my usage level, which is called user engagement, that is a different term... is very low. So I am not that much engaged with it. And the reason for that, is that it does have very limited functionality. So the quest for mobilepay is go and enable all these different payment methods.. Now they gift box, they have subscriptions, they have many different things. The whole idea of this is to make you use mobilepay more, and to use it more continuously. And the other reason is that imitate peer-to-peer mobile banking, paypal, and peer-to-peer apps with the same functionality. But if you have many different other functionalities that you can continue to using in other contexts. Like lending money, like spending money on gift cards, sending money as agift. Then your usage of MobilePay increases. And your likelihood to continue to use it, increases.

Interviewer:

Okay, okay, because that's very interesting because so you say that mobile pay has to basically expand and making it a different you know, possibilities to use it and that's also one of you, you know mentioned in the article is that to get people to stick to mobile pay you have to broaden you know the network effects.

Kalina Staykova:

Yeah. It is about network effects, but it is also what you call 'reach and range'.

You develop more range to increase the reach. And also think of it. MobilePay have 93% of the Danish population, what else is there to adopt? Whats next? I know on the merchant side it is a completely different story, but you have to have people keep coming back to you. And keep using this service. And with peer-to-peer as nice of a solution as it is. It has a limited scenario, where users can use it.

Interviewer:

Okay, okay. And basically, other other options that would make users make mobile pay more like let's say that you mentioned already that you've had to use reach and range of different kinds of payments areas, but there are other areas that mobile pay should increase that would make people use it more like how can it become a lifestyle that you use mobile. How can it become a habit

Kalina Staykova:

Definitely that has to do with identify all the different payment scenarios right. Where do you pay? Where do you use your card? What are you payments on a daily basis? And what I the functionality of it. If you also look at the recent functionality being launched with the mobilepay box, where you can collect money, there are giftcards. However, unlike applepay, we can not pay with different merchants when you travel. I think it also has to with situation of being used as a private usage. The other one, is trying to get more merchants on board, to create cross-sided network effects.

Where you try to work with more merchants. Making mOiblepay more avable for more merchants.

Where you can use mobilepay in different scenarios. Think like if you can use mobilepay for other types of payments, like government payments. So there are so many usage scenarios.

That has you can increase your usage, in everyday life. Also look at this big Asian app, wechat, they enable payment in everything usage.

Interviewer:

We talked to one of your colleagues who has Jonas hedman actually, and he said that in an article from 2015 that you know the things the factors that people use for adoption are basically convenience, ease of use. but then he said also that in the future so let's say now, there will be a higher focus on risk trust and security, like, how do you agree with that or how is it that back then, that there is not a fact like they didn't really factor in risk and trust in a sense,

Kalina Staykova:

Actually for me security has always been there, and trust. And also if you read adoption literature about mobilepayment, in 2015 There are some papers about adopted mobile payments that say that risk and security are talked about. So I think scholars who researched this topic, would say that mobile payment are linked to security and risk. It is a factor, and it has always been. I do agree with the fact that, that these factors are becoming more and more important. Maybe more than we get it attention before. But it was still there before. But I do agree it will become more prevalent, and the reason why I say that is because as you grow big, as you have more users, than you have higher amount of paid transactions. And then you become more attractive for people stealing money, or people committing fraud. And I joined mobilepay, we didn't have a risk officer, but now I think theres risk officer which job is to only ensure that there are no risks when using mobilepay, and other transactions go through smoothly. But before that job, there was someone, instead of being part of mobilepay, there was someone in Danske bank that did this, without being part of the Mobilepay team. Now MobilePay is separated from Danske Bank. There has always been emphazise on this, but it will become more important in the future. you see definitely the risk of security.

Interviewer:

And also, like Denmark and Danish consumers are one of the most, you know, tech savvy. Do you agree with the fact that the reason why mobile pay is so big in Denmark, is because the Danes are so tech savvy,

Kalina Staykova:

Yes I agree with that. If you look at. In 2012 and 2013 there was payment provider competition to launch mobilepayment services in general. And one of the reasons it succeeded was because danes at the time were very hard adopters of smartphones. Which was much higher than any other country, If you take look at for example to the south of Europe, are still heavy cash users. And moving from cash to electronics, and not even card payment. Card payment are not that popular still. So launching MobilePay there is a very different story compared to launching it in the Nordics.

Having said that, I would say that is it just one of the factors to consider, well if you look at finland, finland is one of the countries with similar characteristics of Denmark, in terms of users, tech-savvy, advanced. Mobile payments are not that prevalent. That has to do with other preferences. Finnish users don't as much see the pinpoint of what MobilePay offers. They don't see what so useful for the app. So that's a very different game, so I think that, so finnish people in general don't like mobile payment, but it is due a different factors, not just one or two., but a combination of factors.

Interviewer:

And do you know why is that why is it that p2p and mobile pay is so probalan here in Denmark and the Nordics but not in Finland like. Is there a specific reason because mobile pay is also in Finland

Kalina Staykova:

I think that's something to with the finnish base of mobilepay is quite cracking And, I think, mobilepay launched in Denmark, when users were ready for this solution. And I think there was already kind of demand from the customers in Denmark to help mobile payments. And then when you talk to your customers in Danske Bank, they say they would like try this. So you have this consumer readiness, where they want to try and adapt it. But I think in finland, that was never the case. Of course are also some other issues like payment infrasturucutre, how technolical can they make the solution, and things like that.

Interviewer:

And also just in general, like you mentioned, you know the reach and range of our mobile pay isn't one of the articles and. Do you see, like, the expanding hasn't reached its threshold, in a sense, basically, like. Can you maybe elaborate a bit on your reach and range article on how mobile pay basically you know has the reach and range of different kinds of stores, but not like it's only Danish, right. Do we see maybe a future in other worlds such as Finland, or is it about timing again. Unknown

Kalina Staykova:

Looking at my 2020 article, peer-to-peer clear winners, 93% of users. Then in terms of small merhants, I don't have the numbers but I think pretty much that they are winning, or being more prevalent. And I think that's also because other players that have offered their solutions for merchants. Like nets for

example don't let you play in this market, financially. For me, yes, definitely a winner, however, in terms of merchants and large super markets, I would that losing the battle for private users. And online payment yes, growing much more. MobilePayment has that advantage that you always have these different players, but mobilepay is kinda doing well there.

Interviewer:

And also, we actually also talked Jan damsgaard, your co-writer, and he also said that in the future, one of the options would be that you have let's say a fakta or føtex app and you would pay and store your groceries in that app and pay with the app, instead of using credit card instead of using Apple Pay, instead of using mobilepay. Do you see that when it comes to mobile payments.

