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Future Payment Solutions in Sweden

Critical Success Factors and Scenarios from a Stakeholder Perspective

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Keywords: Mobile Payments, Proximity Payments, Remote Payments, Contactless Mobile Payments, NFC, QR, Mobile Payment Standards, Digital Payment Value Chain

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Preface

This is a master thesis written at Lund University, Faculty of Engineering (LTH) within Industrial Engineering and Management on behalf of both Lund University and Logica CGI during the autumn of 2012.

It has been an interesting time discovering this topic, and fun to work with an area that is in the starting blocks to take off. First, we want to thank our two supervisors Patrik Merup at Logica CGI and Carl-Johan Asplund from Lund University. Without your support, insights, motivation and knowledge in your fields, we would not have been able to reach the same result.

Moreover, we would like to thank all experts at Logica CGI, both in Stockholm and London, that helped us understand the background and market, and gave us valuable insights on the topic.

Thanks also to all stakeholders and actors that we interviewed during the process, who gave us time from their busy schedules. We are aware that many students contact you in this matter, and we hope our results and insights will be of benefit for you, and wish you the best of luck in future endeavors.

This is the final step for us before graduating, thank you for your attention and we hope you enjoy reading this thesis.

Stockholm, January 2013.

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Fredrik Hult

Abstract

Title: Future Payment Solutions in Sweden – Critical Success Factors and Scenarios from a Stakeholder Perspective

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Background: Mobile payments have become an increasingly hot topic due to the wide availability of smartphones and mobile internet on the Swedish market. Banks have historically enjoyed a monopoly position in payments, but have recently seen new entrants contending for a share of the market as payments go mobile. Mobile operators, technology companies, and merchants all want to join the mobile payments space in order to find new revenue streams. Technological development is happening fast, and with many actors in the market it becomes more important than ever to have a strong strategy from the start to be able to establish a standard.

Purpose: The purpose with this thesis is to get a better understanding of the mobile payments industry with regards to actors and technologies, and to establish the key factors that drive a standard in Sweden. The work will provide a foundation for understanding mobile payments, as well as a roadmap for actors in the industry on important aspects of future development. The purpose can be summarized in two research questions:

- Which technologies and services constitute the Swedish mobile payments landscape today, and what are the key success factors?
- What development can be expected in Sweden the coming 5-10 years, and which technologies and services are likely to prevail and become established standards?

Theoretical Framework: The data analysis has been based on the Standard Wars framework, in order to understand which factors that are driving a standard. Furthermore, the digital payment value chain has been analyzed to see where actors have chosen to position themselves, and to understand the possible revenue models that exist.

Methodology: The thesis uses a combination of qualitative and quantitative data. The qualitative data consists of a literature review, interviews with stakeholders, an international case study, as well as workshops with industry experts and stakeholders to validate the progress and quality of the work. The quantitative part consists of secondary data to further validate the results.

Result: The Swedish mobile payments market consists of a range of services and actors, where the most prominent are Banks, MNOs, PSPs and EMV. Development in mobile payments will happen fast in the coming years, and already in 2013 consumers and merchants will use their mobile phones to pay to on a much larger scale.

The most important success factor is the value proposition for both merchants and customers. For merchants, the service needs to have lower total cost including investments than existing solutions, as well as be secure and fast. For consumers, the service must go beyond payments and include value added services such as loyalty, receipt management and offers. Other critical factors are convenience, easy to use, secure, and low cost.

NFC is currently the most complete available technology, but lacks merchant adoption and handset integration, which means no network effects and high investment costs. Therefore, QR is the most prominent technology at the moment, as it can be used in all smartphones and be deployed for a very low cost. Nevertheless, NFC has some transition possibilities, and the winning technology is linked to the winning actor more than the technology in itself. By supporting multiple technologies, the service can minimize technology risks, and it is likely that technologies will co-exist in the future.

Mobile payments are predicted to be used in 6% of all transactions in Sweden by 2017. The authors see four possible scenarios and the two most likely are where PSPs as SEQR continues to partner up with new merchants, and by leading the development adds new functionality and builds a customer base. The other scenario sees the banks manage to unite behind a redesigned solution, where Bart and Swish are merged with the mobile banking platform.

Keywords: Mobile Payments, Proximity Payments, Remote Payments, Contactless Mobile Payments, NFC, QR, Payment Value Chain, Standard Wars, Payments Eco-system

Sammanfattning

Titel: Framtida Betalningslösningar i Sverige – Kritiska Framgångsfaktorer och Scenarier från ett Intressentperspektiv

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Bakgrund: Mobila betalningar har blivit allt mer aktuellt eftersom ny teknik som smartphones och mobilt internet har fått en snabb utbredning på svenska marknaden. Bankerna, som tidigare har haft monopol på betalningar har fått se nya mindre leverantörer slåss om kakan när framtidens betalningar blir mobila. Operatörerna, teknikföretag, och handlare ger sig också in i bilden med försök att hitta nya intäktsmöjligheter. Teknikutvecklingen sker snabbt, och med många aktörer på marknaden blir det allt viktigare att ha rätt strategi från början för att kunna etablera en standard.

Syfte: Syftet med detta examensarbete är att få en bra förståelse för hur marknaden ser ut för mobila betalningar, samt vilka nyckelfaktorer som driver en standard. Arbetet ska både vara en grund för att skapa förståelse vad mobila betalningar är, men också fungera som ett verktyg för hur aktörerna på den svenska marknaden kan agera för framtiden. Rapportens syfte kan sammanfattas två frågeställningar:

- Vilka tekniker och tjänster finns på den svenska marknaden, och vilka är nyckelfaktorerna som driver utvecklingen?
- Vilken utveckling kan förväntas på den svenska marknaden de kommande 5-10 åren och vilka tekniker och tjänster har möjlighet att bli standard?

Teori: Analysen har baserats på modellen Standard Wars för att få en förståelse för vilka faktorer som driver en standard. Vidare har en modell av värdekedjan inom betalningar använts för att se var aktörerna har valt att positionera sig, och vilka möjliga intäktsmodeller som existerar.

Metod: Examensarbetet har använt en kombination av kvalitativ och kvantitativ data. Den kvalitativa delen har bestått av litteraturgranskning, intervjuer med aktörer på marknaden, en internationell fallstudie med grund i intervjuer, samt workshops med bransch-kunniga för att säkerställa kvalitet och utveckling. Den kvantitativa delen består av sekundärdata som har samlats in från för att säkerställa slutsatserna.

Resultat: Den svenska marknaden för mobila betalningar består av en mängd tjänster och aktörer, där de mest framträdande är banker, mobiloperatörer, specialiserade betalningsförmedlare, och kortföretag. De närmaste åren kommer utvecklingen gå snabbt inom mobila betalningar, och redan 2013 kommer konsumenter och handlare att använda sin mobiltelefon för att betala i betydligt större utsträckning.

Den viktigaste faktorn för att lyckas är att leverera värde till både handlare och användare. För handlaren är det viktigt att tjänsten har låg total kostnad inklusive investering, samt att den är säker och snabb. Användaren fokuserar på mervärdet utöver betalningen som tjänsten erbjuder, som exempelvis stöd för lojalitetskort, kvitton och erbjudanden. Tjänsten behöver också vara enkel, smidig, säker och ha ett lågt pris.

NFC är den teknik som är komplett i dagsläget, men är inte tillräckligt utbredd och har en hög investeringskostnad. Därför är QR den bästa lösningen på kort sikt då de redan idag kan användas i alla smartphones. Dock finns möjligheter för NFC att snabbt få större spridning genom en adapterlösning som NFC-klistermärke eller SIM-kort. Den teknik som etableras som standard är dock mer relaterat till vilken aktör som vinner, än tekniken i sig. Genom att stödja både NFC och QR kan företagen minimera risken att hamna i underläge med sin teknik, och det är troligt att båda teknikerna kommer att samexistera i framtiden.

Mobila betalningar uppskattas hantera 6% av alla transaktioner i Sverige år 2017. Författarna ser fyra scenarion varav två är mer troliga. Det första där en PSP som SEQR fortsätter att bygga en handlarbas och genom att leda utvecklingen lägger till ny funktionalitet för att driva användare. Det andra består av bankerna som lyckas ena sig bakom en vidareutvecklad lösning, där Bart och Swish har slagits ihop med mobilbanken.

Nyckelord: Mobila betalningar, Sverige, Värdekedjan inom Betalningar, NFC, QR, Standard inom Mobila Betalningar

List of Key Acronyms

API	Application Programming Interface
BiR	Bank i Realtid (Bank in Real-time)
C2B	Consumer to Business
CMP	Contactless Mobile Payments
EMV	Europay, MasterCard and VISA
MNO	Mobile Network Operator
NFC	Near Field Communication
P2P	Person to Person
PoS	Point of Sale
PSP	Payment Service Provider
QR	Quick Response
SIM	Subscriber Identity Module
SMS	Short Message Service
TSM	Trusted Service Manager
RFID	Radio Frequency Identification

Terminology

<i>Mobile Payments</i>	Is a payment service that includes digital money, either transferred or placed in a mobile wallet. The transaction is performed on a mobile device. Mobile payments are defined as either <i>Proximity Payments</i> or <i>Remote Payments</i> .
<i>Proximity Payments</i>	Is the type of payment that is done at the merchant point-of sale. You check out at the cashier with the mobile device and money is transferred from your mobile account to the store.
<i>Remote Payments</i>	Contrary to proximity payments, remote payments can be done, independent on a point-of-sale. It is either done as between persons or to a merchant over the wireless network or SMS.
<i>Hybrid Payments</i>	Are the solutions that could handle both proximity and remote payments. This category contains solutions that extend existing behaviors. It can be card payments that becomes mobile with smartphone card reader i.e. iZettle.
<i>Mobile Network Operators</i>	Are the wireless service providers that enable mobile phones to communicate with each other. The MNO have customers that pay through either subscription or prepaid to gain access to the cellular network.
<i>Banks</i>	Are the financial institutions that handle financial transactions and are normally the place where people have their money.
<i>Handset manufacturers</i>	Companies manufacturing mobile phone handsets
<i>Payment Service Provider</i>	Independent companies that develop a payment solution. It could be entrepreneurs, online payments services and technology companies
<i>Trusted Service Manager</i>	Is a neutral broker facilitating the connection between the handset manufacturer, the MNO, the user and the PSP. It is controlling the secure element in the phone and identifies the user and bank when the transaction is performed.

1. Introduction

The introduction aims to give the reader the setting of the thesis, as well as presenting the purpose of the report. Furthermore, the problem and the research questions are formulated.

1.1 Background

Since ancient times, people have swapped valuable items for goods in barter trade. As markets have become more sophisticated, commonly shared currency has been a more convenient way to pay. Currency has changed from precious metals, via paper bills to electronic figures on a screen. With growing smart-phone penetration and broadband connectivity in the era of information technology, new ways of paying emerge.

Payments methods are developing fast and many different types of actors want to capture new revenue streams, or protect old ones (KPMG, 2011). This has brought new entrants from the tech- and mobile industries, which threatens traditional companies in the financial industry. With a payment solution for the future, customers change the way they interact with financial institutions. The future vision of payments is where the consumer's wallet is fully integrated into the mobile phone, and a simple tap with the phone or scan of a code will transact the payment immediately whether it is in a physical store, online, or to a friend.

In emerging markets, many mobile money transfer services have already been deployed, driven by the lack of bank infrastructure and credible payment alternatives (KPMG, 2011). Although no standard has been set, low cost phones are used to transfer money both domestically and across borders. The current situation in developed markets is a "chicken and egg" dilemma (Dahlberg, Mallat, Ondrus, & Zmijewska, 2007). Mobile network operators (MNO), banks, and payment service providers (PSP) have refrained from big investments since the largest handset manufacturers have yet to include support for NFC technology in their handsets. The handset manufacturers on their hand have pointed out a lack of interest from consumers and pointed to an unclear state of the market, with forms of cooperation and revenue models still to be defined. In the same manner, merchants have been reluctant to invest in new checkout technologies that would enable new solutions in store. (Dahlberg, Mallat, Ondrus, & Zmijewska, 2007).

Payments is big business for many actors, and replacing established norms by introducing disruptive payment models will not be done overnight. Strategies and revenue models have to be found that can either exist along with current alternatives, or be strong enough to fly solo and conquer traditional means. In spite of the hurdles that exist, the adoption of mobile payments seems to be all but a matter of timing. The stakeholders in the industry seem to share the opinion that the future of payments will be mobile, but views on how quickly the market will move into the next phase vary.

In the last couple of years, entrepreneurs and independent payment providers have advanced their positions in the market and launched fully functional solutions with varying degrees of adoption from users. The big players like banks and MNOs are just responding with their own solutions, and the sophistication of the solutions is rising.

It is obvious that the payments eco-system is complex, and there are powerful interests with the capability of steering the industry in different directions. There are strong reasons to believe that within 2-3 years, the industry will have reached a breakthrough in adoption of mobile payments. (Svensk Handel & SHR, 2012). However many questions remain, and players with a better understanding of what drives success in the market will have an edge in finding “white spots”, i.e. important parts of the eco-system where there is currently no actor or solution present. It is therefore a very relevant time to look in-depth at the industry and ask who will emerge as the winning actor and technology in the mobile payments eco-system.

1.2 Problem Formulation and Purpose

The thesis aims to identify key drivers in the payments market in Sweden for the forthcoming 5-10 years. The industry landscape is changing quickly, and the purpose with the work is to provide an understanding of the current state of the mobile payments industry in Sweden and apprehend what critical success factors the existing and coming stakeholders in the industry need to be aware of.

The mobile payments industry will be discussed in the context of the payments market as a whole, and will be compared to traditional forms of payment in order to achieve an understanding not only of how the mobile payments market will develop, but also the payments market as a whole. The objective is to cover different areas of the industry from different angles and more specifically:

- Present a mapping of the technologies and services in the mobile payments industry together with a mapping of the mobile payments eco-system, i.e. the actors in the industry, their incentives and to what extent they depend on each other.
- For the actors in the industry; strategies, core competencies and unique selling propositions will be analyzed and presented.
- Summarize current opinions and predictions found in recent literature from various types of sources. Based on the literature and appropriate theoretical frameworks, find the critical success factors in the mobile payments market.
- Present which scenarios that can be expected in the coming 5-10 years for the mobile payments industry in Sweden, with regards to:
 - What players, services, and technologies will emerge winners and losers, and are there potential for standards in the market and what would those be?
 - What differences in payments behavior and transaction volumes can be expected?
 - What kinds of revenue models are likely to prevail?

- What are the catalysts that will trigger adoption of mobile payments in general, as well as specific services, and are they likely to happen?

This can be narrowed down to the following two research questions that the Master thesis will answer:

- **Research Question 1:** *Which key technologies and services constitute the Swedish mobile payments landscape today, and what are the key success factors of those technologies and services?*
- **Research Question 2:** *What development can be expected in the Swedish mobile payments industry in the coming 5-10 years, and which technologies and services are likely to prevail and become established standards?*

Furthermore, by looking into the process of what happens before, during and after a payment, an understanding can be gained on which actors that is strong in specific parts of the value chain. Because the value chain is not yet fully developed, the authors also aim to identify “white spots” and business opportunities with regards to the value chain.

When trying to answer the research questions, the authors will dig deep in the industry and there will be interesting material that goes beyond the two research questions but still be in scope of the problem formulation. It could be important catalysts and trends that do not fit the mentioned questions. Nevertheless, this information is important for understanding the industry and could incur much value for the reader and should therefore not be left out. Consequently, the authors will share the learning’s on trends and development for the industry in a separate section.

1.5 Thesis Outline

The order of the thesis is structured as described below. Each chapter has a short paragraph introducing the subject, and the longer chapters also have a chapter summary to facilitate for the reader to recap and quickly get to the key takeaways.

Chapter 1, *Introduction*, aims to give the reader the setting of the thesis, as well as present the purpose and research questions.

Chapter 2, *Theoretical Framework*, defines the theoretical structure and approach. It contains the framework in which the problem will be viewed and eventually solved.

Chapter 3, *Research Methodology*, presents the methodology used for the thesis. Moreover, it brings up different data collection approaches, analyzes its pros and cons, and justifies why selected method is chosen.

Chapter 4, *Empirics*, will give an introduction to the Swedish payment landscape by explaining the different type of payments and their share of the market. Furthermore, to help the reader understand the industry, a mapping of stakeholders, technologies and mobile payment services is presented.

Chapter 5, *Analysis*, contains the study of the theoretical framework, consisting of Standard Wars and the mobile payment value chain. First, the section gives the reader a set of important factors leading to where the actors want to position themselves in the value chain. Secondly, a case study on the UK is carried out and learnings and parallels to the Swedish market are presented. Finally, the Swedish services are evaluated based on the insights from the analysis.

Chapter 6, *Predictions*, external forecasts and opinions for the Swedish and global market will be put forward and merged into the author's own predictions. This develops into a four-scenario analysis about the future.

Chapter 7, *Conclusion*, will summarize the analysis, and the two research questions will be answered based on data from the analysis. The section will briefly summarize and point out the most important success factors as well as conclude where the market is heading.

Chapter 8, *Other Trends and Observations*, aims to discuss important factors that are either enablers or pose problems and issues for the actors. Some of the factors are not related to the research questions but still plays an important role or should be investigated further. Finally, the authors bring up own observations and possible white spots in the industry.

Chapter 9, *Further Research*, will bring up topics and angles of the mobile payment problem that were out of scope for the thesis but still are very interesting to take a further look into.

2. Theoretical Framework

The following section describes the theoretical approach and structure. It contains the framework in which the problem will be viewed and solved.

2.1 Theoretical Approach

Three main areas will be focused on in this thesis. First, an investigation on which factors those are important for a mobile solution to become a standard. This framework is called Standard Wars. Next, a closer look will be done on the payment value chain to understand possible revenue models and where the different actors want to position themselves in the ecosystem. The theory involves three phases; pre, during and post payment. Finally, to be able to give a picture of the future development, a scenario analysis will be performed.

To be able to analyze the industry from a management and innovation point of view, certain terms and concepts is necessary to use for a better and more coherent understanding. In the initial mapping of the technologies and actors, the relationship between all stakeholders will be very interesting. To visualize this in an easy way, a *stakeholder mapping* will be done. The section will contain the relation between the stakeholders and the underlying incentives and forces behind them.

2.2 Standard Wars

Carl Shapiro and Hal R. Varian, authors of *Information Rules* and professors at Berkeley, did an extensive study on how standards develop and emerge. The authors determine seven critical assets in a standard game that could be key strengths in defining what solution or technology that will prevail in the future (Shapiro & Varian, 1999). In this thesis, parts of this framework have been used in combination with mobile payments data. The framework has been chosen because the mobile payments industry is in an early stage and actors are competing to establish a standard. Standard setters will have significant advantages in the industry since use of mobile payments is dependent on both consumers and merchants adopting compatible services. Some aspects of the original framework have not been appropriate for research on mobile payments. Therefore, manufacturing capabilities have been removed and some concepts have been improved, e.g. installer base has become network externalities. The framework focuses on the actor's point of view and does not include the consumer. For a service to gain widespread distribution, certain factors affecting the consumer experience are important as well, and those will be covered in the *stakeholder mapping* outside the framework.

Finally, the framework consists of six *success factors*, presented in Figure 1. It will be investigated in which way the factors affect the industry. By analyzing and later weighting the factors, a frame for evaluating the services will be created. This can help the actors in understanding success factors and drivers of the industry, a knowledge that could be leveraged when developing payment solutions.

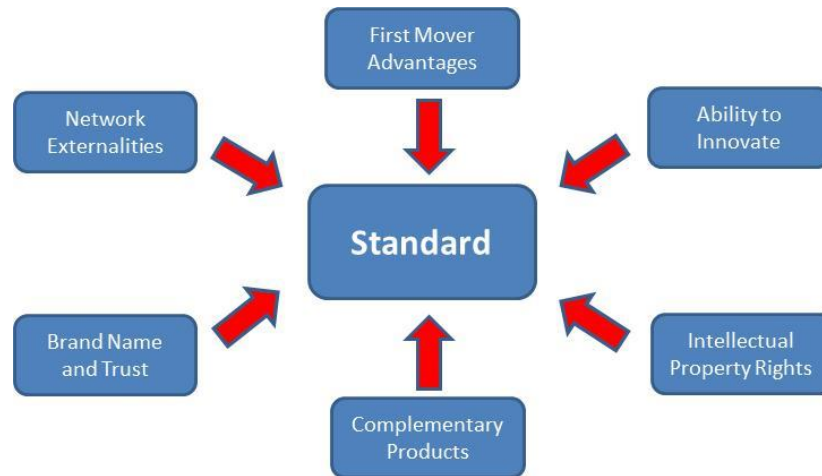


Figure 1 The Standard Wars framework

2.2.1 Network Externalities

An incumbent firm that has a large base of loyal or locked-in customers can use this as an advantage in its evolution strategy (Mauborgne & Chan Kim, 2005). By either offering a migration path or utilize competences in an efficient way (Katz & Shapiro, 1994), the company can use its size to block competitors and use pricing strategies to gain market shares. A dominant buyer like large retailers or governments can play a big role in steering an industry towards a standard. (Shapiro & Varian, 1999)

Partners are important for collaboration and to spread the mobile payments service. One way is to create an ecosystem and develop an open technical system where different actors can connect their respective solutions to increase customer value, in this way the network gets more valuable than the single service.

2.2.2 Intellectual Property Rights

Patents, copyrights and trade secrets are valuable for firms and give them control of new technology. This hinders competitors to get access to the market and they may lose important speed. When intellectual property is strong, it will work as a core asset in becoming a standard. (Shapiro & Varian, 1999)

2.2.3 Ability to Innovate

This factor is about the firm's capability to go beyond existing intellectual property and technology, and develop the concept or product further. A company is more or less innovative and can have both active and passive strategies for the future. Different stakeholders will different resources and know-how to innovate further.

