



UNIVERSITY OF GOTHENBURG

# Exploring merchants' adoption of mobile payments

A qualitative study on Swedish merchants'  
perspectives

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**Master of Science Thesis in Informatics**

**Report no. 2016:064**

## **Acknowledgments**

After completing this Master's thesis, the author would like to thank all the involved people that have realized this study. First and foremost the author would like to give special thanks to all the respondents that appointed time for this study and contributed with their valuable knowledge and perspectives. Secondly, the author would like to thank his supervisor Jan Ljungberg for the guidance throughout the study with concrete feedback. Thirdly, the author would also like to thank his better half, Annika Bach for her *Love*, support and encouragements throughout this study. Finally, the author would like to state that it has been truly interesting to explore and investigate mobile payments within the Swedish market. Mobile payments from the Swedish merchants' perspectives are yet an unexplored field that needs more attention, which also makes it a timely topic and enjoyable to investigate.

## **Abstract**

*People have increased their usage of mobile devices in many aspects of their daily lives, especially within mobile payments. Mobile payments are expected to pave the way for an emerging cashless society. Merchants are considered those that create the market for other stakeholders by offering mobile payment instruments and services. Thus, it is of importance to avoid the chicken-and-egg scenario, where merchants are reclusive and cautious to adopt mobile payments unless customers' demands for it, and vice versa. Although Sweden has shown a decrease of cash payments and is considered as successful regarding mobile usage, there has still been a modest adoption of mobile payments from the merchants. The purpose with this thesis is to get a deeper understanding of Swedish merchants' perspectives regarding mobile payments in order to identify the key mechanisms for an adoption. The study has approached these issues with a qualitative study and formed a theoretical framework consisting of the topics of installed base, network effects, digital platforms, multi-sided markets, lock-in effects, path dependency, barriers to the adoption of mobile payments and capturing value from mobile payments, to examine 14 Swedish merchants. The findings suggest that knowledge is required to pass the instep threshold, taking advantage of each other's installed base, acting on their own behalf to increase customer base, expenses rather than profitability, enables implementation of loyalty programs, enables conversion of physical cards into virtual, perceive barriers as low and perceive enough values are the key mechanisms for merchants to adopt mobile payments within the Swedish market.*

**Key words:** Mobile payments, Merchants, Installed base, Network effects, Lock-in, Digital platforms, Multi-sided markets, Path dependency, Apps

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# 1. Introduction

People have traditionally conducted different transactions by using physical money in terms of coins and bills. But since the diffusion of IT, people have the comfort of choosing how to carry out payment transactions using IT instruments and services. For instance, by using card payments one is able to pay for clothes in stores through point of sales (POS) terminals, computers to buy and pay for airline tickets through Internet (e-commerce), smartphones with mobile friendly web browsers to purchase goods (m-commerce), and lately even smartphones to conduct remote or proximity payments through using complementary apps. This thesis will focus on the latter one, which is also referred to as mobile payments and is expected to pave the way for an emerging cashless society. Peoples have increased their usage of mobile devices in many aspects of their daily lives, especially within mobile payments (Musa et al., 2015). The attention on mobile payments has pressured merchants to launch their mobile channels apart from online channels (Cao et al., 2015), which creates more contact points and generates in additional sales (Mallat & Tuunainen, 2008). People rather use smartphones and apps as “gateways” to Internet services instead of the traditional web browsers (Xu et al., 2011). During 2014, mobile payments accounted for a total of 285 billion USD, which represented seven percent of our global transactions (Schelnast & Born, 2015). While in Europe 2015, 185 million users had utilized mobile payment apps, which showed a 51 percent increase in comparison to 2014 (Schelnast & Born, 2015). However, in Sweden, Findahl and Davidsson (2015) reported an increased usage of mobile Internet from 2014 to 2015, where 77 percent of the population had a smartphone and 76 percent preferred mobile Internet. Sweden also showed a 22 percent decrease in cash payments, which represented three percent of their payment transactions in 2014 (Schelnast & Born, 2015). This indicates an increase of end-users willingness to adopt this new payment method, since mobile payments enables users to access mobile Internet (Wang & Chou, 2016), conduct transactions from anywhere and anytime (Zhou, 2013), authenticate and authorize transactions (Kim et al., 2010a), and is perceived as more user friendly (Musa et al., 2015).

History shows that the adoption of credit cards took time before reaching mass adoption (Ondrus et al., 2009) and mobile payments require customers to change their payment behavior and habits (Riksbank, 2013). Mobile payments is nothing new, customers are already familiarized with using mobile devices to conduct payments (Buchinger et al., 2015). The earliest mobile payment was short message service (SMS) and considered a success, where customers purchased logos and ringtones (Mallat, 2007). Mobile payment is carried out with the usage of mobile payment instruments, such as POS terminals, mobile credit cards or mobile wallets. A mobile wallet is a “virtual version of the contents of a customer’s physical wallet in order to facilitate online or offline transactions” (Buchinger et al., 2015, p. 88). In addition, a mobile wallet application (MWA) is often referred to as digital platforms that intermediates two-sided markets, where one side consists of third-parties or businesses with loyalty programs, and on the other side users of that app. Mobile apps with loyalty points can be leveraged as a revenue source, but also increase the lock-in effect on both sides of the markets (Buchinger et al., 2015). Mobile payments can also create network effects, since

adopters get affected by the amount of merchants offering mobile payment systems, since it determines the opportunities (Mallat, 2007). In order to gain competitive advantage merchants need to understand how to address customers' needs and capture the values when providing new products and services (Teece, 2010). "Value is not created by just a technology, but it is rather created through the interplay of the technology, the user, and the purpose of use" (Zinck Stagano, 2012, p. 4). Extant published literatures around mobile payments have been customer-centric and well investigated (Dahlberg & Mallat, 2002; Dahlberg et al, 2008; Kim et al., 2010a; Kim et al., 2010b; Zhou, 2013; Lu et al., 2011; Yu et al., 2002; Mallat, 2007; Van der Heijden, 2002; Peiyan et al., 2015; Linck et al., 2006; Tu et al., 2014; Teo et al., 2015; Musa et al., 2015; Yang et al., 2011; Chandra et al., 2010). Therefore, attention should be placed on the other side of the market such as merchants (Ondrus & Pigneur, 2007; Ondrus et al., 2009).

## **1.1 Problem discussion**

A prior study on merchants' adoption of mobile payments identified high costs and complexity of systems as two barriers (Mallat & Tuunainen, 2008). Mobile payments are also in a stage where failures have a strong connection with reaching a critical mass of users as well as having limited adoptions of merchants (Mallat, 2007; Oh et al., 2006; Ondrus & Pigneur, 2006) and lack of involvement from merchants (Dahlberg et al., 2008). For instance, a prior mobile payment failure in Sweden was Swedbank's Bart, which was criticized by merchants for the lack of end-users adoptions (Zarrabi et al., 2015). Merchants are considered as those who create the market for financial institutions and other stakeholders by offering mobile payments instruments (Dahlberg et al., 2008). Thus it is of importance in the mobile payment market to avoid the chicken-and-egg scenario (Dahlberg et al., 2008), where merchants are reclusive and cautious to adopt mobile payments unless consumer adoption increases, and vice versa. Besides, the usage of card payments also generates high transaction fees, which are not profitable for merchants (Yu et al., 2002; Mallat, 2007). From a customer perspective, the advantage of using cash or card payments makes perfect sense since it is simple and to a certain degree fast. Based on this, mobile payment services has to be free for customers since switching back to cash or cards is easy (Riksbank, 2013).

Merchants could gain competitive advantages by offering mobile payments to their customers or becoming a mobile payment service provider (PSP) themselves (Mallat, 2007), instead of being locked into other frameworks (Zarrabi et al., 2015). One successful and proven example that merchants not necessarily have to rely on financial institutions when developing proprietary solutions is Starbucks (Schelnast & Born, 2015). The potential benefits for merchants that offer mobile payments is to identify customers behavior, decrease transaction fees by reducing card payments, cut down cash management and checkout processes could be more effective and flexible (Zarrabi et al., 2015). On the contrary, if merchants start this new trend with developing proprietary solutions, this might lead to a market where customers had to download several apps, which requires enough capacity in ones' smartphone. Despite significant innovations in the mobile payment market a standard has not been set. Although Sweden shown a decrease of cash payments and belongs to the successful countries regarding

mobile usage (Ondrus & Pigneur, 2007), there has still been a modest adoption of mobile payments among the Swedish merchants in this emerging cashless society.

## **1.2 Purpose**

To better understand this emerging cashless society and the Swedish merchants' modest interest in adopting mobile payments; it is of importance to investigate how merchants perceive the potential benefits within the mobile payment market. The purpose with this thesis is therefore to get a deeper understanding of Swedish merchants' perspectives of mobile payment adoptions in order to identify the key mechanisms. Mechanism in this thesis implies essential factors that could affect merchants' when adopting mobile payments. The study will contribute to a better understanding of merchants and mobile payment adoptions within a Swedish context.

## **1.3 Research question**

In order to investigate the Swedish merchants' conditions and perspectives regarding mobile payment adoptions this thesis aims to answer the following research question:

- *What are the key mechanisms for merchants to adopt mobile payments?*

## **1.4 Disposition**

This thesis is distributed in the following seven chapters. (1) *The introduction* introduces the subject, purpose and research question of the thesis. (2) *The methodology chapter* explains the research approach, how the study was conducted when collecting data, selection of respondents and how the data was analyzed. (3) *The mobile payment chapter* aims to give the reader a better understanding of the concept of mobile payments. (4) *The theoretical framework chapter* provides selected concepts that affect merchants and mobile payments. (5) *The empirical results chapter* presents 7 different industries and 13 different cases out of the 14 interviewed merchants. (6) *The discussion chapter* discusses the empirical results in relation to the theoretical framework with an emphasis of mobile payment chapter in order to identify the key mechanisms for mobile payment adoption. (7) *The conclusion chapter* aims to answer the research questions by presenting the authors conclusions.



## **2. Methodological Approach**

This chapter explains the selected research approach, how the study was conducted when collecting data, the selection of respondents, how the data was analyzed and finally criticism of the sources.

### **2.1 Research approach**

As mobile payment adoptions from a merchant's perspective are an emerging area for research, a qualitative research approach using interviews was chosen to explore Swedish merchants' perspectives on mobile payment adoption. The difference between qualitative and quantitative research approach is that qualitative approach emphasize words and a quantitative approach emphasizes numbers and figures (also referred to as quantification) during collection and analysis of data (Bryman, 2011). Thus, quantifications are not relevant for this study, since merchants' opinions are subjective where the objects in this study are not something measurable. The purpose is to better understand a certain group of people's perception of a certain reality. "Qualitative studies are characterized by how you try to reach an understanding about the world of life in an individual or a group of individuals" (Hartman, 2004, p. 273). The most common form of interviews is between two persons, which are the interviewer and the respondent (Merriam, 1998). The main purpose with qualitative interviews is to get a certain type of information. Interviews shall not guide the respondent to agree with the researchers' categorizations of the world, but rather to access the way respondents see things (Merriam, 1998). Through qualitative approach the author of this thesis can create a certain proximity to the merchants and understand different perspectives regarding mobile payment adoptions in order to identify the key mechanisms.

### **2.2 Research settings**

The starting point and purpose of this study was to investigate the modest interest of mobile payments in order to identify the key mechanisms for merchants' mobile payment adoptions. Among the stakeholders within the mobile payment market, merchants are considered those that create the market for financial institutions and other stakeholders (Dahlberg et al., 2008) and Scandinavian countries are considered as successful regarding mobile usage and mobile payments (Ondrus & Pigneur, 2007). This research was conducted in the Swedish market, with numerous of merchants to select from and within different industries. Merchants can belong to the public sector or the private sector and be categorized as small, medium or large. Public sectors can for instance be public health cares, universities or libraries. While the private sector can be clothing stores, coffee shops, restaurants, nightclubs, hotels, interior and exterior stores, accessory stores, travel agencies, electronic shops or grocery stores. Small and medium are referred to as companies with less than 250 employees and large are those with more than 250 employees (Ekonomifakta, 2016b). Since this research aims to explore and cover the broader perspective on merchants regardless of their size, it will be narrow to only select merchants from the same industry. Therefore, with such diversity, it is of importance for this research to select merchants within different industries in able to gain a broader presentation of merchants' thoughts and attitude towards mobile payment adoptions. The

participating merchants belong to industries such as; health care (hospital and pharmacy), food and drink (restaurant and coffee shop), art and beauty (tattoo, hairdressing and SPA), transportation (railway), entertainment (nightclub), fashion (wrist-watch and two clothing stores) and pure retail (household and gardening, and beverages).

## **2.3 Literature study**

This study has collected theoretical data by assembling and compiling literature of extant researches and online qualitative and secondary data. The collected theory of extant literature determines the type of data that should be gathered and how the gathered data is later interpreted (Patel & Davidson, 2011). This study began with reading about mobile payments in scientific articles. However, most of the existing articles regarding mobile payments are customer-centric, where only one article emphasized merchants' adoption of mobile payments. After establishing a better understanding of mobile payments, the author of this thesis formed a suitable theoretical framework consisting of: installed base, network effects, digital platforms, multi-sided markets, lock-in effects, path dependency, barriers to the adoption of mobile payments and capturing value from mobile payments. These concepts are closely related and together characterize the digital infrastructure that affects mobile payments and merchants. These concepts were selected after the literature study and were considered as relevant for analyzing mobile payments. The database that was most commonly used to search for extant literatures regarding mobile payments was Google Scholar. The most commonly used words or phrases were: mobile payments, mobile payment technology, mobile payment stakeholders, installed base, lock-in effects, digital platforms, path dependency, network effects and multi-sided markets. In addition, the author of this thesis also conducted a qualitative and secondary web-based approach where data was gathered from different websites (e.g., company sites, news, blogs, reports, online videos). The extant literature in combination with the online secondary data also formed the mobile payment chapter (see chapter 3) consisting of the characteristics, technology, stakeholders, mobile payments in Sweden and successful mobile payments worldwide. This additional chapter had to be added in order to broaden the understanding of the concept of mobile payments utilizing complementary apps. The theoretical framework with an emphasis of the mobile payment chapter was then used to form the interview questions in order to link the theoretical and empirical parts of the study.

## **2.4 Data collection**

This study has collected empirical data by conducting qualitative interviews with Swedish merchants. This section will present how the interviews were conducted and the selection of respondents.

### **2.4.1 Interviews**

An interview should be flexible since researchers are seeking the worldview of the respondents. It is therefore of importance to ask questions that are more open and have an open mind in order to receive a fair result. Otherwise the risk will be that preconceptions can be empowered and permeate the interview questions and thus even the researchers study

(Östlund, 2013). Interviews are conducted since information regarding certain things cannot be directly observed, for instance, peoples' feelings, thoughts or intentions. The purpose of interviews is to occupy a person's perspective (Merriam, 1998). As this thesis has chosen a qualitative research approach semi-structured interviews was applied. Using semi-structured interviews will thus give the respondent more flexibility during the interview. Bryman (2011) pointed out that a semi-structured interview contains an interview guide with different themes on questions that are structured. The importance during an interview is to allow the respondent to speak freely, which makes following an interview guide less important (Bryman, 2011).

The interview questions for the empirical study were designed based on the theoretical framework with an emphasis of the mobile payment chapter (see Appendix A). Questions was structured and categorized into four parts; by first asking about the merchants background, secondly general questions about mobile payments and lastly questions that are suitable for the respondents situation since there are two outcomes, that they either offer mobile payments or not. The interview guide was formulated so that respondents could speak freely and used as a support. Additional questions were also added as the interviews proceeded in order to receive a better understanding in relation to the merchants' situation and the purpose of this study. The interviews were conducted with the Swedish language and the interview guide was also written in Swedish. Twelve out of fourteen interviews were face-to-face meetings while two of the merchants preferred phone interviews. All the face-to-face interviews were conducted in Gothenburg, Stockholm and Eskilstuna in Sweden. The interviews lasted between 20 and 50 minutes and all the interviews were recorded with the usage of a smartphone, so that important data will not be lost. The recorded interviews were then transcribed in order to be analyzed. The used data was later on translated from Swedish to English.

#### **2.4.2 Selection of respondents**

As the respondents can be any merchant within the Swedish market, it means that there are many different industries to select from. The selection of respondents is important but also independent since this study can randomly select any merchant regardless of their size or industry. Hence, this study adopted the convenience selection process, which means that the researcher interview those merchants that are interested in the study and could appoint time for an interview (Hartman, 2004). During the initial stage of the selection process the author identified several Swedish merchants that have adopted mobile payments, in combination with randomly selected non-adopters. The selection of the non-adopters was not based on any requirements, but simply being an available merchant in the Swedish market. Hence, by randomly selecting non-adopters the author was subjectively selecting merchants from different industries that were considered as suitable during the research period. The main focus was also to not select from one specific industry such as the fashion industry or health care industry, but rather different industries, in order to receive a broader presentation of the Swedish market. After the selection of merchants the aim was to identify the most suitable respondent based on their knowledge and position within the organization. The respondents

chosen for this study were either managers or owners, since they possess a deeper knowledge regarding their business, business decisions and payments solutions.

The total amount of selected merchants landed at 34 and was a mixture of adopters and non-adopters of mobile payments within different industries but also different sizes (large, medium and small). Phone calls were conducted to all of them in order to reach out and identify the right respondent to participate in this study. Out of the 34 selected merchants 11 of them were not interested or could not identify the right respondent within their organization. However, 23 respondents were identified and contacted via e-mail with a short description of the study and that the respondent will be anonymous. 9 of the 23 respondents declined an interview due to a stressful period, sickness or considered themselves as the wrong candidate for the study. The total number of respondents that showed interest in this study and could appoint time for an interview was 14. All the respondents provided relevant data regarding mobile payment adoptions. The respondents participating in this study were also considered as relevant for the investigated area. Table 1 presents an overall summary of the respondents.

Respondent	Type of Merchant	Position	Offering Mobile Payment	Size of the merchant	Industry
R 1	Restaurant	Manager	Yes	Large	Food and Drinks
R 2	Hospital	Manager	No	Large	Health Care
R 3	Wrist-watch	Owner	No	Small	Fashion
R 4	Clothing 1	Owner	No	Small	Fashion
R 5	Household and Gardening	Manager	No / Adopting soon	Large	Pure Retail
R 6	Coffee shop	Manager	Yes	Large	Food and Drinks
R 7	Beverages	Manager	No	Large	Pure Retail
R 8	Pharmacy	Manager	No	Large	Health Care
R 9	Hairdressing	Manager	Yes	Large	Art and Beauty
R 10	Clothing 2	Owner	No	Small	Fashion
R 11	Nightclub	Owner	No	Large	Entertainment
R 12	Tattoo	Owner	Yes	Small	Art and Beauty
R 13	Railway	Manager	Yes	Large	Transportation
R 14	SPA	Manager	No	Medium	Art and Beauty

**Table 1:** The interviewed respondents.

## 2.5 Data analysis

An analysis is usually based on two parts (Hartmann, 2004). The first part involves coding the collected data material. Coding means to select and categorize data that is interesting and relevant for the study and give name to the categories. By doing so it will hence be easier to organize and categorize the collected data after the transcription. The second part is to interpret the data. Oral conversations such as interviews are sometimes difficult to interpret (Holme & Solvang, 1997) and the reason could be that some expressions or sections are unclear. It is thus important for those who conduct the research to interpret and formulate what has been said during the interviews. During the coding process the data was organized

into categories such as merchants' condition, awareness of mobile payments, customer base, type of mobile payment adopted, lock-in effects, network effects, barriers and values. Since the interview guide was formed based on the theoretical framework with an emphasis of the mobile payment chapter, this thesis utilized topics such as awareness of mobile payments, customer base, type of mobile payment offered instead of installed base, digital platforms and multi-sided markets. The additional topics were considered as more central to highlight, which is the reason for mixing these topics with some of the concepts from the theoretical framework. The naming was also considered as appropriate since they are closely related to the concepts of the theoretical framework where customer base and installed base are closely related, and type of mobile payment offered are connected to digital platforms and multi-sided markets. The usage of these topics will also display its relevance and be connected to the theoretical framework in the discussion chapter (chapter 6). The respondents were also treated anonymously and the presented information have been carefully formulated so that the individual can recognize their own statements, but unidentified by other readers (Holme & Solvang, 1997). Since all the respondents are anonymous; the author will refer to them as Respondent 1 (R1) to R14 in the empirical results and discussion chapter.

## **2.6 Criticism of the sources**

Researchers should primarily analyze the sources in order to determine how reliable they are (Hellspong, 2001). Sources can to a certain extent be perceived as treacherous since researchers might exclude relevant facts. Although researchers might have access to a variety of sources, does not mean that these sources are useful (Holme & Solvang, 1997). Source materials can differentiate in both quality and content, but generally materials are enough reliable in order to discuss and analyze. During the analyzing process authors can determine the content and thereby interpret the sources, since the receivers' interpretation of the content are equally important as the significance of the intention of the sources (Holme & Solvang, 1997). Regarding the mobile payment market researchers have emphasized the customers' perspective on mobile payments, while little attention has been placed on merchants (Mallat & Tuunainen, 2008; Ondrus et al., 2009). This was considered as true since this study experienced difficulties in finding prior studies about merchants' perspective on mobile payment adoption, probably because of the newness of the topic (Mallat & Tuunainen, 2008). As this study have mostly used customer-centric research articles in combination with secondary sources online (e.g., company websites, blogs, news, reports and online videos) around mobile payments, the chosen sources have been critically analyzed by discussing the authors different research approaches and the websites validity in order to react to their reliability, for instance, by reviewing the used materials references and citations by other researchers. Besides, this thesis have also during doubtful situations increased its contents reliability by going through more than one source that is describing the same concept, in order to select the one that this thesis find most trustworthy and reliable. For instance, instead of using news or blogs to determine the concept of MST technology, this thesis selected Samsung's official website. In addition, instead of selecting news or blogs to determine fingerprints, this thesis selected research articles.

Regarding the respondents it is actually the employees that have the most field experiences regarding mobile payments. However, these employees were not considered as suitable for this study since mobile payment adoption is a matter for top managements, hence, the reason of deselecting the employees. Besides, finding a respondent to interview regarding mobile payment adoptions within the Swedish market is not free of effort as it concerns the top management, especially for larger merchants. Larger merchants often showed difficulties in identifying the right candidate regarding mobile payment adoption, where people (internal) refer to one another, which ends up with no one participating. The selection of merchants was as mentioned above independent, which means that the participating merchants and respondents are considered as valid. The only difference with additional merchants would be the opportunity to identify more potential benefits.

## 3. Mobile Payments

Mobile payment is defined as payments for goods, services and bills with a mobile device (e.g., mobile phones, smartphones and personal digital assistant (PDA)), through utilizing wireless technology or by taking advantage of communication technologies (Zhong, 2015; Zhou, 2013; Au & Kauffman, 2008; Dahlberg et al. 2008; Mallat & Tuunainen, 2008; Teo et al., 2015; Lu et al., 2011). Mobile payments are divided into two categories: remote payment (distant payment) and proximity payment (contactless payment) (Zhou, 2012). Remote payment implies that users have to connect to a remote payment server, for instance, through wireless network or SMS. Proximity payment implies users conducting monetary transactions through smartphones on the spot, for instance, through using quick response (QR) code or near field communication (NFC) technology. Meanwhile, Zhong (2015) recently added another category which is online-to-offline (O2O) payment. O2O is an innovative payment solution that allows customers to conduct payments through an online interface and then consume a product or service in an offline scenario, for instance, using soundwave technology (see below). This chapter will present mobile payment characteristics, existing technologies, affected stakeholders, mobile payments offered in Sweden, and finally highlight successful mobile payments worldwide.