Kalina Staykova:

Yes, like Amazon go. So there is a retail app launched by coop. And I can use it. I think it is a good thing, definitely something that is coming, I did an interview the ceo of mobilepay last june, saying that the way they seek payments with large merchants, is exactly this model. They go around the supermarkets. You take your product scan it, and you just go out. Or whether or not this is going to be retail app, so owned by the particular supermarket, or whether offered by mobilepay in collaboration with them, that has the future to show. But I think in this scenario with large merchants, that's pretty much one of the payments that makes us much more than what we have currently,

Interviewer:

That basically those were the the questions I had actually. Thank you.

Peter Kjærgaard Interview

Interviewer:

Hej Peter,

Vi er tre kandidat studerende, der i gang med at skrive om mobile betalingsløsninger i Danmark, vi kigger både på forbrugerne og experts vurdering, og mobilepays

Peter Kjærgaard:

Så I er også ude at tale med nogle eksperter?

Interviewer:

Ja præcis, vi har snakket med nogle eksperter fra CBS. Så det er sådan set det, generelt set eksperter inden for mobile betalingsløsninger Hvis vi bare starter med spørgsmålene, Hvordan vil du beskrive MobilePay ift brugen af det og hvordan danskerne bruger det?

Peter Kjærgaard:

Jeg vil sige at, der har jo en harmonisk stærk vækst nu på ottende år, også her i corona året, selvom vi alle andre tænkte, hvad sker der egentlig i foråret, hvor der sker en voldsom opbremsning og fald i normale aktivitet, Så endte 2020 jo godt, det kan I læse om inde på vores site, vores forskellige pressemeddelelser.

Interviewer:

Hvad ser I så som folk, altså almindelig danskere få til at downloade MobilePay?

Peter Kjærgaard:

Download, det er ikke noget problem, det er den app der nogensinde i verdens historien, der nok har haft den største penetration på et lokalt marked. Så vores største vækst er i aldersgruppen 95-100 år. Vi er på en mobil telefon, så snart et barn fylder 13, alle børn venter på at få mobilepay så snart de fylder 13. Så der er jo ikke noget problem med downloading, det findes på næsten alle telefoner i danmark, men det er ikke det der er problemet. Problemet er jo, at man ikke bare bruger, men bruger det rigtig mange steder, og for vores vedkommende bruger de steder der giver en indtægt til os. Altså, du og jeg sender penge til hinanden, udløser det jo ikke nogen indtægt. Det er jo en gratis service. P-2p løsning er uden gebyr forbrugerne

Interviewer:

Hvordan kan det være at MobilePay har så stor en penetration på det danske markedet, Hvofoer er Mobilepay så langt fremme inden for det danske marked?

Peter Kjærgaard:

Penetration og brugen i norge og sverige er jo også ret høj, det er jo lidt unikt med de 3 lokale løsninger, det der vipps i norge, swipps i sverige også mobilepay i danmark.

Det har noget at gøre med en masse forskellige ting. For mig har tildels noget med timing og dels bruervenlighed, og den udfordring appen havde nu når man gik i markedet. Man gik i markedet i den tid hvor man var first-mover og ret hurtigt skabte... for vedkommende lå vi i kamp med det der hed

swipp, frem til udgangen af 2016. Så stoppet alle andre banker at have den løsning. Så samlet de sig over vores løsning og blev partnerbanker til vores løsning. Så også det at man.. modsat finland hvor der stadig er forskellige løsninger. Så det at man skaber en samling over en enkel løsning, det gør det jo nemmere for forbrugerne på sin vis og det gøre det også nemmere at få noget synergi når man udvikler og produktudvikler og forbedre sin løsning. Der er også diffuse faktorer der er rigtig vigtige, det er jo i Danmark, også i norge og sverige for den sags skyld har i årtier været et digitalt førende land fordi vi har de her, i danmark især har de her, geografi, hvor det er nemt udvide den her geografi, 4g og 3g. Og få en meget høj teknologisk brugerbase, og det har også været trukket gennem den offentlige sektor. Så helt tilbage i 90erne, fik vi vores selvangivelse digitaliseret, også mange andre ting, mobilbank, eller netbank, så på mange områder har vores nordiske struktur hvor vi har haft en høj digitalisering af den offentlige sektor, hvor vi har haft et højt uddannelsesniveau, vi har haft en geografi der gør det relativt let at udbrede bredbånd og kanal adgang. Det skaber selvfølgelig nogle forudsætninger for at man har et sted at takeoff, når man går i markedet som vi gjorde, og vi synes at tiden var inde. Det er nogle af forklaringerne. Der er en betydelig kompleksitet i det, men det er ikke velkendt sag at på rigtig mange områder, er de nordiske lande, lidt bortset fra Finland, så har de et meget højt digitaliseringsniveau for folk.

Interviewer:

Hvis man så kigger fra forbrugernes side af, nu nævner du selv noget om infrastrukturen og selve systemet, og selve den fremgangen gennem den danske digitalisering, men hvordan kan det være at fra de danske forbrugeres standpunkt at man bruger mobilepay frem for bankoverførsel, at man bruger mobilepay i onlineshops fremfor creditcard, hvorfor vælger man mobilepay fremfor andre alternativer.

Peter Kjærgaard:

Dengang vi gik i markedet i 2013, i foråret der, der gik vi i første gangmarkedet med en p2p løsning, og en reel privatløsning, og der var det ligesom indlysende, og det er det også i dag. Vi oplever en respons hvoraf folk siger det en guds gave til menneskeligheden og det er det bedste nogensinde at blevet skabt, vi har en bruger tilfredshed, hvor vi lægger vi ligger blandt de 3. og kun konkurrere med lego og rema. Det vi gjorde dengang, har det gjort så meget lettere for folk, de skulle ikke gå længere og tænke over at have kontanter på sig. Og det bøvlet at huske hvem man skyldte penge til. Det var besværgeligt at give 100 kroner til sit barnebarn til fødselsdags eller barnets skulle på lejertur med sin spejderforening eller en anden form for forning. Kontanter var bøvlet og alternativet som du siger var bankoverførsler, men det var også bøvlet og besværgeligt, man skulle ind dengang, skulle man ved nemid væld og mærke gennem sit papirkort, og indsætte modtagerens konto og registreringsnummer og derefter overfører. Langt, langt mere besværdeligt. Så det blev oplevet som en enorm, hvad skal vi sige, forbedring, af folks livkvalitet i deres hverdag. Ligepludselig var der en lynoverførsel på en sikker, troværdig hurtig måde. Det er ligesom hovedhistorien, og så kan man så sige på de forskellige erhverv, så har der altid været nogle andre alternativer, der har vi skulle langsomt vise at vi var konkurrencedygtige og bedre på forskempel online, mobile online, dne lanceret vi allerede i slut 14, men det tog langtid, Det var PSP, payment service provider i netshops. De køber de løsninger, payment service provider, om det mastercard visa, eller whatever, de skulle langsomt forstå at forbrugerne skulle forstå at det her er 'wow, det er faktisk skide smart' Det var en meget langsom penetration, da den så kom, så voksede og voksede den. Nu sidder vi nærmest halvdelen af markedet, betalingsmæssigt, når folk handler i webshops.