2.2.4 First-Mover Advantages and Disadvantages

If a firm is the first on the market with its product, there are possibilities to gain a user base and an important edge over its competitors (Shapiro & Varian, 1999). First-mover advantages appear from three primary sources; technological leadership, pre-emption of assets, and buyer switching costs (Lieberman & Montgomery, 1988). By leveraging them in the right way, the competition could have problems to catch up.

However, there are situations where a first-mover can experience several disadvantages and where late-movers can be better off. These situations are other firms' capability to 'free-ride' on first-mover investments; an end of technological and market uncertainty (Lieberman & Montgomery, 1988); technological discontinuities that benefit other parties; and different situations where incumbent firms have problem to adapt to changes. Conclusively, first-mover status can infer advantages, but much depends on the circumstances. (Suarez & Lanzolla, 2005)

2.2.5 Strengths in Complementary Products

If the firm is either producing or is dependent on complementary products, they will be strongly motivated to push the technology further (Shapiro & Varian, 1999). Sometimes, key components are developed outside the firm's boundaries and partnerships must be formed. It is important to understand what value the user wants and create a plan on how the firm can deliver it.

2.2.6 Brand Name and Reputation

A powerful brand name is valuable because users recognize and trust the firm. It is especially important in network markets, where reputation plays a big role (Shapiro & Varian, 1999). It is not necessarily so that the best product will win a standard war. The firm need to convince the user that it will win, in order for users to be sure that the solution or product will work long term, especially when switching costs are high.

A brand's credibility and reputation is linked to the specific domain in which the brand is famous. A powerful brand in a new and unknown sector can gain some but not full credibility.

2.3 The Digital Payment Value Chain

With the introduction of digital payments and the resulting changes in the payments industry, actors other than banks have begun to get an increased interest in the payment value chain. This is partly due to increased opportunities in consumer knowledge from the information flows surrounding payments. Analysis of the information contents of digital payments can produce significant knowledge of consumers' buying behavior and preferences, and the digital platform is also an easier way to reach consumers compared to traditional means (Accenture Payment Services, 2012).

When new actors join the market, competition increases and new revenue models are introduced. By dividing the payment value chain into three phases, see Figure 2, an assessment can be made as to which revenue streams can be covered and how the actors can capitalize on available information. Furthermore, this framework will be used for understanding the different stakeholders' incentives and what position they are looking to take in the mobile payments eco-system. The model will be one way to see if the actors either conflict with each other by being in the same part of the value chain, or if collaboration is possible across different parts of the value chain.



Figure 2 The digital payment value chain and possible revenue models

The pre-payment phase includes everything that happens before a purchase, also known as the consumer's decision process. It involves everything from awareness of a product to creating a preference that leads up to a purchase. With a better knowledge of the consumer, merchants can make offers based on information such as location or previous buying patterns. This provides new possibilities for merchants to tailor offers to the consumer and for all actors to work through new marketing channels.

When the actual payment takes place, the payment provider either takes a percentage to handle the transaction from the merchant or charge the user a fixed fee. Nevertheless, by processing the payment additional information about the consumer is gained, which can further improve targeting and loyalty offerings in the post-payment phase. Here, actors can possibly find new sources of revenue by creating value added services for the customer.

2.4 Scenario Analysis

To be able to answer the second research question about future development, a *scenario analysis* will be conducted to point out which directions the industry can take. A scenario analysis is a process of analyzing possible future events by describing possible outcomes. Normally it is presented by a two by two matrix and presents the probability of each scenario.

2.5 Chapter Summary

The theoretical framework that is the basis for the analysis contains three different approaches:

First, a set of different *success factors* affecting the chances of a service to become a standard will be analyzed. The framework is called *Standard Wars*, and consists of six factors:

- *Network externalities* – Explains to what extent the size of the user network improves the value of the service for every user through increased accessibility

- *Intellectual property rights* – To what extent the service and technology can be protected
- *Ability to innovate* – How dynamic and innovative the service provider is
- *First-mover advantages* – What advantages the service provider gains from being first to the market
- *Strengths in complementary products* – How can complementary products or infrastructure be offered to make the value of the service higher
- *Brand name and reputation* – Explains the amount of trust and recognition for the service

The next approach is the *Digital payment value chain*, where the actors will be mapped based on their position in the value chain; pre, during or post payment. The payment in itself does not provide the whole value of the service, but actors present in the pre- and post-payment phases can compete with loyalty offers, targeted ads, and product search and comparison. Finally, the future outlook will be presented in a *scenario analysis*.

3. Research Methodology

This section presents the methodology used for the thesis. Moreover, it describes different data collection approaches, analyzes its pros and cons and justifies why the selected methods are chosen.

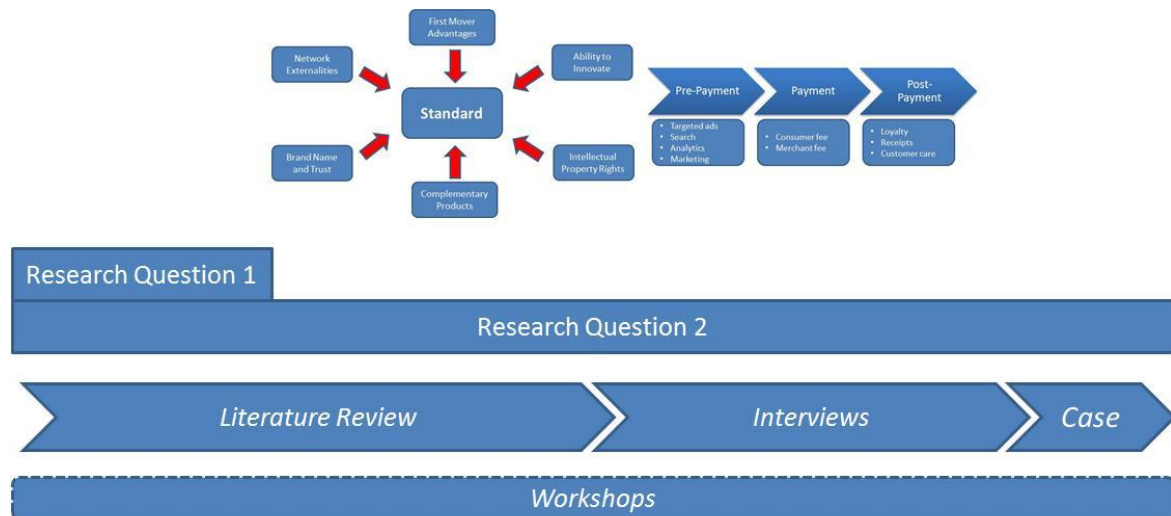


Figure 3 Research process and timeline

3.1 Quantitative and Qualitative data

When analyzing data, there are two main approaches of conducting an analysis; quantitative and qualitative. When looking into specific numbers and values, a quantitative method is used. The data can be counted, classified and processed in different ways. Often this implies questionnaires, statistics and different types of numeric data. On the contrary, the qualitative analysis consists of words and descriptions that will point out important facts and angles. (Höst, Regnell, & Runeson, 2006)

3.1.1 Choosing the Right Approach

To be able to choose an appropriate method, the problem formulation and appropriate frame (Matheson & Matheson, 2009) must be taken into consideration. For an investigation of future payment solutions in Sweden, both pros and cons related to the data types must be examined to make sure an appropriate approach is used.

A quantitative method would contribute with actual numbers and be more accurate in reflecting the studied population. It focuses on common denominators, and draws conclusions based on average data points to generalize the situation, thus making it possible to draw conclusions about averages or subsets of the population. The data will describe and to some extent explain the situation. The limitation with this approach is linked to the studied population, and with an area as new as mobile payments, people are perhaps not well versed with the subject and answers may therefore be lacking depth. (Höst, Regnell, & Runeson, 2006)

A qualitative method will have much fewer data points where just a number of situations or persons are studied. It will generate a more in-depth analysis with unique data understanding. The information is often collected in a situation that has been thoroughly chosen. The researcher can affect the data gathering by adding an element of subjectivity, which could be a limitation in the reliability of the results. Looking at a smaller sample could also be a problem, since one might not get the correct information as represented by a large population. (Höst, Regnell, & Runeson, 2006)

When conducting research in complex areas, it is often necessary to use a combination of both methods to gain the right perspectives and be able to validate the results; thus achieving a relevant study. The qualitative data for this thesis will be gathered through an extensive literature review and in-depth interviews. To further understand the drivers as well as develop the ongoing process, a case study will be conducted on the UK. By doing workshops with different stakeholders and independent experts, the collected data can be discussed, and direction on the work can be provided during the process.

Because of the limited amount of resources and reach, the quantitative data collection will not be primary. The thesis will use secondary quantitative data with larger samples and more accurate data with a good fit to the thesis objective.

3.1.2 Literature Reviews

The literature review is the foundation to be able to explain the topic in a relevant and objective way. Theory is critical to build a broad understanding of the subject, as well as finding material, which focuses on the specific research questions. Furthermore, it is important to be able to validate sources so that the information obtained is correct and representative of the situation. By looking into both academic research papers, books and consultancy reports, a realistic and correct view can be presented in this report.

3.1.3 Interviews

Interviews are a qualitative data collection method that can be used to gather information on a specific topic. It also gives the possibility to gain insight in trends and future development of the topic. Interview outcomes should be validated from other sources to make sure the information is accurate. (Höst, Regnell, & Runeson, 2006)

By conducting semi-structured interviews with key stakeholders in the industry, data will be gathered on both the actual state of the industry as well as the future outlook. The interviews will work as a tool to validate the previously analyzed literature, as well as provide primary data for analysis. In appendix 1, a list of the persons interviewed is presented as well as the questions that worked as a base for the interviews.

3.1.4 Case Studies

A case study is a way to collect both quantitative and qualitative data, with purpose to gain an in depth knowledge about a phenomenon or an object. It typically contains interviews, observations and literature. (Höst, Regnell, & Runeson, 2006)

To be able to draw conclusions about the Swedish mobile payments industry, information will be collected on development of the industry internationally. Looking at a specific international case and trying to identify similarities and differences in how the Swedish market will develop compared to international markets is an effective way of achieving this. In this thesis, a case on the UK bank Barclay's service PingIt and the MNO O2's service O2 Wallet will be done. A qualitative perspective will be taken through conducting interviews and examining available literature. In addition, data regarding number of users, when and how they use the service, as well as number of transactions can be gathered to gain quantitative insights as well.

3.1.5 Workshops

To get a better understanding of the industry during the process, as well as getting new insights and help steering the work in the right direction, several workshops will be conducted with the supervisor from Logica and internal and external experts. It will consist of senior people with different experience linked to mobile payments and by connecting these people with our findings; through this new interesting areas can be found to research further. These workshops will mostly take place in the beginning of the thesis when the scope is broad, and possibilities for the choice of direction are possible. During the workshop sessions, different types of brainstorming and information exchange will take place. The data collected in these workshops will not be a direct input for the conclusions, but will serve as guidance during the work. The persons participating will come from Logica, interviewed companies or other that the thesis supervisor thinks could provide insight in the situation.

3.2 Quality

It is important that the quality of the data is sufficient to be able to draw correct conclusions. A problem with the literature review is the level of sources, due to mobile payments being a relatively new topic. There are relatively large amounts of data with an international perspective, but quantitative data on Sweden is not available to the same extent. However, Sweden has many similarities to other countries in both Europe and the US on certain areas, and thus the interviews with specific stakeholders will secure the quality and link to the researched topic. The mobile payments landscape is changing quickly, and there are many factors that affect the adoption of the various solutions. This leads to small transformations having the potential to change the landscape dramatically. Despite these limiting factors, the authors believe that the developed framework will give stakeholders in the industry a model to analyze existing businesses as well as gain valuable insights for the future.

3.2.1 Reliability

In order to achieve high reliability, it is important that the method of collecting data and analysis are done correctly. Due to the relatively large amount of data with an international perspective, as well as credible reasoning and linkages to the Swedish industry, this makes for a reliable report. Moreover, the quality of the sources is often high since it comes from established players in the industry, which adds to the reliability. Having a consistent structure and using trustworthy secondary data should deem the collected data to be sufficiently reliable. The selection of interviewees and cases is important and therefore key stakeholders and the most prominent markets and development is addressed.

3.2.2 Validity

Validity is the connection between what is measured and the studied object. There is no possibility to do unlimited amounts of research and analysis for the report. Nevertheless, involving experts and conducting research in a correct manner with many references can minimize the problem. Here, the literature review, interviews as well as the workshops will help ensuring the studied environment is described in the right manner. Still, the conclusions reflect the situation when the work is done. Since the industry is fast evolving, the conditions can change and will affect the results.

3.2.3 Representativeness

The representativeness of the study is much linked to the studied sample and it is hard to generalize between the specific population and others (Höst, Regnell, & Runeson, 2006). Because the interviews are conducted with all relevant stakeholders on the Swedish market, the representativeness should be viewed as high. The stakeholders that have been deemed relevant are the ones who have entered or are about to enter the Swedish market.

3.3 Chapter Summary

The methodology used will be a combination of:

- Literature reviews to get qualitative data
- Interviews with stakeholders to get both new data and validate previously gathered data
- A case study on the UK to get perspectives on that market
- Workshops with Logica CGI to ensure quality and development in the right direction

By using a combination of data collected from literature as well as the qualitative study, a reliable and valid result can be achieved.

4. Empirics

This chapter will give an introduction to the Swedish payment landscape, and explain the different types of payments and their share of the market. Furthermore, to help the reader understand the industry, a mapping of stakeholders, technologies and mobile payment services is presented.

4.1 Payments in Sweden

This section will present an overview of the current payments landscape in Sweden, in order to provide a foundation for understanding the position of mobile payments. This will be achieved by comparing methods of payment, what actors are behind those payments, as well as historical trends in payments.

Payments by card continue to make up the largest share of total payments, about twice as much as cash. Between 2002 and 2011, the number of card transactions in Sweden has more than tripled from 621 millions to 1956 millions. (Sveriges Riksbank, 2012)

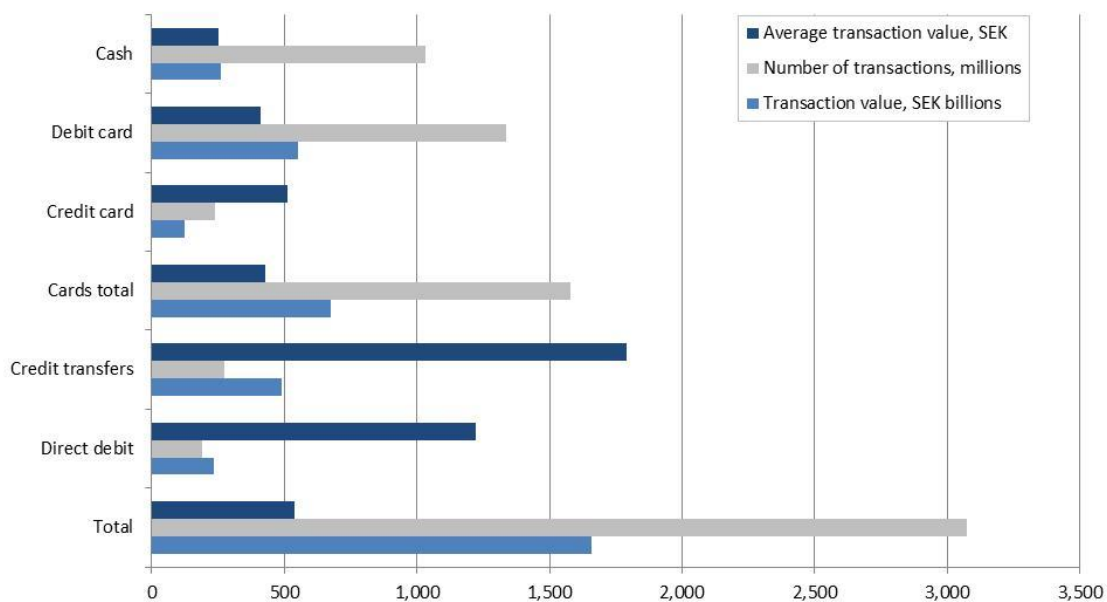


Figure 4 Use of payment methods (%) (Sveriges Riksbank, 2012)

Loomis reports that in the Eurozone, about 80% of transactions are still made with cash while in the US the same figure is about 60%. In Sweden, with one of the highest rates of card penetration in the world and also the only EU country where cash in circulation is predicted to decline in 2012 (Loomis, 2012), the figure is lower at about 30% of the total number of transactions, see figure 4. (Sveriges Riksbank, 2011)

A notable trend is that the number of cash withdrawals made with cards has decreased, and the card is now more likely than before to be used as a direct method

of payment. As an example of this, in 2004 the total transaction value from card terminals surpassed the total transaction value of cash withdrawals, see figure 5. The trend is that electronic account based payments will continue to gain shares of the total payments market.

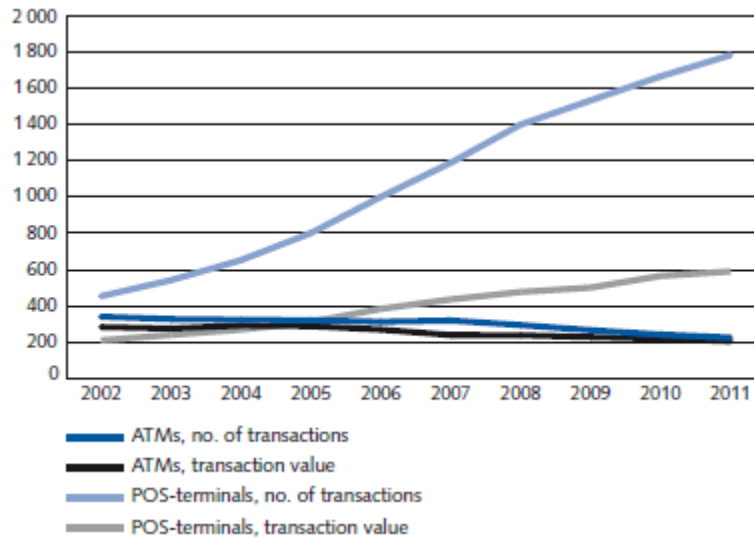


Figure 5 ATMs and Point of Sale Terminals (Sveriges Riksbank, 2012)

With the increase of card payments and decrease of cash payments, it can also be noted that the average transaction value of a card payment has decreased from about 600 SEK to 400 SEK from 2002 to 2011. (Sveriges Riksbank, 2012)

During late 2010, Riksbanken performed a survey in order to map payment behavior of Swedish citizens, reaching out to a diverse set of respondents with regards to location, age, and educational background. The results showed that slightly more than 90% of respondents had access to a debit card, about 80% internet banking, and 40% a credit card (Sveriges Riksbank, 2011). According to the World Payments Report, Swedish card penetration is among the highest in the world. (CapGemini, RBS & EFMA, 2011)

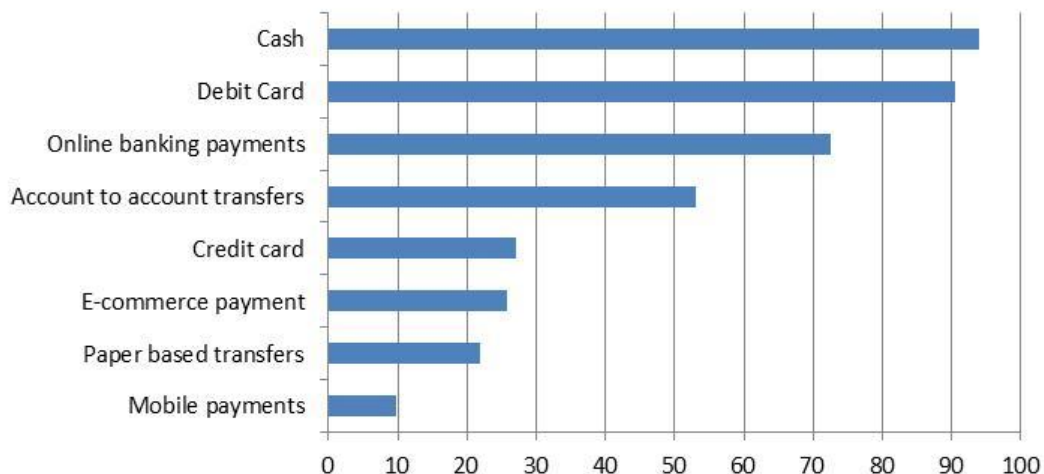


Figure 6 Payment methods usage during the last month (Sveriges Riksbank, 2011)

As part of the survey, respondents were asked which methods of payments had been used during the last month, see figure 6. It can be noted that more or less everyone that had access to a bankcard used it at some point during the month, while cash was used to an even larger extent. More than 70% paid a bill over the Internet, which can be seen as a quite high number taking into account the relative novelty of the concept. Around 10% of respondents had used mobile payments in the last month, mostly represented by premium SMS.