### 3.1 Characteristics

A mobile payment service should fulfill the following conditions in order to become acceptable in the market (Karnouskos & Fokus, 2004; Carr, 2007). These conditions are; simplicity and usability, universality, interoperability, trust, privacy, security, cost, speed, cross border payments, local market understanding, and lastly integration of legacy approaches.

*Simplicity and Usability:* These conditions means that the learning curve of a new mobile payment app should be easy and user friendly. Customers must be given the opportunity to customize that application to suit his or her convenience.

*Universality:* This condition indicates that mobile payment services should be able to cover domestic, regional and global environments. Thus transactions between different stakeholders should be covered. Conducting transactions should regardless of micro-payments (low value) or macro-payments (high value) be made possible.

*Interoperability:* When developing a mobile payment service, standards and open technologies should be used, in order to interact with other systems. For instance, any mobile device should be able to interact with any POS terminal, suchlike payment apps should be able to operate in any mobile device.

*Trust:* Mobile payment services (apps) must be trustworthy where customers believe that his or her payment details will not be misused by the provider.

*Privacy:* Since prior transactions can be recorded, customers spending patterns or credit histories should not be available for public examinations. Thus transactions should be anonymous in a similar way such as cash transactions.

*Security:* This condition indicates resistant from attacks, for instance from hackers or terrorists. Examples of security that could be implemented are; public key infrastructure (e.g., electronical documents to prove ownership), biometrics (e.g., fingerprints), or passwords integrated into the mobile payment solution architecture.

*Cost:* Since customers have several prior payment methods to utilize when conducting different transactions, mobile payment should to an extent be less expensive or for free. For instance, using cash payment is simple, fast and without additional fees. Thus it is easy for a customer to switch back to cash if they perceive utilizing mobile payment as costly.

*Speed:* Using mobile payment apps to conduct transactions has to be perceived as a payment method that optimizes the payment process for both customers and merchants.

*Cross border payments:* In order for a mobile payment app to become widely accepted it has to be available globally. One example of cross border payment is Alipay (see below).

*Local market understanding:* Customers that are comfortable with prior payment methods need incentives in order to start using new approaches. The usage of a mobile device is not enough, hence, customers and merchants' needs to find other benefits for the local markets. Due to every country has different social conditions, successful scenarios may not be suitable for everyone to implement.

*Integration of legacy approaches:* Mobile payments should be able to reuse existing infrastructures and legacy billing systems. For instance, bank systems that is difficult to change.

## **3.2 Technology**

This section aims to present the existing mobile payment technologies. As mentioned in the beginning of this chapter that there are three types of mobile payments, namely remote, proximity and O2O. Remote payment in this section includes technologies such as SMS and Online (wireless), proximity includes QR Codes, NFC, Magnet Secure Transmission (MST), fingerprint and facial recognition, and O2O includes Soundwave. This section will also present figures to demonstrate how proximity payment and O2O technologies work in stores.

### **Short Message Service (SMS)**

SMS payment implies paying for goods, products or services through a text message sent from a mobile device. Using SMS payment text messages will be transmitted to the mobile payment providers (Roberts, 2013). The provider will then approve the transaction between the customer and the merchant. Customers have then two alternatives; (1) the cost will be



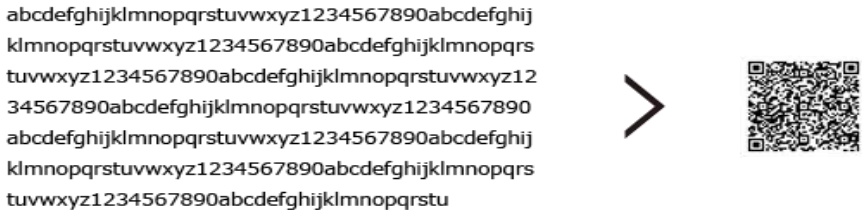
added on their monthly phone bill or, (2) costs will be deducted from a pre-paid balance by the mobile phone operator (Roberts, 2013).

**Online (Wireless)**

Online payment refers to the usage of wireless technology in combination with ones’ credit or debit card details to conduct a mobile payment transaction. This approach is related to mobile commerce (m-commerce) and Pousttchi et al. (2015) described m-commerce as business transactions using mobile communication technologies for service, initiation, agreement, or fulfillment. Online payment can also refer to as in-app purchasing. In order to utilize online payment through ones smartphone, users often need a mobile wallet, which is a virtual version of a customers’ physical wallet. Using this approach to pay means that customers have to either; (1) in advance register their credit or debit card details into the mobile payment app, or (2) typing in their card payment details in order to conduct the transaction on the spot. Another example of online payments is to connect a card-reader to ones smartphone. By utilizing online technology, a smartphone and a card-reader connected to the smartphone, merchants can accept card payments.

**Quick Response Code (QR Codes)**

Quick response codes or QR codes is a two dimensional technology used for scanning codes or barcodes generated by merchants. QR codes often appear at merchants’ point of sale (POS) terminals and scanned by users in order to conduct the payment. Therefore, mobile devices are requiring having a camera in order to scan QR codes and an app to translate the code. In comparison to the conventional barcode that at a maximum could store approximately 20 digits, QR Codes can handle hundred times more information (see Figure 1). One QR code can encode 7,089 characters into one symbol and the ability to handle all types of data regardless of numeric or alphabetic characters, such as binary, symbols, control codes, Kanji, Kana or Hiragan (QR Code, n.d). The contents of a QR code can only be translated by machines (e.g., smartphones or scanning devices), which also mean that humans are unable to determine its content by just looking at the code (Narayanan, 2012). QR technology is considered a more cost efficient solution since smartphones are equipped with Internet which also eliminates the usage of password for authentication (Harini & Padmanabhan, 2013). There are also two ways of QR code usage; (1) QR codes can be provided in stores by merchants, where customers have to use their mobile devices to scan the QR code (see Figure 2) or, (2) QR code are generated through the smartphone, where customers put their mobile device with the QR code provided by the app against a scanning device held in-store.



**Figure 1.** Converting characters into QR code (QR Code, n,d).



**Figure 2.** Demonstration of scanning a QR Code (Lee, 2014).

### **Near Field Communication (NFC)**

NFC is a technology where radio frequency identification (RFID) is combined with a smartphone (Ondrus & Pigneur, 2007). Using NFC users can utilize their smartphones as a contactless payment card since this technology permits card-present transactions (Schelnast & Born, 2015). In order for this technology to act out, devices (e.g., smartphones and card readers) must be equipped with an NFC chip (Profis, 2014). Thus, when placing two devices close to each other data could be exchanged (see Figure 3). In comparison to other wireless technologies embedded in the smartphones such as Wi-Fi and Bluetooth, NFC has a shorter range of 4 to 10 centimeters (Coskun et al. 2013). Prior adoption of NFC were Samsung's Galaxy S5 (smartphone) and Nokia's Lumia (tablet). Regarding mobile payments NFC has become more relevant since this technology is equipped in more smartphones (e.g., Android, Windows phones, and Iphones) (Profis, 2014).



**Figure 3.** Demonstration of NFC (Profis, 2014).

### **Magnet Secure Transmission (MST)**

Samsung (2015) explained MST as: “a technology that emits a magnetic signal that mimics the magnetic strip on a traditional payment card. MST sends a magnetic signal from ones device to payment terminal’s card reader (to emulate swiping a physical card without having to upgrade the terminals software or hardware)”. MST technology is accepted at nearly all payment terminals with card reader, where some payment terminals might require software updates. This technology is also connected with NFC and considered as a more secure payment method than the traditional card payments (Samsung, 2015). MST makes ones

mobile device look like a credit or debit card when conducting POS payments (Villa-Boas, 2015) (see Figure 4).



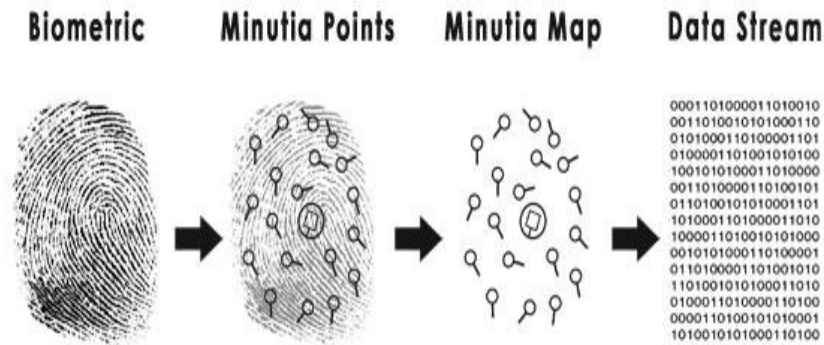
**Figure 4.** Demonstration of MST (Villa-Boas, 2015).

### **Fingerprint recognition**

Fingerprint technology allows consumers to authenticate themselves using the touch of a finger on a fingerprint scanner linked to a payment file (Kumar & Ryu, 2009) (see Figure 5). A fingerprint identification system can scan and map a fingerprints characteristics of a user, register that user into a database, and create a template that verifies the users' identity for all future scans (Conti et al., 2009). Fingerprint characteristics implies pattern of friction ridges and valleys on an individual's fingertips (Kumar & Ryu, 2009) (see Figure 6). These patterns on a person's fingertip are unique and considered as reliable since there are no two fingerprints alike. For instance, even identical twins will have different fingerprints. Fingerprint biometric identification is considered as the most secure, reliable and legally authoritative identity identification method (Peiyan et al., 2015). Usage of passwords will be reduced since with a touch to a fingerprint device generates instant access (Kumar & Ryu, 2009). By 2014, 300 million devices were equipped with biometric sensors and most integrated by handset manufacturers (Schelnast & Born, 2015).



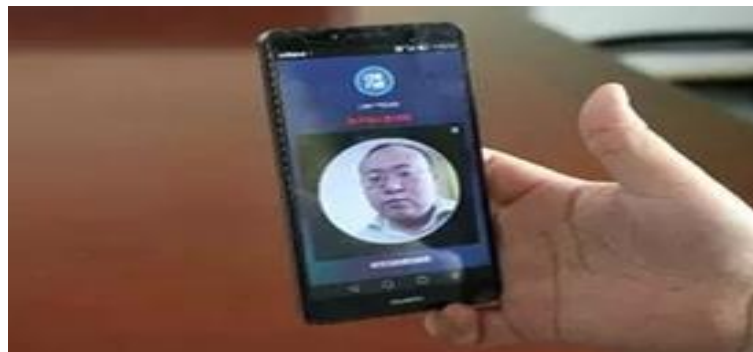
**Figure 5.** Demonstration of fingerprint technology (Allsopp, 2015).



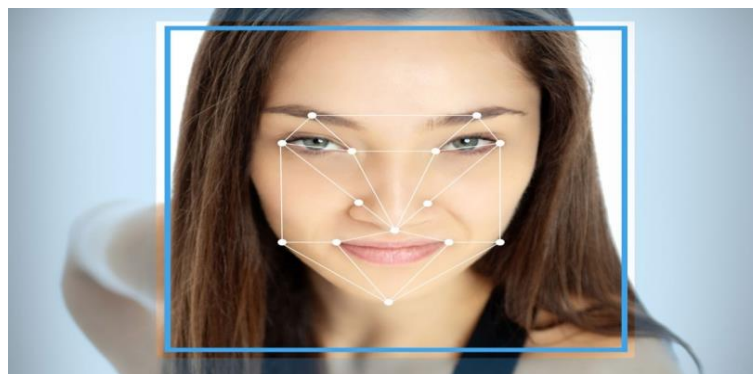
**Figure 6.** Mapping of the fingerprint process (www.uniclox.com).

### Facial recognition

Face recognition for authentication is an upcoming technology in the mobile payment market (Schelnast & Born, 2015). A consumer can by scanning their face with a smartphone authenticate and authorize a mobile transaction (see Figure 7). A face recognition process “typically models key features from the central portion of a facial image extracting these features from the captured image(s) that do not change over time while avoiding superficial features such as facial expressions or hair” (Kumar & Ryu, 2009, p. 28) (see Figure 8). For instance, in order to prevent misusers from using other peoples’ photos for verification, MasterCard has increased their security by requiring users to blink once while having their faces scanned (Cheng, 2015).



**Figure 7.** Demonstration of Facial Recognition (A-eye, 2015).



**Figure 8.** Facial image extracting on captured image (Oxman, 2015).

## Sound Wave

Sound wave technology uses white noises generated by a smartphone to transmit digital information to another device to carry out a payment transaction (Schelnast & Born, 2015) (see Figure 9). According to Lee (2014) with sound wave technology users can even conduct monetary transactions without being connected to Internet. This payment instrument is new in the mobile payment market which explains the limited number of providers (Schelnast & Born, 2015).



**Figure 9.** Demonstration of Soundwave payment (Lee, 2014).

## 3.3 Stakeholders

Au and Kauffman (2008) perceive stakeholders as an agent (e.g., an individual firm, an intermediary, a government regulator, a user, or a buyer) that either affects through its own actions or get affected by the actions of others. Therefore, a stakeholder invests or gets affected by products and services, hence, plays an essential role in ensuring its success (Oh et al., 2006). Different stakeholders' roles, interests and hidden agendas could also affect the success of a payment system. Mobile payment systems are not provided by one organization alone, but rather by several stakeholders (Au & Kauffman, 2008). Thus, stakeholders' interests and strategies might lead to a conflict. For instance, a mobile network operator might like to maximize its revenues through each mobile payment transaction, while merchants and customers would like to minimize the costs for each transaction (Carr, 2007). Besides, stakeholders strive for maximizing their return on investments (Hu et al., 2008). Emerging business models must therefore be profitable and sustainable for each of the stakeholders within the mobile payment ecosystem. Stakeholders that are involved should understand its services, products, customers, markets, its value proposition to customers, and its revenue and profit proposition to shareholders (Hu et al., 2008). If stakeholders cannot find consensus among each other, there will be no sustainable business model in the long term.

From a traditional payment perspective financial institutions such as banks, credit card issuers (e.g., Swedbank and Nordea), and the payment processing networks (e.g., VISA and MasterCard) are seen as intermediaries (Zhong, 2015). Except customers, merchants and government, there have also been a number of new entrants, namely licensed companies. These licensed companies are mainly established by non-financial institutions, such as trusted third-parties (e.g., Alipay and PayPal), mobile network operators (e.g., Telenor and 3),

Internet giants (e.g., Google and Tencent), mobile device manufacturer (e.g., Apple and Samsung), and software providers (e.g., Payair and Seamless) (Zhong, 2015; Au and Kauffman, 2008; Carr, 2007). This section will present the stakeholders and their expectations on mobile payments and presented as following; financial institutions, payment processing networks, customers, merchants, government, mobile network operators (MNO), mobile device manufacturers, software providers and trusted third-parties and Internet giants. Figure 10 below presents the mapping of stakeholders within the mobile payment market.

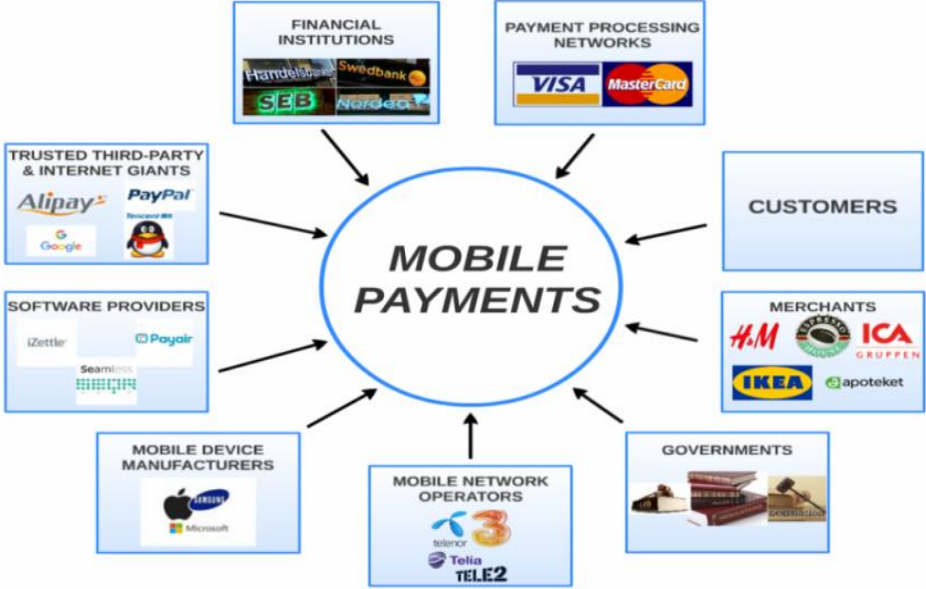


Figure 10. Mapping of stakeholders within the mobile payment market.

**Financial institutions and Banks**

Banks or financial institutions have managed customers’ financial services for decades and by that also established a good reputation towards customers in relation to credibility and trustworthiness. Since customers already have their financial details stored within different banks and as an established issuer of prior payment methods, this is seen as a great advantage regarding mobile payments. Banks expect to handle less cash transactions and more card payments since they benefit from all transactions (Karnouskos & Fokus, 2004). Banks are also considered as leaders when it comes to the overall payment market and expects to even maintain this position in the mobile payment market. Therefore, even with limited knowledge of mobile payments, financial institutions still strive to either develop their own payment services (apps) or become co-developers with other stakeholders (Karnouskos & Fokus, 2004). However, with the emerging penetration of mobile payment services within the payment market, banks perceive this as an opportunity and expect to boost their branding, which hopefully generates in customer loyalty (Carr, 2007).

**Payment processing networks**

Payment processing networks are card companies that work as intermediaries between financial institutions and adopters (e.g. merchants). Payment processing networks manage the agreements between affected stakeholders by setting fees and establishing technical,

functional, branding and certification policies (Englund & Turesson, 2012). Payment processing networks have established a payment infrastructure and proven its high security through POS terminals. Since payments are moving from card payments to mobile payments, payment processing networks have shown great interests in this market by investing in new payment ventures (Bertilsson & Hult, 2013). The payment processing networks expect to broaden their financial services, strengthen their brand position, and reap financial benefits in this emerging mobile payment market.

### **Customers**

When mobile payments penetrate the market, customers are those that utilize these products and services. Customers expect these products or services to have a low learning curve (Karnouskos & Fokus, 2004), since switching back to physical money or card payments is easy. Cost of usage should therefore be either low or free. Ubiquities are important for mobile payment services since customers want to conduct transactions from anywhere, anytime and in any currency (Carr, 2007). Besides, transfers should cover both micro and macro payments and transactions between person-to-person. Furthermore, interoperability plays a significant role since communication between mobile devices, mobile network operators, and banks are expected to work fluently. Customers expect mobile payments to provide an overview on real-time transactions status. In addition, customers also expect mobile payments to be trustworthy, secure and that personal details remains private (Carr, 2007). For instance, the anonymity of paying with cash should be implemented into mobile payments where businesses cannot trace buyers or identify patterns.

### **Merchants**

Merchants are those that create the market for other stakeholders since they are willing to pay for mobile payment services in order to reach out to consumers. Merchants offering mobile payment services expect transactions to be faster and that investment and cost of usage should be low or free (Carr, 2007). POS terminals should be an interoperable device with backward compatibility (able to read, view or play older standards and formats) and forward compatibility (allows a system to accept input designed for later versions) (Karnouskos & Fokus, 2004). Similar to customers' expectations merchants also expect high security and trust in the mobile payment products and services that merchants provide for its customers. An important aspect for merchants is the possibility to customize a mobile payment service, by adding loyalty programs (Karnouskos & Fokus, 2004). In addition, merchants also expect real-time status of transactions to function when utilizing mobile payments.

### **Government**

Government affects mobile payments since it sets laws, legislations and regulations. Every country has its own social condition, which makes it difficult for a successful payment service in one country to become successful in another. Governments are those that expect cooperation between all the mobile payment stakeholders in order to develop a global open solution (standard), instead of closed services with limited range (Carr, 2007). On the contrary, since different governments have their own laws, legislation and regulations at a national and international level (e.g., European Union) it becomes difficult to realize this expectancy.

However, governments expect mobile payments to become a new channel of revenue through taxation (Carr, 2007).

### **Mobile network operators**

Mobile network operators possess a vast customer base since they control the subscriber identity module (SIM) and the wireless identity module (WIM, an extension file format for wireless application protocols on a SIM card, which also support digital signatures to verify authenticity) of a mobile device (Karnouskos & Fokus, 2004). Hence, mobile network operators have great influence and strategic impact on mobile payments. Although mobile network operators have limited experience and knowledge of the associated risks regarding payment services, implies that they cannot fully handle mobile payment systems. The mobile payment operators' expectations on mobile payments are to add potential value to existing services and increase customer loyalty. Mobile network operators expect to add new revenue channels since mobile payments depend on their wireless services, but also increase the average revenue of every user and become an attractive partner to content providers (Carr, 2007).

### **Mobile device manufacturers**

Similar to mobile network operators, mobile device manufacturers has also limited knowledge and experience within mobile payments. Mobile device manufacturers play an essential role since they are those that launch mobile devices into the market. Mobile device manufacturer affects both implementation and deployment of mobile payment services since they control the technology and capabilities of mobile devices (Karnouskos & Fokus, 2004). Hence, mobile device manufacturer expect larger market adoption of their new embedded hardware and software features of their devices. Besides, they also expect mobile payment services to be open, interoperable and a widely-used standard. Since technologies and innovation emerge in a fast pace, products will quickly become outmoded and therefore low time to market (the length of time it takes for a product to be conceived until its being available for sale) are seen as important (Carr, 2007). Mobile device manufacturer also expect to maintain their relationship with banks, mobile network operators and software providers to ensure that developed apps are compatible with their devices.

### **Software providers**

Software providers can be related to payment service providers (PSP) intermediate payment services and enable merchants to accept online services for electronic payments (Andersson et al., 2007), and seen as profit-maximizing companies (Riksbank, 2013). As business opportunities emerge in the mobile payment market, there are smaller and entrepreneurial firms that realize the business opportunities and strive for a share in the value chain by becoming software providers. Having mobile device manufacturer providing handsets (hardware) is not enough; since they need complementary software in order for a mobile payment to function. Software providers are those that develop the mobile payment infrastructure by producing standards that enables different parts of the mobile payment process to communicate (Karnouskos & Fokus, 2004). Software providers offer merchants services and instruments for accepting mobile payments. When offering payment services it is



essential to act better than financial institutions on all parameters, such as speed, security, price and convenience (Bertilsson & Hult, 2013). Software providers expect to reap financial benefits by providing its complementary services that gets affected or adopted by other stakeholders (Karnouskos & Fokus, 2004).