Interviewer:

Så når man kigger på webshops? Hvad med i ft butiksmarkedet, merchants, i havde jo QRcodes men så er der for eksempelvis også ift konkurrencen mellem applepay og det kontaktløse dankort. Er det noget i stadig har fokus på?

Peter Kjærgaard:

Ja, altså merchants i fysiske butikker, her er vi delt meget med de små og mellemstore, hvor vi står meget stærkt, det der vi har den løsning der hedder mobilepay myshop. Som er den hvor du taster, taster nummeret ind i butikken, når du f.eks. står inde på fiskemarkedet, og skal købe nogle fisk. Ellers er det et logo, og bare swiper på logoet, taster. Det er ligesom den ene måde, der har vi haft rigtig meget succes, og vi har i øjeblikket over 100 tusind butikker, der bruger myshop, det er også foreninger, fordi de har aldrig haft sådan slags løsning. Vi lever i sådan et land, det er unikt, fordi vi har stor en tredje sektor, det man kalder foreningsdanmark, det har altid været bøvlet at betale og kasserer i foreningen. En stor forening, en spejderforening, en godgørende forening whatever. Der har altid været besværligt, men nu er det blevet super nemt, både at modtage kontingent betaling eller også have udgifter kørende frem og tilbage, fordi man laver sådan et regnskab, samtidig et betalingerne går ind og ud. Det er blevet super meget nemmere, det er ligesom en sag for sig. Der har vi stadig begrænset konkurrence, især blandt de allermindste, der har vi ikke rigtig noget konkurrence, i hvert fald ikke noget der kan konkurrere med pris med os. Fordi dankort og andre kort, de kræver jo en betalingsterminal og der er der som reelt ikke de der små steder, og især hvis du opererer på distance, for eksempel hvis du skal betale til en spejderklub. Eller tennis klub eller whatever. Så foregår det ikke over fysisk betaling, så der har vi lavet en løsning der bare utrolig convenient, for de små. Så de lidt større, mange af dem bruger stadig myshop, og nogen har en egentlig terminal. Du kan jo godt have en frisør, der er ret velkørende og rimelig stor, men du gider ikke betale for at have terminalen, og der er vi igen en stærk løsning, der er svært at konkurrere med. Når du så går op i de større butikker, så er det klart, over al den tid, vi har levet, er der kommet en del konkurrenter på markedet, til dels udviklede kortet til at være kontaktløst, hvis det ikke havde været det, så havde kort kæmpe problemer jo i dag, men det fungerer jo rigtig godt. Og så er der applepay og googlepay og de andre pays. De her globale pays er kommet på markedet, og det vidste vi godt da vi startede på markedet i 2013. For os handlede det om i de første år, at få så stærk markedsposition som overhovedet mulig. Fordi vi godt vidste at den her global konkurrence ville komme før eller siden.

Der er der så i dag, og især applepay har jo meget vel fungerende løsning, som de ovenikøbet har monopol på, da de ikke vil give os andre adgang til NFC. Som ligger inde i iphonen, og der er kørt en masse sager om, hvor kommissionen også kigger på det. Indtil videre har de fået lov til at fastholde det globalt. At de har de her de den kanal, og betalingsmæssigt kun er dem der har adgang til NFC, og det er selvfølgelig på en eller anden måde et handicap. Vi var tvunget til at det vi gik på markedet som langt de første, var at bruge BLE, bluetooth high energy, bluetooth er ikke så effektiv en løsning som nfc. Og derfor har vi haft svært ved at nå den samme succes hos dem der har taget, vores løsning og perfektet den hos POS, point of sales, som er integreret i kasseapparatet, modsat myshop som ikke er integreret i kasseapparatet. Long story short, der er konkurrencen langt hårdere, og der har vi heller ikke haft den samme gennemkraft. Der er vi gang med nu, og det kan du læse om på vores site, vi er i gang med at kommunikere om det, fra sommer, så vi kun kører qr-codes som vores løsning i POS. Ude hos de mellemstore og større merchants, fysiske butikker.

Interviewer:

I forhold til det, hvordan ville du så se, det ændre sig i fremtiden, hele den her mobile betalingsindustri? Der er mange der mener, at bare lige at tap sit kreditkort, eller sin iphone, men hvordan ville qr codes kunne konkurrere med den bekvemmelighed

Peter Kjærgaard:

Det kan man altid sige, men der er jo mange, vi tænker jo meget stationært, vi tænker at kort er nemt, men forestil dig nu at du skulle starte forfra, at du har aldrig har bruge kredit kort før, så skulle til at vænne folk til at deres pung med, så når det er din tur til at betale, så skal du tage din pung op af din lomme, så skal du tage kortet ud, og skal du stryge det over noget der hedder betalingstermanilen osv, osv, og du kan fylde varerne i din pose, du skal blive stående ved terminalen, så kort er faktisk ikke så nemt, vi har bare vent os til det, så derfor synes vi det nemt. Med qr codes er det lidt det samme, vi turde ikke at tænke tilbage i 2014, at qr-codes ville blive til noget, men hvis vi bare kigger rundt i verden, kan man se at Apple Pay, som en af de største i verden, bruger QR koder når man skal ind på deres site og læse om dem, man bruger qr koder hos virksomheder når man skal ind på deres site. Vi kan se på halvdelen af vores transaktioner hos det der hedder de hvide bokse, det man bruger i 7/11 i stedet for at bruge bluetooth. Der er ved at ske det at folk vænner sig til at qr codes i alle mulige sammenhæng, også det der hedder jelsa, som vi også har været medstifter af det, der kommer qr codes til at være model man kører på tværs af landgrænser, mellem de her løsninger. Så qr codes kan godt virke lit bøvl, men det gir faktisk flexibilitet, ved kassen, i butikkerne etc. Dem som er first-mover har jo også coops løsning som scan og betal, hvor du så tjekker ud, der er qr koder, nu går qr-codes sin sejrsgang, nu har salling også valgt at implementere sådan en scan og betal løsning. Matas som også kommer til at gå over på vores qr codes, De får lov til at spot slag i butikkerne, så folk ikke skal gå over i den normale kasse og vente på det bliver deres tur. De kan gå ud på fortovet og ude i butikken og købe, uden at stå i kø. QR koden rummer meget, og nu når man kan lave det til ingen penge, på en sikker måde, det gør vi også, forskellige materialer og typer, så kan man meget let få sit salg til at køre rundt. Og så er vi tilbage til det store spørgsmål, om betalingen i fremtid, det er bestemmer forbrugerne, og det bestemmer butikkerne, altså kommer vi feks, til at lukke os ind om natten, hvis vi have noget om natten, i en mennesketom butik med videoovervågning, og tjekker os selv ind med en qr code eller noget andet. Der ekspimenteres rigtig meget med disse ting. Der er også mange omkostninger at svare som butik, fordi jeg tror også 20/25% af dem er betaling til medarbejdere der sidder i kassen. Så kan du spare nogle penge, er der mange penge at spare. Vi kigger heller tiden på disse tendenser på betalingsmarkedet, men at kigge 5 år frem, er der ikke nogle der kan.