On the question of which methods of payment were used for specific transaction values, cash was the main form of payment for amounts below 100 SEK, while the use of cards increased above 100 SEK, see figure 7. People aged 44 or less use cards more frequently, and people aged 45 or more tend to withdraw cash more frequently and in larger amounts. The choice of payment method can therefore be seen as an age matter as well. (Sveriges Riksbank, 2011)

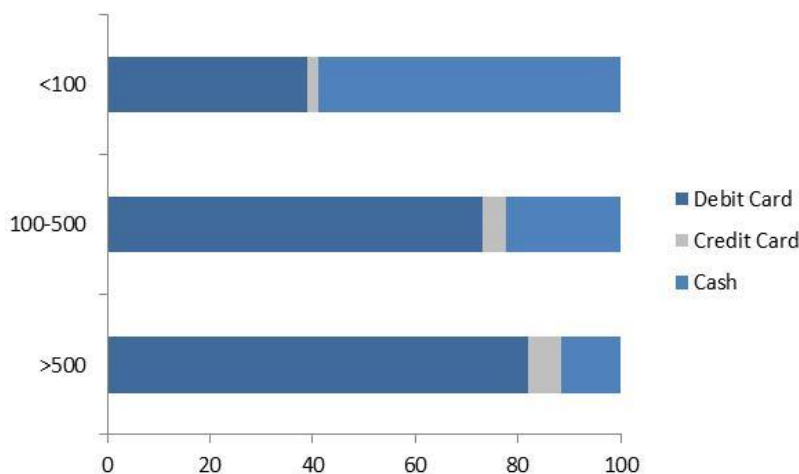


Figure 7 Method of payment for different transaction values (Sveriges Riksbank, 2011)

A particular trait of the Swedish market is that the largest banks, namely Swedbank, SEB, Handelsbanken and Nordea, have an oligopoly position in the market. Starting a bank requires a lot of capital, and it is therefore difficult for new entrants to disrupt the market. Banks also get a significant part of their revenue streams from card transactions. It has been estimated that the four largest banks generate some 7bn SEK in revenues solely on card processing fees from merchants (Wikström, 2012). The implication of the large banks having such a strong position, together with unique factors such as high card penetration and declining cash usage is that caution will have to be used in using international development as a proxy for the development of mobile payments in Sweden, and the Swedish industry will have to be discussed and treated as a unique case with regard on these specific factors.

4.2 Stakeholder Mapping

The payments eco-system contains many stakeholders with an interest in the market, see figure 8. With the introduction of mobile payments, new players are gaining an interest in the industry and this leads to challenges and potential transformation, as a new set of actors want a share of the market. This section will serve as an overview as to whom the actors with an interest in payments market are and what objectives they are looking to pursue in the market.

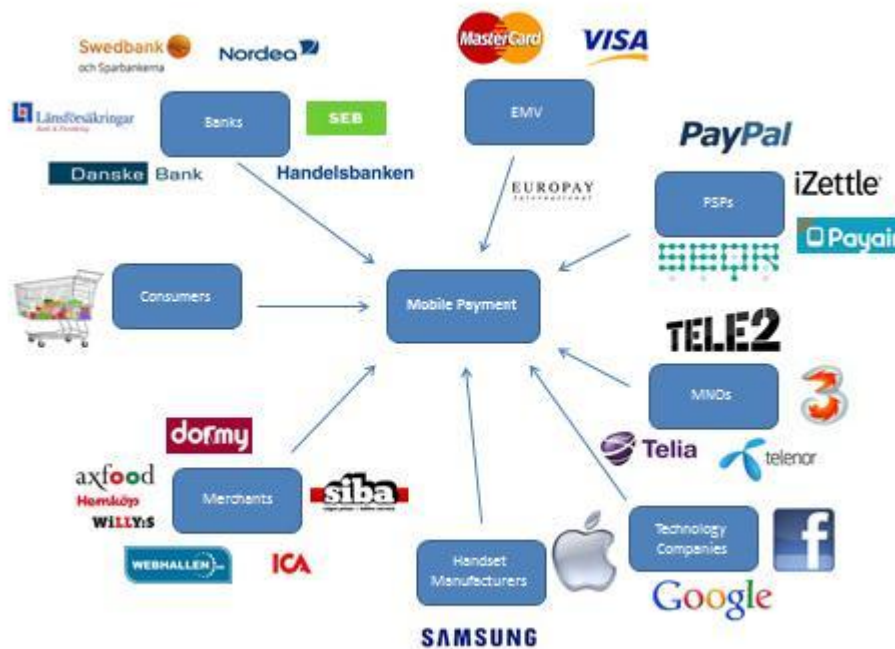


Figure 8 Stakeholder map

4.2.1 Banks

Banks have a dominant, close to 100%-share of the payments-market. Their primary objective in mobile payments is to protect their position as leaders in the overall payments market and preserve customer loyalty. Banks get some degree of credibility from having a reputation of being conservative and trustworthy, which

they are likely to want to protect. Furthermore, banks will want to own or co-own the mobile payments service for the possibility to integrate it with existing infrastructure and payment methods. (Karnouskos & Fokus, 2004)

4.2.2 Mobile Network Operators, MNOs

MNOs are traditionally not well developed in payments, but with the move of non-traditional service to the mobile platform, they see an increased chance of grabbing shares of the payments market. Payments are not a core business for MNOs, and do not today constitute a large share of revenues. Investments are made in the area and MNOs have had success in offering premium SMS as a means of payment in certain situations. (Karnouskos & Fokus, 2004)

4.2.3 Payment Service Providers, PSPs

Specialized PSPs are operating by transacting payments in a variety of environments, for example online or by proprietary infrastructure. Several PSPs are looking to gain shares of a growing mobile payment segment. The transfer from an online platform to the mobile platform can often be a natural choice to develop the business. Some PSPs are therefore coming from the online segment. An example is PayPal that launched mobile payments in 1998. Other examples are independent providers of card readers like iZettle. For the independent PSPs it is important to be better than banks on all parameters e.g. speed, security, price and convenience. (Wikström, 2012).

4.2.4 Merchants

The merchants are looking into mobile payments to lower their transaction cost, minimize cash management and speed up the handling time at the cashier. Merchants have an interest in increasing the speed of the process with real-time status of transactions, and may also have an interest in value-adding services to attract customers. The merchants can either develop their own system or push toward a bank- or PSP-developed solution. (Karnouskos & Fokus, 2004)

Drivers of merchant adoption (Mallat & Tuunainen, 2008):

- Lower fees and costs
- Speed and enhanced customer service
- Increased impulse purchases
- Increased product and service availability
- New services
- New customers
- Enhanced image

4.2.5 Europay, MasterCard and Visa, EMV

The card companies are influential in the industry, providing payments infrastructure and issuing cards that make up a large share of payment methods. Card companies are looking to protect their market share as well as finding new ways to generate revenue from the mobile payments market. Card companies have been active in buying stakes in new payments ventures, and are eager to participate

and not lose out to new initiatives (The Economist, 2012). Card companies face the risk of becoming abundant in the eco-system as payments move from cards to a mobile platform, but may look to provide infrastructure for further participation in the market as in the case of MasterCard with its service PayPass.

4.2.6 Handset Manufacturers

Handset manufacturers have traditionally not been involved in payments, and are not getting meaningful revenues from payments at the moment. However with the move to mobile platforms, handset manufacturers see a natural opportunity to equip users with an integrated payments solution, and thus build an installed base through traditional distribution of handsets. Handset manufacturers also have the potential to set standards both in technology and services with its devices. Handset manufacturers will tend to have open systems and thus rely on cooperation with other stakeholders as well. (Karnouskos & Fokus, 2004)

4.2.7 Technology Companies

This group consists of large technology companies like Apple, Google, and to some degree Facebook, who are dominant players in the mobile area. They also have knowledge on how to capitalize on data. In addition, the companies have a strong history of creating new business models and disrupt existing industries. These players have a global reach, which enables them to get traction quickly, but lack local presence (KPMG, 2011).

4.2.8 Consumers

Consumers ultimately decide which services they will use and who wins the mobile payments war. Consumers are likely to use mobile payments if it presents a real value-add compared to traditional forms of payment. Because it is means a change in behavior to pay with the mobile, the winning solution needs to overcome this obstacle by offering enough benefits to attract the mainstream market.

In a global survey by KPMG, see figure 9, respondents from 451 companies in different sectors with an interest in mobile payments were asked what they thought are the most compelling factors for consumer adoption of mobile payments (KPMG, 2011). There was a broad consensus in that convenience and simplicity are the single most important factors for consumer adoption, with the security factor as number three. Speed and low cost are also significant deciders of the adoption of mobile payments, while an intuitively important factor like brand trust has relatively small importance for the consumer.

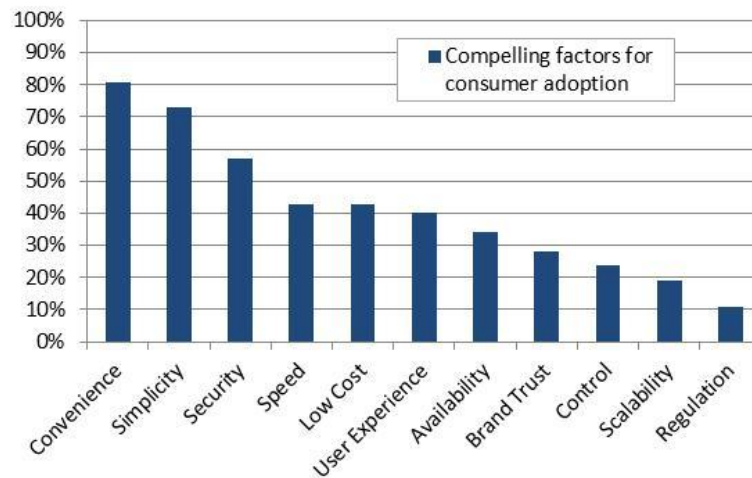


Figure 9 Compelling factors for consumer adoption

Although one can rightly question the value of a survey about consumer preferences not responded by consumers, it is likely that the novelty of the concept of mobile payments would result in a skewed result if directed at consumers, since most of them would not “know what they want” at this stage. The survey still highlights what aspects of the mobile payments services actors have to develop and market to consumers to gain adoption, and serves as a guide for evaluation of the commercial value of the mobile payment services that are launched onto the market.

4.2.9 Summary of Stakeholders’ Objectives

A summary of the stakeholders and their different objectives in mobile payments are presented in figure 10.

Stakeholder	Objectives
Bank	Protect dominant share in payments
	Preserve customer loyalty
	Protect reputation as trustworthy
	Own or co-own the mobile payment service
MNO	Integrate with existing infrastructure and payment methods
	New sources of revenue
	Pursue opportunity to grab share of payments market
PSP	Value added services
	Fast movers due to independence
	Possible move from online payments service to mobile phone
	New sources of revenue
Merchants	Use existing payments infrastructure
	Lower transaction cost
	Minimize cash management
	Speed up handling
	Valued added services
EMV	Develop own system or push for other development
	Enhance image
	Protect current market share
	New sources of revenue
Handset Manufacturers	Stakes in new initiatives
	Provide mobile payments infrastructure
	New relationships with banks/MNOs/PSPs
Technology Companies	Equip users with integrated payments solution
	Set technology standard
	Leverage consumer knowledge
Consumers	Value added services
	New business models
	Convenience
	Simplicity
	Security
	Speed
	Low cost
User experience	
Availability	
Brand trust	

Figure 10 Stakeholders and their objectives in mobile payments

4.3 Mobile Payment Technologies

The technologies that have emerged as the main alternatives for mobile payments services are NFC, QR-codes, services based on sending money via contacts through mobile applications, as well as hybrid solutions such as mobile card reading devices, see figure 11. It is important to distinguish between proximity payments and remote payments, i.e. whether the technology is based on two devices requiring physical contact or not. The target users and the ability to have the service adopted will depend on the choice of technology. The hybrid solution can be both proximity and remote.

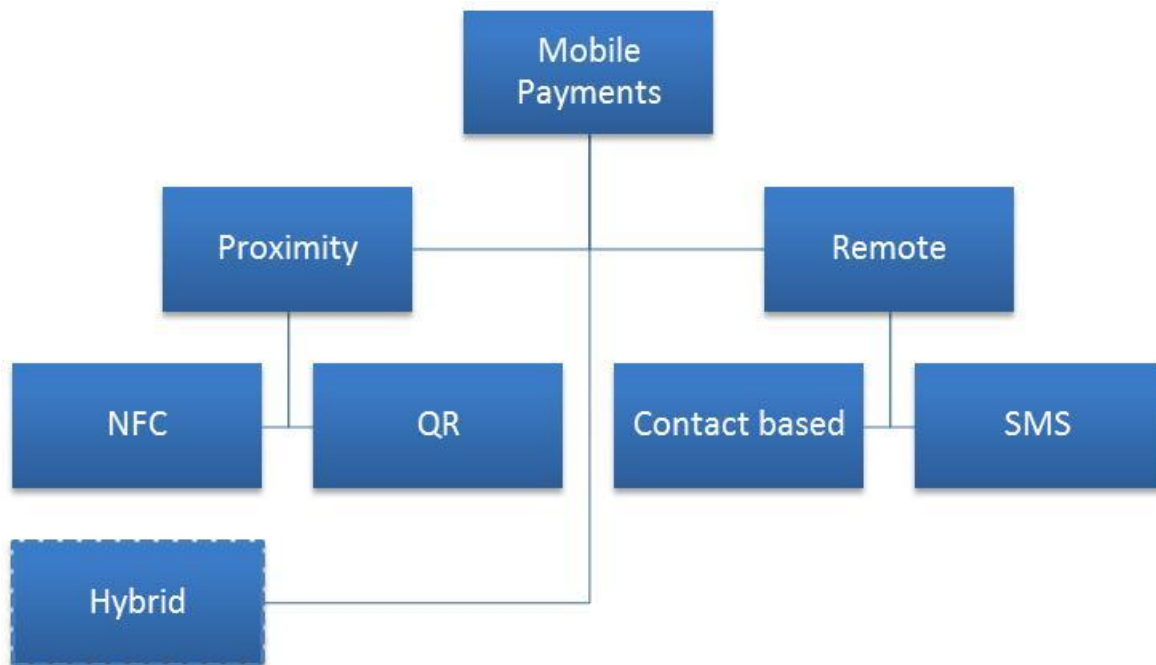


Figure 11 Different Mobile payment alternatives and solutions

4.3.1 Near Field Communication, NFC

NFC is a technology that has appeared as one of the most discussed and extensively used technologies for proximity payments. It is based on radio communication and uses RFID to connect between sender and receiver (NFC Forum, 2012). NFC is a chip that could be integrated in a phone, SIM-card or a sticker. The communication is activated when two NFC devices are placed sufficiently close to each other.

In addition to payments, information can be transmitted in both ways with NFC. This opens up many new applications such as business cards, identification, door keys, coupon and tickets as many others. It makes the technology suitable for a wider range of information sharing than pure payments technologies. (Nosowitz, 2011)

Since relatively few mobile phone manufacturers have incorporated NFC technology in their phones for the European market, it is still not as developed as for example the US market. Researchers seem to be in agreement that NFC will become the common standard for mobile payments, but it is contingent on mobile phone manufacturers integrating the technology to a greater extent, and merchants integrating NFC-compatibility at checkout (Nosowitz, 2011). NFC-stickers or special SIM-cards can be used instead of integration in the mobile device in a transition phase, and that has gained some traction while waiting for a more widespread integration and adoption by merchants.

4.3.2 Quick Response, QR

QR-codes are another proximity payment alternative that has seen increased usage in recent years, although it has not received the same media attention as NFC technology. QR-codes can be scanned by mobile devices not containing integrated technology, and a camera will suffice to scan and exchange the information contained in the code (Lehan, 2011). Hence, most people have the technology necessary to use QR-codes already. Just like with NFC, QR-codes can contain other types of information and thus be used for a wider range of information sharing than technologies dedicated to payments.

4.3.3 Contacts

There are a number of remote payment services that rely on remote communication, for example with users sending money through applications to recipients' phone numbers or e-mail addresses. These are structured either as mobile wallets where users deposit funds and keep a balance in the wallet, or services that are directly linked to the user's bank account and thus initiate transactions to and from the bank account upon sending or receiving money in the phone. Although sending money with this technology may depend on phone numbers, e-mail addresses or contacts in other ways, these methods will be categorized as contact based services in this thesis.

4.3.4 Hybrid

A few services offer the possibility to get a portable card reader to attach to the mobile phone, to be used by merchants processing smaller transactions. In this way, no additional technology is needed for the payer. This technology combines traditional proximity card payments with the portability of mobile phones, and will therefore be categorized as hybrid payment methods.

4.4 Existing mobile payment services

In Sweden there are several initiatives emerging which aim to get an early advantage in the mobile payment market. A couple of key distinctions that are important to make in order to continue to discuss their strategic position are:

- What technology is used: NFC, QR, contacts, or hybrid?
- What type of actors stand behind the launch of the service: EMV, MNOs, banks, PSPs, handset manufacturers, or technology companies?

- What is the intended area of use: P2P money transfers, C2B payments, or both?
- Fee structure: Who is paying for the transaction – customers, merchants, or both?

Currently there is a range of solutions that have been launched or are about to be launched that can be seen as the main players in the Swedish mobile payments market. These are based on different technologies, fee structures, and areas of possible use, and have been launched by different types of actors. Below is a breakdown of those services and what characterizes them.

4.4.1 WyWallet

WyWallet is a joint venture between the four largest MNOs in Sweden: Telia, 3, Telenor, and Tele2. WyWallet aims to replace payments by SMS, by instead making it a requirement for customers looking to pay with SMS to use WyWallet driven by new regulation. The service was launched in mid-2012, and includes remote C2B payments, as well as P2P money-transfers and mobile pre-paid top up. Within its first year of operation, WyWallet also aims to add functionality for web-payments and in store-payments. The companies behind WyWallet together reach 97% of Swedish mobile phone users.

There are three ways to pay for purchases made with WyWallet:

- Through pre-paid money transfers to the digital WyWallet from either a credit card or a bank transfer
- By registering a card for direct debit at the time of transactions
- Invoicing through mobile subscription after purchases have been made

Charges for P2P-money transfers and withdrawals from the WyWallet-account to a bank account have been introduced as free of charge, with a reservation to charge 1 SEK and 3% respectively, after an initial period of one year. The fee for paying by invoice is 19 SEK. (WyWallet, 2012)

4.4.2 Swish

Swish is a joint venture between the largest banks in Sweden: SEB, Nordea, Handelsbanken, Danske Bank, Länsförsäkringar Bank, and Swedbank. Swish was launched in December 2012, and is based on money transfers through contacts, initially only for P2P (Ahrgren, 2012). Money transferred through Swish is immediately transferred to the recipient's bank account through the banks' newly developed BiR infrastructure, and thus the solution does not involve multiple wallets. Swish uses the separate application Mobile Bank ID as a mean for identification, which is a previously established solution widely used for digital identification. The fee structure differs from user to user since banks have different offerings. But initially, Swish will be free for 6-12 month and then cost between 1-2 SEK per transaction. Some banks as Swedbank charge as well 5SEK/month to have access to Swish. (Swish, 2012)

4.4.3 SEQR

SEQR is a service from Swedish company Seamless, which offers in-store payments through QR-codes, as well as contact based P2P money transfers. Seamless has 11 years of experience of handling mobile payments with operations in 26 countries, and launched SEQR in Sweden in mid-2012. The technology builds on an efficient transaction system used for mobile top-up charges where Seamless is one of the leading firms in the world. The company claims to handle 3.1 billion transactions per year. At physical points of sale, the merchant will show a QR-code at the checkout desk, which contains information from the cashier system about the payment to be made. The customer follows by scanning the QR-code with the SEQR-app, and confirms the payment through signing with a PIN-code. The payment is either through a monthly invoice from Collector or debited from the customer's bank account immediately, however the only participating bank was SBAB Bank and stopped the collaboration with SEQR in November 2012. The solution allows merchants to decrease the charge for credit card payment fees. The fee for accepting payments through SEQR is half of those through credit and debit cards. (SEQR, 2012)

4.4.4 Payair

Payair is a service launched by entrepreneurs in 2012, which allows customers to register a card in the Payair-application, and then make payments directly from the card by scanning a QR-code provided by the merchant. Payair supports a select number of e-commerce sites by the time of writing, however with built in support for NFC the aim is likely set on physical points of sale as well. The application also includes a service called Receipt Online, which stores all the receipts from the purchases that have been made through the application. Payair is free to use for consumers, and offers several levels of solutions for merchants depending on size and need. Payair will not be able to lower merchant fees since they operate a credit card based model. (Payair, 2012)

4.4.5 Bart

Bart is a service launched by Swedbank and after a successful test in Hemköp stores in Stockholm during summer 2012 it will be rolled out in all Axfood stores by early 2013. Bart is an application tied directly to the customers Swedbank credit card, and it utilizes QR-code scanning in order to make in-store payments. There is no cost associated with using the service for the customer, while the merchant fees are undisclosed at this stage but should be at the same level as card payments. (Swedbank, 2012). The store need to have a special QR-code reader in the store and the user need to tap in the amount in the application, a QR-code is generated that later is scanned and the transaction is done.