### **Trusted third-parties and Internet giants**

New entrants in the mobile payment market are established by non-financial institutions. These non-financial institutions can be trusted third-parties and Internet giants (Zhong, 2015). Trusted third-parties and Internet giants have independently reached a large critical mass of users and history of handling users' data. Therefore, emerging mobile payment solutions initiated by non-financial institutions within service processes, for instance, purchasing of goods direct banks to play a role as an upstream firm (Zhong, 2015). Thus, non-financial institutions act as intermediaries between banks, consumers and merchants. Trusted third-parties and Internet giants expects to reap financial benefits from the mobile payment revenue stream, but more importantly maintain their relationship with other stakeholders in order to boost their own brand.

## **3.4 Mobile payments in Sweden**

This section aims to highlight mobile payment services provided in the Swedish market. The author is aware of other mobile payment services such as Swedbanks Bart (QR Code), PayEx (card-reader), Payson (online), Klarna (online), PayWave (QR and NFC), and PayPass (QR and NFC). Although there are many different mobile payment services to select from within the Swedish market this thesis will only highlight six of them which are; Swish, iZettle, SEQR, ICA Handla, WyWallet and Payair. These six were chosen since they cover the different mobile payment alternatives such as SMS, online, QR codes and NFC technology, and was considered as most relevant for this study to highlight. Therefore, the need to highlight all of them will be redundant. At the end of this section Table 2 presents an overall summary of the selected mobile payments in Sweden.

### **Swish**

Swish is an app developed for transferring money online through mobile devices (Getswish, 2016a). Swish was initially a service developed to offer a safe and simple mobile service to conduct direct transfers between private persons (Getswish, 2016b). This service was developed between the six largest banks in Sweden which are; Danske Bank, Handelsbanken, Länsförsäkring, Nordea, SEB, and Swedbank and Sparbankerna. Swish was launched in 2012 and by 2013 Skandia (bank) was joining this collaboration, and by 2014 ICA Bank, Sparbanken Syd and Sparbanken Oresund were also joining (Getswish, 2016b). During 2014 Swish made it possible for private users to conduct transactions to connected firms, unions and organizations. Using Swish bank account digits are unnecessary, users only have to know the receivers mobile- or swish-number in order to perform monetary transactions. Firms, unions and organizations receive their own Swish-number which starts with 123 followed by a unique seven digits series of numbers connected to respective bank accounts (Getswish, 2016d). Adopters are initially required to connect their bank account to the Swish app in able to conduct direct transactions where money could be send or received within seconds

(Getswish, 2016c). In addition payments have to be authorized through an additional app namely, BankID (BankID, 2016), where users approve payments with a PIN code (Riksbank, 2013). Swish is currently the most popular app used in Sweden (Breakit, 2016). Getswish (2016a) latest update at the beginning of May 2016 showed that 4 288 644 has adopted Swish and the total amount of 6 399 389 191 Swedish SEK were transferred during April 2016.

### **iZettle**

iZettle develops card-readers that are connected to user's smartphones which makes it more convenient to charge money from customers (iZettle, 2016a). iZettle can thereby be used by individuals or smaller businesses. iZettle combines elements of remote and proximity payments which can be referred to as a hybrid payment solution (Bertilsson & Hult, 2012). When adopting iZettle one has to create a product library by adding products in the app provided, then sort them into different folders in able to speed up payments, which makes it easier to keep track of sales (iZettle, 2016e). iZettle offers *Lite* and *Pro*. Lite is the smaller version without display, but instead utilizing the display of ones smartphone. This version is connected to the smartphone using a cable which is perfect for businesses that requires a lot of traveling (iZettle, 2016b). Pro on the other hand is a more sophisticated version and suitable to implement in stores. This device is connected through Bluetooth and transactions are considered as fast (iZettle, 2016c). Both versions supports chip and magnetic stripes on payment cards, fulfills the strict security requirements, could be charged anywhere using regular USB-port and accepts well-known debit and credit cards such as MasterCard, VISA, Maestro, V-Pay, VISA Electron, American Express and JCB (iZettle, 2016b; iZettle, 2016c). iZettles transaction fees are based on one's monthly revenue, where transaction fees could be between 1.50 percent and 2.50 percent per transaction (iZettle, 2016d). In addition there are no binding periods, where adopters have to lock themselves into long contracts. There are also no fixed prices since adopters' only get charged when iZettle is used. SBE Council (2011) reported that small businesses will benefit from using apps, which in turn will save both time and money. According to Ekonomifakta (2016a) 99,9 percent of all the firms in Sweden 2015 are considered as small or medium sizes, with less than 250 employees and only 0,1 percent are considered as large with more than 250 employees. Based on the latest update at the end of October 2015, Sweden had 1 069 507 firms (Ekonomifakta, 2016b).

### **SEQR**

Seamless is a global company with focus on mobile payments. The company provides prepaid top-up systems and mobile payment services for mobile operators, distributors, retailers and consumers (Seamless, 2016b). One example of Seamless products and services is SEQR (se •cure). According to Seamless (2016a) SEQR is Sweden's and Europe's most used mobile wallet. Anyone with a smartphone can utilize SEQR to pay in stores, at restaurants, at parking lots, online and in-app. Besides, through their mobile app users can store digital receipts, transfer money at no charge and receive offers and promotions (Seamless, 2016a). SEQR uses Seamless' technology where mobile payments and transaction services are using QR codes and NFC on the front-end (e.g., user interface) and Seamless' proven transaction server on the back-end (e.g., data access layer) (Seamless, 2016a). SEQR is the only mobile payment solution that is handling the entire transaction chain (from customer through to settlement).

SEQR in favor of merchants challenges card companies' monopoly by offering merchants 50 percent savings in transaction fees and interchange fees (Seamless, 2016a). Furthermore, SEQR enables direct communication to customers through their mobile devices with integrated offers, such as rebates, promotions and loyalty programs.

### **ICA Handla**

ICA is a grocery store that developed a mobile payment service using QR technology. Paying with one's mobile should be as easy as paying with physical payment cards when checking out (ICA, 2016). In order to use this service users firstly have to download an app called ICA Handla and secondly register one of their ICA payment cards. Through this app one can also use their mobile device to scan products in selected stores and collect items before check out and loyalty programs would not be precluded. For instance, when checking out, users has to (1) initiate the ICA Handla app and press pay, (2) choose which card to pay with, (3) scan the QR code next to the cashier, and (4) confirm payment (ICA, 2016). Paper receipts will be given on the spot which enable users to follow up through the app.

### **WyWallet**

WyWallet in collaboration with the four major mobile network operators (TeliaSonera, Telenor, 3 and Tele2) in Sweden, developed the WyWallet mobile app. WyWallet is a mobile payment solution with various features without dispensing ones bank account numbers and utilizes SMS (WyWallet, 2016). When downloading the WyWallet app users creates their account by typing in cell phone numbers and then select payment methods which are; invoice, WyWallet-account or connect their payment card (WyWallet, 2016). This service allows users to transfer money, shop online or top-up cash cards. SMS payments operate just as normal, where users type in the receivers' cell phone number, content, and then press send. Using WyWallet to transfer money users have to; (1) initiate the app and click on send money, (2) type in receivers' cellphone number and the amount they want to send, and (3) confirm by entering their PIN code. Receivers' of the money does not need to have a WyWallet account in able to perform a transaction. On the other hand, this particular receiver must within seven days download WyWallet to get access to that amount or else the money will be transferred back to the sender (WyWallet, 2016). Shopping online (websites) means that users have to select WyWallet as the payment alternative during check-out and confirm by typing in their cellphone numbers and PIN code (WyWallet, 2016). Lastly, when users want to top-up their cash cards from mobile network operators (e.g., Telia, Telenor, 3, Comviq or Halebop) they select top-up cash card in the app and type their cellphone number, the MNO receiver, and then confirm with their PIN code.

### **Payair**

Payair is mobile commerce and payment platform provider. Payair developed an app that allows consumers to conduct monetary transactions within seconds, either through direct mobile shopping, online purchases, in stores, at restaurants or at any other POS terminals that accepts payment by Payair. Implementing Payair generates simplified and faster transactions, which in turn could lead to increased sales from spontaneous purchases (Payair, n.d). "Consumer clicks or scans to activate the Payair service. The user inserts a PIN or bank

selected strong authentication method like BankID in Sweden, to authenticate the transaction” (Payair, n.d). Consequently payments are either directly linked to an invoice or to a pre-registered debit or credit card. However, no sensitive details will be stored within the smartphone and security is added with multiple layers of encryption and industry standard security protocols (Payair, n.d). Payairs app enables e-commerce, pre-order-pay, print commerce (where users scan QR codes, for instance on marketing campaigns), m-commerce, pay from bill (scan QR codes on paper receipts), loyalty programs, geo-location and deals (Payair, n.d1). For instance, the payment process utilizing the app; (1) users scan the QR code printed on the merchants receipt and that item will be transferred to the check-out chart, (2) select the check-out icon in the app, (3) authorize by typing in their PIN code, (4) confirm the payment by swiping from left to right at the bottom of the mobile screen. Payair also offers *Tap & Pay* which is based on standardized NFC technology and enables for tap and pay payments. This service allows consumers to tap their mobile devices over the payment terminals at point of sales to pay (Payair, n.d2).

**Summary of the presented mobile payments**

	Technology	Service offered	Payment Type	Developed by	Markets
Swish	Online	Direct money transfers	Remote	Financial Institutions	Peer-2-Peer (P2P), C2B, B2B, B2C
iZettle	Online	Card-readers connected to smartphones	Hybrid	Software Providers	P2P, C2B
SEQR	QR & NFC	Pre-paid top-up systems	Proximity	Software Providers	P2P C2B
ICA Handla	QR	In-store scanning and paying	Proximity	Merchant (Proprietary)	C2B
WyWallet	SMS	Transfer money, shop online and top-up cash cards	Remote	Mobile Network Operators	P2P C2B
Payair	QR & NFC	Monetary transactions within seconds	Proximity	Software Providers	C2B

**Table 2:** Summary of the selected mobile payments in Sweden.

**3.5 Successful mobile payments worldwide**

To broaden the understanding of mobile payments it is also of importance to highlight mobile payments outside of Sweden. The author is also aware of mobile payment services such as Google Wallet, Wal-Mart's CurrentC (US), Baidu Wallet (China), China Telecoms Bestpay, NTT DoCoMo's Osai-fu-Keitai Wallet (Japan), Korean Telecom (South Korea) and Elisa Lomppako (Finland). However, this section will highlight seven mobile payments which are: Alipay Wallet, WeChat Wallet, Starbucks App, Apple Pay, Samsung Pay, M-Pesa and PayPal since these were most frequently mentioned in the literatures, reports, news and blogs and considered as most relevant. At the end of this section Table 3 presents an overall summary of the selected mobile payments worldwide.

## **Alipay Wallet**

Alipay is a non-financial institution that in collaboration with all of China's major banks (Bank of China, Agricultural Bank of China, China Construction Bank and China Merchants Bank) developed Alipay Wallet. Alipay accepts cards such as VISA, MasterCard, Japan Credit Bureau, Bank Transfer, Western Union, WebMoney and Boletto (Alipay, 2016). Alipay Wallet was developed and launched in order to give users a "wallet-like" experience, which also enables for the store and manage of credit cards, gift cards or discount coupons electronically (Erickson, 2014). Alipay allow its users to conduct monetary transfers by using either barcode recognition, QR recognition or the new sound wave payment. Lee (2014) demonstrated that using sound wave technology, users can even pay without being connected to Internet. Users with Alipay can for instance, pay for taxi fares, meals, split bills, pay on vending machines and even pay for clothes at department stores that are teamed up with Alipay (Lee, 2014). Alipay also opened up a direct sales channel for western merchants to reach out to the Chinese customers (Erickson, 2014). This was made possible through ePass, where this channel combines Alipay's cross-border foreign currency settlement service with overseas delivery solutions (Erickson, 2014). In October 2014 Alipay released their latest payment statistics and it showed that Chinese consumer's expenditures in the past ten years generated in 42.3 billion transactions, where 50 percent was mobile payments (ChinaInternetWatch, 2016b). In addition, 70 percent of Internet users have ordered food and paid for it using their mobile devices (ChinaInternetWatch, 2016a). Millions of people in China are using mobile phones to pay for everything, where Alipay Wallet is Chinas most popular mobile payment app (Lee, 2014). However, Fortune (2016a) reported that Alipay had 350 million registered users in 2015.

## **WeChat Wallet**

WeChat, also called Weixin is one of the world's fastest growing social apps. This app was developed by Tencent and released in 2011 in China. This digital platform brings together messaging, social communication and games. For instance, users can send free text and multimedia messages, make video or phone calls, or share photos (Tencent, 2016). When WeChat launched their mobile wallet function users could transfer money to friends, send red envelopes, split bills, make in store payments, pay for cab rides and even pay for utility bills (Millward, 2016). In order to utilize these services users' needs to connect their bank or credit card to WeChat's app. In March 2014 Tencent also made it possible for mobile commerce by letting any brand to allow customers to purchase products or services through WeChat's digital platform (Millward, 2014). WeChat users have two payment alternatives, either from in store payments by scanning a QR code or online purchases where items will be delivered to the buyer. However, these payments alternatives only works where it is accepted (Millward, 2015). When paying in stores customer's needs to use their snapscan (smartphone camera) function to scan the QR codes and then enter the amount that wished to be paid and if they want to add any tip (e.g., 0, 5, 10, 15 percent). Thereafter in order for this transaction to be finalized users has to type in their four digit personal WeChat Wallet code to confirm the transaction (WeChatSouthAfrica, 2016). When transferring money users; (1) press the send and receive cash function on the app, (2) two options appears which are send to a WeChat

contact or scan a QR code, if send to contact is chosen, (3) users contact list will appear in order to select that particular contact, and (4) when the contact is selected the user need to type in the amount and confirm by typing in their personal code (WeChatSouthAfrica, 2016). By August 2015 Tencent revealed that WeChat messaging app has 600 million monthly users (Millward, 2015).

### **Starbucks App**

Starbucks mobile payment app was launched in 2011 and reached 12 million users in 2014, which Starbucks claimed accounted for 90 percent of United States (US) mobile payment transactions (Schelnast & Born, 2015). Using Starbucks order and pay function users can pay for food, drinks, order ahead and pick up without waiting in line. In addition, users can also tip the barista digitally. This app creates convenience for users to pay for purchases and earn Stars (My Starbucks Rewards), which can be redeemed for rewards. Starbucks utilizes the data (loyalty program, online or mobile purchases and Facebook) it receives from customers in order to personalize advertisings (Pousttchi & Hufenbach, 2012). According to Fortune (2016b) Starbucks had 10.4 million active members in 2015 for its loyalty program and mobile payments were accounted for 20 percent of all in store transactions in the US. In order to start utilizing these function users have to: (1) install the latest version of the Starbucks app, (2) create an account, and (3) add at least a Starbucks Card with a balance of minimum five dollar to the app (Starbucks, 2016). Users can afterwards reload their Starbucks card balance via their smartphones by using a major credit card (Starbucks, 2014). Instead of using ones smartphone to scan a barcode or QR code, the app generates a barcode that has to be scanned by a POS scanner in order to perform a transaction (Starbucks, 2014).

### **Apple Pay**

In 2014, before Apple introduced their new mobile payment service Apple Pay, they made agreements with a large number of shops in advance. This mobile payment service is currently operating in USA and according to Al-Daraiseh et al. (2015) 220 000 shops and restaurants in USA supported this service. Apple Pay provides a high level of security since it combines fingerprint technology with NFC technology (Al-Daraiseh et al., 2015). This payment method presently only operates on iPhone 6 or 6S models. Based on the innovative NFC antenna implemented in iPhone 6 and 6s, users only need to hold their iPhones near the contactless reader with ones fingertip on the Touch ID (home button), in order to confirm the transaction (Apple, 2016). However, card numbers are never stored in one's mobile device and card details are never sent to merchants. Apple Pay assigns a unique number for every purchase, which make every payment private and secure (Apple, 2016).

### **Samsung Pay**

Samsung developed their mobile payment service Samsung Pay and according to Fortune (2016c) it is accepted almost everywhere. Samsung Pay probably works everywhere since it uses both NFC and MST technology to exchange payment information. Information can be transmitted between an NFC chip found in a mobile device and a NFC reader installed in the POS terminals. In addition, Samsung Pay also uses MST that sends magnetic signals from the mobile device to the POS terminals by mimicking the same signal that is produced when one

is swiping their physical card. These technologies enable Samsung Pay to interact with any credit card terminal without additional investments on infrastructure or training (Fortune, 2016c). In order to conduct a transaction users initiate the app by swiping up from the bottom of the screen, scan their payment card, and secure their accounts by selecting their fingerprint or PIN code. When paying in store one verifies using their fingerprints and by hovering their mobile device near the card reader. When a user feels a soft vibration it indicates that the user have paid (VISA, 2016). Using this function user's needs to have; (1) one of Samsung's Galaxy devices such as S6, S6 edge, S6 edge+, S6 active or Note5, (2) be connected to carriers such as AT&T, T-Mobile, Sprint, U.S. Cellular or Verizon, (3) credit or debit cards must be qualifying VISA, MasterCard or American Express and, (4) issued by either Bank of America, CHASE, Citi, PNC, Synchrony or US Bank (Samsung, 2016b). This payment service is currently working in the US and South Korea.

### **M-Pesa**

A joint venture between the mobile network operators, Safaricom and Vodafone developed M-Pesa, a mobile payment service that was launched 2007 in Kenya. When M-Pesa was initially launched there was a minor percentage of the population that had access to bank accounts connected to payment services. While on the other hand, nearly the entire population had access to a mobile phone (Riksbank, 2013). In order to use this mobile payment service, users has to open an account with either one of the MNO and utilize that account to transfer funds (Riksbank, 2013). M-Pesa enabled deposits and withdrawals between users and companies. Since Safaricom was the market leaders in the telecom sector this payment service became a quick success as the majority without bank accounts could easily open an account for payment transactions. M-Pesa had approximately 19 million users and 35 000 agents in Kenya during December 2011 (Riksbank, 2013). This service was later implemented in Tanzania, Afghanistan, Fiji, South Africa and Uganda. However, after Safaricom partnered up with a commercial bank, M-Pesa also increased their services within banking services, which allowed the users for savings and lending through mobile phones (Riksbank, 2013).

### **PayPal**

PayPal is a global leading payment service that provides a more secure and faster way to pay and charge money online. Using PayPal users can pay and transfer money without unveiling their payment details. PayPal are also offering users flexibility by choosing how they want to pay, either with a PayPal account where users can top-up balance or with a credit card connected to their PayPal account (PayPal, 2016a). PayPal can be used in thousands mobile website and apps, since it is integrated with iOS and Android apps. Instead of typing in bank account details every time, transactions using PayPal are confirmed by using ones email account and PayPal-password (PayPal, 2016b). PayPal also offer buyers protection, for instance, when one have purchased online and the package is not delivered or the product differs from the vendor description, PayPal could repay the whole sum for the product including the shipping costs (PayPal, 2016c). However, PayPal launched its mobile app for smartphones and users can now send money to each other or split bills through the usage of ones email account (PayPal, 2016d). In addition when conducting monetary transactions to friends and family users does not pay for any transactions fees.

### Summary of the selected mobile payments worldwide

	Technology	Service offered	Payment Type	Developed by	Market	Country
Alipay	QR, Online and Soundwave	Money transferring, In-store and POS payment and online purchases	Remote and Proximity	Trusted Third-party and Financial Institutions	P2P, C2B, B2C, B2B	China
WeChat Wallet	QR and Online	Money transferring, In-store and POS payments and online purchases	Remote and Proximity	Internet giant	P2P, C2B, B2C, B2B	China
Starbucks	QR and Online	In-store payment or Order and pay ahead to skip waiting in-line	Remote and Proximity	Merchant (Proprietary)	C2B	USA
Apple Pay	NFC and Fingerprint	In-store contactless payment	Proximity	Mobile Device Manufacturer	C2B	USA
Samsung Pay	NFC, MST and Fingerprint	In-store Contactless payment	Proximity	Mobile Device Manufacturer	C2B	USA, South Korea
M-Pesa	SMS and Online	Deposits and withdrawals between users and companies	Remote	Mobile Network Operators	P2P, B2B, C2B, B2C	Kenya, Tanzania, Afghanistan, Fiji, Uganda, South Africa
PayPal	Online and SMS	Money Transfer and top-up balance	Remote	Trusted Third-party	P2P, C2B	USA

**Table 3.** Summary of mobile payments worldwide.



## **4. Theoretical Framework**

Mobile payment is an emerging theme, where prior studies have been customer-centric and well investigated. Therefore, attention should be directed towards merchants' by investigating mobile payment adoptions from their perspectives. In order to identify the key mechanisms for Swedish merchants to adopt mobile payments, this thesis has formed a theoretical framework. The theoretical framework consists of relevant concepts that are closely related and together characterize the digital infrastructure that affects merchants and mobile payments. These concepts were selected after the literature study and were considered as relevant for analyzing mobile payments. This chapter presents the selected concepts which are: installed base, network effects, digital platforms, multi-sided markets, lock-in effects, path dependency, barriers to the adoption of mobile payments and capturing value from mobile payments.

### **4.1 Installed base**

Prior studies indicate that mobile payments are heavily dependent on the ability to reach a critical mass of users (Oh et al., 2006; Ondrus & Pigneur, 2006; Mallat, 2007), but also the adoptions of merchants (Schelnast & Born, 2015). An installed base can be defined as "the interconnected practices and technologies that are institutionalized in the organization" (Rolland, 2000, p. 1). Establishing a new infrastructure is difficult, since it should be built on the existing installed base (Hanseth & Braa, 2001). Thus, new parts should integrate or replace existing parts (Hanseth, 2001). An installed base is never developed from scratch, instead already existing (Ciborra, 2001; Hanseth, 2001). In the mobile payment sector there are several existing installed bases in relation to the different stakeholders. Since merchants are those that create the markets for other stakeholders it is thereof of importance for them to reach high volume of transactions in order to profit from mobile payments. Schilling (1999) pointed out that "in markets that have forces encouraging the adoption of dominant design, the size of a technology's installed base and the availability of complementary goods may be most important factors determining its success or failure" (p. 265).

The size of an installed base plays a significant role, since it can send positive signals about products attribute, when adopters have difficulties measuring its quality. Larger installed base often implicates more adopters and thus the probability that firms producing complementary products prefer the one with larger installed base (Schilling, 1999; Hanseth, 2001). Larger installed base also increases the credibility of a product, which makes consumers attracted to start using that particular standard (Hanseth, 2001). When a standard becomes attractive, it will ultimately reinforce itself (Rolland, 2000). The value of learning how to use a particular digital platform becomes valuable when the size of the installed base increases (Schilling, 1999). Furthermore, the size of an installed base can increase through a phenomenon called network effect.

### **4.2 Network effects**

Customers learn by observing others where families, friends, colleagues, or news has the ability to influence adopters' decisions regarding new payment approaches (Musa et al., 2015).