Interviewer:

Du nævnte før de mellemstore virksomheder, og fodboldklubber, ville du også sige at mobilepay er nået langt, fordi vi netop har disse ting i danmark. Hvor cash er mere udbredt, og disse frivillige klubber ikke er der, ville mobilepay virkelig være så udbredt. De ville slet ikke have denne fremtræden, som I har hre på danske markedet og danske forbrugere, der gør at mobilepay er så stort?

Peter Kjærgaard:

Ja, man udvikler lidt sine løsninger ud fra det markedet man er på. Og det er vi har også gjort, vi har kunne se at der var et kæmpe behov og at der var parathed til at tage disse metoder til sig. I norden, har vi det her friværldi. I norden har vi mange frivillige foreninger. De er meget større her end i mange andre lande, derfor er det én naturlig del at det har været en del af vores palette. Men i det hele styrken hvis i forhold til alle mulige andre vi har jo paletten, der gør at vi har tilbud til alle betalingssituationer.

Altså hvor de andre, de har nogle få, vi har til privatbetaling, vi har til kasseapparater, vi har til gaver, penge gaver, og normale gaver, vi har til online, webshops, men også det der hedder appswitch, hvis du køber en togbillet. Vi har som sagt i mindre til mellemstore butikker, Myshop. Vi har POS løsning, og så har vi hentet løsninger til kassebetaling, og så har vi også betalinger til vuggestuer, børnehaver, sportsforeninger. Og så har vi engangsfaktura hvis du betaler for din bil i dit værksted, vi har simpelthen udvidet vores pæltte, så vi er i dag, så siger vi er en tricycle, der kan bruges i alle sammenhæng. Det som er styrken for os hos merchants, er at mobilepay har alle, og det ser ens ud og derfor er folk trygge ved det. Det er det som vi også tror der kommer til at ske i fremtiden, der kommer ikke til at være 20 forskellige løsninger, der kommer til at være få vindende løsninger som til gengæld kan bruges i forskellige løsninger.

Interviewer:

Har det noget med vores livsstil at gøre? At danskernes livstil, er bare sat op på den måde, også ift betaling, du nævner blandt andet det med de frivillige, også ift vi handler rigtig meget på internettet, men vi handler også meget i butikker. Danskerne var en af de folk, der handlet allermest i butikke. Vi handler hver anden dag i daglivarebutikker. Er det noget som mobile pay også har haft fokus på og inkorporeret?

Peter Kjærgaard:

Nej, det har vi ikke rigtig tænkt over, hvis jeg skal være ærlig. Det er rigtigt, vi handler nok mere i dagligvarebutikker i forholdt til andre steder, men det har nok noget at gøre med vores geografi. I forhold til Norge og Sverige. Vi lever i et land, med en relativ høj beboelsesprocent. Der er relativt kort itil butikker, man skal ikke udelukke at køre 50 km og derfor købe rigtig stort ind. Fordi det er bøvlet at købe ind. Det er faktisk ikke noget vi har tænkt så meget over. Det er også noget der skifter, og der en tendens, der ikke så stærk, men kraftig vækst, er at man handler dagligvarer online, det har corona været med til at skubbe til. Nemlig har fået et kæmpe boom, også coop, og nu også Salling Group, Salling group har jo sagt at de vil skyde en halv milliard ind, og udvide deres online handel på fødevarer. Så der sker noget, det kan godt være det kommer til ændre noget på del af markedet, at man i højere grad sætter sig en gang om ugen og især i børnefamilier, der har travlt, så har man på nemlig sat en masse standarder op, og der kan lynhurtigt få bestilt de ting man skal bruge. Så derfor skal vi også være der.

Interviewer:

Du nævnte ,at det er jo mere besværligt at bruge kort, men hvordan kan vi vænne os til at bruge MobilePay, eller bare mobile betalingsløsninger til en vane for danskerne? Hvordan gør man at mobilepay nærmest bliver en vane for danskerne?

Peter Kjærgaard:

Noget er vane, noget er at vi også skal lave vores løsninger tilstrækkelig brugervenlige. Online er netop et eksempel på at der har vi bare lavet noget der er de andre overlegne, så derfor har vi fået et enormt gennembrud, i løbet 2020 2.7 mio unikke bruger. Vi har haft 2.7 millioner danskere til at bruge vores løsning online. Så der er vi kommet meget meget bredt, og myshop kan du også sige er kommet rigtig langt, det bliver også brugt alle steder. Men der hvor vi ikke haft så tilstrækkelig stærk løsning endnu, er det man kalder POS, typisk de store kædebutikker, med køkultur, der har vi ikke haft en

løsning som danskerne har turdet at give sig tid til at vænne sig til, fordi de bliver stresset af at stå i kø. Derfor vælger man den trygge sikre løsninger man altid har brugt, undtagen hos de yngre målgrupper, de tør godt, og de superhurtige til at lærer flere forskellige betalinger at kende. Det korte og det lange er at vi skal vænne qrkoder i samarbejde med merchants, og se hvordan det kommer til at spille ud, men jeg bliver ikke det ind, det er et sted hvor bliver etter med det samme. Konkurrencen er superhård, og kort er som sagt ekstremt vinderne på det punkt

Interviewer:

I forhold til troværdigheden af mobilepay. Hvordan kan det være at danskerne har haft det så nemt at stole på mobilepay, har det noget at gøre med at Danske Bank har været inde over det? Eller er det bare fordi vi er så digitally inclined?

Peter Kjærgaard:

Ja, jeg tror også det har noget at gøre med at vi selv day one, har været optaget af sikkerhed, er der noget der kan gøre en løsning fra tryk til utryk. Så er det hvis man hele tiden hører om det, om misbrug, og læser om det i avisen, og hører om det i avisen, så vi har gjort meget ud af konstant at arbejde med sikkerhed, og hver gang vi haft nogle former for misbrug, arbejder vi rent teknisk med løsningen. Mere robot agtig kontrol stryng. Altså hele tiden at overvåge hvad der sker, og derfor er det også nemmere at kommunikere budskaber hvad er det man skal passe på som forbruger, de råd har ikke noget specialt med mobilepay at gøre, men fordi vi har blevet så stor en løsning, så opstår der også forbrydere. De forsøger at gå igen når de lokker data ud af folk, alle mulige personlige data, som kontonummer, cprnummer, nemid osv. Og koder til deres telefoner, og koder til mobilepay og alt muligt har vi set gennem tiden, og vi løkkes ret godt med, så vi ligger meget meget lavt. For misbrug, men det tror jeg er rigtig vigtigt.