4.4.6 PayPass

PayPass is an initiative from MasterCard set to launch early in 2013 in Sweden, which will be one of the trial markets for the service. PayPass is a mobile wallet where credit cards are registered, subsequently allowing customers to pay directly from registered cards by using the mobile phone. The application supports NFC, and

MasterCard has also launched regular credit cards with Tap & Go technology, with a small chip added so that users can use their regular card to pay contactless in store. PayPass will also feature an open API that allows other actors to develop mobile wallets that are compatible with the PayPass technology, and is therefore not limiting use to its own application. Swedbank and SEB will launch mobile wallets on PayPass in 2013. At the launch stage, there are no fees for either customers or merchants to use the PayPass service other than regular credit card fees. (MasterCard, 2012) (Videla, 2012)

4.4.7 PayWave

Similar to PayPass, VISA PayWave is currently beta testing in Sweden. The Swedish release plans for the service are however not as long gone as PayPass'. The VISA PayWave-card is equipped with a NFC chip, which can be used in stores for contactless purchases. PayWave also develop a mobile application, so that consumers can use their mobile phones to pay with NFC technology at PayWave stations. Fee-structure is not disclosed but should be comparable with traditional card. (VISA, 2012)

4.4.8 PayPal

PayPal has launched a mobile application, allowing users to use its online payment service in their phones. PayPal uses email-addresses to identify users, and the technology can therefore be classified as being contact based. PayPal has traditionally been strong in e-commerce, and targets merchants as well as P2P money transfers with its mobile service, as well as its existing web based service. Sending money with PayPal is free; however accepting money incurs a cost for the recipient. PayPal charges 1.9%-3.4% + 3.25 SEK for merchants receiving payments, but P2P money transfers using a credit card or PayPal credits are free. In the US market, PayPal is also launching a card reader called PayPal Here, but it is not disclosed whether it will be made available in the Swedish market in the near future. (PayPal, 2012)

4.4.9 iZettle

An entrepreneurial initiative not directly under the category of mobile payments, iZettle pioneered payments through a card reader, which can be attached to the iPhone and has recently announced the development of a device for android-phones. It is a hybrid payment solution, combining some elements of remote- and proximity payments. iZettle was launched in 2010 in Nordic markets, and is also expanding abroad, initially to the UK. iZettle is used both by stores, private individuals, charities and smaller merchants such as authors and farmers, especially with moving points of sales. Payments made through iZettle are transferred to the recipient's bank account during the same day. Payments are charged with a percentage fee of 2.75%, and the card reader can be purchased for 249 SEK. The service can also be used without the card reader, at a cost of 1.50 SEK + 3.50% of the purchase value. The device can be ordered directly through the application, and was also offered for sale at Telia's stores in early 2012 at a price of 199 SEK. It is important to mention iZettle since it has driven the development for merchants with

moving points of sales in the last couple of years, however since it is based on a hybrid technology which is similar to a card terminal; it will not be analyzed to the same extent as other mobile payment services in this report. (iZettle, 2012)

Table 1 Mobile payment services in Sweden

	Technology	Target use	Cost	Initiated by	Location
WyWallet	Contacts	P2P and C2B	1 SEK + 3 %	Mobile operators	Remote
Swish	Contacts	P2P	Varied	Banks	Remote
iZettle	Card reader	C2B	2.75 %	PSP	Hybrid
SEQR	QR/Contacts	P2P and C2B	Half card fees	PSP	Proximity/Remote
Payair	QR and NFC	C2B	Varied	PSP	Proximity
Bart	QR	C2B	Regular card fees	Bank	Proximity
PayPass	QR and NFC	C2B	Regular card fees	EMV	Proximity
PayWave	QR and NFC	C2B	Regular card fees	EMV	Proximity
PayPal	Contacts	P2P and C2B	Varied	PSP	Remote

4.5 Chapter Summary

Looking at the current payments landscape in Sweden, it can be seen that the distribution between card and cash payments is about two thirds for cards and one third for cash. Moreover, cash usage has started to decline over the last years, and use of cards has gone up. The average transaction value of a card payment has also gone down, which means that cards are replacing cash as a means of payment. It can further be noted that card penetration is at about 90%, and that the number of people using mobile payments in any given month is about 10%, primarily through premium SMS.

The **stakeholders** in mobile payments constitute a complex eco-system, which consists of:

- *Banks* – want to protect their dominance in the payments market
- *MNOs* – looking to leverage their position on the mobile platform to find new revenue streams
- *PSPs* – move existing or new payment services to the mobile platform
- *Merchants* – want to increase speed, lower cost, and get to know consumers

- *EMV* – want to protect their position as standard-setters
- *Handset manufacturers* – want to leverage position on mobile, and possibly find new revenue streams
- *Technology companies* – looking to leverage consumer knowledge to offer superior targeting
- *Consumers* – want a convenient, low-cost and accessible service

Technologies that are used for mobile payments are:

- NFC – Near Field Communication, primarily an in-store proximity payment method
- QR – Quick Response codes, proximity payments in-store or online
- Contact based – money transfers through phone numbers, e-mail addresses or other proxies

Services that are currently available or about to be launched in the Swedish market are backed by different actors and technologies. Refer to the figure right above this summary for an overview of those services.

5. Analysis

This section contains the analysis of the theoretical framework, consisting of Standard Wars and the digital payment value chain. First, the reader is presented with a set of important factors leading to where the actors want to position themselves in the value chain. Later, a case study on the UK is done and learning's and parallels to the Swedish market are presented. Finally, the Swedish services are evaluated based on the insights from the analysis.

5.1 Analysis of the Standard Wars Framework

In the first part of the analysis, insights are collected from recent literature on the subject as well as from interviews. This part aims to investigate and evaluate the different factors influencing a standard and try to understand which factors are most important in forming a standard. In the end, a matrix will summarize the key takeaways as well as ranking the importance of the factors against each other.

5.1.1 Network Externalities

When a service has been launched, a business model has been developed and the technical specifications work, next critical step is to start to build a network of customers and merchants. With a network, the solution can leverage its user base to raise entry barriers for competitors. To be able to create a network effect, substantial early investments is needed in marketing, merchant commissions and training in order to overcome the chicken-and the egg problem of user and merchant adoption as well as a possible lack of trust. Otherwise the positive effects of the service will be difficult to realize. (Mas & Radcliffe, 2011).

There is a high network effect related to technology. If a technology like NFC is to have a chance to gain adoption, the amount of phones with NFC embedded chips must be high. At the moment, NFC is a promising technology with many possible applications. NFC in phones is increasing, primarily driven by Samsung and the many merchants that have NFC prepared checkout infrastructure at cashiers (Holden, 2012). But still, few phones support NFC and the fast adoption halted when Apple chose to exclude the technology in the latest iPhone. A catalyst for NFC technology is ticketing where contactless payment cards often are used (Holden, 2012). Smartphone penetration is another factor that affects the possibility of rapid adoption of mobile payments. Globally, one third of all phones sold are smartphones (Gartner, 2012) and in Sweden it is estimated to be more than 90% (Ragnevad, 2012). The slow adoption for NFC can be solved with a sticker or an NFC-compatible SIM card. Despite this, the current situation gives the QR-solutions a heads-up, since the technology can be utilized today with a normal smartphone by a broad range of consumers.

The link to consumers and merchants is important. Gaining adoption from both groups is critical for sustainable success. Banks and MNOs have existing customer bases that they could leverage, which gives them a head start; however UK example PingIt shows that a good service can add distribution through the app-store and

gain wide adoption without a big customer base (Bysouth, 2012). To have a substantial economic offer for the merchants can be a door opener for fast adoption (SEQR, 2012). When a critical mass of merchants is reached, the others will follow, and when customers see enough value in the service, they will start using it. Gaining traction at some key merchants can be valuable when other stakeholders are waiting for a standard to be formed. Lack of motivation to invest in new PoS-equipment and high upfront and maintenance costs lower the probability for adoption and success. (KPMG, 2011)

The actors have different partner strategies and can either build partner networks horizontally by collaborating with different stakeholders or vertically and work with the same type of actors, e.g. banks with banks. In this complex environment, there is a need for interoperability (Microsoft; Mcom, 2009) and partnerships and co-operation is a vital component for success (KPMG, 2011). The Swedish actors such as Swish and WyWallet are collaborating vertically, and not utilizing the full potential of the ecosystem (Pousttchi, 2004). But since they aim to capture the same part of the market, a wide collaboration horizontally is not very probable in the nearest future. In addition, the actors cannot do everything by themselves. WyWallet has realized this and it is not sure if they will focus on payments or facilitate the value chain in other areas going forward (Ragnevad, 2012). Furthermore, to build an open system with APIs where other stakeholders can jack in their loyalty cards or promotions into the payment solution would add value for all groups and increase the chance of success. (Svensk Handel & SHR, 2012).

A dominant buyer can work as a catalyst, showing other stakeholders where the standard is heading (Shapiro & Varian, 1999). For mobile payments, ticketing is an area where a big user base can be created as well as new behaviors can be formed (Svensk Handel & SHR, 2012) (Gartner, 2012). Other areas where large companies handle many transactions are in retailing. ICA, Coop and Axfood control a great majority of the grocery business and with value added services such as coupons and rebates as well as loyalty functions these actors play an important role in the network. An important learning from the cash card solution introduced in 1997 is that merchants need to have incentives to join and customers need to get increased value by using the service (Ondrus & Pigneur, 2004). The young generation is the early adopters for mobile payments and to attract large user bases initially, this group should be the focus (KPMG, 2011).

Conclusion: The **network externalities** are a **critical** part to become a standard. This can be achieved by building an attractive value proposition for both merchants and customers in conjunction with early investments in marketing, development, and training; partners can also have great influence on the success. Through pushing an open standard, both value and speed can be increased which creates high entry barriers. Dominant buyers like ticketing companies or large retailers that handle great amount of transactions can both change behavior and build important user bases among early adopters.

5.1.2 Ability to Innovate

An actor's ability to innovate is much related to its strategy for the future. Mobile payments are changing very fast and bets on technologies and strategies will play an important role in the industry. In this section, strategies of the stakeholders will be analyzed and evaluated separately to understand each actor's specific situation and what challenges they face.

Gaining a widespread acceptance network of merchants and consumers is likely to require financial investments, but also an appropriate business model (KPMG, 2011). **Banks** have operations in card payments, processing card transactions and money redemption for merchants. Many of these businesses are highly profitable and existing businesses risk being cannibalized by mobile payments (Ahrgren, 2012). Depending on the governance structure and strategic decisions from management, these conflicts can have a great impact on the ability to innovate for banks. In addition, banks in Sweden are known to be trustworthy and do not want to risk that reputation (SWIFT, 2011). This reputation requires bank services to have a higher level of security and a conservative approach. The banks are developing services and have resources to do so, but collaboration and mutual agreement among banks is more complicated. Banks have another very important asset, the link to our bank accounts. Nevertheless, new actors are entering the field, and the banks will have to pursue mobile payments initiatives if they want to keep niche players out of the payments market. (SWIFT, 2011).

EMV is today enjoying a dominant position of the market and connect the world's payments. The area of mobile payments implies a substantial risk for the card networks to get replaced. Therefore, MasterCard, Visa and American Express invest heavily in the area, mostly betting on NFC (The Economist, 2012). They are also investing in startups to hedge and minimize risks of being overtaken. Still, with available resources and important links to the banks, EMV plays an important role to get mobile payments to an international stage. (Ahrgren, 2012)

Like the banks, **MNOs** have a significant user-base that could be leveraged. With a threatened business model, the operators want to catch new revenue streams entering payments using the mobile. Without knowledge in banking, and a link to payments infrastructure, the MNOs have a longer way to go in innovation. Despite this, the operators have the obvious link to the mobile phone and are strong financially. If investments are made the right way; there are possibilities to mark a strong presence in mobile payments, and WyWallet has proved to be a stable, fast and working solution. Generally, the MNOs are faster than the banks, but slower than the independent PSPs. (Ragnevad, 2012).

The independent **PSPs** are relatively small compared to banks and MNOs. Often they are startups or new business areas with venture capital backing, which implies smaller financial means and a pressure on delivering value for owners quickly. On the other hand, they need to lead in order to win and have the opportunity to do so with higher specialization, more possibilities for taking risks, and fewer stakeholders depending on the success of the business than larger players. This

structure creates incentives to build the company with low overhead costs and include modern technology platforms. PSPs need to build relations with retailers and e-commerce companies since this is where the main parts of their revenue come from. (SWIFT, 2011)

Conclusion: PSPs have the largest incentives to innovate followed by the banks. Despite the risk of losing trust and cannibalizing on existing business, the banks need to collaborate to develop clear and promising solutions to defend its strong position in payments. The MNOs have the financial power but lack knowledge in the area. Finally, what can hinder the development is a slow customer adoption and regulation that has not yet been formed. It could reduce the **ability to innovate** and therefore the factor is fairly **important** to become a standard.

5.1.3 Intellectual Property Rights

The recent patent wars in the smart phone industry have been severe. Fights regarding user interface, technology and hardware have resulted in licensing negotiations, processes that often stranded and have been followed by lawsuits. Within mobile payments there are patents linked to the technologies, such as NFC and QR. The NFC technology has its roots from 1980 when Charles Walton invented RFID and patented it (Walton, 1980). Later the technology has developed and has been controlled by several companies through a patent pool and licensed to technology companies. Despite the patent program having ended, it is still fairly cheap to license the technology and should not be a factor for future adoption (Dan Balaban, 2012). QR was invented in Japan by Denso-wave, a subsidiary to Toyota, in 1997. The company disclaimed any license fee and therefore the technology is free to use. (Lehan, 2011)

Apple has been granted a US patent for the link between a graphical user interface and mobile payments (Campbell, 2012) as well as functionality regarding an “On the go shopping list” (Clark M. , NFC World, 2012). This could imply problems for actors who want to enter the American market. Other companies have also been granted patents and Google recently got sued over NFC-patents used in their Google Wallet (Clark M. , NFC World, 2012). It is possible that patents will affect the industry, and litigations are around the corner in the same manner as for smartphones.

The actors on the Swedish market are not putting large emphasis on patents (Ragnevad, 2012). However, there are different strategies surrounding the sharing of technologies. Swedbank are willing to share its Bart-technology with the other banks to gain adoption (Ahrgren, 2012), and becoming a standard is more important than earning money on licensing at the moment. Seamless have taken another approach, and have offered to license its service to banks (Ahrgren, 2012), thus creating a more open eco-system but with Seamless as the technology owner. None of these initiatives have taken off, and the patent and technology issue is likely to play a minor role in the development in the Swedish market, as actors go solo in their efforts near term.

Conclusion: Intellectual property will play a role in forming a standard but will probably not affect the actors on the Swedish market since actors are more likely to share platforms. Therefore, patents are **not very important** for the actors to focus on.

5.1.4 First-Mover Advantages and Disadvantages

The advantages of being first to the market in a newly established industry are quite intuitive; first movers gain a reputational advantage and “buzz”, as well as a possibility for large market shares among innovators and early adopters. Momentum early on also creates a dislike for change among consumer as long as the offer is matching expectations. Other obvious advantages are the chance to set a standard in the market where one has not yet been established, and the opportunity to build internal competence and knowledge prior to competitors. Although perhaps not as intuitive, there are advantages for followers as well. Second- or late movers have a better chance of seeing a clear business case as standards develop, and awareness and technology-adoption increase. Following makes for a less uncertain operating strategy, and a wait and see approach can therefore be beneficial for more prudent actors. (KPMG, 2011)

There are also disadvantages both to being an innovator and a follower. For first movers large investments may be necessary in unproven technologies, and a lack of benchmarking data and market standards all add to the risk of pursuing opportunities. In mobile payments the chicken-and-egg problem where merchants are awaiting consumer adoption and vice versa is particularly apparent. For lesser-known actors, the trust and reputation issue might prove to be a hindrance, especially in an industry where payments are transacted. On the contrary, late movers are likely to suffer from an inability to influence the choice of technology and standard setting, and may have a hard time to catch up to a successful first mover (KPMG, 2011).

There is also a difference between actors as to what factors constitute advantages and not. Independent innovative companies typically enter early and build competence and knowledge through user feedback, while established players have more to lose as current payment schemes have to be protected as a revenue source, and there in many cases is no obvious upside to new ventures (Englund & Turesson, 2012). This is reinforced by Svensk Handel, who mentions a probable scenario of relatively slow development in the industry. The established actors like banks and EMV is protecting existing revenue streams (Svensk Handel & SHR, 2012). On the contrary, Swedbank sees opportunities in moving first, and pioneers several technologies with the purpose of establishing a uniform bank-driven standard early on (Ahrgren, 2012). Many actors have demonstrated the importance of being involved in the industry somehow to take advantage of a reputational effect, but it is even more critical to get the offer right the first time, especially for smaller companies that cannot afford to make missteps early on. (Englund & Turesson, 2012)

Before a standard is set, there is a lot of uncertainty as to which technology will be the right bet. Many solutions are focusing on one specific technology out of QR, NFC, and contact based solutions. These are smaller clusters that are likely to partly form their own merchant adoption. Therefore, an actor being first mover in one technology still faces a risk of the technology failing to gain adoption and the solution therefore having no chance to prevail.

Conclusion: Leveraging **first mover advantage** is **important** to gain the upper hand in the battle of mobile payments. It is however **critical to get the offer right the first time**, since investments are large and guessing without a clear business case can be very costly. Particularly established actors should see a clearer business case when deciding to deploy mobile payments ventures, while independent entrepreneurs can afford to take larger risks as they often have a high expected risk profile and are more dependent on early adoption as consumer bases are smaller. Another **important** factor to consider which was mentioned under network externalities is being the **first mover to lock-ins**, i.e. by offering dominant buyer compatibility, for example ticketing.

5.1.5 Strengths in Complementary Products

Mobile devices have become critical enablers of transactions, partly by facilitating the actual transaction (Holden, 2012). More importantly however, it increases the information exchange between merchants and customers, and acts as both a means of product discovery for the customer as well as a tool for increased customer loyalty and retention for the merchant. To illustrate what an integrated payment process could look like, Juniper Research put forward an ideal scenario for retailers (Holden, 2012):

- The consumer discovers products and stores by interacting with smart posters.
- When a consumer enters a physical point of sale, they tap their phone in the entrance in order to exchange loyalty information and potential coupons with the merchant based on the consumer's interests and habits.
- When exiting the store, the consumer checks out with the phone, simultaneously paying for the items and updating loyalty information.

This scenario would allow merchants to target consumers with specific offers, analyze the rate of redemption from those same offers, as well as generate new offers based on the actions taken by the consumers targeted by the offers. It would also offer consumers benefits such as receipt handling, loyalty scheme handling (Holden, 2012).

Svensk Handel and Seamless points to value added service as a critical factor for adoption of mobile payment among consumers, and one way to make an appealing value proposition for merchants (Nilervall, 2012). These could be targeted ads and loyalty schemes, but also health services, identification, ticketing, parking, or self-scanning in stores (Svensk Handel & SHR, 2012). Swedbank also notes the

importance of extending the service into the pre- and post-payment phases, however it is not clear how and by whom these value added services will be offered in the case of the banks. (Ahrgren, 2012)

The ability to control account balances and monitor personal spending and finances is a particularly appealing value added service among consumers (Hayashi, 2012). The Banks have also noticed this and say that personal finance monitoring is currently available in mobile banking services, but tracking spending could be improved. (Ahrgren, 2012)

Mobile payments will mean increased opportunities for targeted marketing towards consumers, but it is unclear to what extent consumers are willing to accept being targeted with ads, and there is a risk that consumers will feel that they are spammed with non-relevant ads. Empirics seem to suggest that consumers are positive toward receiving relevant and personalized ads, but more cautious about losing privacy and the risk of receiving ads considered spam. An opt-in alternative with clear incentives is likely to be the most appealing way to get consumers to accept ads (Hayashi, 2012). Swedbank and WyWallet also reinforce this view. (Ragnevad, 2012) (Ahrgren, 2012)

Banks have an advantage with its newly developed BiR infrastructure, which will allow real time payments to be transacted at any time directly between bank accounts (Bankgirot, 2012). It is a substantial near-term advantage, but due to competition issues it might not be sustainable once independent players start to request access to the infrastructure (Ahrgren, 2012). On the other hand, Seamless has an established access to infrastructure regarding the payment terminals in store at many points of sale, due to having provided systems mobile top-up over the last years. This gives SEQR an advantage in being able to implement their solution with only a QR-sticker in a short amount of time.

Another aspect to consider with mobile payments is the inconvenience of having multiple wallets as a result of loading money to a separate account. This has obvious disadvantages since finances are not collected in one place and there might be barriers to withdrawing funds. Complementary services such as invoicing or direct payment infrastructure eliminate this problem and are therefore seen as advantageous in that aspect. (Balaban, Paypal: Google at Disadvantage in Rolling Out Mobile Wallet, 2012)

Conclusion: Complementary products in terms of value added services are **critical** in order to differentiate mobile payments from traditional payment forms, and one of the catalysts that could trigger adoption of mobile payments. This could be done by expanding the target of the service in the payment value chain to receipt management, loyalty, and personal spending monitoring, as well as by offering compatibility with dominant buyers e.g. ticketing. There are **advantages** in having an **infrastructure** in place: for banks with real-time infrastructure BiR and by already having the customers' money, therefore **not needing multiple wallets**; and for PSP Seamless by already having a **presence in merchant systems**.

5.1.6 Brand Name and Reputation

While brand name and reputation are important factors, they are less relevant if that status has not been achieved within a financial or payments industry. Hence, actors that have traditionally handled payments are likely to see a higher degree of trust from customers (Svensk Handel & SHR, 2012). Those actors will also know how to deal with fraud and credit risks to a larger extent, which will be beneficial in the trust issue toward customers. Banks will hence benefit from higher trust when compared to MNOs and handset manufacturers, due to their experience in the area. (SWIFT, 2011)

Studies have however found that the security aspect may not be of great importance for consumers considering mobile payments. While a lack of trust can potentially deter consumers from adopting mobile payments in an initial phase, the long-term security outlook is stronger on the mobile platform, and it may even serve as an advantage in the future. (Hayashi, 2012)

Swedbank also points to a potential disadvantage in having to live up to very high security standards as an established actor, compared to independent actors who can afford to choose a more moderate approach to the security issue. A larger cost base for security demands may therefore outweigh the benefit of a strong reputation (Ahrgren, 2012). On the other hand, the different technologies have various levels of risk and cost related to them. The banks build their solution on the existing card infrastructure by storing the card in the phone, while SEQR have created a new infrastructure handling the transaction. By not sending card information at all, the security level can be increased and risk for skimming and other related card frauds can be eliminated (Wikström, 2012).

On a related note, to maintain a good brand in relation to mobile payments, actors are likely to have to find cost structures for the consumer similar to traditional forms of payments (Microsoft; Mcom, 2009). In Sweden, this will mean that models where the consumer does not see the fees, i.e. by not having to pay a direct cost for every transaction, are likely to be more appealing to consumers. Empirical studies have also shown that the cost aspect is very important for the consumer (Hayashi, 2012), and actors launching mobile payments solution therefore have to be cautious in their pricing models if they do not want to risk losing out on the reputation aspect.