One that finds something as meaningful and useful will positively affect others purchase or to start using that product or service (Wang & Chou, 2016). In a similar way, stakeholders that perceive a mobile payment service as valuable could positively affect other stakeholders to join, through the network effect. According to Zhu et al. (2006); “network effect theory posits that benefits that adopters derive from a network technology are positively associated with the size of the network” (p. 520). For instance, when the value of a mobile payment increases and the size of the network proliferate; then merchants will be more motivated to adopt it. Products have little value or no value in isolation, but generate value when combined with others (Katz & Shapiro, 1994). The value of joining a network strongly depends on the already existing amount of adopters in that particular network (Hanseth, 2001). For instance, mobile payments cannot be provided by one organization alone, but rather with several stakeholders (Au & Kauffman, 2008). Network effects refer to when a customer values its membership or ownership, that person will positively affect others, which in turn will enlarge the network (Katz & Shapiro, 1994). Network effects can have same-side and cross-side effect. Same-side means that users may prefer platforms with larger user base and cross-side means that users might prefer platforms with many application developers tied to them (Eisenmann et al., 2006).

Network effects can also be direct or indirect. Direct network effects refers to individual adopters whom can through that technology reach out to many adopters and indirect network effects means increased compatible solutions on hard- and software when this standard diffuses (Zhu et al., 2006). An indirect network effect can also lead consumers to value a system that is more popular and easy to identify when many merchants offer similar software (Katz & Shapiro, 1994). Katz and Shapiro (1994) pointed out that merchants can benefit from their reputation, because if consumers know that a certain merchant will act to preserve its reputation, it will raise consumer’s expectations about that future network. In addition, the most essential with network effects is that, the more external adopters in the ecosystem that create or use complementary innovations, the more valuable that platform becomes. Network effects occur when two groups are drawn to each other (Eisenmann et al., 2006). Products and services bring together users through a platform, therefore, value increases when the platform fulfills the requirements from both sides. If users have to spend a certain amount of time to learn the functionalities of a digital platform (app), then users will most probably select the one that will be used most widely (Schilling, 1999).

### **4.3 Digital platforms**

Mobile devices in combination with mobile payment instruments and apps enable mobile payments. In the mobile payment market apps are digital platforms and seen as intermediaries between stakeholders (Buchinger et al., 2015). It is important to distinguish that standards by themselves are not platforms. Standards are rules or protocols that specify how to connect components to a platform or how to connect different products and use them together (Cusumano, 2010). Meanwhile, Wheelright and Clark (1992) defined platforms as products that meet the need of a core group of customers, but can be modified through the addition, substitution, or removal of features. A digital platform “consists of a coherent technical and

commercial offer for access to a universe of distant” (Meyer, 2000, p. 135). Xu et al. (2011) reported that people rather use their smartphones and apps as “gateways” to Internet services instead of the traditional web browsers. Apps that support mobile payment are considered as digital platforms within another platform (smartphone). Hence, mobile payment is emerging and gained much attention, which pressured service providers to launch their mobile channels apart from their online channels (Cao et al., 2015). Since mobile payments is carried out by the usage of mobile wallets, a virtual version of a customers’ physical wallet, Buchinger et al. (2015) pointed out mobile wallet apps as digital platforms that intermediates multi-sided markets.

#### **4.4 Multi-sided markets**

Multi-sided markets bring two or more groups of stakeholders together (Hagiu, 2009). Multi-sided markets utilize one or several platforms that enable interactions between different stakeholders (Rochet & Tirole, 2005). Meanwhile, Seamans and Zhu (2014) described platforms as an intermediary in a multi-sided market, which provides products or services to two or more sides of the market. In addition, Eisenmann et al. (2006) also pointed out that these platforms provide rules to facilitate transactions between two or more groups of stakeholders. In able for a multi-sided market to be successful this particular platform needs to satisfy either two or more stakeholders (Evans, 2003), but also enable interactions between the stakeholders (Evans, 2012).

Regarding pricing strategies there is a fundamental difference between the traditional and multi-sided markets value chain. In the traditional value chain (Porter, 1985), values moves from left side which is the cost, to right side which is the revenue. While in a two-sided market, cost and revenue are from both left and right (Eisenmann et al., 2006), since digital platforms have customers on each side. For instance, platform owners should therefore consider their business situation in order to decide which sides to be the money side and which to subsidize. Mobile wallet apps could be provided for a multi-sided market, that not just serve merchants and consumers (Evans & Schmalensee, 2013), but also other involved stakeholders within the mobile payment market. Regarding mobile wallet apps, one side could consist of third-parties or businesses with loyalty programs that could be incorporated in the app, while on the other side consist of loyal customers (users) (Buchinger et al., 2015). Therefore, implementing a loyalty program into the mobile payment solution could generate in a lock-in effect.

#### **4.5 Lock-in effects**

Lock-in elaborates not only from hardware and software, but also from actual information (Hanseth, 2001). What characterizes information lock-in is that they are proven to be more sustainable, in comparison to hardware where equipment can break. Lock-in implies, for instance, when a product or service has been established, it becomes difficult and in some cases impossible to develop a competing product or service (Hanseth, 2001). When a firm has standardized a certain product or service switching to another product can implicate high expenses on coordination and training (Shapiro & Varian, 1999). On the contrary, mobile

payments services has to be free for customers since they could easily switch back to using cash (Van der Heijden, 2002; Riksbank, 2013) and the learning curve has to be easy and user friendly (Karnouskos & Fokus, 2004; Carr, 2007). Although there is a fierce competition among mobile payment providers, switching cost are low for users since it is free (Zhou, 2013).

It is important for merchants to distinguish their products and services from other merchants. Lock-in arises when users invest in different complementary products that are specific for a certain technology (Hanseth, 2001; Shapiro & Varian, 1999). For instance, merchants that offer mobile payments utilizing NFC technology can result in users buying mobile devices that are NFC compatible. However, Klemperer (1987) investigated products during two different periods, where firms shown to have tendency to strategically drop their prices during the first period in order to attract more customers and during the second period take advantage of the first periods customers that to a certain degree has been locked in, by raising their prices. According to Zarrabi et al. (2015) merchants providing proprietary solutions (e.g., retailer-specific wallets) to its customers can lead to lock-ins and increase their spending's. These specific wallets require customers to transfer funds to their smartphones, which probably will be spent since it is money they deposit. When promoting this approach merchants' often offer discount rates, when this specific service is used (Zarrabi et al., 2015). Another approach to lock-in customers is to design loyalty programs and offer accumulating benefits. Loyalty programs must enhance the value proposition of ones products or service (Dowling & Uncles, 1997). Two examples of loyalty programs are frequent-flyer points (Farrell & Klemperer, 2007) where customers collect reward points per "dollar" spent and Member of My Starbucks Rewards (Starbucks, 2016b) where customers collect "Stars" in able to redeem rewards. Loyalty points can be leveraged as a revenue source, but also increase the lock-in effect (Buchinger et al., 2015). Furthermore, mobile payments require people to some extent change their payment behavior as history of payment methods matters. In addition, lock-in effects can also be related to path dependency.

#### **4.6 Path dependency**

Mobile payments are nothing new (Buchinger et al., 2015) and consumers are already familiar with using mobile payments, for instance, SMS to purchase logos, ringtones and games (Mallat & Tuunainen, 2008). Path dependency plays a significant role where competence and experience with prior technologies affects one's ability and incentive to adopt newer technology (Hanseth, 2001; Zhu et al., 2006). According to Coombs and Hull (1998) path dependency also focuses on positive feedbacks, where firms embrace the success of prior technologies. When a technology becomes a standard, newer versions should in some way be designed as compatible as possible to the existing technology (Hanseth, 2001). Firms that implement a new technology that is similar to the previous ones may lead to reduced training costs (Zhu et al., 2006). Difficulties with such implementation are that firms has tendency to become too attached to the previous standard even though newer and better standards are available (Zhu et al., 2006). One reason to prefer the old version hinge on the switching costs that occur when switching, for instance hardware or software has become obsolete and

training is required. Moreover, it is also of importance for merchants to understand the barriers of adopting mobile payments.

#### **4.7 Barriers to the adoption of mobile payments**

Merchants adopting or developing new payment methods are not free from barriers. One major obstacle for firms is the investment costs generated by adopting mobile payments (Mallat & Tuunainen, 2008). For instance, payment service providers might require high commissions or fees, equipment must be updated, or educating the personnel. Regarding the latter one, Van der Heijden (2002) suggest that acceptance from customers and merchants are interdependent, since they affect each other, especially in the initial stage. For instance, if customers indicates that they wants to pay through using mobile payments and that particular attendant shows anxiety by misusing the system, that customer's confidence for this mobile payment system would decrease drastically with a bad initial experience. Thus it is of importance for merchants to educate shop attendants to fully understand the usage of the mobile payment (Van der Heijden, 2002).

Another barrier for merchants is to reach a critical mass of adopters. A low adoption will consequently lead merchants to believe that the market is not mature enough and unclear if they will get return on investments (Mallat & Tuunainen, 2008). User interface and communication network are also seen as a barriers since it is based on small screens, incomplete keyboard, limited power supply, limited memory, limited bandwidth and lower transmissions speed (Cao et al., 2015; Mallat & Tuunainen, 2008). Finally, trust and security are seen as the most essential barrier for merchants. Customers have often showed distrust and privacy concerns regarding mobile transactions (Teo et al., 2015; Linck et al, 2006). Thus when merchants develop or adopt mobile payment apps they must be trustworthy where customers believe that their payment details will not be misused by the provider (Karnouskos & Fokus, 2004; Carr, 2007). Karnouskos and Fokus (2004) also pointed out the importance of security where customers' accounts should be resistant from attacks, such as from hackers or terrorists. Furthermore, it is also of importance for merchants to understand mobile payments and capture its diverseness of value when offering mobile payment services.

#### **4.8 Capturing value from mobile payments**

Value within mobile payments is according to Zinck Stagano (2012) "not created by just a technology, but is rather created through the interplay of technology, the user, and the purpose of use". Lepak et al. (2007) described value creation as "the relative amount of value that is subjectively realized by a target user (or buyer) who is the focus of the value creation" (p. 182). Subjective value indicates ones willingness to exchange a monetary amount for the value received. Furthermore, value proposition involves service and perceived value by the target customer (Ondrus et al., 2009). For instance, offering customers a more secure and convenient method to pay for products or services using ones mobile device. From a merchants' perspective, banks makes money from card and transaction fees. Merchants can by adopting or developing mobile payment solutions to lower its transaction fees and costs (Wong et al., 2015; Mallat & Tuunainen, 2008). Besides, merchants that adopt mobile

payments cannot just lower transaction cost, but also decrease cash management, which in turn will improve the speed in different processes and enhance customer service (Mallat & Tuunainen, 2008).

Merchants can also capture value by offering customers an additional channel and a faster way of conducting monetary transactions. According to Mallat and Tuunainen (2008) ubiquity is a superior value proposition for mobile technologies, as they enables mobile payment transactions from anywhere and anytime (Zhou, 2013). Mobile payment services offered by merchants can attract new customers, which could probably lead to impulse purchases (Mallat & Tuunainen, 2008). Merchants can also capture value in this new payment landscape and disrupt the market since they can become a payment service provider themselves (Ondrus & Pigneur, 2007; Karnouskos & Fokus, 2004). Besides, value can also be added and captured by implementing loyalty programs. Larger merchants can capture value and reap financial benefits based on their high volume of transactions, which in turn could threaten financial institutions (Ondrus & Pigneur, 2007).

## 5. Empirical Results

This chapter presents the results from the conducted interviews out of 14 Swedish merchants within different industries. The results will be structured into seven different industries which are: health care, food and drink, art and beauty, transportation, entertainment, fashion, and pure retail. The health care industry includes a hospital and a pharmacy. Food and drink includes a restaurant and a coffee shop. Art and beauty includes a tattoo salon, a hairdressing salon and a SPA. Transportation industry includes a railway company and the entertainment industry includes a nightclub. The Fashion industry includes a wrist-watch store and two clothing stores. Lastly, the pure retail industry includes a household and gardening merchant and a beverage merchant. These merchants will be presented as 13 different cases in order to receive a better overview of merchants' different situations. Each case will highlight the respondents' perspectives regarding mobile payments that are relevant and can be linked to the theoretical framework. Thus, in order to identify the key mechanisms for adopting mobile payments this thesis will in each case presented below highlight the respondents perspectives regarding their business conditions, awareness of mobile payments, customer base, type of mobile payment adopted, lock-in effects, network effects, barriers and values. Table 4 at the end of this chapter presents an overall summary of the coded materials.

### 5.1 Health Care Industry

#### 5.1.1 Hospital (R2)

##### **“Patients do not have high expectations on hospitals”**

This hospital offer different kinds of medical treatments within counties, regionally and nationally. The hospital also holds responsibility regarding research, education and development. The hospital is currently offering a mobile app as a communication channel, where patients can communicate with the hospital through a chat function. Regarding mobile payment R2 is aware of Swish, the possibility of connecting a card-reader into ones smartphone and that people have started with NFC technology. R2 mentioned Swish and card-readers as potential future adoptions. At this moment the hospital has other on-going projects, which puts them in a position where they are not ready for adopting mobile payments:

“Patients do not have high expectations on hospitals, since they know that we are a bit dense regarding technology, so I believe that they are thankful that they can pay with credit cards or invoices.” (R2)

The hospital has safety factors regarding cash management which led them to decrease the amount of units within the hospital where patients can pay with cash. In addition, invoices are not profitable since the cost is high in relation to what the hospital gets out of it (R2). R2 therefore suggest that hospitals in general should explore mobile payments. Patients can influence the hospital to adopt mobile payments by demanding a certain type of solution, such as Swish (R2). Since the hospital has a high flow of patients on a daily basis, the need for marketing or participation in forums to encourage or promote mobile payment are not

necessarily. The hospital gets affected by the market since patient can influence their decisions regarding mobile payments. R2 explained that people will acknowledge mobile payments and ask about the possibility to pay with mobile devices, while on the other hand people that go to the hospital or have contact with the hospital are usually older people between 40-60 years old and many of them prefer credit cards or cash payments. The driving force for elderly to adopt mobile payments is not as high as people from the younger generation. R2 was also determined that the hospital will adopt an established mobile payment. A mobile payment has to be simple, just as the hospital accepts credit cards like other merchants and in the same way the hospital should be able to find a well-known and established payment service such as Swish and make sure that it can be implemented (R2). Patients should not have to learn something new in order to pay at the hospital. What prevents the hospital from adopting mobile payments is the lack of demands from customers and that patient revenues are not the most profitable:

“I think it is about the lack of pressure from the patients, besides we are not focusing on finding new exciting solutions to charge money, because those patient revenues are just a fraction of our revenues so that is not our main revenue stream. We do not actually have any incentives on putting a lot of work on this since it is not what generates the most revenue for us.” (R2)

The value for hospitals to implement mobile payment solutions is a matter of convenience for the patients. On the contrary the more payment methods the hospital offers, the more administration it generates since the hospital also have to manage the support (R2). The value of implementing mobile payments are to decrease cash management, a matter of security for the employees, convenience and flexibility since patients can pay from anywhere, and an advantage since patients does not necessarily have to get stuck in a queue and be late for an appointment (R2). Therefore, it is of importance for the hospital to follow the development of society and then balance all the alternatives in order to identify the right fit for the hospital, since all products and services comes with a price tag (R2).

### **5.1.2 Pharmacy (R8)**

**“There has to be demand from the customers’ side, since there is a threshold that has to be passed”**

The pharmacy offers prescription drugs and self-care products such as lotions and shampoos. The pharmacy also supplies medical products to hospitals and subscriptions for private individuals. This pharmacy is currently offering m-commerce shopping (through mobile web browsers) and a mobile app where customers can search for products. According to R8 utilizing apps is considered as a way to reach out to all the customers and trapping them as fast as possible. R8 is aware of online technology, QR codes and NFC. In order for the pharmacy to implement mobile payments there has to be demands from the customers’ side, since there is a threshold that has to be passed. R8 mentioned Swish as a prospective solution, since Swish is established in the Swedish market and connected with BankID (authorization service). The pharmacy has already adopted BankID for customer identification when logging



into the pharmacy's website to search for personal subscriptions. According to R8 even the Swedish tax agency and many others has adopted BankID, which indicates a steady increase of adopters. Regarding development it is a matter of cost and based on the amount of transactions the pharmacy has, they require financial reports in order to confirm all the transactions, which are not possible if handling manually, in comparison to smaller businesses. R8 also explained that the pharmacy has a loyal customer base:

“We have one of Sweden's largest customer clubs with many loyal customers and a strong brand that lives up to its reputation. I believe that we have a large enough customer base to offer mobile payment services, imagine, we have younger people that uses BankID, so having experiences from e-commerce would be free of effort when moving to mobile payments. On the contrary we also have the sick and elderly people that appreciate to be in store. It is like a social thing to walk down to the pharmacy, pull out their wallet and pay with cash.” (R8)

Sweden has many elderly who are so sick that they cannot walk to the pharmacy or manage their own payments. R8 referred this to the pharmacies subscription service and pointed out that those elderly often have a personal assistant that manage their payments. Mobile payments could therefore facilitate the personal assistants duties instead of handling cash or invoices since it requires the power of attorney (R8). The pharmacy gets affected indirectly by other merchants that is offering mobile payments, for instance, the more merchants that offers mobile payments the more the customers gets affected and when it reaches the pharmacy's customer base they will naturally demand the pharmacy to adopt mobile payments (R8). R8 also mentioned that when developers design a mobile payment they should primarily focus on security for the customers and speed for the pharmacy, so that money can be receive quickly and it should also be free of effort for customers to utilize it. What prevents the pharmacy from adopting mobile payments is a matter of prioritization. The pharmacy has an extremely low percentage regarding online sales and based on the e-commerce statistics the pharmacy has not lost customers for not offering mobile payments (R8). On the other hand an adoption of Swish means that the pharmacy can eventually remove the direct payment process within an e-commerce context. The pharmacy is interested in both proprietary solutions (through their own app) or adopting from a provider, such as Swish. R8 also pointed out that every merchant has their own contracts or agreements with providers and it is a matter of negotiation depending on how many transactions each merchant has, in order to negotiate for a better price. However, the move to a cashless society seems far away, where customers can walk into pharmacies and pay with their smartphones (R8). R8 explained three barriers that prevent the pharmacy from adopting mobile payments:

“Firstly, it is a matter of investment cost, the time and effort we need to spend in order to develop it. A company like us utilizes IT-roadmaps, where most of our time is already included for the upcoming period. Secondly, creating a business case would be difficult to realize depending on the size of the development where we, for instance, question ourselves how much more we could sell if we

implement Swish? Lastly, it depends on how well-known the payment service is among the customers.” (R8)

## 5.2 Food and Drink Industry

### 5.2.1 Restaurant (R1)

#### **“Whenever girls are involved, this concept seems to work”**

The restaurant offer food, beverages and a unique dining experience. The restaurant has a mobile app where customers can reserve a table, check the menu, order food or drinks, and even pay through it. Although customers can pay through their app the main focus has always been on ordering services and not payment services. R1 is aware of solutions such as Swish, SEQR, Klarna (invoice service), Apple Pay, Android Pay and PayPal. R1 is also technical oriented and highlighted QR codes, online transactions, NFC and radio waves for mobile payments. The restaurant is currently using Paynova that manage customers’ payment details, which is an e-commerce service for payments and then Bambora an acquirer that manage the transactions, by ensuring that the money gets transferred to the right account. Although they have already adopted a mobile payment solution R1 pointed out that they are not locked into one payment solution, but rather, having their own app and then implementing third parties regarding the payment process. Regarding the restaurants customer base R1 explained it as large and understanding:

“I perceive our customer base as quite large, curious and can easily adapt to our mobile ordering concept. I would say that the guest has quite easily accepted it even though they have to learn certain things in able to place an order, so they are surprisingly positive to the experience. This requires a certain degree of mobile maturity and I can imagine that we might have difficulties in other markets where people are not so open toward e-commerce or when you have to give out your payment details.” (R1)

The restaurant was early with this concept of ordering food through ones smartphone and by that they have also created their own customer base. It further became natural for the customers to request for the possibility of paying through the app as well. The restaurant has a lot of girls among their customers and according to R1 they have tried this mobile ordering in different places and whenever girls are involved, this concept seems to work. R1 also explained that the restaurant gets affected by Swish since they has a large market share, which had them look into that solution. However, if Apple Pay reaches Sweden in the near future this solution will be more suitable for the restaurant since Apple is a large actor, but also makes it easier for customer to pay (R1). The importance of offering mobile payments is the security aspects:

“Customers have to feel safe using our mobile app and know that if something happens they can get their money back. Besides, personal details cannot be traced in a bad way, and that a serious player stands behind the solution. Trust is also important and if a large player such as Apple or Google is behind it, it would be

great. Swish is great since they have the banks behind them which create credibility for the payment method and I find Swish as simple and easy to understand.” (R1)

Between 60 and 80 percent prefer paying through the app, depending on the location in Sweden (R1). The reason for the high percentage is related to their loyalty program. Customers’ that has registered their payment details in the app and pay through the app receives loyalty points for each SEK spent. These collected points can thereafter be redeemed for free food:

“Instead of calling for a waiter/waitress, which you traditionally do, that also takes time. If you personally take care of the payment process by register your payment details and pay, you will receive loyalty points and the possibility to redeem the collected points. People think it is a great and a smooth solution.” (R1)

The disadvantage of implementing mobile payments for the restaurant is that many aspects has to fall into place, such as having a payment card that supports e-commerce where American Express are too expensive to implement, or security issues when customers gets suspicious regarding whom to give out their payment details to, which often creates additional work for the employees at the restaurant (R1). The advantage by offering mobile payments means that employees not necessarily have to walk out with a POS terminal for each payment, but instead working with other tasks. Another advantage is that loyalty programs can be implemented in the mobile channel and that customers not necessarily have to communicate with the staff but instead socialize with their group of friends. Having mobile payment also means that revenue has to be divided between different stakeholders:

“Out of a cost perspective, it is still very expensive since they [Paynova] take a premium since they are an e-commerce solution. We pay a fee to the acquirer [Bambora] and then you pay a fee to Paynova, so more or less double costs for e-commerce solutions. So the expenses have increased, but what happened is that customers nowadays manage the payment process themselves, which means that we do not need as much staff to manage the payments, but instead more time to manage other tasks such as helping customers with the technical aspects.” (R1)

Customer has to download their app to be able to place an order, which is seen as one way of lock-in. Another way of lock-in is the implementation of the loyalty program that affects customers to redeem their collected points. The restaurant works actively on social media to increase their customer base by creating funny videos. Besides, they also offer an invitational model where customers can invite friends by sending an SMS via their app and if that person eats at one of their restaurants, then both will receive loyalty points, which is seen as a social activity (R1). The value of mobile payments and a mobile channel is the possibility of linking the customers with the restaurant through a loyalty program. R1 explained that customers that pay with their smartphones get loyalty points and the restaurant receives feedbacks. The

restaurant also strives for a cashless restaurant and those restaurants within their chain that still accept cash are working to dismantle cash. The value of digitalization creates new experiences and makes it easier to open up new restaurants, and easier to collect information about the customers (R1).