Interviewer:

Okay. Da jeg downloaded mobilepay, lige da det kom ud. Der behøvede man ikke at blive valideret af cpr eller nemid, og hvorfor har I ændret det, og har det påvirket sikkerheden mere?

Peter Kjærgaard:

Noget af grunden var at i det første år, de to første år var der en bestemt undtagelse i et bestemt EU direktiv. Hvor, hvis man lå under en bestemt betalingsgrænse for sine brugere. Så behøvede man ikke at have de her valideringslag, det var en undtagelse vi havde i to år. Derefter vidste vi godt, at derefter skulle vi øge vores niveau for validering. Samtidig har vi løbende, hvergang man skal øge grænserne for meget man skal overføre om dagen og året osv, så har vi skulle lave nogle aftaler med finanstilsynet, myndighederne om hvor højt et niveau der skulle være, så vi har i takt med at folk er begyndt at bruge mere mobilepay, har vi udvidet vores beløbsgrænse. I starten brugte man mobilepay til små beløb, og derefter er det blevet større og større. Hvor løsningen er modnet, og folk er begyndt at bruge det med større og større transaktioner, der har vi også skulle holde et højere og højere niveau af sikkerhed. Det er sådan set den løsning vi har i dag, hvor vi har en trip-trap-træsko, du kan stadig nøjes med at være cpr valideret, men så kan også kun overfører 3000 om dagen eller sådan noget og 150.000 om året. Hvis du vil højere op skal op på nemid. Og hvis du vil have fuld validering, skal du også igennem pas og sådan noget. Så det er afstemt ved sikkerhed og vores egen pengepung, vi har ikke lyst til at tabe så mange penge, og forbryderne skal få for gode ideer. Så derfor har vi fundet sådan et niveau der var rimelig, som vi så for til at vokse hele tiden, i takt med at bruger det mere og mere. Der er nogle der kunne finde på at købe en bil online gennem mobilepay. Så det er blevet noget bruges ligesom et korsvåben derfor skal sikkerheden selvfølgelig følge med.

Interviewer:

Hvis man så sammenligner de to første år af mobilepay, var det noget i lod mærke til, at folk var mere komprised ift hackerangreb, og så efter cpraliding Var der forskel på det, kunne man mærke at sikkerhedsniveauet og truslen var faldet efter det? Eller hang det bare sammen med at beløbbet blev højere, så skal sikkerhedsniveauet også blive højere?

Peter Kjærgaard:

Nej, det har været meget harmonisk. Dengang vi var relativt meget mindre løsning med meget mindre daglig overførseslgrænser, der var fordi folk ikke brugte os så meget, og mere til privat brug, de første år, og der var forbryderne heller ikke så interesseret i os. Folk i rusland, og alle mulige forskellige crazy steder som forsøgte ikke at bruge krafter på mobilepay. Der brugte de krafter på alt muligt andet, og brugte krafter på kort. Kortet er jo også blevet sikkert. Når folk er gået over til kontaktløs betaling. Den gang man kunne stikke kortet ind i terminalen, der kunne de jo forsøge med forskellige kameraer, de sætter ved siden af termnalerne og forsøge at aflure folks koder, og derefter følge efter folk og stjæle kortet eller pungen. Fokus i kriminelle miljø må du bare leve med, jo større du bliver. Jo sttøre du bliver du interesseret i at gøre noget ved din løsning.

Interviewer:

MobilePay startede jo ikke med at tjene penge på at forbrugerne sendte penge til hinanden, har I altid tænkt at der skulle komme en form indtjening? Hvordan har I udviklet det? I haft så stor en brugerbase, før i kunne tjene penge på det, også det om hvorvidt man skulle kunne tjene penge på det? Har det altdi været i tankerne?

Peter Kjærgaard:

Fra Danske banks side, da man startede mobilepay, har man hele tiden vidst, man har ikke haft en fem års strategi eller noget. Man har hele tiden vidst at der skulle følge erhvervsbetalingsløsning efter man havde fået konsolideret p2p løsning Og fået en vis brugerbase, så ville det være attraktivt for merchants. At man ligepludselig kom med, degang, halvdelen eller to millioner brugere der altid havde mobilepay læggende i lommen. Man har altid vidst at man skulle i gang. I starten havde man kun targeted fysisk betaling, den gang hed det mobilepay business, og alle de andre lsøninger er kommet gennem vejen.

Interviewer:

Det vi faktisk snakker meget om her, i vores teori er blandt noget der hedder network effects, man kan sende penge frem og tilbage mellem folk. Men også at du kan gøre det i butikker og online. Har det været for MobilePay, gennem p2p at samle en base, som derefter kunne bruges commercial og i butikker?

Peter Kjærgaard:

Ja, det har det, men lige i starten så handlede om langt vejen om at komme først. Det var sådan at alle danske banker var samlet om at udvikle en løsning i efteråret 12, der besluttet danske bank at gå solo, fordi man gerne ville have en løsning der kunne bruges i andre markeder, fordi man track-rekorden, både fra mobil bank og netbank, rigtige gode sublime digitale løsninger. Det man var begyndt at forstå var at de her apps, det var noget der tilhørte fremtiden, det gjaldt bare om at være med, og lave noget der var lækkert, og lad de vokse, og se hvor det gik hen, og før eller siden ville man have det her globale telt i sin baggård. Og sådan er det så også gået, det var ikke sådan at man havde en fem årig strategi, for det hele skulle bære hen, man vidste bare det her bare noget man skal gøre. Og sætte os på

Interviewer

Når man kigger på konkurrence billedet inden for p2p, så er det nærmest udelukkende mobilepay, man snakker også om mobilepay, de vil også udbyde p2p i skandinavien og facebook pay er også på vej frem. Er det noget i tager hånd over, eller er markedet bare solideret for mobilepay?

Peter Kjærgaard:

Første gang vi hørte om Facebook pay, det var måske 2-3 år siden. Selvfølgelig er det noget man tænker over, når sådan et gigantisk brand, sigetr de vil komme og lave noget person betaling, så er det noget man tænker over. Hvis de kan få det interegretet på deres online market place. Hvis du kan få det ind det, og så kan du lære folk at bruge det og, hvis du ikke behøver at tjene på det, det vigtige er ikke er at tjene på det, men at vedligeholde deres platform, så er det selvfølgelig en kæmpe konkurrent, nogle ville sige at tiden er gået, og de er ikke kommet til danmark eller norden. Så husker jeg heller deres løsning som umiddelbart indlysende smart, nem og brugervenlig. Så lad os nu se det først, men når det så er sagt, så er det selvfølgelig nogle man skal tage dybt alvorligt.