Conclusion: Banks, PSPs and EMV will see higher trust in handling payments due to their experience in the area, but the security issue is somewhat debated. **Trust** in handling payments is **important**, but is more likely to arise as an issue when there are actual problems. Until problems arise independent players will have an advantage in having a smaller cost base for security. For larger transactions it is probably more important and financial actors will have a clearer advantage in that range. Revenue models where customers do not “see” the fees will have an advantage.

5.2 Summary of Key Factors

Table 2 summarizes the factors presented in the analysis, and their importance weighted on a scale from 1 to 5, with 5 being the most important. The conclusion on weighting of each factor has been done with the analysis of importance in section 5.1 as support. It also contains some key take-aways for each factor.

	Network Externalities	Ability to innovate	Intellectual Property	First Mover Advantage	Complementary Products	Brand Name and Reputation
Weight (1-5)	5	3	2	4	5	3
Important factors	Early investments	Banks need to collaborate	Patent litigation is a small risk	Get the offer right the first time	Value added services	Trust in handling payments
	Value for merchants and consumers	PSPs should be innovators	Platform sharing likely	First mover to lock-ins	Proprietary infrastructure	Similar or better security than before
	Dominant buyers	MNOs don't have expertise	Revenue streams more important	Establish switching costs	No multiple wallets	Do not show fees to consumers

Table 2 Weighting of factors in the Standard Wars framework

5.3 Value Chain

This section analyze the payment value chain as presented in section 2.2, and aims to assess what the value chain currently looks like in the Swedish mobile payments market, as well as investigate where different actors want to position themselves within the value chain. As noted previously in the report, expanding outside the actual payment in the value chain presents an opportunity to capitalize on consumer data and move the whole shopping experience onto the mobile device. The information is gathered both from interviewing the various actors, as well as researching available data. The section looks also at possible revenue models for the different services, and subsequently end up in a mapping of the actors with respect to:

- What type of data and consumer knowledge is available to the different actors
- Where the actors are positioned in the value chain and where they aim to position themselves in the future.
- Possible revenue models for the future.

5.3.1 The Case of Starbucks in the US

To illustrate the thinking of expansion in the payment value chain, the example of Starbucks' mobile payments in the U.S. is an interesting case. Starbucks' loyalty program is free to enroll in, and customers who load cash onto their rewards card can then start paying with their card balance. The more purchases that are made, the larger the rewards get in forms of freebies, trial offers and discounts, thus creating an incentive to use the card instead of a traditional form of payment. With this setup, Starbucks has essentially been in the pre- and post-payment phases with its loyalty program. However, the payment phase has still been separated in the sense that money had to be loaded onto the rewards card. When Starbucks launched its mobile rewards smartphone app, they included the possibility to store credit card information in the app for automatic top-up, and included a range of other

services such as spending history, receipt management and targeted offers. This brought Starbucks into the payment phase, leaving consumers with one application for the whole shopping experience, from targeted discounts to payment and loyalty points and receipt management. (LoyalMark, 2012) (Starbucks, 2012)

During 2012, Starbucks also launched its loyalty card into Apple's Passbook. This allows consumers to receive position-based services, in-store bar code scanning, and a further integration to a more complete loyalty scheme for multiple merchants (Perez, 2012). It has been a great success, and the focus on mobile has boosted sales. In October 2012, Starbucks furthermore announced that they are partnering with the American PSP Square to integrate mobile payments into its cashier systems. This makes payment more smooth for consumers, and also provides an advantage for Square in making other retailers included in the Square directory available for the Starbucks customers. The square application will support the same value added services as the passbook rewards card, but creates an opportunity to pay directly from a card instead of having to top up the loyalty card before. In conjunction with announcing the Square compatibility, Starbucks also announced that it would invest 25 million USD in Square, and that Starbucks CEO Howard Schulz would join the board of directors. (Hatch, 2012) (Perez, 2012)

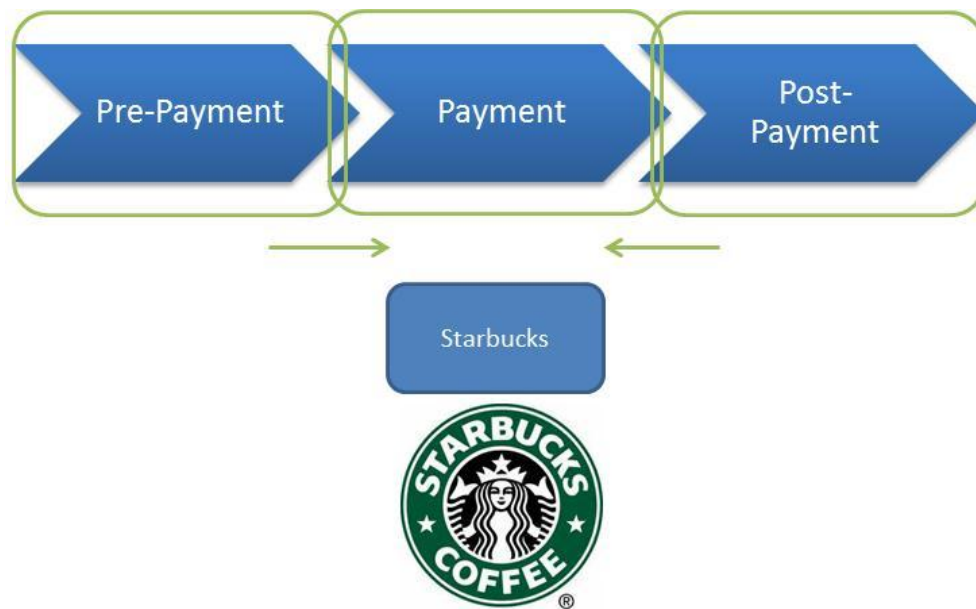


Figure 12 Starbucks moved from offers and loyalty to payment

On the negative side, there is a slight overlap between the Passbook loyalty service and the Square payment service, and there is likely to be some confusion regarding which alternative to use in the near future. This highlights the need for standardization in mobile payments to make it easier for consumers. However, it is likely that the payment and loyalty scheme will be further refined to create value for consumers. (Perez, 2012)

Conclusion: Starbucks' result of introducing the loyalty and mobile payments initiative is a boost in sales, and some 45 million mobile payments transaction as of May 2012 making it the biggest mobile payment scheme in US. Furthermore, it also seems to have gathered accolade from consumers, and it is a prime example of how a merchant can expand its presence in the payment value chain to gain operational efficiencies, a "buzz", and an improved loyalty offering.

5.3.2 Positioning the Actors in the Value Chain

The actors are positioned differently in the Swedish market. This section aims to explain and illustrate where the actors are currently positioned and their future directions in the value chain, see figure 14.

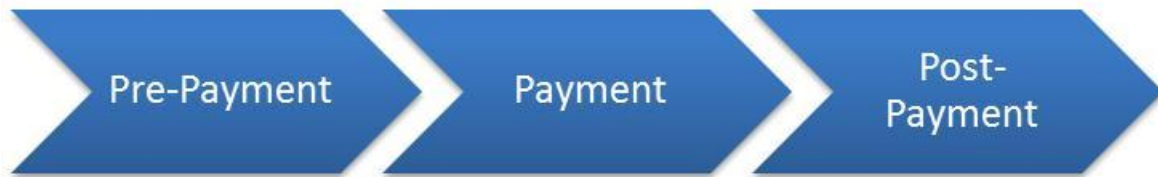


Figure 13 Mobile Payment Value Chain

Banks

The banks are positioned within payments and aim to handle the transaction. Because of their strong presence in card and redemption business, their key competence is in this area, and they are looking at mobile payments as an extension of this business (Ahrgren, 2012). The problem is that payments from mobile phones cannibalize on card revenues, and banks with a strong foothold in the card business will get smaller margins. Other banks, often referred to as niche banks, can enter the field to gain market shares since they do not have the same problem as the big banks. (Ahrgren, 2012)

Banks possess data linked to the transactions made with debit or credit cards. They know where we shop and the amounts we shop for. This data can be capitalized on by customizing offers based on purchase history. To avoid risking its reputation by infringing on customer integrity, the banks have historically not used this data (Ahrgren, 2012). A less risky strategy is to use groupings of non-personal data such as age, preferences and domicile to create offers targeted to groups of people instead of individuals. When ICA launched personalized offers 2008, a public debate started if this intrudes the private integrity (Andersson, 2009). So there are possibilities that the banks can go further down the value chain, but it is nothing that lies in the near future. (Ahrgren, 2012)

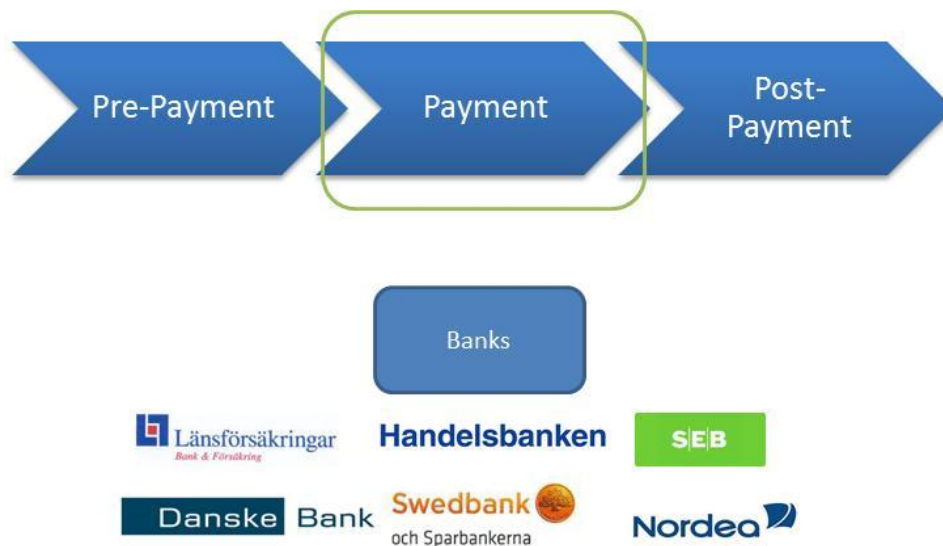


Figure 14 Banks' position in the value chain

Merchants

The merchants are working with direct marketing, coupons as well as loyalty programs to various degrees. This implies that they want to be close to the customer and position themselves in the beginning and end of the value chain. Because of a lack of competences in handling transactions, they are not focusing on the payment. A small portion of really big retailers like ICA, Coop and IKEA has their own banks. The retailers started banks because of the high transaction fees offered by the large banks in Sweden. With their own bank, they could lower costs as well as combine it with a loyalty program. In this way, data could be collected on what the customers bought and later be used for tailoring offers.

Some big retailers, such as ICA, can cover the whole value chain for mobile payments, and ICA is following the development in mobile payments closely (Wennberg, 2012). The merchants are closely collaborating with the banks but are tired of high fees and low competition in the payment market (Nilervall, 2012). This opens up for collaboration with new actors to increase competition (Wikström, 2012).

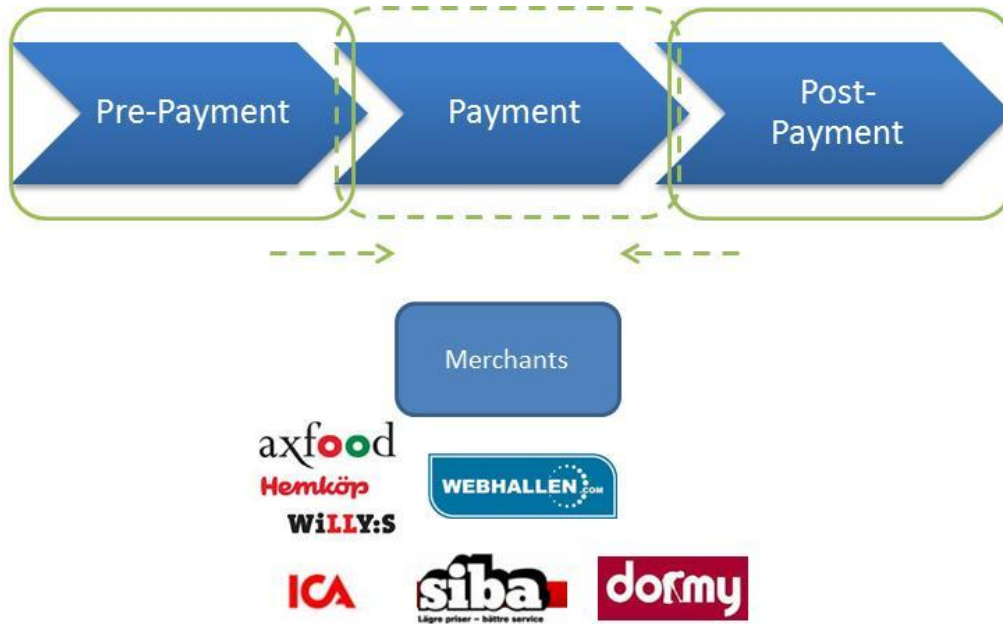


Figure 15 Merchants' position in the value chain

Payment Service Providers, PSPs

The independent PSPs are starting with the payments, which is the main and most important revenue source. Furthermore, many have realized that the payment itself does not add any value for the customer (Wikström, 2012). Therefore, other services like loyalty, receipt management and offers will eventually be integrated. In addition, to win adoption at merchants, a superior value added offering compared to current payments forms is necessary. Consequently, it means the PSPs go both up- and downstream in the value chain.

Data from payment transactions is one enabler for the PSP to offer value added services. But still, problems with integrity could make it difficult for the PSP to use the personal information to create offers. As mentioned before, an opt-in solution is the best answer to this problem. (Wikström, 2012)

Interestingly, Seamless is providing an end-to-end system from the cashier to the redemption partner. In this model, many important steps have been reduced from the banks' model as card infrastructure, payment terminals, and the acquiring bank is cut from the value chain, while only the redemption partner is left to get part of the revenues (Wikström, 2012). This reduces the total cost in the value chain and gives Seamless a competitive advantage.

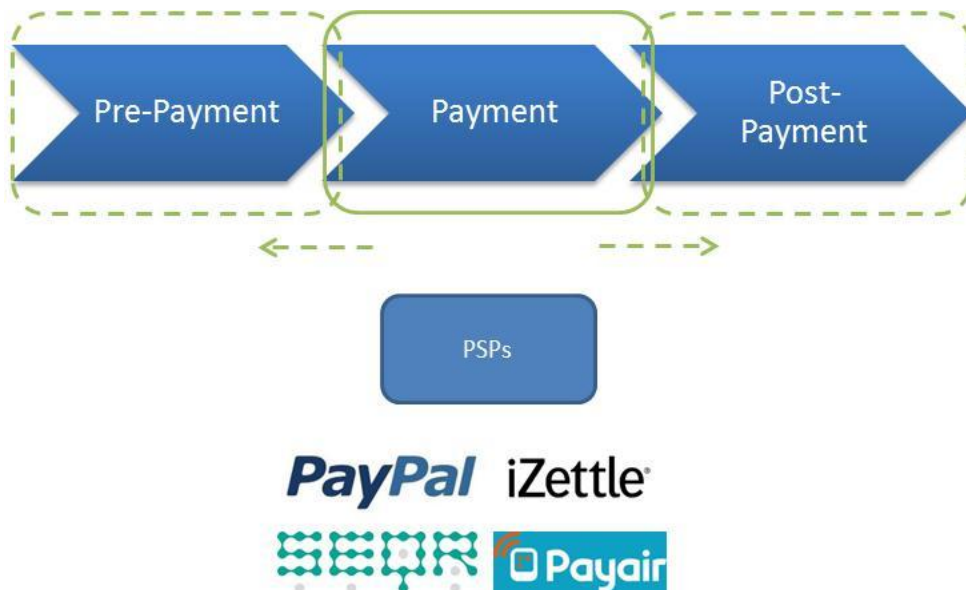


Figure 16 PSPs' position in the value chain

Mobile Network Operators, MNOs

WyWallet represents the MNOs and is focusing on payments by moving in from SMS-payments. This area will be the first nut to crack, and seems problematic with the complex industry structure and new regulation. However, the MNOs do not have the same conflict of interest as the banks and can leverage its existing user base that covers 97% of the Swedish subscribers. The service is free today, but WyWallet has announced that it will start charging the customer (WyWallet, 2012). As mentioned before, this revenue model is difficult to succeed with and likely to meet some resistance. By betting on NFC, WyWallet is developing a bridge solution either with stickers, or NFC-enabled SIM cards to get into the store. WyWallet starts with SMS payments and then continues with online and in-store payments. Later, it will both go upstream and downstream in the value chain by launching offers and loyalty features.

The MNOs have data on the location of their customers; with the possibilities to connect this with transaction data to create offers, loyalty is the obvious next step. Despite the revenue possibilities, it must be an opt-in solution and WyWallet will be careful in how they treat the data, not selling competitive offers and instead focusing on merchant specific offers that the customer likes. (Ragnevad, 2012)

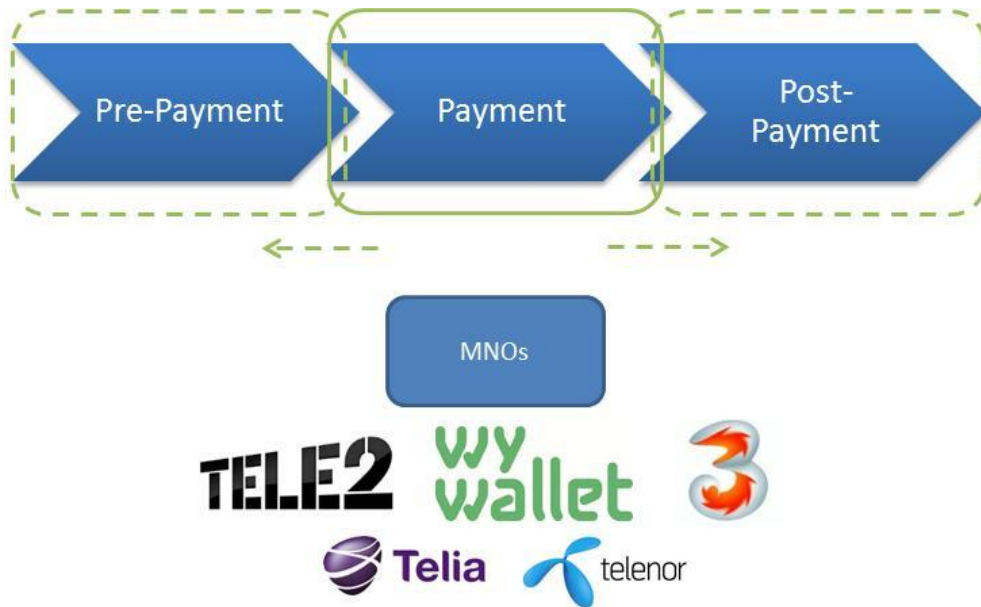


Figure 17 MNOs' position in the value chain

Europay, MasterCard and Visa, EMV

The credit card companies are tightly connected to the banks (Ahrgren, 2012). As mentioned earlier, they are investing heavily in NFC and trying to extend the cards into the phone. Regarding the value chain, they are aiming for the payment in collaboration with the banks. They are opening up for other developers to adapt solutions to the network. This would enable them to offer a better value for the end customer.

EMV have data on the transactions, but it is not probable that it will be used in any marketing or loyalty activity since they are too far from the customer. They collaborate with the banks and communicate with customers through them.

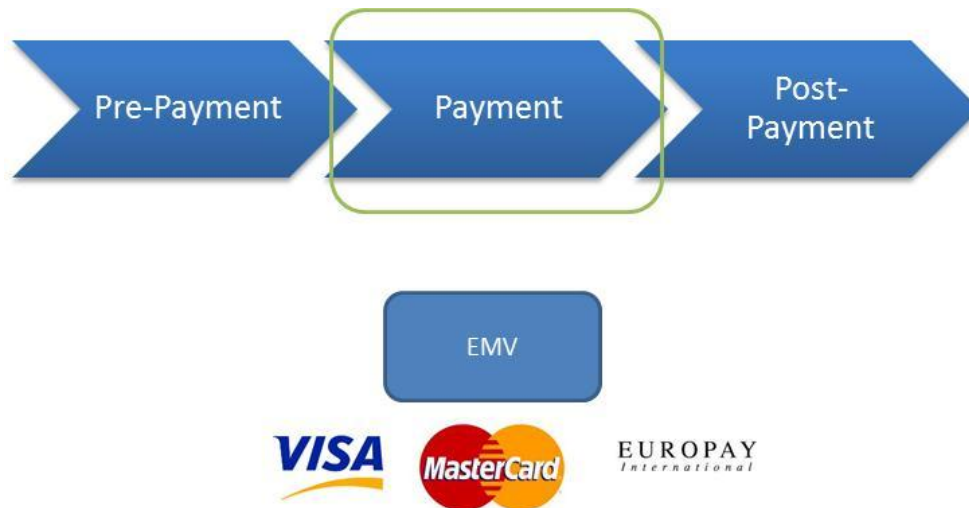


Figure 18 EMV's position in the value chain

Technology Companies

The global technology companies like Google and Apple do not yet have a strong foothold in mobile payments in Sweden. It is due to their focus on mainly the US, or on developing their offers further before launch. Thus, it is hard to position them in the Swedish payment value chain. Their behavior is however similar to independent PSPs, by first focusing on facilitating the payment and create value added services. Google is focusing more on offers as an extension of their existing advertisement business. Apple has started in the other end by providing loyalty card and tickets in their Passbook. Apple will probably move towards payments when they build a user base for Passbook. Apple has access to some 400 million credit card numbers, as well as patented solutions in remote payments (Bilton, 2012). This is the same way of approaching payments as Starbucks has used for its loyalty card, which proved successful.