### 5.2.2 Coffee shop (R6)

#### **“We are the only one that has our current solution”**

The coffee shop offers coffee related drinks in both hot and cold versions, pastries, sandwiches, and even coffee beans. This coffee shop strives to create a comfortable meeting point for customers that either wish to study, meet friends or have a business lunch. The actual experience is more important in comparison to the products they offer. The coffee shop offers a mobile app where customers can find the closest coffee shop on a digital map, see receipts and receive personalized deals, but also mobile payment by topping up their coffee card with balance. Customers can even top up a friend’s coffee card or purchase and send a gift through the app. This coffee shop utilize online and QR technology to conduct mobile payments. It is essential for merchants to identify a solution that suits their business. The market does not have many solutions since it is difficult to find a generic solution that fits all industries (R6). Mobile payment has to be as easy as card payments where R6 refer to the POS moment regarding the registration process and the effort for customers to learn it. People that has downloaded their app and become familiar with the app are still using it. However, the challenging part is to motivate people to get started, by downloading the app, register and learn it. Although it is simple with mobile payments, people still has to open their smartphones, navigate to the app and that corresponds the time it takes to pull out ones wallet and look for their VISA card (R6). The positive aspect is that customers not necessarily have to bring their cards with them, but on the other hand it is something people always bring with them (R6). Offering mobile payment is not enough; companies must always have something else to offer its customers. When the coffee shop launched their mobile channel customers that downloaded their app received a gift, and when the customer registered their payment cards they received another gift:

“The secret for us is to have a lot of deals and by having deals customers get a hefty discount. In addition, we already have ten percent discount for mobile payments when you pay through the app on everything [all their products]. People have to feel that they get something from downloading our app, which at least makes them try. We are trying to guide them through the threshold, which I believe many have failed, since other industries do not offer deals as we do. For instance, a company that only works with mobile payment solutions does not offer a latte [coffee drink], they have to purchase latte and that could generate in high costs. The reason why mobile payment works for us is that we can combine mobile payment, deals and great discounts.” (R6)

Regarding their customer base and if their business requires a critical mass before adopting mobile payments R6 explained that their customer base is stable and that their business can do

both, either reach a critical mass or already having a critical mass. If a merchant want to boost up the usage of mobile payments, a larger customer base with contact details is preferable, since merchants can send out e-mails and inform the customers about a new app (R6). The coffee shop does not provide mobile payment for the actual payment, but rather offering it in order to increase customers' satisfaction. The app that they have implemented is designed for their business, which led them to avoid adding marketing campaigns by other merchants and ensure that customers are coming back (R6). Their solution is based on gift cards and customers that had a physical gift card before the implementation of the mobile app had a lower learning curve since they only had to connect their card to the app. The coffee shop is also aware of the importance of having a mobile channel to the customers since it generates data and according to R6, without mobile payment they would not have a relevant communication channel to its customers. The relevance of having a mobile app creates a new behavior for customers to initiate the app and look for deals, which creates a moment of communication between the customer and the coffee shop. According to R6 mobile payments creates a communication channel to drive additional sales and mobile payments would not work without the deals, as these are symbiosis and would not work alone. Statistics has also shown that the coffee shop have a high repurchase rate among their customers. As the coffee shop is offering mobile payment through their app, a discussion regarding if this was seen as a proprietary solution or an adoption of a third party R6 explained that:

“We have bought all our IT services so it depends on how we define proprietary, we are the only one that has our current solution and it is developed by a company, but we are currently the only one using it. We launched it two years ago [2014] and the company [developer] has not identified another industry that this solution fits in, so it is difficult to find a generic solution. You have to adapt a lot and the uniqueness about our app is that it has our design, our deals and connected to our POS systems, so it is difficult to implement this in other markets.” (R6)

The coffee shops mobile payment solution stands for three percent of the development cost and 97 percent was for the deals, which is more interesting for the company than mobile payments. Utilizing mobile payment has also shown a decrease in transaction cost. Customers have to top up the balance of their coffee cards through the app and they tend to preload the balance with a higher amount, and when the card payment becomes higher the transaction cost will become lower (R6). Statistics also shows that one out of ten customers will use their app to conduct a mobile transaction and they have currently more than 100 000 customers that utilize the mobile app on a regular basis. Regarding the disadvantages with mobile payments R6 pointed out fraud and technical issues such as exposure for IT attacks. Another disadvantage is to reach new customer segments such as tourist and elders that are not technical versed. The advantage of mobile payment is customer satisfaction that generates in repurchasing. For instance, customers like to be offered deals and thinks it is “cool”, which is the greatest advantage (R6). The coffee shop is also working actively on social media such as Facebook and Instagram to boost their brand reputation, and twice a year they also have marketing campaigns with lots of marketing materials in stores, where the employees'

mission is to recruit new downloads of the app. In addition to their deals and ten percent discounts, this coffee shop also has a loyalty program where customers can reach the gold level. When someone in their group of friends has reached the gold level, that customer can send a gift to anyone. To reach the gold level each month the customer must have conducted five purchases. The idea of this loyalty program is to spread this virally, rather than spending money on media. Customers can also invite friends by sending an SMS via the app. The value of mobile payment is to open up a new communication channel, create customer satisfaction and creating loyalty by having customers coming back. R6 also finished the interview by mentioning that NFC technology will be interesting when it reaches the Swedish market.

## **5.3 Art and Beauty Industry**

### **5.3.1 Tattoo salon (R12)**

#### **“Receiver of a tattoo does not necessarily have to be the payer”**

This salon primarily offers tattoo services, but also creates arts such as paintings. The salon is currently not offering a mobile channel where customers can book appointments, but is offering Swish as their mobile payment solution. The reason for implementing Swish was basically the recommendation from their bank. R12 was also interested in another mobile payment service, namely iZettle the card-reader connected to one's smartphone. According to R12 the salon has an extremely good customer base and the need of reaching a critical mass in order to adopt a mobile payment is not necessarily. A solution like Swish do not require a company to reach a critical mass of customers, it is enough with a smaller customer base as well (R12). The salon has currently other payment methods and the one that is most frequently used today is the mobile payment service Swish and lowest are cash payments. During the initial stage the salon had only one or two mobile payments per month. As of today, at least 50 percent of the customers pay with Swish. Due to the fact that the salon actively recommend customers to not pay with cash, since cash management require a lot of administration, while mobile payment implies direct transfers:

“We recommend and prefer our customers to use Swish and we always ask like this; how do you prefer to pay? Is it possible for you to pay with Swish? And then I just tell them our organizational Swish-number and they just pay. When the payment is conducted, I just type it into the checkout terminal and hand them the receipt. If it is the other way around when customers or potential customers ask us if we accept card payments, I always tell them that we also accept Swish”. (R12)

According to R12 direct transfers is the safest, where people cannot skim a direct payment. Besides, utilizing mobile payments also generates in a lot of information such as who the payer was and from which cellphone number (R12). The tattoo salon does not get affected by other merchants offering mobile payments since they are the only tattoo salon that offers Swish in their city. According to R12 Swish is tremendously simple and suitable for their business. For instance, telling someone a price and then just “swish” that amount to their organizational Swish-number. The disadvantage of using mobile payments is the technical

aspects, for instance, bad coverage or disconnections (R12). While a disadvantage with Swish is that users cannot adjust the transaction limit of 3000 SEK through the mobile app and if a tattoo service cost 5000 SEK, customers has to adjust it through the website. Another disadvantage with Swish regarding smaller business is that customers might end up transferring the money to the owners' cellphone number instead of the organizational Swish-number, which creates additional administration. The advantage of using Swish is that the monetary amount is transferred directly from the customer's account to the salons account. Regarding administration R12 explained that it has become much easier for them to go through the bills and that transaction cost has decreased since they manage to cut a free deal with the provider. This tattoo salon utilize social media such as Facebook to inform customers and potential customers that they accept Swish, card payments, or cash, but they strongly recommend customers to pay with Swish. The value of mobile payment is to offer customers another payment alternative and the best part of mobile payment is flexibility:

“When a customer forgets his/her wallet and cannot pay at that particular moment it is possible for that customer to go home and adjust the transaction limit and then “swish” the money to us. Another example is that customers that have to wait until the 25<sup>th</sup> of that month in order to receive their salaries can therefore transfer the money later. It creates a certain degree of flexibility where customers do not necessarily have to physically be at the salon in order to conduct a payment transaction, and when they transfer the money from elsewhere, I just type it into the checkout terminal. In addition, if a parent wants to pay for a tattoo as a gift for their child, that parent can transfer the money from anywhere; the receiver [of a tattoo service] does not necessarily have to be the payer as well.” (R12)

Swish is a solution that works for this tattoo salon but they are not afraid of trying something new in the future, because in comparison to a grocery store that has hundreds of customers in one day, this salon only accept one customer a day. Based on their condition it makes perfect sense for them to adopt Swish (R12).

### **5.3.2 Hairdressing salon (R9)**

**“It is not about offering payment solutions, but rather offering excellent hairdressers”**

This salon offers hairdressing services but also provide customers with a diversity of hair products. The salon is currently not offering a mobile app where customers can book appointments for hairdressing services. As of January 2016 the salon became cashless, by not accepting cash payments. This salon offers card payments, invoice payments and Swish as their mobile payment. The reason for removing cash payments is according to R9 a safety precaution to minimize the risk of robbery when handling cash in stores. Besides Swish, R9 is also aware of the QR technology, but companies working with QR solutions have not contacted them. Regarding their customer base R9 perceive a steady increase. The importance within this industry is to provide quality services to ensure that customers are coming back:

“Within our industry it is not about offering payment solutions, but rather offering excellent hairdressers. It becomes value adding for the customer when we have performed a good treatment and moreover even offer a smoothly payment method for the customers. That is the reason for customers to return to us.” (R9)

A mobile payment solution should according to R9 be simple, be fast, but also ensures an easy and smoothly administrative process. Regarding their payment methods, card payments is still the most frequently used by customers and has increased since the removal of cash payments. Swish stands for two percent of their transactions while invoices stand for one percent. This salon does not get affected by other merchants offering mobile payments. According to R9 there is another hairdressing salon that only accepts card payments and that could generate in loss of customers. Thus, it is important to offer customers other payment alternatives that generates in customer satisfaction. Offering mobile payment also means that there is a transaction fee that has to be charged. Swish charge 2.50 SEK for each transaction and if a customer buys a product such as shampoo for 30-50 SEK, then 2.50 might be expensive. However, if customers cuts and dyes their hair for 1900 SEK then 2.50 SEK is not that much (R9). The value of removing cash is also about minimizing administrative working hours and convenience for employees:

“That fifteen minutes or whatever it takes to handle the cash and to count them takes time, which all employees want to get paid for. Should we schedule that quarter after hours? Nowadays employees can close directly after their final payment. It is also easy to complete a checkout on the POS terminal and then go home.” (R9)

R9 also pointed out that card payments obviously affect mobile payments since elderly does not utilize smartphones and prefer paying with cards. Removing cash and adopting mobile payment has increased the security, rationalized the working process by avoiding cash management, but also become cost saving (R9).

### **5.3.3 SPA (R14)**

#### **“Our systems and cash desks are prepared for it”**

A SPA has four cornerstones that has to be included which are; restaurant, gym/fitness, treatments (e.g. massage) and conference. This SPA covers all these cornerstones, but also offering a mobile app where members can book different workout sessions. R14 is aware of Swish and QR codes, but has not put a lot of effort into identifying mobile payment solutions for their business. This SPA does not get affected by other merchants that are offering mobile payments. The SPA has many customers that pay with gift cards, which indicates that customers have already paid in advance before arriving at the SPA. Customer have either bought treatments through their website and paid via Internet banking or received gift cards where someone has paid for it (R14). In this sense, adopting mobile payment would create flexibility and convenience for customers and members (R14). Their customer base is perceived as stable as they have approximately 3000 members. Due to the fact that the SPA



has a lot of elderly members, R14 believes that a critical mass of customers or members has to be reached in order for them to implement a mobile payment. This SPA has been discussing the possibility of implementing mobile payment solutions but what prevents them from starting is that no one within the organization has initiated it. In addition R14 cannot find any barriers of adopting mobile payments since they are ready for it:

“Actually, we do not have any barriers, because our systems and cash desks are prepared for it, educating the staff would not be a problem, so it is a matter of time and that someone has to take charge, so I cannot find any barriers.” (R14)

R14 also pointed out that there has been a low customer demand regarding mobile payment adoption and none of the employees have asked the top management about it either. R14 was determined that the SPA would adopt a mobile payment in the near future and it would be from an established provider. An adoption of mobile payments is related to the possibilities of decreasing cash management and increasing the security:

“We have discussed about removing cash payments. This minimizes the risks and a working process disappears. Having cash in store is always a risk which also implies extra work for those that has to count the money, so we have thought about removing it, or at least strive to decrease it. On the contrary we also have a lot of elderly here that prefer cash payment, so I find it difficult to remove it completely.” (R14)

## **5.4 Transportation Industry**

### **5.4.1 Railway (R13)**

#### **“Value of mobile payment is to create a modern payment alternative”**

This railway merchant offers train transportation services within Sweden, but also to other Scandinavian countries such as Norway and Denmark. This merchant offers a mobile app where customers can book train travels, see departure and arrival schedules and even pay through the app. R13 is aware of Swish, Klarna, Apple Pay and PayPal that charge premium fees. R13 mentioned Apple Pay as a potential future implementation, however, it is a matter of costs since Apple pay is based on card payments they also want to reap financial benefits, which then depends on merchants’ willingness to invest in Apple Pays services. R13 explained that they are currently utilizing an Internet based solution in combination with QR technology:

“Our payment solution is Internet based and utilizes a PSP called Paynova and then on the trains we are using another PSP with QR codes. We are using this infrastructure and connected to Amadeus [payment authorizer for credit and debit cards] and a platform which travel agencies also utilize, and they [travel agencies] have their own web based services which is Amadeus e-travel management and if they develop an app around those parts they will be able to sell our [railway company’s] products through that channel.” (R13)

R13 clarifies that the company has their own way of sales channels, but they also have dealers and how the dealers sell their services is up to them. Regarding their customer base R13 perceived it as large and pointed out 1.3 million registered members. R13 perceives that it is important to reach a critical mass of users in order to adopt mobile payment solutions. In addition, the focus has not been on offering mobile payments but rather offering customers the possibility of traveling with their trains. This merchant does not get affected by other merchants within the same industry, since they offer other payment solutions such as Klarna. R13 highlighted that they have removed cash payments on their trains, except at the bistro section, therefore, cash management has decreased markedly. In addition, since the removal of purchasing train tickets on their trains, customers have shown an increase usage of mobile payments (R13). R13 perceives their app as an additional sales channel and the purpose is to identify payment solutions for all their sales channels. Having a mobile app also facilitates the integration of Swish, but Swish will also function at their e-commerce channel. Thus, in the near future this merchant will also implement Swish as an additional payment alternative for its customers and members. Adopting mobile payments means that revenue has to be shared among stakeholders:

“For the actual payment we are paying the card companies and we also pay Paynova for their services and the card companies pay through their bank that uses us, so technically we never pay directly to the card companies, on the other hand, they [card company] charge a fee towards the bank which in turn pays the card company. Besides, we have direct payments [e-commerce] and then we have to pay directly to the banks also via Paynova. Paynova manage the payment solutions with card payments, direct payments and invoices.” (R13)

R13 explained that they also utilize a loyalty program. For every SEK spent on the company's services, the customer gets points for that certain amount. This loyalty program does not require the customer to pay through the mobile app in order to collect points; customers can choose any payment method and still collect points. The collected points can then be redeemed for free train tickets or other experiences (R13). The value of mobile payments is to create a modern payment alternative regardless which payment channel customers prefer, which also creates convenience and flexibility for the customers (R13). Handling cash not only costs money to manage but it also adds risks regarding working environment for the employees. Furthermore, according to R13 people are comfortable with card payments and use cards to pay for everything, and the difficulties regarding mobile payments is that foreign countries have other structures and cards are common for everyone. The possibilities of adopting mobile payment are flexibility for the customers, security for both customers and the merchant, and lastly a quick transfer to finalize the purchase (R13).

## 5.5 Entertainment Industry

### 5.5.1 Nightclub (R11)

**“It is important to get the customers into the club as fast as possible”**

The nightclub offers a holistic concept such as food, drinks and entertainment. This nightclub offers a mobile app where customers can sign up for the guest list before arriving at the club. R11 is aware of Klarna, Payson, Swish, SEQR and Apple Pay. According to R11 several software providers or PSPs have offered them their services, such as queuing systems or gift cards where customers can buy through their mobile devices. This nightclub is doing its utmost to ensure that every night will be different from the night before. The nightclub has more than 500 visitors each night. Regarding mobile payment adoption R11 highlighted speed as most important for the nightclub:

“If someone stands in line [outside the club] and imagine when we have a queue of several meters with 100 people, where each and every person has to approach the cashier that takes 15, 20 or 30 seconds to put their cards into the terminal [POS] and pull it out, or pay with cash. In our business we have to make as much money as possible within two or three hours, it is therefore important to get the customers into the club as fast as possible. We are not making any money by having them standing outside in the queue. This is where a mobile payment solution becomes valuable, where customers can either prepay or use their smartphones to scan a code or something at the cashier in order to optimize the flow of the queue.” (R11)

The nightclub does not get affected by other merchants, but in the near future R11 believes that mobile payments will penetrate the market and eventually people can pay for themselves everywhere, using a smartphone. The nightclub has not found the best solutions for their business yet, which is the reason that prevents them from adopting a mobile payment. R11 explained that they do not want to push out a mobile payment unless it is tested and proven. The demand from their customers to adopt a mobile payment has also been low. But if the nightclub finds a solution that fits their business and safe for the customers, they will consider adopting it. If they decide to develop a proprietary solution R11 finds the involvement of the merchant as essential. Participation during the development process creates transparency where merchants can assist developers to tailor a solution for their business (R11). Merchants have different conditions and objectives, which is why a solution might not benefit other merchants within the same industry. Therefore, focus has to be on the merchants’ needs, although providers might have their solutions for merchants. Regardless of a proprietary or a third-party adoption, as long as it benefits the nightclub R11 is open for suggestions. R11 perceive the possibilities of adopting mobile payments to decrease cash management and paperwork:

“It is much better if it goes through a mobile payment service, because then you will receive an email once a month with sums to put into the accountings, instead

of handling cash and receipt after receipt. The risk is that we in the future might have to cut down the staff, for instance, instead of having two cashiers at the entrance, we might only need one, since people can scan a code to get into the club.” (R11)

R11 also highlighted the greatest barrier for all merchants to implement mobile payment is their laziness, where those that are responsible of finding a better solution have not put any effort in finding a mobile payment service that fits their businesses.

## **5.6 Fashion Industry**

### **5.6.1 Wrist-watch (R3)**

#### **“Belongs to a company chain that acts according to the decisions that are taken centrally”**

This merchant offer wrist-watches, clockwork, battery changing and repair services. They are currently not offering a mobile app where customers can search for products. R3 is aware of mobile payments such as Swish and Klarna and consider Swish as a possible mobile payment to adopt. Since this store belongs to a company chain they will have to act according to the decisions that are taken centrally. The whole chain is utilizing the same payment system and all the payment terminals are integrated, which enables top management to have an overview of sales and services provided. Regarding their customer base R3 perceive it as stable and has customers in all ages. R3 also emphasize the importance of reaching a critical mass of customers before adopting a mobile payment. According to R3 mobile payments offered by others affects the store:

“If a customer walks into my store and looks for a wrist-watch and just considering to buy it. Then during the evening that customer purchases it online since everything goes faster nowadays. Besides, it is also simple to look at a picture and then buy the product online and then I will lose a customer. But if I would post pictures in my store and a customer walks in, then they might think that ‘this was very strange’.” (R3)

R3 was trying to clarify the importance of offering customers additional payment alternatives in order to gain competitive advantages. R3 has also noticed a decrease of cash payments, as money becomes fictitious. People receive their salaries into their bank accounts and pay with their credit cards or smartphones. The importance of adopting a mobile payment is to ensure that it is safe and free of effort for both the customers and the merchant. Since this store belongs to a company chain it means that what prevents the store from adopting mobile payments is that a decision has to be made centrally. When a decision has been taken, then the entire chain has to adopt the same mobile payment, which R3 believes will happen in the near future since their system is ready for it. Although the demands from the customer side of adopting mobile payments has been low, R3 sees the possibilities of additional sales if someone forgets their wallets. On the other hand people might believe it is easier to leave

their wallets at home, but might prefer card payments in relation to greater amounts when purchasing a wrist-watch:

“We change batteries for customers, we change a lot of batteries and using mobile payments to scan a code is quicker and easier. But when you want to buy that expensive wrist-watch, then people might want to use their credit cards since it feels safer, you are not going to buy a wristwatch for 67 000 thousand with a smartphone. Because when you buy this 67 000 thousand wrist-watch, you want to have an extra receipt that you put together with the insurance and seeing a receipt become value adding. I see mobile payment as a complement, such as for the battery changes that cost 127 SEK.” (R3)

### **5.6.2 Clothing 1 (R4) and 2 (R10)**

#### **“A transaction would not get cancelled because the clothing store does not offer mobile payments”**

These clothing stores offer branded clothes, shoes and accessories. Both merchants do not offer a mobile app for its customers to search for products. Both R4 and R10 are aware of Swish as a mobile payment alternative in Sweden. The banks have requested R10 to adopt Swish but R10 declined, while R4 pointed out that companies working with mobile payments have shown a low interest for smaller businesses. However, customers have demanded R4 to adopt Klarna. The respondents pointed out the importance of being in store to tryout the products and that previous payment methods affect the adoption of mobile payments:

“I believe that the products I am selling to my customers do not need Swish as a payment method. Most of the customers have cards with them as I have 80 percent card payments and 20 percent cash.” (R10)

“People should not buy these types [middle class and premium] of clothes online; customers should try them, since size differs from customer to customer regarding how it fits. I cannot see the advantage of mobile payments, why should it attract a customer? Current customers can pay with cards or cash. On the other hand, when a customers’ card does not work, then Swish might become a great solution, but usually the POS terminal works since we are a physical store in comparison to a business that require a lot of traveling.” (R4)

Regarding their customer base these merchants has its regular customers and then random customers, which both R4 and R10 perceive as stable. R4 believes that reaching a critical mass is important in order to adopt mobile payments or at least to get it started. Both R4 and R10 believe that a transaction between the store and a customer would not get cancelled because they do not offer mobile payments. However, if there is a mobile payment for free, where R4 do not need to pay a fixed cost and a percentage fee for each transaction, then R4 will consider trying it. R4 suggest that mobile payment providers should let merchants try their services for six months without any transaction fees in able to experience the advantages

and possibilities. When merchants realize the positive effects, then they would happily pay for it (R4). R4 also pointed out that mobile payment is not profitable at the moment and decided to wait until the market matures. Both R4 and R10 pointed out that they are not affected by other merchants offering mobile payments. R4 explained that Klarna is the only solution that affects the clothing store, while R10 explained that mobile payments create additional administration work:

“People might want a shirt but do not have the cash the 21<sup>st</sup> [date of the month] and are going to the club [nightclub/bar]. Then that customer might go home and purchase it online instead, since they [online stores] can wait until customers receive their salary and then pay for it.” (R4)

“I do not like the idea of someone paying with their smartphones in store. Adopting mobile payments creates more work for the merchants and it creates question marks regarding the Swedish tax agency. By adopting Swish, I am putting myself in more control for no reason. Every detail that appears creates more work, additional time and becomes inconvenient for me. I am a small business and have to handle everything myself. I have my terminal and I have my checkout terminal, that’s it!” (R10)

The barriers for R10 to adopt mobile payments are clearly additional administration work that comes with the adoption and uncertainties regarding the systems. The reason is that new devices have to be implemented where systems and terminals have to be integrated and that creates headache according to R10. Besides the demands from the customer side has also been low (R4, R10). Meanwhile R4 identify the need as the greatest barrier, but also uncertainties’ regarding the development of mobile payments since it is still unproven. It might take five to ten years for mobile payments to become the number one payment alternative or become a total failure in Sweden (R4). R4 strongly believes that a trial period for the merchants will be the key to a successful implementation. While, R10 on the other hand can only see one possibility and that is if the POS terminal for credit and debit cards enables mobile payments to function within the same system, then R10 will consider an adoption.