Interviewer:

Det er sjovt du siger, de ikke behøver at tjene på det, fordi vi har snakket med eksperter fra CBS. De siger også ApplePay behøver heller ikke i princippet at tjene på det. De her giganter, jeg kan ikke selv se hvorfor danskerne skulle flytte over til dem? Er det noget med branding, og det facebook pay og apple pay, der kan få folk til at vælge disse services? Fordi de er så store firmaer?

Peter Kjærgaard:

Selvølgelig er det noget man tænker over Nej, jeg tror igen, at convenience er key, de skal lave noget der er super smart. Hvis det samtidig er integreret folk er på, hvis de laver noget teknik der bliver integreret at man sidder og læser noget på facebook, og så der kommer et commercialt element, så bliver det bare hurtigt og nemt lige at overføre noget til den der sidder. Så kan man ikke afvise at det kan være rigtig rigtig smart, så det er noget med at få det integreret, det er også det de tænker i. Man skal heller ikke tænke at man har loyaliteten for evigt. Så hvis vi gjorde det, ville vi være døde og borte. Vi er hele tiden nødt til at tænke på forbedre vores løsninger og komme ud med vores løsninger.

Interviewer:

Jeres qr codes, som du nævner kommer frem til næste sommer, er det også noget man kunne bruge i udlandet, og at man kunne betale på tværs af landegrænser med mobilepay?

Peter Kjærgaard:

Det er der er ambitionen, i hvert fald, men det er lettere sagt end gjort.

Det er der ambitionen for det mensa, european mobile payment association, vi er en 16-17 brands, også vipps og swish fra Norge og Sverige, også nogle brands fra Tyskland, og Østrig og Spanien, og lave en samlet løsning, både når du er ude og rejse, i butikker, men også hvis du har en kammarat i Spanien, og vil sende penge til ham. Det er det der er ambitionen.

Interviewer:

I forhold til Netværk effects, snakker man også om komplementary services, at mobilepay har været med til at lave giftcards, subscriptions, mobilepay box etc Er der noget man kigger til i fremtiden, det her skal vi også have implementeret inden for mobilepay. Jeg bruger nærmest mere Weshare end mobilepay. Jeg ved også at jeg kun betale min husleje gennem mit kontonummer, så ikke gennem mobilepay?

Peter Kjærgaard:

Vi er gået i gang med det der hedder dyb konto integration, og det er jo ikke alle banker, der er med på det. Danske Bank og Nrodea, og nogle andre banker er på, det handler om at du kan sætte nogle forskellige konti direkte, hvis du for eksempel har sådan en forbrugskonot eller et sted for dit husholdingsbudget, og så kan man sætte en konto op til det. Folk har tit op til flere forskellige kontier, med styr på deres økonomi, der er det også løbende betalinger til husleje, og vand og varme, børnesituationer osv. Der er så den løsning som vi har. Vores opgave, er bare at få den tilstrækkelig udbredt. Så du kan køre rigtig mange forskellige ting, det arbejder vi selvfølgelig på.

Interviewer:

Der er nogle andre faktorer ift danmark og andre lande, i fx i asiatiske lande, så fordi dine venner bruger mobile betalingsløsninger, vil du også bruge det. Er det også tankegangen med mobilepay fra adoptionspunktet, det at dine venner bruger det, så derfor vil du også bruge det? Eller er det fordi det er konvignet

Peter Kjærgaard:

De to ting tror jeg ikke man kan skilde ad. Det første 1-1,5 år, brugte danske bank ikke så mange penge til markedsføring af mobilepay. Og det viste sig også det ikke var så nødvendigt, fordi det blev sådan et mund-til-mund, der fik det ligesom en snebold, der voksede og voksede, lige så snart bolden begyndte at rulle, det var i starten til meget p2p betaling, så når de mødte en ven, en far eller mor, du skal da have mobilepay, det er simpelthen så smart. Så sagde vedkommende ”jeg har det fint med kontanter” ”lad mig lige hjælpe dig med at installere det” så hjalp folk hinanden. Det er også det vi ser i dag, selv ældre mennesker der normalt meget bekymret, og tilbageholdende med at bruge digital platforme, så er det så barnebørnene som hjælper med at downloade mobilepay, så de pludselig har en mulighed for at sende penge til en fødselsdag hos barnebarnet. Så det har der hele mobilepays levetid relationsbaseret opbygning af vores produkter. Det er det samme du oplever med weshare tænker jeg, hvem der skal sommerhus sammen, så sørger folk for dem der ikke har det at få det installeret.

Interviewer:

Man ved ikke helt om Apple vil åbne op for den her NFC, er det noget i regner med? Hvis det nu kommer til ske, så er det meget godt for jer?

Peter Kjærgaard:

Det regner vi slet ikke med, vi calculere slet ikke det scenarie. Det gjorde vi heller ikke i 2014, hvor vi startede op. Men hvis det sker, så sker det med et meget langt forløb, og så bliver det med eu som bannerfører. På kort sigt har vi ikke calculeret det. I dag er det virkelig sexet, og journalister ringet, og kunne mærke at de skrev konstant om det her. I dag så er det mere common, noget der modnes og noget der er alle vegne. Så sker der det samme som med kort, at nu kommer der en fase, lige så langsom hvor man vil forvente i stigende grad kan bruge det alle vejene, derfor vil både vi og andre aktører på det lokale marked. Tænke at skabe noget større skala, det kan man gøre i samarbejde med andre, gennem opkøb osv. Fordi det at bruge mobilepay i alle mulige andre lande og andre steder. Det er ikke på 1 eller 2 år, men lige så langsomt, så jeg tror større skala, større indkøb, det er nogle trends der er meget svære at spå om salget. Om man kommer til at sælge varer alle mulige andre steder end kasseapparatet, fysiks handlen osv. Hvor meget biometrisk der bliver, ansigtsgenkendelse øjen-genkendelse og de her ting. Det er mere svært at sige hvordan det kommer til at gå, og hvor godt fungerer det? Tager folk det til sig. Det er remain to be seen.

Interviewer:

I er jo også i det finske markedet, og hvordan kan det være at det ikke er helt fremme, finnerne har jo de samme tekniske færdigheder som os. Hvordan kan det så være at finland ikke har så stor en gennemkraft af mobilepay?