Interestingly and not surprisingly, the big technology companies have gigantic amounts of data stored about the consumers. They can combine user behavior and preferences online with data from phones, emails and some purchases today. With this unique approach, they do not need to capture revenue streams from the transaction itself and can complement banks very well in the value chain.

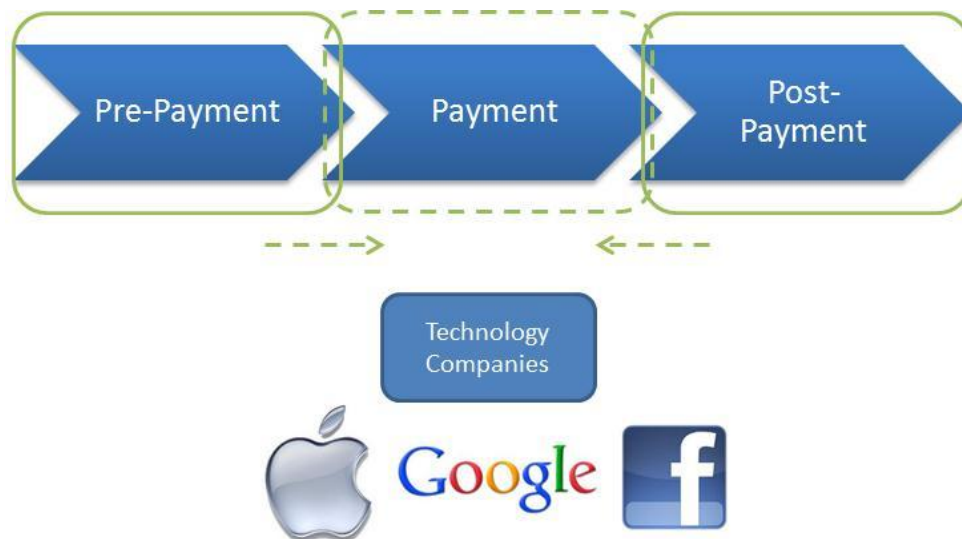


Figure 19 Technology companies' position in the value chain

5.4 Case Study

In this section the UK case study will be presented. The purpose of the case study is to see what differences and similarities there are between the UK and Swedish mobile payments industries, and find learnings that can be applied to the analysis of Sweden.

5.4.1 Background to the UK market

Although still in an early stage, the UK mobile payments market has seen a few services launch that are fully operational with some consumer adoption.

1. **Barclay's** launched its PingIt application in 2012 and has already seen some 1.2 million people download the application. Although usage numbers are not as high as the number of downloads would suggest, Barclays have still had an estimated 400,000 users register for the service, 200,000 use it to send money, and 20,000 users who use it frequently (Devaney, 2012). PingIt was launched with free P2P money transfer functionality, and C2B payments have been introduced through a corporate ID code system (Barclay's PingIt, 2012). There are issues however, and PingIt seems to have problems with non-Barclay's customers having to register with Barclay's to be able to make payments. This has created a quite large perceived inconvenience for consumers, and has resulted in a lack of widespread use in the market. (Devaney, 2012)
2. **O2** launched its O2 Wallet service in late 2012. O2 is an MNO in the UK with about a 30% market share. O2 Wallet enables customers to pay, compare prices, scan barcodes and buy online goods, tickets and more. The application has some tens of thousands of users to date, and is the second largest mobile payment service in the UK after Barclay's. (Cottenham, 2012)
3. **VISA** has established a particularly strong presence in the UK compared to the rest of Europe. In addition to promoting its contactless cards during the Olympics, they have managed to roll out some 24mn contactless cards in the UK, with compatibility at 120,000 points of sale. Although transaction volumes are still small, VISA predicts that by 2020 half of their transactions will be made through a mobile device. (VISA, 2012)

Regulation has come to play an interesting role in the UK mobile payments industry. With the adoption of the legislation suggested in the Vickers report in 2011, banks have had to adapt to a new set of rules with quite large implications for their operations. The Vickers report set out to increase competition in UK banking, and a consequence of this is that by 2013, account switching between banks has to be completed within 7 days of initiation by the consumer. This will mean that the consumer can move account numbers and balances to the new bank, thus reducing switching costs. (Devaney, 2012)

An interesting venture in the UK is the development of an industry wide mobile payments platform. The initiative is led by the Payments Council, which is an organization consisting of several of the large retail banks in the UK, and will be operated by VocaLink. The platform will serve as an infrastructure to map proxies to bank accounts, e.g. phone numbers or bar-codes, and will standardize identification of bank accounts. Anyone passing a few threshold criteria will be able to access the infrastructure, meaning that MNOs, PSPs or other actors interested in mobile payments can make use of it. The interface will look like PingIt, and thus be quite similar to what customers are used to today. This standardization initiative is likely to facilitate competition and create more focus on the value the service can give to end customers, since anyone can participate in the system. (Devaney, 2012)

5.4.2 PingIt

Barclay's was first to launch a mobile payment service in the UK earlier in 2012, and was able to move first due to strategy alignment with senior management, who recognized the importance of being in the industry even though it is immature. On revenue models, Barclay's mentions pursuing a "Facebook-model" for the consumer, a model where growing the service quickly, offering it for free, and creating a buzz is important to reach recognition and create user networks. On the merchant end, the offer is better than cards. This approach could lower revenues from Barclay's PoS, and highlights its effort to build a large network on the merchant side as well. Since Barclay's leads the way in UK mobile payments, the opportunity to gain new customers and areas of use is the main objective for Barclay's this far. (Bysouth, 2012)

Barclay's has also seen the P2P model that was initially launched as an effective way of building a large user base before moving into C2B payments. For the service to gain widespread adoption and increased usage, the merchant adoption part is now the key focus for Barclay's. (Bysouth, 2012)

There are a few value added services included in PingIt, although it is not particularly well known at the moment. For example, the service also works in Kenya, and users can therefore also ping money cross-border. The registration process is an important consumer experience factor; the process has been improved, but still requires some effort from the user, especially if not a current Barclay's customer. (Bysouth, 2012)

An aspect highlighted by Barclay's is that small businesses have the possibility to benefit greatly from using PingIt. As an example, a small merchant selling goods online can post a QR-code on its Facebook-page or other online forum, and start accepting payments immediately. (Bysouth, 2012)

Barclay's is furthermore looking to collaborate with other players in order to spread the area of use for PingIt. An initiative where Lloyd's TSB will join in on PingIt is close to being launched. If the payment council launches its infrastructure initiative, Barclay's says it will welcome the development since it would give a greater reach for their service, but until then it is content with being the first mover and leading the way. (Bysouth, 2012)

On technologies, Barclay's points out that NFC is all down to the merchants at the moment, and that they can adapt quickly if NFC would gain traction. However, the advantages with NFC over PingIt are limited, and contactless cards are not seen as very innovative or a means of offering superior value in the mobile payments space. (Bysouth, 2012)

5.4.3 O2 Wallet

For O2, entering mobile payments is a natural step to leverage its presence on the mobile platform. O2 points out that NFC is a promising technology but merchant adoption is a problem. Today less than 10% of the phones are NFC enabled, and few

consumers use mobile wallet apps. Handset manufacturers, especially Apple, can trigger the development dramatically by including NFC in their new models. The lack of investment in the NFC space due to high merchant costs is however enough of a reason for O2's Simon Cottenham to consider NFC as a longer term development which will likely lead to a widespread network of NFC-compatible PoS as well as phones. (Cottenham, 2012)

Regarding revenue models, O2 is looking to make money from offers as well as fees for the user. Still, it is likely to match Barclays and not charge for the service, since direct consumer fees appear not to be feasible. The business model is not yet set in stone, but by innovating and participating in the market, real user value and successful revenue models will be found. (Cottenham, 2012)

Technology companies like Google and Apple are coming, and O2 sees them as likely entrants in the space in the coming years. This will be done either by launching globally or focusing on a city-to-city approach. They are seen as credible and have loyal customers and the possibility to create a hype, which could potentially result in fast adoption. (Cottenham, 2012)

O2 also stresses the importance of having access to a large customer base. Although small PSPs can be innovative and lead the technical development, collaboration with players that have access to large customer bases is essential to gain adoption. (Cottenham, 2012)

On the consumer end, people want a convenient service and do their banking in one place. Therefore the MNOs may have problems in gaining market share. The customers are the critical group to attract, since when a customer base is built, merchants will be forced to adopt because of consumer demand. Banks have experience in banking as well as regulatory advantages; still, the MNOs will have a role in unifying the different bank services under one umbrella by leveraging their presence on the mobile platform. (Cottenham, 2012)

5.4.4 Learnings and Applicability to Sweden

The entry strategy practiced by Barclay's, offering a free P2P service to users through its large network, and then expanding into C2B once the service has gained some adoption, is an effective strategy to build a network. Banks in Sweden may well move towards the same model with its launch of Swish, and have the chance to get some quick adoption if they get the offer right and are able to move to C2B. This strategy is also indicative of the growth strategies that Barclay's have. A "Facebook-model", where the mobile payments division is run more like a start-up with top management support, seems to be the model for Barclay's, and the focus is on growth rather than quick profitability. This is not a strategy that has been seen among Swedish actors, but should be considered as an option to get faster adoption and meet the competition from PSPs.

A takeaway from O2, is that MNOs will likely move towards a role where it aims to grab market share in remote and online payments, particularly for digital content

that can be added to the phone bill, whereas banks will dominate the physical points of sales. MNOs can also find roles as TSMs, identification enablers for mobile payments, and umbrellas for different underlying payments services.

Banking regulation is not as advanced in Sweden as in the UK, and bank competition is a larger issue in the UK. Although regulation does not seem to play a major role for either of O2 or Barclay’s, a scenario where the payment council deploys its proxy infrastructure would certainly increase competition. Both actors however expressed doubts if that initiative would come to reality. Since banks have a less dominant position in the UK, the focus is to innovate, move first and provide strong offers, while banks in Sweden can afford a wait-and-see approach.

5.5 Evaluation of Services

In this section, the mentioned services within mobile payments will be evaluated based on the criteria set out in the analysis section as well as the customer adoption factors mentioned in the stakeholder mapping, section 3.2. First, the overall result is presented in table 3 and then the different categories are evaluated below.

	Network Externalities	Ability to innovate	Intellectual Property	First Mover Advantage	Complementary Products	Brand Name and Reputation	Consumer Experience	Total Weighted Score (1-5)
Weight (1-5)	5	3	2	4	5	3	5	
SEQR	2	5	4	5	4	3	5	4.0
Bart	4	3	3	4	3	5	3	3.6
Swish	5	2	3	2	4	5	3	3.5
PayPass	4	3	4	2	3	5	3	3.3
WyWallet	5	3	3	3	2	2	3	3.1
Payair	2	4	3	4	2	2	4	3.0
PayWave	3	3	4	1	2	5	3	2.8
PayPal	2	3	3	3	3	3	3	2.8

Table 3 Evaluation of services

5.5.1 SEQR

Seamless’ service SEQR has been on the market since spring 2012. Despite the lack of connected banks and small merchant- and user bases, SEQR has the best value proposition for both merchants and customers today. For merchants this translates into lower cost, and a faster, more stable and secure service. Another plus is the zero investment cost, and the solution can be implemented in a very short time. This is due to the mobile phone top-up infrastructure that has been included in many cashier systems, which gives Seamless a heads-up in the integration phase. For consumers, it is a convenient and fast way to pay with additional features such as receipt management and offers. The value proposition shows potential, but still the network effects are small at the moment. Because SEQR wants to disrupt the banks’

dominance in payments; they face resistance and have a problem in accessing the customer's money. This is solved with an invoice solution, but they are looking to get all banks connected in the future. SEQR should be looked upon as a leader at the moment due to the level of the service, ability to innovate as well as initial merchant acceptance. With critical assets like the technology to process payments efficiently and strong development capabilities, they can likely compensate for its low brand recognition and start building the important customer base.

5.5.2 Swish

Swish has just recently, in December 2012 launched its service and gained much publicity. Without any real numbers it is hard to talk about the success, but Swedbank estimates that Swish will fast gain one million users (Ryberg, 2012). This would imply that Swish is the fastest growing and the biggest P2P mobile payment solution in Sweden. Despite this, Swish struggles to overcome its owners' different agendas. The banks have been conservative in the mobile payment market and waited for other actors to introduce their services. With SEQR and WyWallet out, the banks have seen a need to act and started with their roadmap, still reluctant to collaborate and not as innovative as competition. The big banks behind Swish control a big portion of the Swedish market and this is a major advantage and creates a network effect. Swish has access to the customer's economy through this large possible customer base. Swish will start off with P2P, which is a less risky in terms of investments, and an offensive move to build a user base. Nevertheless, competitors like SEQR are gaining traction in the important C2B market. Swish needs to overcome many owner-related problems to be able to move this way. However, if the customer is willing to pay the fee, as well as accept the level of value added services, the banks could leverage its brand name to gain wide adoption and possibly emerge as a winner.

5.5.3 Bart

The Bart service from Swedbank shows dedication from the company to enter the mobile payments business despite a technology shift that could hurt their existing payments business. With existing business in cash redemption, Swedbank tries to hedge their bets by both building its own service, participate in Swish and collaborate with MasterCard. Bart is limited to Swedbank but they are trying to get other banks to join to cover a broader spectrum of users, thus creating a stronger network effect. Despite this, Swedbank has 1.2 million users on its mobile banking platform, which is a great number initially. With the current Axfood roll-out, Bart is increasing its presence at merchants as well. Still the value proposition is not as attractive for merchants as SEQR, since fees are the same as with cards. The stores also need to invest in point of sale equipment that is both expensive and has an unclear business case. Swedbank has proved that they can innovate, still they need to redesign its service and has the best chance of uniting with other banks as well as get top management support for the initiative. If it is not as profitable as card and cash, it can however create problems in the longer run. Bart has some advantages being the first bank solution but the service still has some disadvantages in consumer experience.

5.5.4 Payair

The service Payair is very convenient, and the application works without problems. But as an independent PSP, their value proposition towards merchants is a problem; currently they offer an increased cost in exchange for convenience. It will be hard to compete with SEQR on that point. On the other hand, they can rely on the existing network of cards and can offer the user a convenient solution. The slow growth rate of merchants is a problem and shows the limitation in not having an attractive value proposition for this group. Technology and intellectual property wise, Payair is a great service and a 70mn SEK licensing deal with a Swiss company for the technology shows this. With low recognition and few complementary products, the service is however not attractive enough for users.

5.5.5 WyWallet

WyWallet was early when they launched in summer 2012. Despite a great technical solution, users have been negative about the registration process, difficult payment methods and future fee structure. Without any numbers of users, it is hard to say anything about the adoption. Nevertheless, WyWallet has a great advantage that the new SMS regulation will be forcing people to register if they want to be able to pay with SMS. Since the launch, not that many features have been updated. But with betting on NFC, WyWallet could provide NFC enabled SIM-cards or stickers, and transactions made with NFC are very quick. Physical merchants are currently rolling out WyWallet support to be ready in 2013, and the fee structure will be the same or less than cards. Depending on the features coming and the development of NFC, WyWallet has the chance to get a bigger footprint than today. Still, it will probably need to partner up with banks or card companies to cover its full potential.

5.5.6 PayPass

MasterCard, the developer of PayPass is dependent on the banks to get their service to customers. PayPass is also dependent on NFC, which results in negative network effects when NFC-supported phones are low. The possibility to initially work with an NFC-enabled card will have limited customer value and does not provide a convincing alternative compared to mobile phones. With Swedbank and SEB having signed on to participate in PayPass, the launch in Q1 2013 has possibilities to reach a great number of users. PayPass is also aiming to build an open API where independent developers can increase total customer value. Still, value for merchants is not better than cards, but many point of sales terminals are already prepared for NFC which implies low upfront investment costs. The solution is not first, but early enough, and a success factor for PayPass is related to the development of NFC. Today, QR has been most prominent and fulfills most needs that both customers and merchants have. This could be a big hurdle for PayPass.

5.5.7 PayWave

Visa's service PayWave is similar to PayPass. It relies on the network of banks and the NFC technology. Visa did a test during the 2012 Olympics, which showed that the service works in a broader scale. Despite this, the road map for Sweden is

unclear and Visa is not showing any signs as to when a possible launch will take place. This is a negative factor and PayWave risks being left behind.

5.5.8 PayPal

As an independent PSP, PayPal has changed the online retailing business. With its global footprint, they connected merchants and customers and enabled a secure and safe shopping experience. Currently dependent on its existing user base, its network of Swedish customers and merchants using the mobile platform is likely very low. Trials in Sweden have not developed as planned, and expansion has not taken off in a broader scale. PayPal was early in the market, but has not been able to innovate as fast as others and has not gained market presence. High costs for merchants makes PayPal's value proposition less attractive, and their strategic choice of just facilitating the payment leaves the customer with few value added services. In addition, they are depending on the banks with existing card networks, and thus have no possibilities to offer a cheaper service to merchants. Still, PayPal is one of those companies that have a global importance and are dominant in online shopping. They aim to get the online business on the mobile and therefore have the possibility to be the strongest actor in remote payments. However, its future for proximity payments is not clear and to cover this part of the market they will need to collaborate with other actors.

5.6 Chapter Summary

The factors in the Standard Wars framework have different importance, and the services perform to varying degrees on each factor. The weighting of the factors are presented in table 4.

	Network Externalities	Ability to innovate	Intellectual Property	First Mover Advantage	Complementary Products	Brand Name and Reputation
Weight (1-5)	5	3	2	4	5	3
Important factors	Early investments	Banks need to collaborate	Patent litigation is a small risk	Get the offer right the first time	Value added services	Trust in handling payments
	Value for merchants and consumers	PSPs should be innovators	Platform sharing likely	First mover to lock-ins	Proprietary infrastructure	Similar or better security than before
	Dominant buyers	MNOs don't have expertise	Revenue streams more important	Establish switching costs	No multiple wallets	Do not show fees to consumers

Table 4 Weighting of factors in the Standard Wars framework

The services are then ranked on those factors, together with consumer experience, to get to a total weighted score.

	Network Externalities	Ability to innovate	Intellectual Property	First Mover Advantage	Complementary Products	Brand Name and Reputation	Consumer Experience	Total Weighted Score (1-5)
Weight (1-5)	5	3	2	4	5	3	5	
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Bart	4	3	3	4	3	5	3	3.6
Swish	5	2	3	2	4	5	3	3.5
PayPass	4	3	4	2	3	5	3	3.3
WyWallet	5	3	3	3	2	2	3	3.1
Payair	2	4	3	4	2	2	4	3.0
PayWave	3	3	4	1	2	5	3	2.8
PayPal	2	3	3	3	3	3	3	2.8

Table 5 Evaluation of services

The **value chain** is also presented; while banks and EMV are likely to stay in the payment phase of the value chain, other actors like PSPs, MNOs, and merchants will look to expand into the pre and post payment phases. A successful example of this expansion is Starbucks, who introduced loyalty cards, then gradually moving it onto the mobile platform, and recently they also introduced mobile payments to complete the expansion.

In the **UK**, some aspects of the development present relevant learnings for the Swedish market. Moving from P2P to C2B by first building a customer base is one way of approach building the user base practiced by Barclay's. MNOs are likely to act as enablers of mobile payments through their presence on the mobile platform, but not very likely to dominate the payments business at physical points of sales. Furthermore, getting top management mandates and being able to operate mobile payments as a "start-up" is important to be able to get the offer right.

6. Predictions

In this section, external forecasts and opinions for the Swedish and global market will be put forth. The data will be applied to Swedish settings and work as a ground for a final estimate of mobile payments in Sweden. Finally, the conclusion will be presented in a four-scenario analysis.

6.1 Market forecast

Note that the estimates and assumptions in the predictions reflect external consensus views as well as the authors own opinions and best judgments. This part should be seen as an indication of where the industry is heading, and not as an exact prediction.