## **5.7 Pure Retail Industry**

### **5.7.1 Household and gardening (R5)**

#### **“A well-known merchant should get involved with the payment solutions”**

This household company offer products that can solve a person’s daily concerns within a household and gardening context, such as tools and other utilities. This merchant also offer a mobile app where customers can find closest store, see the availability of products at a specific store, create their shopping list and scan products in stores. R5 is aware of mobile payments such as Swish, SEQR, MasterPass, Klarna, PayPal, M-Pesa and Apple Pay. Customer can currently buy and pay for their products through e-commerce and m-commerce. This merchant does not offer mobile payments, but the top management has decided that

customers should be able to utilize mobile payments and will adopt SEQR in stores within the near future. Regarding their customer base R5 perceived it as large and wide, since they have customers of all ages and gender. Mobile payment is a matter of investment and the belief of its breakthrough in the Swedish market. The company only invests if they believe that a certain mobile payment will function and at the same time improve their concept (R5). Customers and especially those from the younger generation have asked for SEQR, since merchants like McDonalds has adopted it. R5 has also noticed that customers in the Swedish market have turned card payments into the main payment alternative, as cash payment is gradually decreasing. According to R5 many merchants are discussing Swish as a solution since many customers have passed the threshold and learned how to use Swish in combination with BankID:

“Swedish people have learned to use it [BankID], we think it is a good solution, we use it when we declare [Swedish tax agency], and we use it when we log in to our banks, so why not use it when we buy things at stores we recognize. Use it on places we recognize, feel safe at and knowing that this solution works.” (R5)

Appearance is also essential for customers when deciding whether to register or not. R5 mentioned a bad personal experience of a registration process for a mobile payment service. R5 had to navigate via Google in order to find the registration page on SEB (Svenska Enskilda Bankerna), which in turn transferred R5 to another website which was not SEB, but instead some kind of mixed page that looked quite unprofessional. If R5 did not know about that solution in advance, R5 would never have registered. It is therefore important that the registration process looks professional and that a well-known merchant gets involved with the payment solutions, for instance, when Lindex (clothing merchant) adopted Swish (R5). In addition, customers have to feel familiar with a mobile payments feature although users have never used it before. Furthermore customers' should not have to give out all their personal details and yet be recognized at the next purchase:

“I have used and paid with my credit card via a railway company and they recognize me now when I get back. When I log into their app they remember my credit card number, my address, my cellphone number, and every time I purchase a train ticket I use my CVC code, which is the only thing I have to remember for the next purchase of a ticket. This feels safe and I can recognize the payment process.” (R5)

R5 pointed out the costs of adopting a mobile payment as a barrier and the difficulties of turning ideas into technical solutions, which is also free of effort for its customers to learn. What also prevents this merchant from adopting a mobile payment is the technology and that customer demands has been low. R5 explained that they have an obsolete system, which they will switch. This project will take a couple of years and their entire product information and price lists are stored within this in-house built system. This indicates integration issues if a mobile payment solution has to get adopted. When asked about if they will develop a

proprietary solution or adopt from a third party R5 explained that many merchants has the lack of in-house knowledge to develop a proprietary solution, which is the reason for adopting from payment service providers. This merchant has currently different types of PSP such as, one for their physical stores and one through e-commerce and m-commerce. R5 also pointed out that the company does not handle any payment details but rather adopting a PSP to ensure that the money is transferred to their account. Another reason is that the selection of PSP is important since they also manage the integration process. If the right PSP has been chosen then the company can implement additional mobile payment services such as Swish or Apple Pay without difficulties (R5). The value of adopting mobile payment is to offer customers an additional payment channel that generates in additional sales.

### 5.7.2 Beverages (R7)

#### **"We do not keep customer records and speed is the key for a successful implementation"**

This merchant is a major vendor in the beverages market that also offers customers an ordering service to purchase beverages through e-commerce and m-commerce. The company also offer two types of mobile apps; one that emphasize the search for products and the other for measuring a person's alcoholic condition. R7 is aware of Swish and SEQR. Adopting a mobile payment solution has to improve their cash queues or at least ensure that customers do not need to spend more time waiting in the queue, in comparison to their current situation. In addition, this merchant does not emphasize additional sales of beverages, but instead maintain a fast customer flow and customer satisfaction regarding the queuing process:

"I think that people does not really understand how fast our cash queues are in comparison to other retailers. It is more acceptable to stand in line when people are buying groceries, than in one of our checkouts. We are counting milliseconds when we make any changes regarding the cash queues or regardless of what type of improvements. It is therefore important that it goes fast, smoothly and is economically sustainable. It also has to be cost efficient, so that we are not investing in something that leads to a great financial loss." (R7)

Speed is the key for a successful adoption of a mobile payment, customers cannot stand next to the cashier and type their cellphone numbers or e-mail addresses (R7). Another factor is the search for a standardized solution that has to be sustainable, where customers do not need to download several apps in order to pay in our stores (R7). R7 mentioned that at least five software providers have demonstrated their solutions, however, the solutions were considered as not suitable for their business at the moment. For instance, all the presented solutions included having customer records and this merchant does not keep customer records. Besides, sales representatives from each provider have argued that their solution will streamline the cash flow and failed when demonstrating the differences (R7). Therefore, spending time and effort on finding a mobile payment is not their main priority. This merchant have analyzed different solutions but also observed other merchants within the same industry that have adopted mobile payments. The results showed that mobile payment has no greater impact,



since customers does not utilize it (R7). This have generated in providers withdrawing their service or being acquired by another company (R7). Thus, the reason for this merchant to follow the development of the presented solutions and wait until the mobile payment market matures. Although R7 perceive their customer base as large, the size of the customer base does not matter when offering a mobile payment. For their business the size is just a number, however the customers' opinions matters more since they have to demand for a mobile payment in order for the merchant to provide it:

“We do not push for additional sales, which often direct us. As long as the customer do not demand something and that we do not see a demand within similar industries, then the possibility of us being the first with developing something new is not that high.” (R7)

The possibilities of adopting a mobile payment are a matter of security, speed and lowering the transaction cost (R7). From a security perspective by paying through a smartphone means that employees do not have to handle as much cash in stores, which will increase the level of safety (R7). Mobile payments also have the potential to improve the cash flow; however it is a matter of finding the right solution for their business. In the Swedish market customers prefer paying with cards which could generate in high transaction costs, therefore, mobile payment should be able to lower the transaction costs or at least not increase them (R7). What prevents this merchant from adopting mobile payment solution is clearly the lack of customer demands:

“I understand that the market [the merchants] should be more forcing, but I am not sure if that is always the case regarding digitalization. Generally, customers are those that initiate a behavior and merchants are those that has to adapt, which I believe is fine with us, that the customers becomes our driving force since it is their demands that steers us. We also keep ourselves updated so when the market has matured, I believe that we can adapt quite quickly.” (R7)

This merchant will not develop a proprietary solution, but instead wait for strong actors that offer a solution that fits their business. According to R7 merchants are more careful regarding these types of solutions, since the investment cost might be high in comparison to what they or their customers get out from it.

## 5.8 Summary of the coded materials

Merchant	Awareness of mobile payments	Customer base	Type of MP offered	Lock-in	Network effects	Barriers/ Hinders/ Negatively	Value/ Possibilities
Hospital	Swish • Online, Card reader, NFC	Large	none	none	Patients/ Customers	Low C demand, Not main revenue, Additional administration	Convenience, Flexibility, Decrease cash management
Pharmacy	Swish • Online, QR, NFC	Large	none	none	Customers	Low C demand, Costs, Creating Business case	Convenience, Decrease cash Management
Restaurant	Swish, SEQR, Klarna, Apple Pay, Android Pay, PayPal • Online, QR, NFC, Radio wave	Large	Online (Paynova, Bambara)	Download App, Loyalty program	Social media & Invite via SMS	Still Expensive	Flexibility, Digitalization, New communication channel
Coffee shop	Online, QR, NFC	Large	Online & QR codes	Download App, Loyalty program	Social media & Invite via SMS	Fraud, IT attacks, Reach tourists or elder	Customer satisfaction, Lower transaction costs, New Communication channel, Offering deals
Tattoo	Swish, iZettle • Online	Large	Swish	none	Social media, In store	Technology, Adjust transaction limit	Simplicity, Flexibility, Direct transfer, Decrease cash management & administration
Hairdressing	Swish • Online, QR	Large	Swish	none	Social media, In store	Exclude elderly	Convenience, Cost saving, Decrease cash management
SPA	Swish • Online, QR	Stable	None	none	Not revealed	Low C demand, Members not technically versed, Time & resources (laziness)	Convenience, Increase security, Decrease cash management

<b>Railway</b>	Swish, PayPal, Apple Pay • Online, QR, NFC	Large	Online & QR code (Paynova, Amadeus)  Swish - will be adopted	Download App, Loyalty Program	Not revealed	Reach tourists	Convenience, Flexibility, Decrease cash management, Additional sales channels, Direct transfers
<b>Nightclub</b>	Swish, Klarna, Payson, SEQR, Apple Pay • Online, QR, NFC	Stable	None	None	Not revealed	Low C demand, Time & Resource (laziness)	Decrease cash management & administration , Cut down staff, Optimizing queues (Speed)
<b>Wrist-watch</b>	Swish, Klarna • Online	Stable	None	None	Not revealed	Low C demand, Centrally controlled	Convenience, Additional sales, Competitive advantage,
<b>Clothing 1</b>	Swish, Klarna • Online	Stable	None	None	Not revealed	The need, Uncertainties, Maturity	Convenience, Trial period
<b>Clothing 2</b>	Swish • Online	Stable	None	None	Not revealed	Low C demand, Additional administration , Uncertainties	None, Unless all systems are integrated
<b>Household &amp; Gardening</b>	Swish, SEQR, MasterPass, Klarna, PayPal, Apple Pay, M-Pesa • Online, QR, NFC	Large	SEQR - will be adopted	None	Not revealed	Low C demand, Technology, Identify right PSP, Costs	Additional payment channels, Additional sales
<b>Beverages</b>	Swish, SEQR • Online, QR	Large	None	Laws & regulations	Not revealed	Low C demand, Maturity, Costs	Speed, Lower transaction costs

**Table 4.** Summary of the coded materials.

## 6. Discussion

The purpose with this study was to identify the key mechanisms for adopting mobile payments in Sweden. In this chapter, the empirical results are analyzed in relation to the theoretical framework of this study with an emphasis of the mobile payment chapter. The discussion will be divided into nine sections and starts with: (1) merchants' awareness of mobile payments, (2) the power of installed base, (3) network effects, (4) digital platforms and multi-sided markets, (5) the impact of path dependency, (6) different lock-in effects, (7) barriers for non-adopters, (8) value for adopters and lastly (9) a summary of the identified key mechanisms for adopting mobile payments. In addition, this chapter will thereafter provide implications for the field of Practice and the field of Informatics, but also recommendations for future research.

### 6.1 Awareness of mobile payments

The adoption of mobile payments in countries such as USA (Apple Pay, Samsung Pay), China (Alipay, Wechat Wallet) and Kenya (M-Pesa) are far more established than Sweden. Mobile payments in the global environment also utilizes technologies such as fingerprints, MST, NFC, soundwave technology and even facial recognition, in comparison to Sweden that is currently utilizing online (wireless) and QR technology. Merchants in Sweden have shown a low interest regarding mobile payment adoption and lack of effort towards finding one suitable, especially for smaller merchants. Companies working with mobile payment solutions should simultaneously reach out and educate all industries regardless of a merchants' size, instead of targeting larger merchants, which seems to be the case out of the empirical results. For instance, R4 highlighted that companies working with mobile payment solutions have not reached out to the smaller businesses, which in turn makes them perceive the market as not mature enough to place their investments. The non-adopters within the Swedish market are most commonly aware of Swish and SEQR and thus also reflect their awareness of online and QR technology. Only four out of the fourteen respondents was aware of global solutions such as M-Pesa, Apple Pay, PayPal and Android Pay. Besides, Seven out of the fourteen respondents was aware of NFC technology and seemed interested in this type of solution, if it reaches the Swedish market. This also explains why Apple Pay seemed to be the most interesting solution for the Swedish merchants, where four of the respondents mentioned it as a possible future implementation. PayPal on the other hand is charging a premium fee for their services, which led the Swedish merchants to search for other solutions. This indicates price sensitivity among the Swedish merchants which software providers or payment service providers has to embrace.

The non-adopters does not feel any stress towards finding the right solutions, since existing payment alternatives such as cash, card or invoice payments works for respective businesses. Meanwhile, merchants' that has adopted mobile payments are showing a positive attitude and mentioned the possibilities of adopting additional solutions. For instance, the railway company which already implemented mobile payment through their app will in the near future also implement Swish. The restaurant that also offer mobile payment through their app,

will strongly consider Apple Pay if it reaches Sweden. While the coffee shop that is utilizing online and QR technology through their app is already investigating NFC solutions for its business. Furthermore, the household and gardening merchant that is going to implement SEQR, will simultaneously pass the instep threshold, which reflects a positive attitude by also considering Swish and Apple Pay as additional future adoptions. This indicates that merchants that have passed the instep threshold of adopting mobile payments will continue to find new solutions and possibilities for respective businesses. In order to increase the adoption of mobile payments, Swedish merchants have to understand the market, existing technologies and existing solutions in order to identify the most suitable, that adds value for their business. Therefore, the key mechanism for passing the instep threshold is knowledge. Having limited knowledge about mobile payments will also result in limited adoptions. Merchants have to be reminded that they are those that create the market for other stakeholders in the mobile payment market, not the other way around.

## **6.2 The power of installed base**

The empirical results showed that all of the respondents perceived their customer base as large or stable. In this sense all the merchants regardless of their size have a solid installed base regarding customers. When asked about if a critical mass of customer has to be reached before the adoption of a mobile payment, the respondents showed different responses. For instance, R12 mentioned Swish as a solution that does not require a critical mass, R7 pointed out that the size of the customer base does not matter when offering mobile payments, while R14 pointed out that reaching a critical mass of members is essential and R6 stated that it did not matter. Therefore, the need to reach a critical mass of customers/members within the Swedish market is situational, which depends on the merchants' type of business and their condition.

The respondents also highlighted the importance of finding a strong actor that stands behind the payment solutions. According to Hanseth (2001) larger installed base often increases the credibility of a product, which makes consumers more attracted to start using that standard. The size of an installed base can also send out positive signals regarding the products attribute. Thirteen out of the fourteen respondents mentioned Swish, which seems to have become a standard for direct transactions within the Swedish market. Swish has their own established user base with 4.3 million users (Getswish, 2016a). R1 pointed out that Swish is a great solution since they have the banks behind them, which creates credibility for that mobile payment solution. In addition, R5 also pointed out that Swedish consumers have passed the threshold and learned how to use Swish in combination with BankID. This indicates that Swish is taking advantage of the installed base of BankID and vice versa. Even the pharmacy, Swedish tax agency, banks and many others have adopted BankID for authorization, which indicates a steady increase of adopters and a sense of credibility (R8). It is thereof also of importance to get an established and well-known merchant involved with that particular payment solution, for instance, when Lindex adopted Swish or McDonalds adopted SEQR (R5). This indicates that merchants and other stakeholders have to collaborate within the

mobile payment market. Therefore, the key mechanism is to take advantage of each other's installed base.

### **6.3 Network effects**

The empirical results showed that non-adopters within the Swedish market are still waiting for customer demands, in order for an adoption to take place. The pharmacy, hospital and beverage merchants pointed out that other merchants offering mobile payments affect them indirectly. The more Swedish merchants that offer mobile payments, the more the customers get affected and when it reaches respective merchants customer base, customers will naturally demand for an adoption. Although Swish is an established mobile payment solution with a large user base, numerous merchants have and are considering it. Somehow Swish is not suitable for every industry which is one of the reasons for merchants to decline. For instance, the beverage merchant that strives to optimize their queues should not implement Swish, since the service is perceived as slow, but also require different steps before a transaction can be finalized. That corresponds the time it takes to pull out a wallet and look for payment cards or cash. The beverage merchant and other merchants (e.g., grocery stores) that have to optimize their queues should consider technologies such as QR codes, MST (Samsung Pay) and NFC (Apple Pay), which is perceived as more suitable to improve the speed for payments. Swish is therefore a solution that is more suitable for merchants that can offer customers additional time to conduct a monetary transaction, such as restaurants, tattoo salons, SPA, hairdressing salons, wrist-watch stores, clothing stores, traveling agencies, hospitals or pharmacies.

Products or services have little value in isolation, but generate value when combined with others (Katz & Shapiro, 1994). Merchants often get affected by others where the perceived success of others adoptions can influence non-adopters to join a network. However, network effects within the Swedish market is more favorable for larger merchants such as a restaurant chain with several restaurants distributed within different cities in comparison to smaller merchant that only has one physical store. R11 highlighted that merchants have different conditions and objectives, which is why a solution might not benefit other merchants within the same industry. In addition, R6 also pointed out the difficulties of finding a generic solution that fits all industries. Thus, merchants that have adopted mobile payments most commonly act actively on social media or in stores to strengthen their own brand and communicate their own products and services instead of increasing the mobile payment network for a certain solution. For instance, the restaurant merchant emphasize on creating funny videos for customers on social media, which seems to work according to R1, since they had 800 reservations during a new opening in another Swedish city. While, the coffee shop has marketing campaigns in stores twice a year where the employees' mission is to recruit new downloads of their app (R6). In addition, the coffee shop also enables users to send gifts (free drink for the receiver) or top up friends balances (mobile wallets) through the app. These two merchants also offer an invitational model. This invitational model means that customers can through their apps send out SMS to friends and invite them to join the merchants' network. Therefore, if a customer have to spend a certain amount of time to learn the functionalities of a digital platform (app), then customers will most probably select the one

that will be used most widely (Schilling, 1999), which is favorable for larger merchants that offer mobile apps. The key mechanism regarding network effects is currently about merchants acting on their own behalf to increase the customer base, instead of influencing other merchants to adopt the same solution to increase that mobile payments network.

#### **6.4 Digital platforms and Multi-sided markets**

Smartphones in combination with mobile payment instruments and apps enables mobile payments. Apps within the mobile payment market are perceived as digital platforms within another platform (smartphone) and seen as intermediaries between stakeholders (Buchinger et al., 2015). According to Rochet and Tirole (2005) multi-sided market utilizes one or several platforms that enable interaction between different stakeholders. Merchants that offer mobile apps within the Swedish market can act as the intermediary between customers and other stakeholders (e.g., software providers or PSP). Regarding multi-sided markets costs and revenue can come from both left and right, in comparison to the traditional value chain where value moves from left (cost) to the right side (revenue) (Porter, 1985). Platform owners usually have to consider their situation and decide which side to be the money side (to charge money from) and which to subsidize. However, in the mobile payment market merchants that offer proprietary apps and mobile payments cannot charge anything for their services. This type of service is a matter of convenience for the customers in order to boost their own brand. Merchants cannot charge customers for providing mobile payment services since customers can always switch back to using cash or card payments (Riksbank, 2013). Besides, adopting a PSP that manage the transactions also generates in costs since these providers charge different commissions and fees for their services. This indicates that merchants in the Swedish market that offer mobile payments through their proprietary apps cannot select which to be the money side or which side to subsidize.

The restaurant merchant that offer mobile payment through their app adopted Paynova to manage customers payment details and Bambora as their acquirer to ensure that the right amount get transferred to the right accounts. R1 pointed out that mobile payment is still expensive since they have to pay two additional fees. In the same sense the railway merchant has also adopted Paynova but Amadeus as a payment authorizer, which also generates in additional fees that has to be paid. Meanwhile, both the tattoo and hairdressing merchant that had adopted Swish, turned out to have different deals. The hairdressing salon (large merchant) pays 2.50 SEK for each payment transaction, while the tattoo salon (small merchant) currently utilizes Swish for free. In addition, R10 pointed out that the banks offered Swish for free, but got turned down by R10. This indicates that digital platforms have different price settings. Swish seems to have a linkage to Klemperer (1987) study which pointed out that firms have a tendency to strategically drop their prices during the first period, and then take advantage of the first periods customers that to a certain degree has been locked in, by raising the prices. It is most likely that Swish is using this strategy against smaller businesses in Sweden, by locking them into their service and then adds a fee when the market has reached a certain level of maturity. Therefore, the key mechanism is expenses instead of profitability from a digital platform and multi-sided market perspective.

## 6.5 Lock-in effects

Merchants' that offers a mobile channel to its customers by developing their own app will also create benefits for themselves and pave for a future lock-in. These merchants require customers to download their mobile app in order to access benefits, which are considered a type of lock-in. Merchants with proprietary apps will also facilitate the adoption of mobile payment services and by that also the implementation of loyalty programs. Loyalty programs must enhance the value proposition of ones products or services (Dowling & Uncles, 1997). For instance, the restaurant merchant started out as an ordering app and implemented payment services because of customer demands. The value of a mobile channel and mobile payment creates the possibility of linking the customers with the restaurant through a loyalty program (R1). Customers must register their payment cards in the app and instead of calling for the staff that has to bring a POS terminal to the table, customer can through their app conduct payment transactions and by that also collect loyalty points that can be redeemed for free food at their next visit. Meanwhile, the coffee shop utilize another approach by having customers preload the balance of their virtual gift card (mobile wallet) in the app, which cannot be reclaimed. The benefit with the coffee shops approach is that customers that pay with their smartphones will automatically receive a ten percent discount. Unlike the restaurant and instead of collecting loyalty points for each SEK spent, this coffee shop's loyalty program involves reaching the gold level. In order to reach the gold level a customer has to conduct five purchases within that particular month. When the gold level has been reached then that customer can send a free gift to one of their circle of friends. The additional value for the coffee shop with their loyalty program is to spread this virally, instead of investing on media (R6).

Regarding the railway merchant they have also implemented a loyalty program for its customers. However, this loyalty program does not only benefit mobile payments, but rather all their payment methods since loyalty points can be collected for each SEK spent regardless of payment method. These loyalty points can then be redeemed for free train tickets or different experiences (R13). On the contrary, merchants' such as the tattoo salon and the hairdressing salon that adopted Swish does not offer loyalty programs. An adoption of Swish is a matter of direct transactions and convenience for its customers in comparison to SEQR that has implemented a loyalty program. Therefore, loyalty programs seem to appear as a decoy for merchants that have a mobile channel and resources to lock-in customers. It also appeared in the empirical results that merchants within the Swedish market are locked into laws and regulations. Some merchants do not keep customers records, which becomes problematic since many solutions require merchants to keep customer records (R7). These laws and regulations within the Swedish market are considered as a type of lock-in effects for mobile payment adoptions. Therefore, the key mechanism is the possibility of implementing loyalty programs. Merchants that implement loyalty programs will open up a new communication channel and receive feedbacks from its customers (R1).