Peter Kjærgaard:

Det har vi også tænkt meget over, noget af det er, kulturelt. Finnerne er en smule mere tilbageholdende med, det er jo ikke fordi de ikke er dygtige digitalt, de er højt uddannede, men de er lidt tilbageholdende ift sikkerhed og information og data. Bekymringer over personlig data og sådan noget. Det spiller helt sikkert ind, og det at der ikke nogen der har vundet det markedet. Vi sidder på 10% af markedet, de to største banker nordea og uniklo i finland, de har hver deres løsning, så der heller ikke

den samlende gennemkraft der er på tværs af banker som der er i danmark, norge og sverige. Bag de lokale løsnigner, det gør det også mere difust. Det gør det sværre, at blive den vindende løsning, vi er ikke i tvivl at vi er den førende løsning og vi gir den bedste løsning. Men så det er kompleksitet, hvis man ikke samler sig om en løsning, så bliver det sværre for den erhversdrivende, at sige hvorfor en skal vi vælge? Og derfor lader de måske helt hver med at vælge en. At de ikke kan gå ud fra ligesom, man kan i norge, danmark og sverige når forbrugerne kommer ind af døren, så vedkommende den løsning på sin telefon. Så der er stadig et kapløb, og vi er slet ikke i tvivl om det kommer til at ske i finland, der kommer til at være en vindende løsning, og det tror vi selvfølgelig er vores, og det har været en lang, lang sejrsgang, end de andre lande.

Interviewer:

Hvad med i andre lande? Andre lande end i skandianevien?

Peter Kjærgaard:

Ja, det har vi tænkt rigtig meget over, men i dag er vi hvor vi siger nej, vi skal ikke ind og gøre det, men hvis der er nogle der kommer og beder os om at lave, hvor der kommer et konsurtium, hvor man bare vil gå i gang og stå for at lave sleskavet, og investeringer og de markedsføring der skal til, så kan vi faktisk være dem, dem der kommer vores erfaring, men vi har ikke kpaiteln til at gå i andre lande.

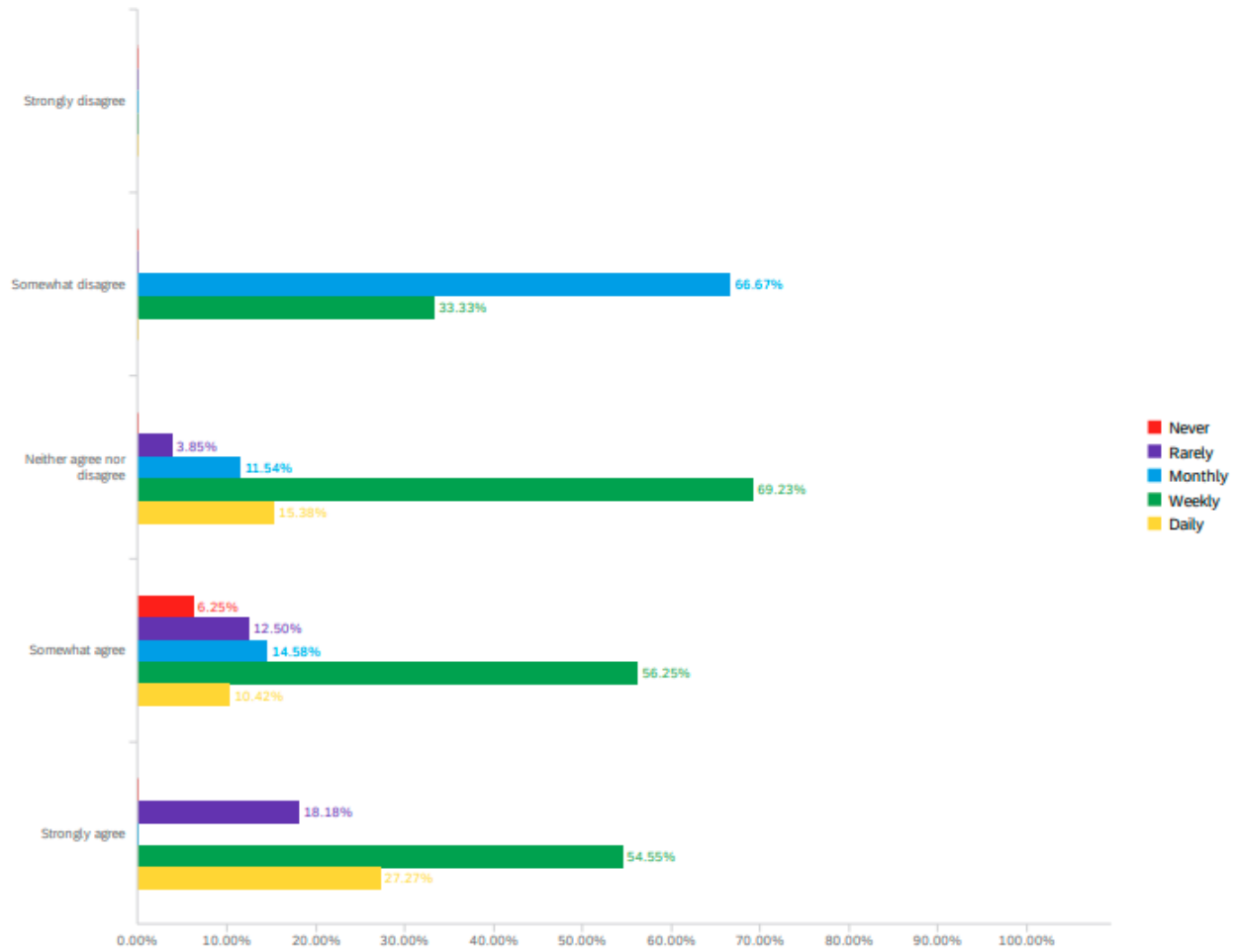
Interviewer:

Det var de spørgsmål, jeg havde,
Tak for at stille op til interviewet.