6.1.1 Swedish Predictions

Svensk Handel expresses a conviction that mobile payments will see rapid growth in the coming years, and points out that there are strong reasons to believe that the industry will have reached a breakthrough in 2-3 years. While card payments will continue to dominate the payments market in the coming years, card payments for low value transactions are perceived as time consuming and tedious. Mobile payments have the potential to simplify this process, as long as the business model with banks is adjusted to reflect the lower risk level. Through this, mobile payments can grow thanks to shorter handling time, lower cash handling costs and value added services. Svensk Handel also points to a mobile payments landscape where several services will co-exist, but solutions where credit cards are stored in a mobile wallet are likely to have gained the most traction. Furthermore, Svensk Handel highlights the need for an open eco-system with all the large stakeholders involved, where ticketing and value added services drive adoption. (Svensk Handel & SHR, 2012)

For this growth scenario to play out, there are a couple of requirements. Most important among these are; value added services, similar security as card payments, openness and competition, ticketing as a driver, merchant involvement, and convenience. (Svensk Handel & SHR, 2012)

6.1.2 Global Predictions

Juniper Research estimates that the total value of purchases made by mobile payments worldwide will be worth about 1.35trillion USD by 2017, which represents about four times the current value, which in turn implies a current value of about 330billion USD. This will be driven by a larger NFC-adoption and the sale of physical goods by both remote and proximity payments. The sale of physical goods is estimated to account for about 54% of total mobile payments by 2017, contrary to the current situation where the largest part is made out by digital goods sales. It is further estimated that the physical goods sales through mobile payments will constitute about 4% of the value of global retail transactions, and that physical goods sales from e-retail will be paid for by mobile phone in 30% of the cases. However consumer awareness is low and that has to be addressed for the scenario

to play out. (Juniper Research, 2012)

SWIFT's estimate is in line with that of Juniper Research, and it predicts 430bn-1tn USD transaction value for mobile payments by 2015. It is noted that mobile payments is an immature business with an unclear business case for many players, but investing is heavy and it is a top priority to participate in the development for many actors. SWIFT sees the biggest opportunity in an open model where actors sign in to an open agreement, but can be brand neutral and differentiate their services. (SWIFT, 2011)

CapGemini, RBS & EMFA estimated the average transaction size for mobile payments to be around 10 EUR in developed markets, while for emerging markets the figure is closer to 20 EUR. It is further estimated that mobile payments will grow at a 50% annual rate in the next three years, which would mean a 1tn USD market in 2015, with Juniper Research's estimate of the current market size. The main drivers of this development would be value-added services, and merchant acceptance. (CapGemini, RBS & EFMA, 2011)

Edgar, Dunn & Company projects a mobile payment market value of 680bn USD by 2016, driven by speed, value added services, and handsets acting as points of sale. Today's market size is estimated to be about 50-100 bn USD. Factors that are necessary to see the scenario realized are also a commitment to invest by banks and MNOs, marketing and awareness, as well as incentives for merchants. It also sees convergence of online and mobile payments, due to the ubiquity of the mobile phone in almost every region of the world. Furthermore, the need for ensuring common industry standards and interoperable technologies are highlighted in order to reach critical mass, but it is unrealistic to expect widespread agreement on business models and the economics of mobile payments. (Edgar, Dunn & Company, 2011)

	Juniper Research	SWIFT	CapGemini	EDC
Prediction: Mobile payments market size	1.35tn USD by 2017	430bn-1tn USD by 2015	~1tn USD market 2015	680bn USD by 2016

Figure 20 Industry predictions are fairly in-line

6.1.3 Validity of Global Projections for the Swedish Market

Global estimates are fairly in-line with each other; however the question is then how representable those growth projections are for the Swedish market. Many of the projections are based on an open eco-system developing; this is not the current state of the Swedish market, however initiatives outside Sweden aiming for an open eco-system have not prevailed either. Edgar, Dunn & Company highlights this

development as to be expected and states that before an open functional eco-system can emerge and reach a state where actors co-exist, it is to be expected that visionary actors develop partnerships and alliances and roll out services within their markets of influence, and while doing so creating the infrastructure necessary for widespread mobile payments. On a 5-10 year timeframe, there are many challenges to be overcome to create an open eco-system in equilibrium, but the development of the market is likely to go that way on the longer term as that is the most feasible state of the market.

Another aspect is that card penetration is higher in Sweden, and replacing cash is one of the drivers for increased mobile payment adoption. This has ground in the average transaction size being 10 EUR and cash is still dominant of transaction values like this as shown by Riksbanken. However the Nordic countries are pioneers in the mobile payment area, and the investments and roll-out that is being made is likely to be larger than that in many other developed markets.

An example of how fast the development can be is PingIt, which saw some 1.2 million downloads after 3-4 months of operations, representing about 2 % of the UK population. Although PingIt is dealing with some other issues, this shows that when the right service is released, adoption can be quick. This goes hand in hand with Swedbank's predictions on one million users for Swish in the coming months.

6.1.4 Predicted Market Scenario

Ending up in a prediction for the Swedish Market, it can be settled that key factors that need to be overcome to gain widespread adoption of mobile payments are:

- Bank oligopoly dominance hindering development
- Lack of an open eco-system, independent players leading the development
- Immature business with an unclear business case for many actors

And factors that drive the development and have the potential to overcome those obstacles:

- PSPs have attractive offers to both merchants and consumers, which will likely gain adoption as marketing and awareness increase
- Investments in mobile payments are large from many actors
- Several joint initiatives will lead to an eco-system in equilibrium in the long-term where services can co-exist

So where will mobile payments compete, with cash or cards? Both, however primarily with lower value cash and credit card transactions in the short term, and higher value in the longer term as security and trust becomes less of an issue, and adoption becomes more widespread. With the introduction of mobile payments, we argue that cash transactions, particularly for value around or below 100 SEK, will see an accelerated decline over the medium term, with most of the cash payment streams moving to mobile payments, but the migration from cash to cards also

continuing. This is because it is inconvenient to pay with cash below 100 SEK, plus people are using their mobile to pay today because it is useful and easy.

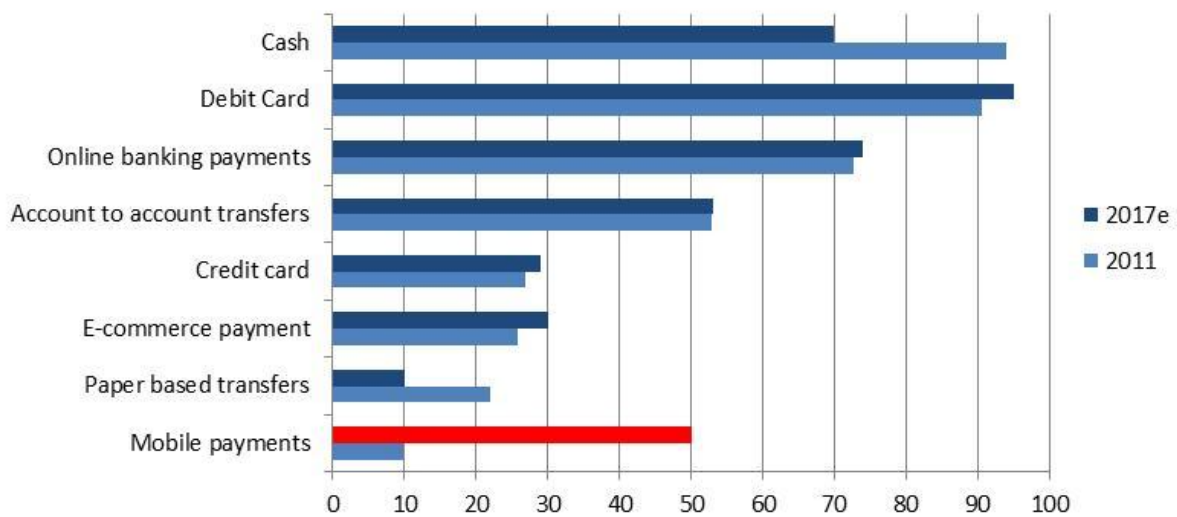


Figure 21 Predicted payment method frequency

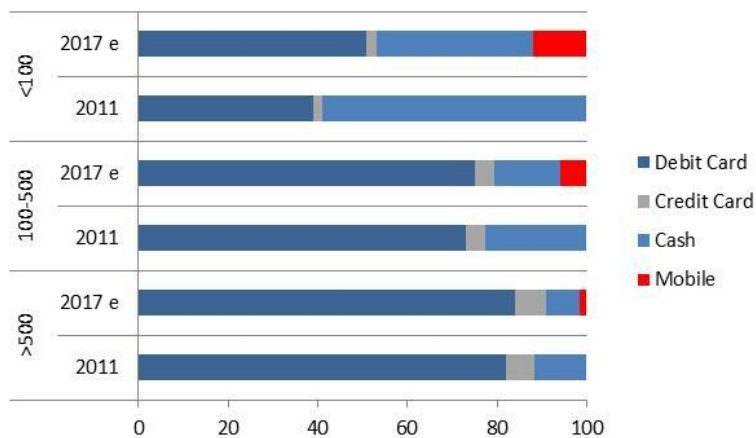


Figure 22 Predictions of payments divided by transaction value

Estimates and assumptions are presented below, which lead to the total market size, its breakdown on different forms of payments, and revenues that can be expected from the mobile payments market:

Cards

- The number of card transactions at PoS increased fourfold over the last 10 years, we estimate that the number of transactions will continue to increase, although at a slightly slower rate. The number of card transactions will by increase 50% over the next 5 years.
- Average card payment has decreased from 600 SEK to 400 SEK over the last 10 years, this rate of decline will slow down a bit but will continue to about 350 SEK in 2017.

- **Card transaction values** in PoS terminals have grown at about 11% per year over the last 10 years. Our estimates imply that this growth will slow somewhat to about **6% per year over the next 5 years**.

Cash

- We estimate the number of cash transactions to decrease by about 30% over the next 5 years, driven by increased card and mobile penetration.
- Average cash transaction value is about 252 SEK as of 2009, we believe this will increase slightly to 300 SEK in 2017 as cards and mobile are used increasingly for smaller value transactions.
- This means about a **20% decline in the total value of cash transactions** from 2009 to 2017.

Mobile

- We estimate that 50% of Swedish people will use mobile payments on a monthly basis in 2017, see figure 25, and that those 50% will use it on average 10 times per month. Today 10% is using some kind of mobile payments so the increase is not dramatic.
- We think the average transaction value will be about 250 SEK, compared to 350 SEK for cards and 300 SEK for cash
- This means **125bn SEK transaction value for mobile payments in 2017**.

Mobile Compared to the Total Market

- We think the ratio of card, cash and mobile to direct debit and credit transfers will be around the same in 2017 at 55%.
- **Mobile payments** will thus make up about 11% of payments by card, cash, and mobile. It will furthermore make up about **6 % of the total C2B payments market**, which also includes direct debit and credit transfers. This is slightly higher than predictions for the international market.

Fee Revenues

- Banks today make about 7bn SEK from card payments (Nilervall, 2012), or about 1% of the total transactions value on card payments.
- Price pressure on card payment will lead to banks earning fees of about 0.85% of total transaction values in 2017, which means they will still make about 7bn SEK in card fee revenues, but from a larger total market.
- We think mobile payments on average will be priced at about two thirds of the price of what card payments cost today, which means about **825mn SEK fee revenues from C2B mobile payments in 2017**.
- With the addition of revenue streams from **value added services**, we think that the mobile payments market will be worth closer to **1.5-2bn SEK** by 2017.

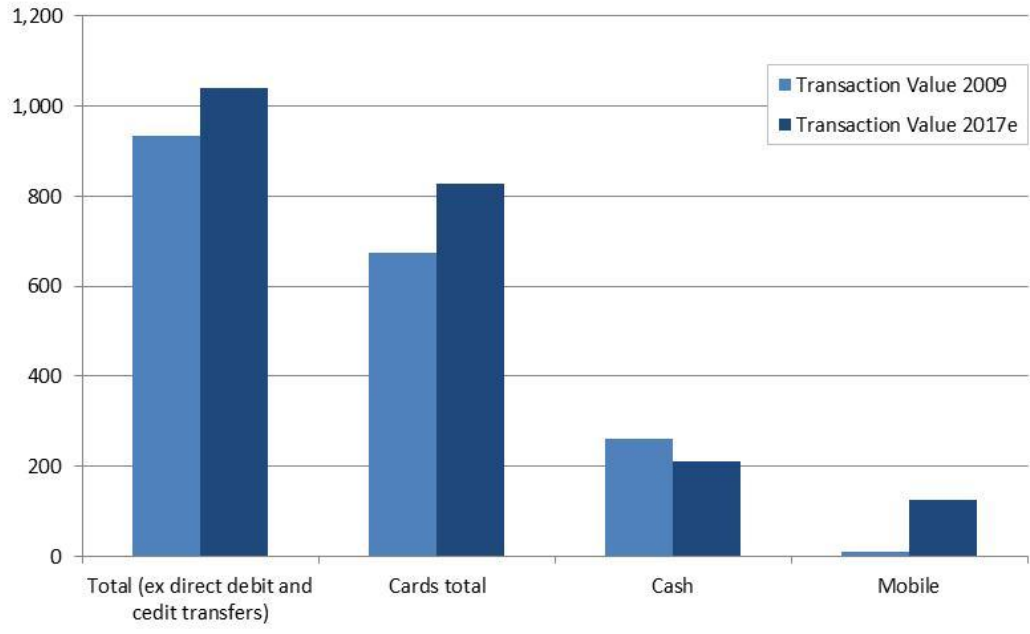


Figure 23 Predictions for 2017 divided by form of payment

6.2 Scenario Analysis

The analysis in the report can be synthesized into four scenarios that show the most likely development in mobile payments in Sweden, see figure 28. The section is driven by analysis in the report, but also opinionated to reflect the authors' views. The scenarios are ranked in order of probability, with the first scenario being the most probable.

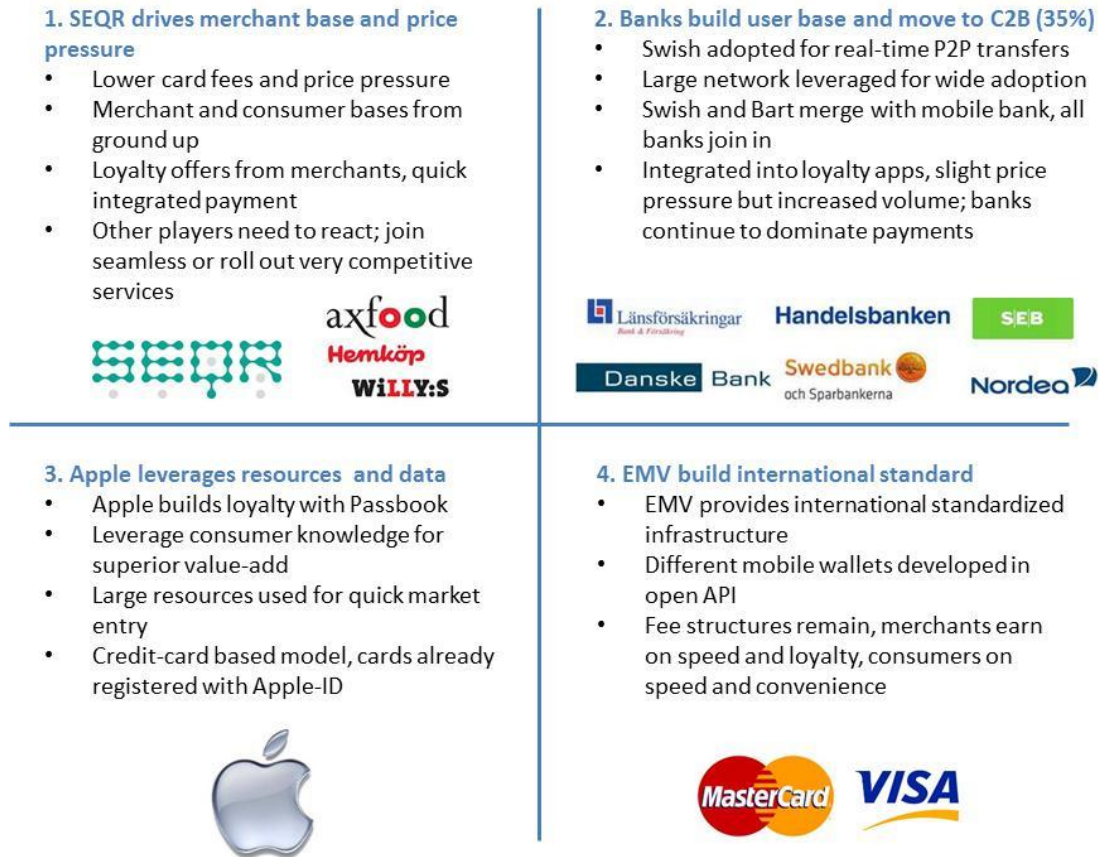


Figure 24 Scenario analysis with probabilities for each scenario

6.2.1 SEQR Drives Merchant Base and Price Pressure (40%)

In the most likely scenario, independent PSPs as SEQR will continue building a merchant base through its superior merchant value proposition, expanding into more physical stores as well as online stores. Working on its consumer offering, the service will be very convenient to use and include value added services like receipt management and spending statistics. SEQR, which is the strongest PSP today, will come to be integrated in many merchants' proprietary loyalty apps, and can therefore work with relevant offers to consumers as well as product search.

Through heavy in-store marketing, consumers will start to try the service. Consumer adoption will also be heavily driven by ticketing in an initial phase, and other than Västtrafik in Gothenburg; SEQR will be the mobile payment method of choice for other ticketing services due to its speed and convenience. With growth in both its merchant base and consumer base, SEQR will start gaining network

externalities, and niche banks will sign on to the service, thus making the most of the SEQR model. This will result in price pressure on payments overall, as merchants gain increased negotiating powers towards banks on card fees, and renegotiate their deals. However, large banks see SEQR as a threat to their current revenues from cards, and will not sign on to SEQR initially due to this.

However when SEQR reaches a certain size, it will be critical for other actors to react. This will be done either by signing on to SEQR, accepting lower revenues but significantly increasing the value proposition for both consumers and merchants, or rolling out an effective service and infrastructure to compete with SEQR, most likely like the one in Scenario 2. SEQR will act as a catalyst for mobile payments in Sweden, and contribute with an important disruption of the payments market and price pressure.

Nevertheless, the biggest risk for SEQR is that the banks do not join the service, copy the value for the users and get wide adoption. In addition, if SEQR's invoice solution is not a clear business case for Collector, the setup will need to be changed. SEQR's biggest problem is that its user base is still limited. If they manage to build this, they have a big possibility to beat the banks in the Swedish market. On a 5-10 years horizon, SEQR could be replaced by other PSPs as the driving force of the industry, but they are the strongest player on the Swedish market today.

6.2.2 Banks Build User Base and Move to C2B (35%)

In the second scenario, the large banks' launch of Swish in late 2012 will be well received; the real-time service will be convenient for consumers, however the fee-structure will somewhat hinder widespread adoption. Moreover, the banks will leverage their user bases and the service will see widespread adoption by both marketing and word-of-mouth. The network effects will be appealing as many people use it, but use will not happen very frequently for most consumers, and thus Swish will not be a large revenue source for banks.

Simultaneously, Bart redesigns its solution to be more convenient, skip the external QR-code reader and continues to build a merchant base although the consumer base will continue to be limited to Swedbank's own customers. Bart also fixes its issues with consumer experience, making it as convenient as other services in the market.

Banks continue to develop their initiatives, but collectively still take a wait and see-stance. A catalyst comes after some years when other actors like SEQR become a real threat to the banks, with price pressure and lost profitability in payments as a consequence, and will force the banks to adapt. Banks start collaborating more extensively, realizing that they can lose parts of the payments business, and all banks join in on the redesigned Bart. Bart and Swish are subsequently merged and integrated into the mobile bank, offering consumers P2P, C2B and mobile banking in the same application. With this new platform, new services for personal finance monitoring could be added to offer increased value to customers.

The new integrated service will also support merchants' loyalty apps, and banks will not have to do all value added service themselves, but can let merchants handle this. Offering this value to merchants also limits price pressure, and the banks keep their position in the payments market with continued profitability. Ongoing, banks lead the development in mobile payments, effectively blocking out new ventures through their dominance. Their link to existing customer base as well as salary and money hub enables the banks to continue their dominance within payments.

6.2.3 Apple Leverages Resources and Data (15%)

Apple's Passbook is growing its merchant base, and provides an effective collection of loyalty- and ticketing in one application. Much like Starbucks, Apple is expanding the loyalty and ticket offering, to integrate payments making Passbook a one-stop-shop for mobile shopping.

In the Swedish market, Apple will see opportunities as Swish and SEQR gain some initial traction and the market seems to be ready for mobile payments. Launching the Passbook with large international chains like McDonalds in Sweden will give them a dominant buyer that can trigger adoption fairly quickly. A quick entry will be further facilitated by the company's large resources, which can be used to market the service and make the offer as attractive as possible initially.

Apple has a further advantage of being able to leverage consumer data acquired through its app-store, and web history. This gives it a powerful tool in finding relevant offers and matching the consumers' preferences to merchant offers. Their existing iAd-division will be integrated in the mobile offers division.

The payment procedure in the Passbook will initially be credit card-based, which limits the price advantages Apple can reach with merchants. However Apple already has access to consumers' credit card information, and the threshold to try a Passbook payment service is very low. Apple will have to focus on convenience, access and value-added services rather than competition on price. With its large resources as an advantage however, Apple can consider integrating their own payment infrastructure quickly through in-house development or acquisitions.

Due to the current penetration of Apple phones in Sweden, it is the most likely candidate of the technology companies to succeed with its effort on the Swedish market. Google and Facebook are also players that have large resources, user bases and access to consumer data, and could well be players that launch mobile payment ventures in Sweden as well.

6.2.4 EMV Builds International Standard (10%)

VISA and MasterCard are launching their NFC-based services on a wide scale worldwide, and will continue to push these initiatives through contactless cards and an open API for mobile wallets with NFC-support. The NFC technology is integrated in all new Android and iPhone handsets, and the total amount of supported phones is high. EMV have an established relation with merchants and are the current global standard; pushing for NFC solutions in current merchant infrastructure while

implementing attractive solutions for the consumer could mean a transfer to a new global NFC-standard, which would facilitate compatibility internationally in a way that domestic actors could not do as easily.

EMV will be focusing on the payments part of the value chain, and it is therefore crucial for them to find partners to spread the solution to consumers, as well as offering value added services. The banks will be a preferred partner, as they take the service out to their customer base as they do with the cards. There are possibilities that MNOs can help if the NFC-technology is not as widely adopted as they wanted. By providing NFC integrated on SIM-card, this network problem can be solved. Finally, EMV need to create an ecosystem of third part developers, ready to create added value services to the platform similar to an app-store. All these partnership will help EMV grow its consumer base in addition to the merchant side.

The fee structure of card payments will remain, and merchants will be offered the incentive of speed and loyalty offerings, while consumers will be convinced with speed and convenience. There is a low probability for EMV to win the Swedish market with their solution in the short term, but in the case of a deadlock in development, EMV will definitely emerge as one of the leading options as they roll out their infrastructure and have the potential to offer mobile payments while maintaining the old structure in the payments eco-system. It is also likely that EMV-services will co-exist with other mobile payments services, and that in the long run they will be a key part of the system with NFC infrastructure internationally.