## **6.6 Impact of path dependency**

Mobile payments are nothing new since customers are already familiar with using their mobile phones to purchase items, for instance, SMS purchasing of logos, ringtones and games (Mallat & Tuunainen, 2008). Firms that implement a new technology that is similar to the previous one may lead to reduced training costs (Zhu et al., 2006). The Swedish customers act cautiously regarding whom they give out their payment details to. Therefore when technologies such as QR codes penetrate the market customers are questioning if it is trustworthy and better than previous payment methods, which also reflects today's slow adoption rate by the merchants. Previous methods have a great impact on future adoptions; mobile payment providers should patiently guide Swedish customers and merchants. Since card payment has become the most preferred payment method for Swedish customers (R5), turning physical payment cards into virtual cards will naturally become the first mental obstacle to pass, which also reflects the adopted solutions in the Swedish market.

The usage of online (wireless) technology where customers have to register their payment details in different apps in order to conduct mobile payments is preferable. R5 pointed out that customer' needs to feel safe when purchasing things at stores they recognize. Besides, customers should not have to provide too much personal detail and yet still be recognized at the next purchase. For instance, the railway merchant remembers details such as: credit card number, cellphone number, address and e-mail. Whenever customers purchase a train ticket via the app, the only code needed is the CVC code that is on the back of a payment card (R5). This indicates that consumers that are familiar with online purchasing do not have to learn anything new in order to conduct this type of mobile payment. Furthermore, firms has tendency to become too attached to the previous standard although newer and better standards are available (Zhu et al., 2006). Besides, when a firm has standardized a certain type of product or service, switching to another product or service can implicate high costs in coordination (Shapiro & Varian, 1999). This in relation to R10 situation which has a small business and everything has to be managed by one person. An adoption of mobile payments can create more administrative work (R10). Besides, smaller merchants are also too attached to previous payment methods such as cards and cash. Most of the people in Sweden have payment cards with them and it is also seen as a guarantee for merchants that a transaction can be conducted. R10 pointed out that having the POS terminal and checkout terminal works perfectly and most of the customers have cards or cash with them, even tourists since it is universal. The key mechanism is the conversion of cards. Merchants can convert physical payment cards into virtual cards, since Swedish consumers have prior experiences with e-commerce and m-commerce purchasing, it will also create a sense of security and trust.

## **6.7 Barriers for non-adopters**

Acceptance from customers and merchants are interdependent since they affect each other, especially during the initial stage regarding mobile payments. With a bad initial experience customers' confidence for a mobile payment would decrease drastically (Van der Heijden, 2002). Thus it is essential for merchants to educate staffs or employees of how to manage mobile payments. According to Mallat and Tuunainen (2008) the most common barriers for

mobile payment adoption are high cost, complexity of systems and reaching a critical mass of adopters. These barriers also appeared in the empirical results from the Swedish merchants.

Cost was a barrier that occurred since companies offering mobile payment services often charge a premium fee in Sweden, such as Paynova since they are an e-commerce solution (R1). Since every country has their own social conditions, this might be country dependent and related to the laws and regulations that Sweden has in comparison to China. By the end of 2014, Alipay and Wechat represented over 85 percent of the mobile transactions in China (Schelnast & Born, 2015). This indicates that software providers or PSP in China have different ways of setting fees for their services in comparison to Sweden, which in turn affects the Swedish merchants' from avoiding an adoption until a solution has proven to be worth its costs. According to R7 merchants are also cautious regarding mobile payments, since the investment cost might be high in relation to what merchants and customers get out from it. Furthermore, merchants that have been established for a longer period (more than 10 years) might have obsolete systems which are not compatible for an adoption of mobile payments. The complexity of switching those systems will become costly. The importance for merchants that recognize this situation is to identify the right PSP to solve these issues (R5). Having identified the most suitable provider for one's business will also facilitate future adoptions of other payment solutions.

Besides complexity of systems, a mobile payment adoption also creates complexity to merchants by adding unnecessary administration work, which is seen as a barrier. For instance, within a hospital context, if the hospital offer mobile payments and it turns out to be technical issues, then the hospital has to support and manage those issues, which is perceived as additional workload (R2). While, for smaller merchants where owners have to manage the whole administration processes themselves, also perceive mobile payments as additional workload. By adding a detail such as mobile payment creates additional work since merchants has to report to the Swedish tax agency (R10). An adoption of mobile payments also raises questions regarding how systems and instruments has to be integrated, since merchants must print out receipts for every transaction in order to present their sales stats for the Swedish tax agency. It is thereof of importance for non-adopters in Sweden to clarify how to integrate the systems and how to act towards the Swedish tax agency before adopting a mobile payment.

Regarding reaching a critical mass of adopters, all the nine non-adopters perceived low customer demand as a barrier within the Swedish market. Although Sweden belongs to the forefront regarding mobile usage the empirical results shows that Swedish merchants are reclusive and cautious in relation to mobile payment adoptions. Merchants are waiting for customers to demand and customers are waiting for merchants to offer. This chicken and egg scenario seems to still be a vicious circle within the Swedish market, unless merchants break the pattern.

In addition to these three barriers this study also identified five additional barriers mentioned by the Swedish merchants which are revenue, centrally controlled, time and resources, the

need and uncertainties. Firstly, the hospital perceived revenue as a barrier, since patient revenue is their slightest revenue. R2 pointed out that hospitals are not famous for being innovative and patients do not have high expectations on hospitals. Therefore, emphasizing mobile payments for patients is not their main priority, when it is not their main revenue stream. Secondly, merchants being centrally controlled are considered as a barrier for an adoption. Merchants' that belongs to a company chain has to act according to the decisions that are taken centrally. Although a merchant perceive potential benefits of a mobile payment service it becomes an issue, since decisions has to be taken centrally where the majority has to approve, in order for a mobile payment adoption to take place. Thirdly, time and resources (workforce) is also perceived as a barrier. Some merchants have to create business cases in order to identify the potential benefits. Merchants that often have predetermined plans (pharmacy) or other on-going projects (hospital) perceive the effort of identifying the right solution as time consuming. Besides, many Swedish merchants have not devoted time to carry out the work of finding the right solution for their businesses, most probably because of their lack of resources within respective company. For instance, R14 pointed out that the SPA has a system that is completely ready for a mobile payment adoption, yet no one has carried out the work. Fourthly, merchants perceive the need for mobile payment adoptions as a barrier, especially for smaller merchants. For instance, R4 mentioned that having a small physical store with integrated systems that enables card payments and cash payments is enough. Thus, the need for adopting mobile payments seems to be unnecessary. Fifthly, uncertainties were also perceived as a barrier in relation to maturity. The Swedish mobile payment market is perceived as not matured. Merchants are questioning if mobile payments will become a failure or become the number one payment alternative within the next five or ten years. In addition, R3 expressed that "you are not going to buy a wrist-watch for 67 000 thousand with a smartphone". This also indicates uncertainties regarding mobile payments in relation to higher amounts. Therefore, many merchants have postponed their investments, until this payment method has been proven and reached a certain level of maturity within the Swedish market (R4, R7, R10, and R11).

Worth mentioning is that trust and security are also seen as essential barriers for merchants. According to prior studies, customers have often showed distrust and privacy concerns regarding mobile payments (Teo et al., 2015; Linck et al., 2006). However, the Swedish merchants mentioned trust and security as important for how a mobile payment solution should be designed, but did not highlight these as barriers, which shows a positive sign. The key mechanism is that merchants have to perceive the barriers as low, in order for them to adopt a mobile payment. Table 5 presents a summary of the perceived barriers by the Swedish merchants.

<b>Costs</b>	<b>Centrally controlled</b>
<b>Complexity (additional administration)</b>	<b>Time and Resources (workforce)</b>
<b>Low customer demands</b>	<b>The need</b>
<b>Revenues</b>	<b>Uncertainties</b>

**Table 5.** Perceived barriers of adopting mobile payments.

## 6.8 Value for adopters

Value within mobile payments is not created by just the technology, but instead created through the interplay of technology, the user, and the purpose of use (Zinck Stagano, 2012). Merchants can by adopting mobile payments not just lower the transaction cost, but also decrease cash management, which in turn will improve the speed in different processes and enhance customer service (Mallat & Tuunainen, 2008). The starting point for investing in mobile payments within the Swedish market is to decrease cash management, which appeared frequently in the empirical results. Sweden showed a 22 percent decrease in cash payments which represented three percent of their transactions in 2014 (Schelnast & Born, 2015). Three out of five respondents that offer mobile payment mentioned decrease of cash management as valuable for their business, whereof one of these merchants have completely removed the possibility to pay with cash. Removing cash management can lead to cost savings for merchants. This can be related to the hairdressing merchant, where R9 pointed out that handling cash in stores takes time, which all employees want to get paid for. By removing cash payments employees does not have add an quarter after hours to count the cash, which in turn becomes cost saving. However, decreasing cash management not only optimizes the administration process in stores, but it also increases the security for employees by, for instance, minimizing the risk for robbery (R9, R11). In addition, since Swish utilizes direct transfers, it also increases the severity to skim a direct transfer (R12), which adds value to merchants since they can receive money instantly.

Merchants' that offer mobile payments creates convenience for customers but also opening up a new communication channel. Convenience means an additional payment method where customers can select how and when they want to pay. In addition, convenience can also mean that customer can leave their physical wallets at home and still be able to pay with their smartphones, which in turn can lead to additional sales (R3, R13). R6 expressed that without mobile payments they would not have a relevant communication channel to its customers. This indicates the importance of having mobile payments in order to reach out to the customers, instead of having a one way communication by offering an app where customers can only see merchants' products. Mobile payments become valuable for merchants since they can receive stats on customers purchasing behavior and the possibility to tailor offers to different customers. Convenience and a new communication channel will thus lead to customer satisfaction. What is considered to be valuable for the coffee shop is the possibility of offering deals to its customers and helping them to pass the threshold of downloading their app (R6). Merchants within the same industry or merchants that have the opportunity to offer

deals should consider this approach. However, this approach may be difficult for smaller merchants that probably would adopt a mobile payment such as Swish or SEQR within the Swedish market instead of developing a proprietary app.

Merchants can also by adopting mobile payment solutions lower their transaction costs (Wong et al., 2015; Mallat & Tuunainen, 2008). However, the empirical results showed different outcomes regarding lowering the transaction cost. For instance, the restaurant mentioned that adopting mobile payment services is still expensive since they need to pay two additional fees to the payment service providers. While, the coffee shop pointed out that their approach by having customers preload their balance in order to pay through their smartphones has lowered their transaction costs. The reason is that customers tend to preload their balance (mobile wallets) with a higher amount and when a card payment becomes higher, the transaction cost will become lower (R6). The usage of Swish is also situational depending on the merchants' agreements. The hairdressing salon that recently (Jan, 2016) adopted Swish has to pay transaction costs and Swish only represents two percent of their total payments. Meanwhile, the tattoo salon has currently the privilege to utilize Swish for free which has lowered their transaction costs, since at least 50 percent of their customers are paying through Swish. Therefore, an adoption of mobile payment does not guarantee to lower the transaction costs within the Swedish market, but has the potential to lower the transaction costs for some merchants.

R12 also highlighted the most valuable with adopting Swish for a smaller business is the flexibility that comes with the mobile payment. The receiver of a service does not necessarily have to be the payer of a service (R12). This means that mobile payments creates flexibility regarding the payment process for smaller businesses that offer services where for instance, parents can pay for a service in advance (as a gift card) and have their child or a friend receive the service. Meanwhile, within the railway context customers can through their app book and pay for train tickets from anywhere at any time, which creates flexibility for the customers (R13). Furthermore, in a restaurant context R1 pointed out that offering mobile payment where customers can handle the payment process themselves has generated in flexibility for the employees. Instead of walking out with payment terminals to the customers, employees can work with other tasks such as educating the customers regarding how to use their app or how to conduct a mobile payment through the app, by that also enhance customer service.

Non-adopters also perceive that an adoption of mobile payments has the potential to optimize queues. Mobile payment becomes valuable if merchants know how to exploit a mobile payments feature in relation to their type of business. For instance, R11 mentioned that with the adoption of mobile payments customers can prepay the entrance fee and just enter the nightclub when they arrive. According to R12 utilizing Swish also generates in a lot of information such as who the payer was and from which cellphone number. Based on this, it makes perfect sense for the nightclub merchant to implement Swish where customers can prepay their entrance fees, instead of queuing. The value is not what kind of features a mobile payment offers, but rather how merchants exploit these features. The key mechanism is that

merchants have to perceive that there is enough value for them, in order for an adoption to take place. Table 6 presents the summary of the perceived values of adopting mobile payments.

<b>Decrease cash management</b>	<b>Creates a new communication channel</b>
<b>Increased security</b>	<b>Receive stats and tailor offers.</b>
<b>Increased severity to skim direct transactions</b>	<b>Lowering the transaction cost</b>
<b>Convenience</b>	<b>Flexibility</b>
<b>Possibility of offering deals.</b>	<b>Optimizing queues</b>
<b>Direct transfers.</b>	<b>Cost saving</b>
<b>Enables prepaying</b>	<b>Optimizing queues</b>

**Table 6.** Perceived values of adopting mobile payments.

## 6.9 Summary of the identified key mechanisms

**The identified key mechanism for mobile payment adoptions are:**

- Knowledge for passing the instep threshold.
- Take advantage of each other's installed base.
- Act on their own behalf to increase their customer base.
- Expenses rather than profitability.
- Enables implementation of loyalty programs.
- Enables conversion of cards.
- Perceive barriers as low.
- Perceive that there are enough values.

## 6.10 Implications for the field of Practice

From the managerial perspective, this thesis provides important implications for merchants' adoption of mobile payments. The starting point for many Swedish merchants is to decrease cash management. An adoption of mobile payment could pave the way for a cashless society. The contribution to the field of practice is that the merchants and especially non-adopters to learn more about mobile payments in general, the potential benefits and the key mechanisms before an adoption. Merchants should begin to explore mobile payments and understand that they should control the market, instead of waiting for customer demands. This thesis will hopefully change merchants' mindset regarding mobile payment adoptions and increase their imagination in relation to their type of business.

For other stakeholders that are working with mobile payment solutions this thesis will contribute with additional knowledge regarding merchants' perspectives from different industries and the key mechanisms of an adoption. By understanding the merchants' perspectives, stakeholders could adjust their strategies and hopefully become successful when convincing Swedish merchants or customers in the near future. For instance, companies working with mobile payment solutions should instead of focusing on recruiting larger merchants also target smaller merchants in order to kick start the mobile payment market in

Sweden. In addition, a software provider that approaches merchants to sell their solution should instead of focusing on convenience, flexibility, speed or cost, put more emphasis on the power of network effects. Moreover, instead of targeting merchants one by one, providers should organize workshops where as many merchants as possible regardless of their size can participate. A merchant that realize that other merchants' also stands behind a certain solution will automatically join that network, in order to reap financial benefits from the market. Transparency will be the key for mobile payment providers or merchants within the Swedish market. Besides, customers that are aware of merchants utilizing the same mobile payment solution will naturally understand the convenience of having one mobile payment app rather than downloading several apps.

### **6.11 Implications for the field of Informatics**

The findings of this thesis provide several contributions to an emerging topic within the field of informatics. Whilst most of the extant literatures around mobile payments are customer centric, this thesis contributes to the field of informatics by being one of its first to investigate the Swedish merchants' perspectives regarding mobile payment adoptions. Since most of the prior studies shown to be customer-centric, none of the theoretical frameworks encountered seemed appropriate for this thesis. Therefore, a theoretical framework was formed with an emphasis of the mobile payment chapter, in order to identify the key mechanisms of mobile payment adoption in Sweden. Having contributed with eight key mechanisms of mobile payment adoption, this thesis could act as a road map for other researchers that have interest in mobile payments from merchants' perspectives. Swedish merchants are yet an area that needs to be further explored in order to identify other potential benefits and key mechanisms that could affect merchants' attitude towards an adoption of mobile payments.

### **6.12 Recommendations for future research**

It appeared out of the different cases that merchants within the Swedish market are reclusive and cautious regarding mobile payment adoptions. The non-adopters of mobile payments mentioned low customer demand as a barrier and the anticipation of a market maturity. As mentioned above, merchants are those that create the market for other stakeholders. Merchant has to understand that acceptance from customers and merchants are interdependent, since they affect each other. Based on the identified key mechanisms in this thesis, it appeared that Swedish merchants act on their own behalf to boost their own customer base, instead of emphasizing the adoption of a certain mobile payment solution. The respondents mentioned the difficulties with finding the right solution for their businesses since no generic model exists. The interesting area for future research is to investigate how merchants can affect other merchants to adopt the same solution through network effects and increase the network.

## 7. Conclusions

The purpose of this thesis was to answer the following research question: *What are the key mechanisms for merchants to adopt mobile payments?*

This thesis contributes to the research and practice of mobile payment adoption by identifying eight key mechanisms. Adoptions of mobile payments require *knowledge* to pass the instep threshold. Merchants with greater knowledge will also affect their mindsets positively towards future adoptions. It is also of importance to have an established and well-known merchant involved with a payment solution or a strong actor that stands behind a payment solution, which in turn creates credibility. The key is to *take advantage of each other's installed base*. Due to the fact that no generic solution exists for all industries, the key for merchants is to *act on their own behalf* in order to increase their customer base, instead of affecting others to adopt the same mobile payment solution. Adopting mobile payment services to a merchants' proprietary app implies *expenses* rather than profitability, since it is a matter of convenience for the customers. Merchants cannot charge customers for the service since switching back to cash or card payments is easy, while a PSP require commissions or fees for their services. An adoption of mobile payments also *enables an implementation of loyalty programs*. Merchants with loyalty programs will receive feedbacks from its customers. As card payments have become the number one payment method, merchants that adopt mobile payments enable *conversion of cards*. Merchants can convert physical payment cards into virtual cards and since Swedish customers have prior experiences with e-commerce and m-commerce, it will create a sense of security and trust. Merchants also have to *perceive the barriers as low* and *perceive that there is enough value* for them, in order for a mobile payment adoption to take place. By understanding these key mechanisms merchants will hopefully change their mindsets and adopt mobile payments.



## 8. References

A-eye. (2015). China Mobile “He Bao” adds facial recognition function – mobile payment officially step into the era of proceeding payment through face recognition. [Online]. Available from: <http://www.a-eye.cn/english/art2.html> [Accessed: 26 February 2016].

Alipay. (2016). Product Services. [Online]. Available from: <https://intl.alipay.com/home/about/buy.htm?topic=productServices> [Accessed: 5 March 2016].

Al-Daraiseh, A.A., Al Omari, D., Al Hamid, H., Hamad, N., & Althemali, R. (2015). Effectiveness of Iphone’s touch id: Ksa case study. *Editorial Preface*, 6(1).

Allsopp, A. (2015). Apple Pay UK release date, features and supported banks and stores: Apple Pay UK bank support growing with TSB and Tesco. [Online] Available from: <http://www.pcadvisor.co.uk/new-product/apple/apple-pay-uk-release-date-features-supported-banks-stores-more-tsb-tesco-3589601/> [Accessed: 26 February 2016].

Andersson, C., Josefsson, F., & Petterson, F. (2007). Developing an e-commerce solution with implemented payment systems.

Apple. (2016). Pay. [Online] Available from: <http://www.apple.com/apple-pay/> [Accessed: 15 February 2016].

Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications*, 7(2), 141-164.

BankID. (2016). BankID e-legitimation. [Online]. Available from: <https://www.bankid.com/> [Accessed: 25 February 2016].

Bertilsson, C., & Hult, F. (2013). Future payment solutions - Critical success factors and scenarios from stakeholders perspective.

Bryman, A. (2011). *Samhällsvetenskapliga metoder. 2.*, [rev.] uppl. Malmö: Liber

Buchinger, U., Ranaivoson, H. R., & Ballon, P. (2015). Mobile Wallets’ Business Models: Refining Strategic Partnerships. *Organizacija*, 48(2), 88-98.

Breakit. (2016). Swish är Sveriges popluäraste app – men vad är bankernas plan?. [Online] Available from: <http://breakit.se/artikel/422/swish-ar-sveriges-popularaste-app-men-vadar-bankernas-plan> [Accessed: 5 March 2016].

Cao, Y. Z., Lu, Y. B., Gupta, S., & Yang, S. Q. (2015). 'The effects of differences between e-commerce and m-commerce on the consumers' usage transfer from online to mobile channel'. *Int. J. Mobile Communications*, 13(1), 51–70.

Carr, M. (2007). Mobile payment systems and services: an introduction. In *Mobile Payment Forum*, 1-12.

Chandra, S., Srivastava, S.C., & Theng, Y.L. (2010). Evaluating the role of trust in consumer adoption of mobile payment systems: An empirical analysis. *Communications of the Association for Information Systems*, 27(29), 561-588.

Cheng, M. (2015). MasterCard Tests Facial Recognition Technology for Mobile Payments. [Online] Available from: <http://paymentweek.com/2015-7-6-mastercard-tests-facial-recognition-technology-for-mobile-payments-7605/> [Accessed: 10 February 2016].

ChinaInteretWatch. (2016a). Most China Food Delivery Users Pay Online in 2015. [Online]. Available from: <http://www.chinainternetwatch.com/15508/chinese-food-delivery-payonline-2015/> [Accessed: 5 March 2016].

ChinaInteretWatch. (2016b). Over 42.3 Bln Transactions on Alipay in 10 Years. [Online]. Available from: <http://www.chinainternetwatch.com/11343/alipay-online-expenditurevolume-exceeded-42-3-bln-in-10-years/> [Accessed: 5 March 2016].

Ciborra, C. U. (2001). "A Critical Review of the Literature on the Management of Corporate Information Infrastructure.", i Ciborra, C. U., Braa, K., Cordella, A., Dahlbom, B., Failla, A., Hanseth, O., Hepsø, V., Ljungberg, J., Monteiro, E. & Simon, K. A. (Red.) *From Control to Drift. The Dynamics of Corporate Information Infrastructures*, Oxford Univeristy. Press, 2, 15-40.

Conti, V., Militello, C., Sorbello, F., & Vitabile, S. (2009). A multimodal technique for an embedded fingerprint recognizer in mobile payment systems. *Mobile Information Systems*, 5(2), 105-124.

Coombs, R., & Hull, R. (1998). "Knowledge management practices" and path-dependency in innovation. *Research Policy*, 27(3), 237-253.

Coskun, V., Ozdenizci, B., & Ok, K. (2013). A survey on near field communication (NFC) technology. *Wireless personal communications*, 71(3), 2259-2294.

Cusumano, M. (2010). Technology strategy and management The evolution of platform thinking. *Communications of the ACM*, 53(1), 32-34.