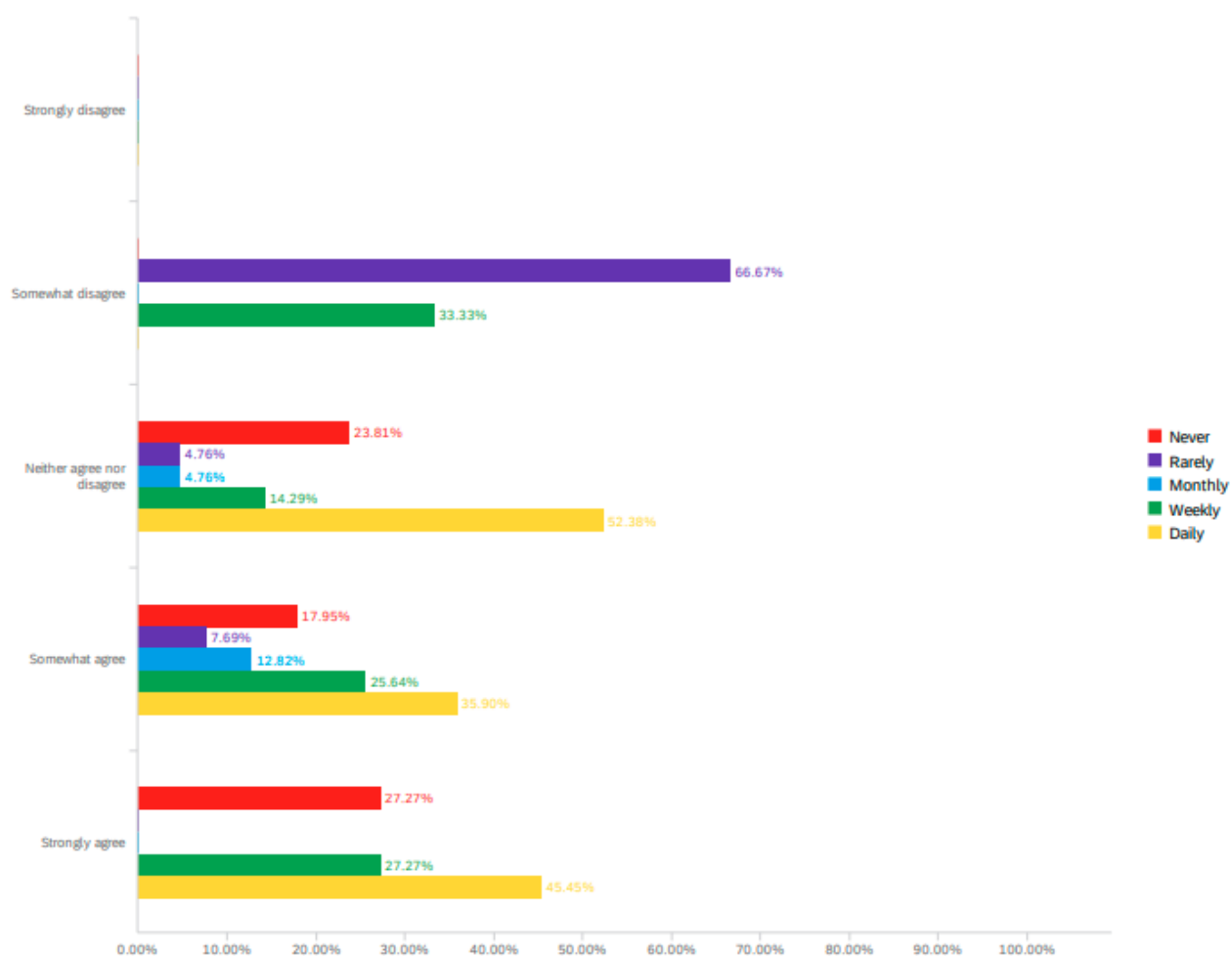
Appendix F

Regards to PS item #2

MobilePay

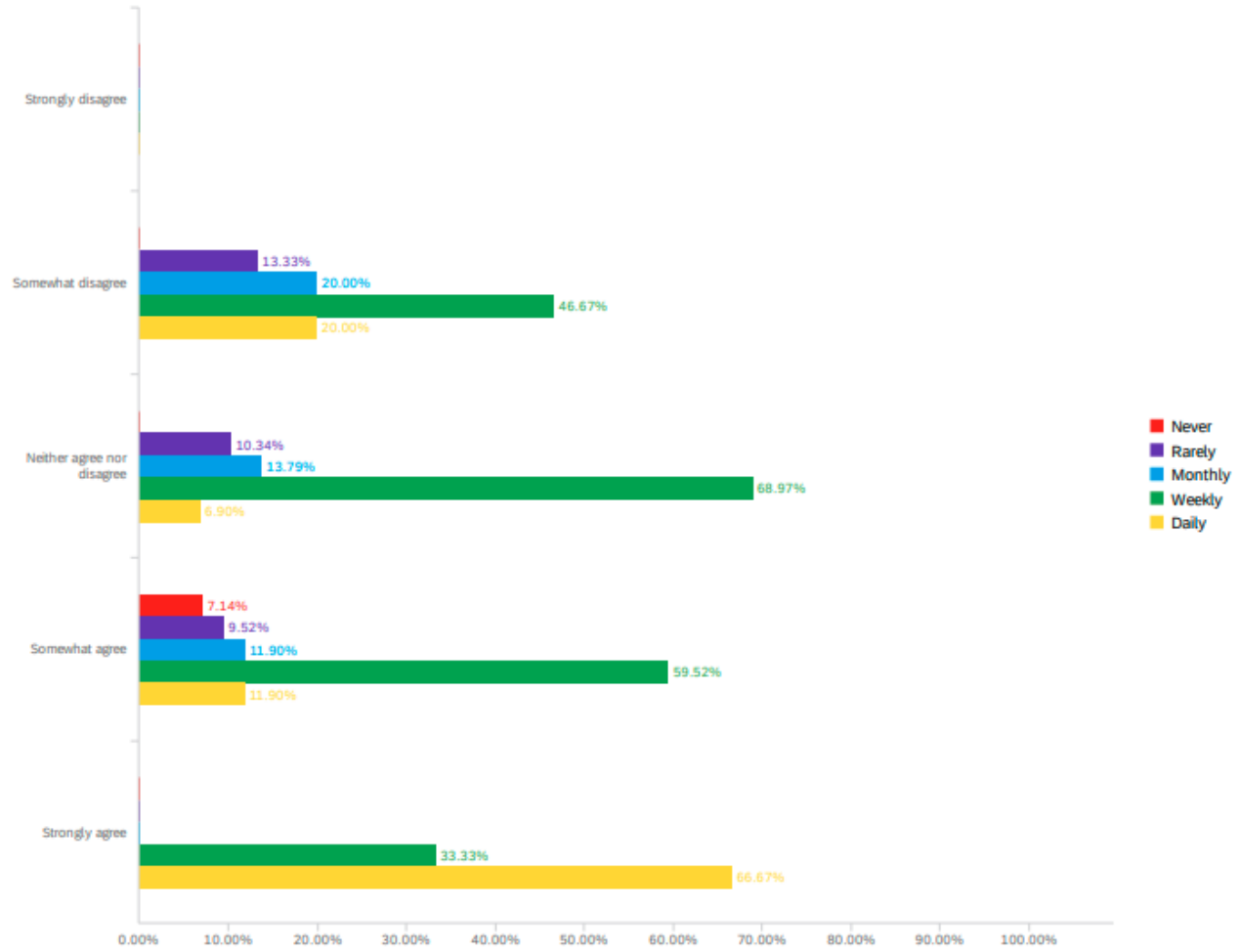


ApplePay



Regards to PS item #4

MobilePay



ApplePay