6.3 Chapter Summary

The Swedish mobile payments market is predicted to grow to 6% of total transaction value by 2017. There are some factors that need to be overcome to gain widespread adoption of mobile payments

- Bank oligopoly dominating and hindering development
- Lack of an open eco-system, independent players leading the development
- Immature business with an unclear business case for many actors

And factors that drive the development and have the potential to overcome those obstacles:

- PSPs have attractive offers to both merchants and consumers, which will likely gain adoption as marketing and awareness increases.
- Investments in mobile payments are large from many actors
- Several joint initiatives, will lead to an eco-system in equilibrium in the long-term where services can co-exist

Mobile payments will take more market share in low value payments than in high value payments. In 2017, it predicted that some 50% of the population will use mobile payments at least on a monthly basis, compared to today's 10%.

The actors that have the biggest chance to succeed are independent PSP Seamless, as well as the banks. Other actors that could grab a large share of the market are tech companies and EMV, while MNOs will likely end up in a role of enabling mobile payment rather than transacting them.

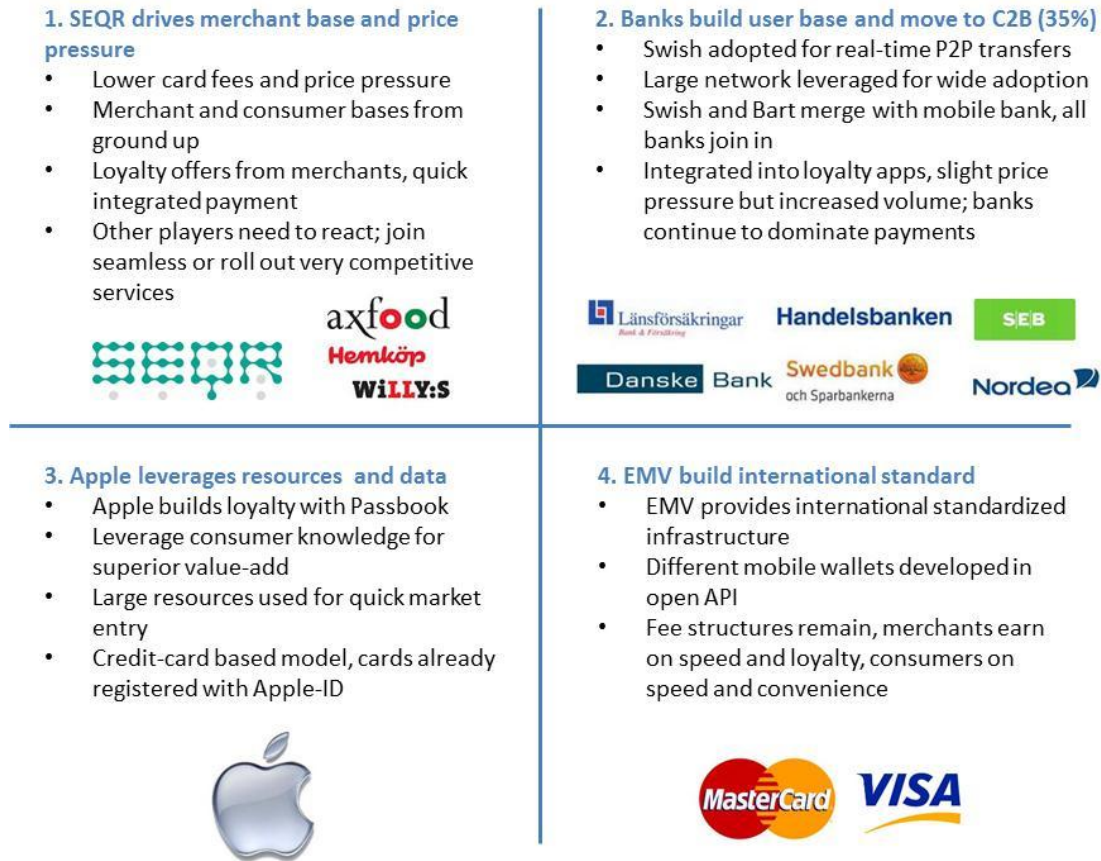


Figure 25 Scenario analysis with probabilities for each scenario

7. Conclusion

In this chapter, the two research questions will be answered based on data from the analysis. The section will briefly summarize and point out the most important success factors as well as conclude where the market is heading.

- **Research Question 1:** *Which key technologies and services constitute the Swedish mobile payments landscape today, and what are the key success factors of those technologies and services?*

The Swedish mobile payments market consists of a range of services; independent PSPs, MNOs, Banks, and EMV have already launched their services or are about to launch in early 2013. Technologies that are represented cover the whole spectrum from contact based services to QR and NFC. The Swedish mobile payments market is very much alive, and is seen as a frontrunner in global mobile payments development.

Answering the question of which key success factors are the most important, the research shows that the **value proposition** for both merchants and customers is the most important factor. The perceived value must be sufficient to create adoption. It is not enough to only focus on one group, such as users, merchants need to see financial or additional benefits as well.

The best way of adding value for **merchants** is lower total cost including transaction fees and investment cost. Furthermore, merchant want security and be able to build loyalty with customers. Speed could be an important factor, because it can save cost but it is more on the customer that gets the most value of faster queues. The merchants do not want to make the wrong choice and is therefore waiting for a “winning” solution.

For **customers**, it is all about convenience, usability and the value added services that could be combined with mobile payments like loyalty, offers, and receipt management. A critical driver for the customer is the link to its existing bank account. It is a large hinder to have a separate mobile wallet and therefore, being able to use existing bank accounts or cards is more appealing. Other actors with a big customer base can leverage this to push users to their solution.

- **Research Question 2:** *What development can be expected in the Swedish mobile payments industry in the coming 5-10 years, and which technologies and services are likely to prevail and become established standards?*

2012 was the year when mobile payments were launched in Sweden with services like WyWallet, SEQR, Swish and others. Adoption has been slow, but has been driven by new regulation for SMS-payments as well as merchants, e.g. Axfood, starting to roll out infrastructure to handle it. 2013 will be a year when consumers can use mobile payment on a broader scale; regulation will force people to start using mobile payment solutions, which will have a positive effect on adoption. In addition,

many new services are set to launch in during next year. MasterCard PayPass will be launched, and established actors are continuously adding features to its value proposition.

Still, mobile payments will be a small **fraction of the total market**. The analysis shows that the bank oligopoly, lack of an open eco-system, and the mobile payments business being immature with an unclear business case for many actors, are factors that will hinder fast adoption. However with large investments, independent PSPs leading the way, and many other actors also launching their services, things are starting to happen and some degree of adoption is to be expected even in the near-term. Furthermore, the introduction of mobile payments will accelerate the decline in cash usage, as well as grab some of the market share from card payments.

The research shows that three services; SEQR, Bart and Swish have the best chances to become a **standard** in Sweden. Nevertheless, it is more possible that a few solutions develop side by side the coming years. SEQR has an advanced position in the early mobile payments market, and is leading the development in Sweden. With a very strong value proposition for merchants, a convenient service with potential to offer substantial consumer value, and a flexible organization, SEQR has a real chance to disrupt the Swedish payments market. Bank services Bart and Swish in themselves have some problems, but with slight adjustments, a joint effort from all the banks, and a potential merger with mobile banking services, the banks have an excellent chance to capitalize on its large user base and establish a mobile payments standard. Other actors that have potential are Apple, with its large smart phone penetration, resources and consumer knowledge as key assets; and EMV, that control the existing payments infrastructure. The MNOs should not be forgotten, because their effort in mobile payments is promising. They also have the obvious link to the mobile phone and consumers' phone numbers that is used for identification. Their position in the value chain is not well defined but they will probably not handle the transaction in the future.

Regarding **technologies**, NFC is the most complete available but lack wide adoption, network effects and implies high investment costs. QR on the other hand, facilitates a low or non-investment cost, it can be used from a normal smartphone, it is very stable and people know how to use them. Therefore QR is the most prominent technology that fulfills almost all essential features needed for mobile payments on short term. Nevertheless, if the solution needs speed as in ticketing, NFC is faster and therefore more suitable. The technology can also be applied in other areas that mean a larger business case. NFC could be adopted with a sticker or integrated in the SIM-card, which requires an investment but could help overcome the slow handset adoption. Therefore NFC is more prominent on long term. The winning technology is much dependent on the choice of the winning actor. EMV is betting heavily on NFC and if they get wide adoption it will push the technology as well. But actors that support multiple technologies can spread their risks and evade such a problem, and for those actors the technology question is not very important anymore.

Optimal **revenue models** vary from actor to actor, and there is no model that fits all actors' competencies and interests. While on one end banks are likely to get most of their revenues from direct transaction fees, actors like technology companies have a key asset in consumer data, and are therefore likely to get most of their revenues through value added services.

Finally, the predictions show a mobile payments market share of 6% of total payments in 2017, primarily driven by lower value transactions. Furthermore, there are four possible **scenarios** presented, where two have the largest probability of being realized. The first involves SEQR and is based on their strategy to grow through merchants, with superior value directed to them. By marketing the service in stores and offering the customer an efficient and fast way to pay with additional loyalty and promotion features, customer adoption can be achieved. The weak point is the missing link to the customer's bank account, and the current rate of adoption of customers. The second scenario says the banks will manage to transfer many of its customers to their mobile and P2P platform. Then merge it with a redesigned Bart solution to access the important C2B market. Through its big user base, force the merchants to adopt its solution with similar or somewhat lower fee levels as cards. To be able to build this user base, the banks need to merge the mobile banking platform with loyalty, offers, and a tool to manage the customer's private economy.

8. Other Trends and Observations

In this chapter, important results that do not relate to the original research questions are presented. It also aims to discuss important factors that either are enablers or pose problems and issues for the actors. Finally, the authors bring up own observations and working of possible white spots.

P2P is a Route to C2B

By addressing the less fragmented and complicated P2P market (Gummesson, 2004), a user base could be built for further implementation with merchants. With an existing user base, it would mean a much faster adoption as well as higher incentives for the merchants to join in. The banks with its service Swish have aimed for this route. The problem realized during the project was that the banks had problems to unite in the C2B approach. It is not easy to say that P2P as a concept will enable C2B. Instead, P2P could help to build a user base and gain network effects, and then go into C2B payments. To build a network directly in C2B could be very hard since it would be necessary to build two separate networks of customers and merchants at the same time. On the other hand, building a network of merchants could work the same way, and is the route that SEQR has done. Both these two different strategies go in line with the conclusion to create network effects, and this model has been proved to be successful in the Starbucks business case. Nevertheless, when starting to build a network, the strategy and value proposition for future stakeholder groups should be clear.

To gain fast adoption from customers, services need to be free of charge to use. WyWallet has proved that a fee for users is not ideal, especially if the service is P2P where cash is “free” for the user. Swish has been launched with a 1 SEK fee after an initial free period. We are determined that this is the wrong way to go. P2P is a way to build a user base and fees for users will kill adoption.

Mobile Development Offers Potential to Reduce Old Costs

The new technological development with smartphones, more advanced IT-systems as well as broad mobile Internet penetration enables and promote new business models. Therefore there is a higher probability that actors who use this technology and innovate in the right way will be more successful than building on old existing networks. It is clear that the banks want to protect their lucrative revenue streams from card payments. Thus, mobile payments enables new actors to join the payments space, which is of value for merchants as well as consumers. By reducing intermediary links, the sum of total transaction costs will be lowered. In the same way e-commerce lowered cost and revolutionized the way we shop and took a part of the market, we argue that there is a big possibility that mobile payments can do the same. Therefore the model with MasterCard and Visa is threatened and not adjusted for today’s possibilities.

Innovation Will Beat Credit-Card Storing

There are two types of services that have entered the mobile payment market: services that store cards in the mobile phone; and services that transact a payment directly from the consumer's bank account, add the charge to a phone bill or invoice, or makes use of a pre-loaded balance. While the former is an easier way to introduce mobile payments - it keeps old structures within the industry and fees remain at least the same - it adds less value for both consumers and merchants than a service that can reduce the number of intermediaries and costs associated with payments.

SEQR offers zero investment cost, and halved card fees for merchants, while banks offer the same fee structure, upfront investment costs and a less streamlined payment process for consumers. While banks can lower fees to compete in a structurally different payments market, they carry a larger cost-base. Development in card payments have gone from swiping the card, then plugging the card into a chip-reader, and now possibly moving the card to the mobile phone. It is easy to see the lack of incentives for merchants in this development.

Based in this, it is more likely that an innovative service can win the long-term war in mobile payments, since structural advantages such as cost reductions or real-time money transfers can create advantages not attainable through the old structures with card storing.

Technology Development toward an International Standard

NFC has been a hyped technology receiving most media-attention, while QR is the proximity payment method that has been realized so far in Sweden. Actors in the industry have differing opinions on technology choice; there are many skeptics toward NFC, due to the phone- and merchant infrastructure that has to be put in place. However, it seems to be widely recognized that since investments in NFC continue, primarily by card companies, network externalities will be strong enough in the future for it to become a standard. There are obvious advantages with NFC; where speed is a factor, e.g. for ticket readers in subway systems, NFC is the only technology that can offer the necessary speed. NFC have more advantages, e.g. in that it can be used as a key, thus allowing a hotel customer to pay and receive a key with the mobile in the same moment. QR has different advantages in that a QR-code can be printed to a poster, shown on a TV-screen, or posted on a Facebook-profile, which NFC cannot. On the other hand, transmission of information with QR-codes requires sending wireless data, which is currently expensive internationally for most consumers.

An Open Eco-System is Difficult to Achieve

Many opinions on the mobile payments industry are centered on the importance of an open eco-system, which would include all actors, for widespread adoption of mobile payments to take off. While this is an ideal scenario that would likely be good for consumers in terms of availability, it is very unlikely that such an eco-system could be established with the conflicting interests in the currently quite complex eco-system. Some actors want to protect old revenue streams while others want in on new ones, and there have not been any signs that actors would be willing to

compromise around this issue. It is likely that in the future there will have to be more collaboration horizontally among actors to reach optimal solutions to both consumer and merchant problems, but competition will still be fierce among different sets of actors.

Sixpack was a joint venture in Holland between three MNOs and three banks that set out to jointly introduce mobile payments in the Dutch market. The joint venture was established to develop a mutual mobile payments service and build an open infrastructure based on international standards, and establish a TSM for technical support and central services (Clark S. , Dutch banks and carriers to launch NFC in 2013, 2011). The initiative was delayed and furthermore abandoned as a joint initiative, as European Commission approval proved to be a lengthy and difficult process. Openness and accessibility for outside participants, and size were the main issues, and it is unclear what the outcome will be from this process (Balaban, Dutch Telcos, Banks Delay NFC Launch Until 2013; T-Mobile Drops Out of Project, 2011). This shows that regulatory aspect is a big hurdle to an open eco-system as well.

Bank Dominance Hinders Development, Regulation on Increased Competition Could Be a Factor in the Long Term

The four largest banks in Sweden control a large part of the market; this translates into a non-dynamic market, with fixed industry structures that are hard to change. We had a hypothesis that regulation will play an important role for the industry. But lobby-organizations are strong, and this preserves the current configuration of the industry in the banks' favor. If new entrants are to be allowed to create competition in the market, more transparency is needed and regulation, which facilitates competition will have to be put in place. This has been done in the UK, and there is a possibility that similar initiatives could be pursued in Sweden. This is not a very likely threat to the banks at the moment, but still one of the largest threats to their dominance in payments. While regulation that facilitates account-switching and fee-transparency has been approved in the UK, banks have traditionally had a less dominant position. In the mobile payments space, UK banks have been more focused on moving first and offering compelling value propositions. In contrast, Swedish banks have had Swish technically ready for deployment during what is likely several years, but internal negotiation and the preservation of traditional revenue streams be incentives that have made banks reluctant to launch mobile payments services that could cannibalize on existing revenues. In the future, an initiative like the payment council are pursuing in the UK could lead to increased competition in Sweden as well, potentially giving independent PSPs, MNOs, and other actors access to the BiR-infrastructure.

New competitive situation for banks

As mentioned previously, the banks have a monopoly on payments today. Mobile payments enables new actors like Seamless and others to enter the market of payments and the area of banking. According to our predictions, 6% of all payments are going mobile, and the number can sound small. However, 6% in terms of volume

is a big number, and if the banks start to lose a fraction of the market it can be a start in increased competition from their side.

Moreover, it is not showed in the report, but other research shows that some groups of early adopters as youths and tech savvy will use mobile payments in a much wider extent than others. Our predictions on 6% of payments will be distributed towards specific groups such as younger people. By doing much of its banking on the phone, for certain groups their relationship with banks could change. People have a closer relationship to the phone manufacturers such as Apple and Google and if these actors enter they could probably take market shares from the banks. Mobile payments have the possibilities to be an enabler of redefining peoples' views of what a bank really is.

White Spots within Transaction Data Handling

An area which is likely to grow with the introduction of mobile payment value added services is optimization of loyalty offers, i.e. processing the large amounts of transaction data that is available to the mobile payment provider, in order to offer targeted ads, offers, and functionality. This is a service that a third party could provide, as is currently the case in both the US and UK.

Another area where there is currently no actor present in Sweden is a complete loyalty platform where receipts, tickets, coupons etc. are stored automatically when the purchase has been made with a mobile phone. This would be similar to Apple's passbook, but could be tailored to the Swedish market and offer a stronger local presence.

Location based targeting is another service that could have high value in relation to mobile payments and mobile shopping. For example, if a grocery store right before it closes realizes that it has too much stock left for the day, it could offer a coupon to the surrounding area, based on GPS-coordinates or postcodes. This should typically be on an opt-in basis to avoid spam and irrelevant offers, but could offer high value for both consumers and merchants.

9. Further Research

This chapter will bring up topics and perspectives of the mobile payment problem that were out of scope for the thesis, but are still very interesting to take a further look into for both academic studies and actors in the industry.

Firstly, in this work the perspective has been on the Swedish industry. After doing an analysis of the different stakeholders, it has been clear that they have different incentives, hidden agendas and approaches to mobile payments. Therefore, it could be interesting to look into the challenges and possibilities the different actors face. The conclusion from this work shows that the merchants have great impact in forming a industry standard and therefore an interesting area to investigate further is the merchants' agenda in mobile payments. Another interesting group is Technology companies, which were off to a good start with Google Wallet, followed by Apple's Passbook, but they have not managed or wanted to launch a service connecting all the dots in the mobile payment area. Questions that could be interesting to study are: what is needed for a global player to succeed in many different "local" markets? And could their big global network disrupt the global payment networks like Visa and MasterCard?

Secondly, as mentioned in our thesis, there are many factors influencing a technology trying to become a standard. Some assumptions were made in this thesis regarding customer adoption. For a user to adopt a certain solution, there are a set of ground rules such as convenience, speed and security that need to be fulfilled. This view is a simplification and therefore further investigations regarding consumer adoption and the user experience could be helpful for the actors in the industry in order to be able optimize their services from a consumer viewpoint.

Finally, when thinking about payments, it has historically been transacted offline facilitated with cash. In today's world, payments are becoming digital by moving to cards, mobile, and online, enabling new types of behavioral data to be registered and collected. Buying patterns can be analyzed in a more detailed manner and be used to create offers. By combining this data with internet search data, as well as gender, age, education etc. the companies combining this knows more about us than anyone else. There is a great potential to learn about what the customer and merchants value and get revenues from this space. The question is then, who is supposed to own the data? Is it the technology companies, the consumer or the government? Is there any regulation needed to limit the way the data can be used and should the companies share any revenues with the persons they sell ads off? There are many questions regarding this challenging topic, but the data rights discussion has just started and the risk and possibilities will probably be widely debated in the future.

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Appendix 1 - Interview Questions and Objects

The purpose with the interviews is to collect information for the payment value chain framework as well as validate the information for the standard framework. By covering different stakeholders, the big picture could be gained. Following persons have contributed to the work.

Patrik Merup, Business Manager Banking, Logica SE

Robert Book, Payment Solution Manager, Logica SE

Amit Bhargava, Chief Executive Officer, Aneo

Jesper Ahrgren, Group Mobile Payments, Swedbank

Emil Wiktröm, Chief Executive Officer, SEQR

Johan Ragnevad, Head of Business Development, WyWallet

Bengt Nilervall, Principal Payments, Swedish Trade Organization

Sean Devaney, Principal Payment Consultant, Logica UK

Andy Bysouth, Portfolio Manager, Barclays

Simon Cottenham, Commercial Director O2 Money, O2

Introduction

- Representing one of the studied stakeholders, what is your role and link to the mobile payment service offered by your company?
- Presentation of the thesis objective, and the frameworks and theory behind it.

Payment Value Chain

- Do you think value added services (e.g. receipt management/loyalty programs) are necessary for widespread adoption of mobile payments?
- What type of additional value (except payment) do you think a service needs to gain adoption?
- How could value added services be implemented?(open or closed ecosystem)
- What is the most interesting way to earn money on the payment for your solution (transaction fee for merchants/fee for users/other)
- You have a lot of data about the customers (payments/location/do you see your company using it to find other revenue streams? (Targeted ads/marketing/analytics)

Factors for Standard Adoption

- Which technology do you see as the most prominent going forward (QR/NFC/Contact based) and why?
- What are the most important factors or catalysts for adoption?
- Today collaboration is vertical (banks with banks), what advantages and disadvantages do you see by collaborating with other players?
- Do you have any plan to collaborate with different actors (e.g. banks with mobile network operators)?
- What is your innovation strategy (invest and lead, invest and wait,...) and why?
- What are the advantages and disadvantages of being a first mover in the industry?
- Are there ways to protect intellectual property and is it important for your company?
- Could new mobile payment services be a way to get customers to an existing business?
- What role do you think brand name and trust play as a factor for adoption?
- Which player have the best chance to launch a mobile payments service that becomes a standard and why? Is there room for more than one?

Predictions for the Future

- How do you see the development of mobile payments for the next 5-10 years.
 - Technologies
 - Market Size
 - Players
- What are the greatest challenges you face?