- Dahlberg, T., & Mallat, N. (2002). Mobile payment service development-managerial implications of consumer value perceptions. *ECIS 2002 Proceedings*, 649-657.
- Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, 7(2), 165-181.
- Dowling, G. R., & Uncles, M. (1997). Do customer loyalty programs really work?. *MIT Sloan Management Review*, 38(4), 71-82.
- Ekonomifakta. (2016a). Företagens storlek. [Online]. Available from: <http://www.ekonomifakta.se/Fakta/Foretagande/Naringslivet/Naringslivets-struktur/> [Accessed: 5 March 2016].
- Ekonomifakta. (2016b). Antal Företagens i Sverige. [Online]. Available from: <http://www.ekonomifakta.se/Fakta/Foretagande/Naringslivet/Antal-foretag-i-Sverige/> [Accessed: 5 March 2016].
- Eisenmann, T., Parker, G., & Alstyn, M. W. V. (2006). Strategies for two-sided markets. *Harvard Business Review*, 84(10), 92.
- Englund, R., & Turesson, D. (2012). Contactless Mobile Payments in Europe: Stakeholders' Perspectives On Ecosystem Issues and Developments. Stockholm: KTH Industrial Engineering and Management, Master of Science Thesis.
- Erickson, J. (2014). Alipay Helping More Western Companies Sell to China Consumers. [Online]. Available from: <http://www2.alizila.com/alipay-helping-more-western-companies-sell-china-consumers> [Accessed: 5 March 2016].
- Evans, D. (2003). "Some Empirical Aspects of Multi-sided Platform Industries". *Review of Network Economics*, 2, 1-20.
- Evans, D. S. (2012). Governing bad behavior by users of multi-sided platforms. *Berkeley Technology Law Journal*, 2(27).
- Evans, D. S., & Schmalensee, R. (2013). "The Antitrust Analysis of Multi-Sided Platform Businesses". *NBER Working Paper* No. 18783.
- Farrell, J., & Klemperer, P. (2007). Coordination and lock-in: competition with switching costs and network effects. In *Handbook of Industrial Organization*. Vol. 3, (ed.) M. Armstrong and R. Porter. Amsterdam: Elsevier.

Findahl, O., & Davidsson, P. (2015). Svenskarna och Internet – 2015 års undersökning av svenska folkets internetvanor. [Online] Available from: [https://www.iis.se/docs/Svenskarna\\_och\\_internet\\_2015.pdf](https://www.iis.se/docs/Svenskarna_och_internet_2015.pdf) [Accessed: 29 January 2016].

Fortune. (2016a). Alipay's US chief talks expansion, Uber China partnership and more. [Online]. Available from: <http://fortune.com/2015/06/19/alipay-china-uber-alibaba/> [Accessed: 15 February 2016].

Fortune. (2016b). Starbucks wants your phone as much as it wants to sell you coffee. [Online] Available from: <http://fortune.com/2015/07/24/starbucks-mobile-investments/> [Accessed: 15 February 2016].

Fortune. (2016c). Here's why Samsung Pay is way better than Apple Pay and Android Pay. [Online] Available from: <http://fortune.com/2015/09/30/samsung-pay-review/> [Accessed: 15 February 2016]

Getswish. (2016a). Swish. [Online] Available from: <https://www.getswish.se/> [Accessed: 11 May 2016].

Getswish. (2016). Om-Swish. [Online] Available from: <https://www.getswish.se/om-swish/> [Accessed: 8 February 2016].

Getswish. (2016c). Sa-fungerar-det. [Online] Available from: <https://www.getswish.se/sa-fungerar-det/> [Accessed: 8 February 2016].

Getswish. (2016d). Foretag. [Online] Available from: <https://www.getswish.se/foretag/> [Accessed: 8 February 2016].

Hagiu, A. (2009). Multi-sided platforms: From microfoundations to design and expansion strategies. *Harvard Business School Strategy Unit Working Paper*, (09-115).

Hanseth, O. (2001). "The Economics of Standards.", in Ciborra, C. U., Braa, K., Cordella, A., Dahlbom, B., Failla, A., Hanseth, O., Hepsø, V., Ljungberg, J., Monteiro, E. & Simon, K. A. (Red.) *From Control to Drift. The Dynamics of Corporate Information Infrastructures*, Oxford University Press, chap 4, 56-70.

Hanseth, O., & Braa, K. (2001). "Who's in Control: Designers, Managers—or Technology? Infrastructures at Norsk Hydro.", in Ciborra, C. U., Braa, K., Cordella, A., Dahlbom, B., Failla, A., Hanseth, O., Hepsø, V., Ljungberg, J., Monteiro, E. & Simon, K. A. (Red.) *From Control to Drift. The Dynamics of Corporate Information Infrastructures*, Oxford Univ. Press, chap 8, 125-147.

Harini, N., & Padmanabhan, T.R. (2013). 2CAuth: A new two factor authentication scheme using QR-code. *International Journal of Engineering and Technology*, 5(2), 1087-1094.

Hartman, J. (2004). *Vetenskapligt tänkande: från kunskapsteori till metodteori*. Lund: Studentlitteratur.

Hellspong, L. (2001). Källkritisk analys. [Online] Available from: <http://www.studentlitteratur.se/files/sites/metoder7556/kanalys.pdf> [Accessed: 13 March 2016].

Holme, I. M., & Solvang, B. K. (1997). *Forskningsmetodik: Om kvalitativa och kvantitativa metoder*. Lund: Studentlitteratur.

Hu, X., Li, W., & Hu, Q. (2008). Are mobile payment and banking the killer apps for mobile commerce?. In *Hawaii International Conference on System Sciences, Proceedings of the 41st Annual* (pp. 84-84). IEEE.

ICA. (2016). Betala med mobilen. [Online] Available from: <http://www.ica.se/butiker/service-i-butiker/mobilbetalning/> [Accessed: 13 February 2016].

iZettle. (2016a). Card-readers [Online] Available from: <https://www.izettle.com/se/card-readers/> [Accessed: 9 February 2016].

iZettle. (2016b). Card-readers Lite [Online] Available from: <https://www.izettle.com/se/card-readers/lite> [Accessed: 9 February 2016].

iZettle. (2016c). Card-reader Pro [Online] Available from: <https://www.izettle.com/se/card-readers/pro> [Accessed: 9 February 2016].

iZettle. (2016d). Pricing [Online] Available from: <https://www.izettle.com/se/pricing> [Accessed: 9 February 2016].

iZettle. (2016e). Service [Online] Available from: <https://www.izettle.com/se/service> [Accessed: 9 February 2016].

Karnouskos, S., & Fokus, F. (2004). Mobile payment: a journey through existing procedures and standardization initiatives. *Communications Surveys & Tutorials, IEEE*, 6(4), 44-66.

Katz, M. L., & Shapiro, C. (1994). Systems Competition and Network Effects. *Journal of Economic Perspectives*, 8 (2), 93-115.

Kim, C., Mirusmonov, M., & Lee, I. (2010a). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26(3), 310-322.

- Kim, C., Tao, W., Shin, N., & Kim, K.S. (2010b). An empirical study of customers' perceptions of security and trust in e-payment systems. *Electronic Commerce Research and Applications*, 9(1), 84-95.
- Klemperer, P. (1987). The Competitiveness of Markets with Switching Costs. *The RAND Journal of Economics*, 18(2), 138-150.
- Kumar, D., & Ryu, Y. (2009). A brief introduction of biometrics and fingerprint payment technology. *International Journal of advanced science and Technology*, 4, 25-38.
- Lee, M. (Hangzhou, 2014). China's Alipay Wallet Offers Innovative Mobile Payment. [Online Video]. February 28th. Available from: [https://www.youtube.com/watch?v=\\_nMCKzyRu3E](https://www.youtube.com/watch?v=_nMCKzyRu3E) [Accessed: 19 February 2016].
- Lepak, D. P., Smith, K. G., & Taylor, M. S. (2007). Value creation and value capture: A multilevel perspective. *Academy of Management Review*, 32, 180–194.
- Linck, K., Pousttchi, K., & Wiedemann, D.G. (2006). Security issues in mobile payment from the customer viewpoint. In *ECIS*, 1085-1095.
- Lu, Y., Yang, S., Chau, P.Y., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management*, 48(8), 393-403.
- Mallat, N. (2007). Exploring consumer adoption of mobile payments—A qualitative study. *The Journal of Strategic Information Systems*, 16(4), 413-432.
- Mallat, N., & Tuunainen, V. K. (2008). Exploring Merchant Adoption of Mobile Payment Systems: An Empirical Study. *e-Service Journal*.
- Merriam, S. B. (1998). Fallstudien som forskningsmetod. Lund: Studentlitteratur.
- Meyer, L. (2000). Digital Platforms: Definition and Strategic Value. *Communications & Strategies*, 38(2), 127-158.
- Millward, S. (2014). Starting today, Chinese consumers will be able to buy almost anything inside WeChat. [Online] Available from: <https://www.techinasia.com/wechat-addspayment-support-for-brands-and-retailers/> [Accessed: 15 February 2016].
- Millward, S. (2015). WeChat rockets to 600M monthly users [Online] Available from: <https://www.techinasia.com/wechat-monthly-active-users-q2-2015/> [Accessed: 15 February 2016].

Millward, S. (2016). The amazing ways WeChat is used in China. [Online] Available from: <https://www.techinasia.com/how-wechat-is-really-used-in-china> [Accessed: 15 February 2016].

Musa, A., Khan, H.U., & AlShare, K.A. (2015). Factors influence consumers' adoption of mobile payment devices in Qatar. *International Journal of Mobile Communications*, 13(6), 670-689.

Narayanan, A. S. (2012). "QR Codes and Security Solutions". *International Journal of Computer Science and Telecommunications* , 3(7).

Oh, S., Lee, H., Kurnia, S., Johnston, R., & Lim, B. (2006). A stakeholder perspective on successful electronic payment systems diffusion. In: *The 39th annual Hawaii international conference on system sciences (HICSS)*

Ondrus, J., Lyytinen, K., & Pigneur, Y. (2009). Why mobile payments fail? Towards a dynamic and multi-perspective explanation. In *System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on*, (pp. 1-10). IEEE.

Ondrus, J., & Pigneur, Y. (2006). Towards a holistic analysis of mobile payments: A multiple perspectives approach. *Electronic Commerce Research and Applications*, 5(3), 246-257.

Ondrus, J., & Pigneur, Y. (2007). An assessment of NFC for future mobile payment systems. In *Management of Mobile Business, 2007. ICMB 2007. International Conference on the* (pp. 43-43). IEEE.

Oxman, J. (2015). The payment world really wants to know who you are. [Online] Available from: <http://techcrunch.com/2015/10/11/the-payments-world-really-wants-to-know-who-you-are/> [Accessed: 3 March 2016].

Patel, R., & Davidson, B. (2011). *Forskningsmetodikens grunder – att planera, genomföra och rapportera en undersökning*, 4, Lund: Studentlitteratur AB.

Payair. (n.d). About us. [Online] Available from: <http://www.payair.com/#!/about-us/c2018> [Accessed: 3 March 2016].

Payair. (n.d1). White Label. [Online] Available from: <http://www.payair.com/#!/solutions/cqff> [Accessed: 3 March 2016].

Payair. (n.d2). HCE. [Online] Available from: <http://www.payair.com/#!/hce/csut> [Accessed: 3 March 2016].

- PayPal. (2016a). Om Oss. [Online] Available from:  
<https://www.paypal.com/se/webapps/mpp/about> [Accessed: 11 February 2016].
- PayPal. (2016b). Du har kontot i handen. [Online] Available from:  
<https://www.paypal.com/se/webapps/mpp/pay-with-app> [Accessed: 11 February 2016].
- PayPal. (2016c). Köparskydd. [Online] Available from:  
<https://www.paypal.com/se/webapps/mpp/paypal-safety-and-security> [Accessed: 11 February 2016].
- PayPal. (2016d). Nu kan du alltid ha PayPal nära till hands. [Online] Available from:  
<https://www.paypal.com/se/webapps/mpp/mobile-apps> [Accessed: 26 February 2016].
- Peiyan, Z., Zhaojun, X., Yingbo, L., Feng, W., & Li, Z. (2015). Research on identity authentication management in mobile commerce based on ECC and dynamic fingerprint key. *International Journal of Mobile Communications*, 13(5), 535-548.
- Porter, M. (1985). Technology and competitive advantage, *Journal of Business Strategy*, 5, 60-78.
- Pousttchi, K., Tilson, D., Lyytinen, K., & Hufenbach, Y. (2015). Introduction to the Special Issue on Mobile Commerce: Mobile Commerce Research Yesterday, Today, Tomorrow—What Remains to Be Done?. *International Journal of Electronic Commerce*, 19(4), 1-20.
- Pousttchi, K., & Hufenbach, Y. (2012). Mobile payment in the smartphone age: extending the mobile payment reference model with non-traditional revenue streams. In *Proceedings of the 10th International Conference on Advances in Mobile Computing & Multimedia* (pp. 31-38). ACM.
- Profis, S. (2014). Everything you need to know about NFC and mobile payments. [Online & Online] Available from: <http://www.cnet.com/how-to/how-nfc-works-and-mobile-payments/> [Accessed: 10 February 2016].
- QR Code. (n.d). What is a QR Code. [Online]. Available from:  
<http://www.qrcode.com/en/about/> [Accessed: 10 February 2016].
- Riksbank. (2013). The Swedish retail-payment market. [Online] Available from:  
[http://www.riksbank.se/Documents/Rapporter/Riksbanksstudie/2013/rap\\_riksbanksstudie\\_The\\_Swedish\\_retailpayment\\_market\\_130605\\_eng.pdf](http://www.riksbank.se/Documents/Rapporter/Riksbanksstudie/2013/rap_riksbanksstudie_The_Swedish_retailpayment_market_130605_eng.pdf) [Accessed: 2 March 2016].
- Roberts, J. (2013). What are SMS payments?. [Online] Available from:  
<http://www.mobiletransaction.org/what-are-sms-payments/> [Accessed: 2 March 2016].



Rochet, J. C., & Tirole, J. (2003). "Platform Competition in Two-Sided Markets". *Journal of the European Economic Association*, 1(4), 990–1029.

Rolland, K. H. (2000). "Challenging the Installed Base: Deploying a Large Scale IS in a Global Organization". *ECIS 2000 Proceedings*. Paper 192.

Samsung. (2015). What is MST (Magnetic Secure Transmission)?. [Online] Available from: <http://www.samsung.com/us/support/answer/ANS00043865/997410383/> [Accessed: 10 February 2016].

Samsung. (2016b). Samsung Pay – Pay almost anywhere you can swipe or tap your card. [Online] Available from: <http://www.samsung.com/us/samsung-pay/> [Accessed: 15 February 2016].

SBE Council. (2011). Mobile apps saving small businesses more than a billion hours annually. [Online] Available from: <http://sbecouncil.org/2011/06/02/mobile-apps-saving-small-businesses-more-than-a-billion-hours-annually/> [Accessed: 3 March 2016].

Schelnast, J. D., & Born, M. (2015) Mobile Payment – Is this the turning point? [Online] Available from: [http://www.adlittle.com/downloads/tx\\_adlreports/ADL\\_M-payment.pdf](http://www.adlittle.com/downloads/tx_adlreports/ADL_M-payment.pdf) [Accessed: 25 January 2016].

Schilling, M. (1999). Winning the standards race: Building installed base and the availability of complementary goods. *European Management Journal*, 17(3), 265-274.

Seamans, R., & Zhu, F. (2014). Responses to entry in multi-sided markets: The impact of Craigslist on local newspapers. *Management Science*, 60, 476–493.

Seamless. (2016a). The Payment Revolution, Merchants, Consumers. [Online] Available from: <https://seamless.se/products/seqr/> [Accessed: 11 February 2016].

Seamless. (2016b). About. [Online] Available from: <https://seamless.se/about/> [Accessed: 11 February 2016].

Shapiro, C., & Varian, H. R. (1999). *Information Rules: A strategic Guide to the Network Economy*. Boston, MA: Harvard Business School Press.

Starbucks. (2014). Starbucks Mobile Apps & Mobile Payments. [Online] Available from: [https://news.starbucks.com/uploads/documents/Fact\\_Sheet\\_-\\_Starbucks\\_Mobile\\_Apps\\_and\\_Mobile\\_Payment\\_-\\_MAR2014.pdf](https://news.starbucks.com/uploads/documents/Fact_Sheet_-_Starbucks_Mobile_Apps_and_Mobile_Payment_-_MAR2014.pdf) [Accessed: 15 February 2016].

Starbucks. (2016). My Starbucks rewards terms of use. [Online] Available from: <https://www.starbucks.com/card/rewards/rewards-program-ts-and-cs> [Accessed: 15 February 2016].

Teece, D. J. (2010). Business models, business strategy and innovation". *Long Range Planning*, 43, 172-194.

Tencent. (2016). Weixin/WeChat. [Online] Available from: <http://www.tencent.com/en-us/ps/weixin.shtml> [Accessed: 16 February 2016].

Teo, A. C., Tan, G. W. H., Ooi, K. B., & Lin, B. (2015). Why consumers adopt mobile payment? A partial least squares structural equation modelling (PLS-SEM) approach. *International Journal of Mobile Communications*, 13(5), 478-497.

Tu, Z., Yuan, Y., & Archer, N. (2014). Understanding user behavior in coping with security threats of mobile device loss and theft. *International Journal of Mobile Communications*, 12(6), 603-623.

Uniclox. (2015). Fingerprint Technology. [Online] Available from: <http://www.uniclox.com/products/biometrics/fingerprints> [Accessed: 3 March 2016].

Van der Heijden, H. (2002). Factors affecting the successful introduction of mobile payment systems. *BLED 2002 Proceedings*, 20.

Villa-Boas, A. (2015). Samsung has a key technological advantage that makes it much better to pay with your phone. [Online] Available from: <http://www.techinsider.io/how-magnetic-secure-transmission-works-on-samsung-pay-2015-9> [Accessed: 26 February 2016].

VISA. (2016). Pay confidently on the go. Visa Now with Samsung Pay. [Online] Available from: <https://usa.visa.com/pay-with-visa/featured-technologies/samsung-pay-consumer.html#1> [Accessed: 15 February 2016].

Wang, E. S. T., & Chou, N. P. Y. (2016). Examining social influence factors affecting consumer continuous usage intention for mobile social networking applications. *International Journal of Mobile Communications*, 14(1), 43-55.

WeChatSouthAfrica. (2016). The WeChat Wallet. [Online Video]. April 6th. Available from: <https://www.youtube.com/user/wechatza> [Accessed: 15 April 2016].

Wheelwright, S. C., & Clark, K. B. (1992). Creating project plans to focus product development. *Harvard Business Review*, 70(2), 67-83.

Wong, C. H., Tan, G. W. H., Ooi, K. B., & Lin, B. (2014). Mobile shopping: the next frontier of the shopping industry? An emerging market perspective. *International Journal of Mobile Communications*, 13(1), 92-112.

WyWallet. (2016). Så Funkar WyWallet. [Online] Available from: <http://wywallet.se/sa-funkar-wywallet/#smskop> [Accessed: 11 February 2016]

Xu, Q., Erman, J., Gerber, A., Mao, Z., Pang, J., & Venkataraman, S. (2011). Identifying diverse usage behaviors of smartphone apps. In *Proceedings of the 2011 ACM SIGCOMM conference on Internet measurement conference*, 329-344.

Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2011). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior*, 28(1), 129-142.

Yu, H. C., Hsi, K. H., & Kuo, P. J. (2002). Electronic payment systems: an analysis and comparison of types. *Technology in Society*, 24(3), 331-347.

Zarrabi, S., Wendeborg, R., Engqvist, T., & Kristiansson, M. (2015). The future of mobile payments – a Swedish perspective. [Online]. Available from: <http://www.3gamma.com/insights/the-future-of-mobile-payments-a-swedish-perspective/> [Accessed: 10 February 2016].

Zhong, J. (2015). Coopetitive Service Innovation in Mobile Payment Ecosystems.

Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085-1091.

Zhu, K., Kraemer, K., Gurbaxani, V., & Xin Xu, S. (2006). "Migration to Open-Standard Interorganizational Systems: Network Effects, Switching Costs, and Path Dependency", *MIS Quarterly*, 30(special issue), 515-539.

Zinck Stagno, Marc C. (2012). The app economy: how start-ups create business value with mobile applications.

Östlund, B. (2013). Teknik, IT och åldrande: Hur fungerar det för patienter, omsorgstagare och äldre medborgare?. Stockholm: Liber AB.

## Appendix A: Interview Guide

- *What are the key mechanisms for merchants to adopt mobile payments?*

### Inledning/Bakgrund

- Vilken position har ni inom företaget?
- Hur länge har ni jobbat inom företaget?
- Hur många anställda har företaget?
- Kan ni ge en kort beskrivning om vad företaget erbjuder för produkter eller tjänster?
- Erbjuder företaget någon form av mobiltjänst idag?

### Mobila betalningar

- Vad vet ni om dagens mobila betalningstjänster i form av teknologi och intressenter?
- Vilka mobila betalningstjänster känner ni till i Sverige?
  - som företaget kan tänka sig att adoptera
- Har ni erfarenhet eller vetskap av mobila betalningstjänster utanför Sverige?
  - som ni anser är bra och kan tänka er att adoptera?
- Hur upplever ni er användarbas/kundbas idag?
- Hur viktigt är det för ert företag att nå en tillräcklig stor användarbas/kundbas för att kunna erbjuda mobila betalningstjänster?
- Hur påverkas ni av att andra företag erbjuder mobila betalningstjänster?
- Hur anser ni att en mobil betalningstjänst skall vara utformad för ert företag eller eran bransch?

### Företag som adopterat mobila betalningstjänster

- Erbjuder ni en proprietär lösning (egen app + betal lösning) eller har ni adopterat från en leverantörer?
- Hur upplever ni mobila betalningar hos er?
  - är det många som föredrar mobila betalningar eller hur ser fördelningen ut?
- Kan ni förklara hur omsättningen fördelas mellan de intressenter som påverkas av er mobila betalningstjänst?
  - betalar ni avgifter till någon intressent eller vilka tjänar på tjänsten?
- Kan du förklara hur ni lockar/påverkar andra intressenter till att använda sig av er mobila betalningstjänst?
- Hur anser du att tidigare betalnings alternativ påverkar mobila betalningar idag?
- Kan ni förklara de nackdelar ni upplevt med att erbjuda mobila betalningar?
- Vad ser ni för möjligheter med att erbjuda mobila betalningstjänster?
  - har det förbättrat något inom företaget?
- Vad anser ni är värdeskapande för företaget genom att erbjuda mobila betalningstjänster?

## **Företag som INTE adopterat mobila betalningstjänster**

- Hur kommer det sig att mobila betalningstjänster inte erbjuds idag?
  - vad upplever ni för hinder inom ert företag samt inom eran bransch?
- Hur stor har efterfrågan varit för mobila betalningstjänster?
  - hur påverkar kundens efterfrågan ert företag samt er bransch?
- Har ni övervägt att adoptera en mobil betalningstjänst inom en snar framtid?
  - om ja, kommer ni överväga att utveckla en proprietär lösning (egen app + betal lösning) eller adoptera från en leverantör?
- Vad ser ni för möjligheter med att erbjuda mobila betalningstjänster?
  - anser ni att det kan förbättrat något inom företaget?
- Vad upplever ni är värdeskapande för ert företag genom att erbjuda mobila betalningstjänster?