

Master Thesis in Business and Economics (30 ECTS)

Marketing and Media Management Specialization

Stockholm School of Economics

Spring 2013

A Study of Mobile Wallet Business Model Development in Sweden

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“Have we lost the ability to see that coins and bills are mere symbols and that those symbols easily could be exchanged for others? Cards and smartphones today and who knows what in the future. (...) My home is Stockholm, Sweden and for the past year I’ve lived my life here totally without cash.”

Björn Ulvaeus

<http://www.abbathemuseum.com/se/cashless>

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ACKNOWLEDGEMENTS

I would like to express gratitude to my tutor Per Andersson for his kind support, guidance, and helpful advice.

Also, I want to thank Canvisa Consulting AB for supporting this project. Special thanks to Lena Wedmalm, Mia Söderlund, and Mikael Andræ for interesting discussions, valuable insights, and sharing their knowledge about the Swedish financial sector.

I sincerely thank the interview respondents for their time and trust to share information about the companies they work for.

My gratitude extends to Riikka Murto, Romain Aubert, Mantas Juknevičius, and Inga Teišerskytė for inspiration, encouragement, and constructive criticism.

LIST OF ABBREVIATIONS

BM – business model

EU – European Union

MP – mobile payment

MW – mobile wallet

NFC – near-field-communication

PIN – personal identification number

POS – point of sale

PSP – payment service provider

QR Code – quick-response code

SMS – short message service

VAS – value added services

ABSTRACT

The purpose of this thesis is to examine and develop knowledge of how business models are being developed in an industry undergoing a technological shift, as exemplified by the introduction of the mobile wallet, and considering the perspective of different market actors related to the provision of such services in Sweden.

In order to study mobile wallet business development, a qualitative research has been performed by conducting in-depth interviews with selected Swedish market players. A comparative multiple case study was constructed from the data obtained in order to contrast and compare the behaviour of different market actors.

The case study has shown that few of the market players seem to internalize the difference between the mobile wallet and mobile payments; although most of them agree that the mobile wallet is meant to provide more than just a payment function. The resulting focus on mobile payments rather than extended functionality of a mobile wallet seems to narrow down the perspective of business model development. Still, a lot of experimentation with mobile wallet business models is taking place. Further study results illustrate that the market offering of a mobile wallet service can be defined as a spectrum ranging from a strategic priority to yet another channel for reaching the consumer. From a technology point of view, there is no consensus on what the leading technology should be, ranging from a belief in NFC to an investment in developing other technologies or supporting multiple technologies at once. Highly interconnected network architecture reflects the collaborative aspect of mobile wallet business models; however, a lack of standards makes cooperation complicated. Lastly, there seems to be a lack of knowledge of monetizing mobile wallet services, as demonstrated by the uncertainty of revenue models.

Keywords: mobile wallet; business model; business model development; case study; Sweden.

1 INTRODUCTION

The master's thesis is a case study dedicated to research the business model development in the light of industry transformation in the payments area after introduction of payment mechanisms into mobile devices. The shift is perceived to have occurred due to technological development that allowed the mobile devices to be used extensively for the purpose of conducting transactions. Agreeing with Casadesus-Masanell and Ricart (2010), globalization, deregulation and technological change are some of the most important drivers that influence competitive situation in today's markets. The author has looked into how one of the everyday items that traditionally has been analogue only is becoming digitized, i.e., how the wallet is becoming integrated into the mobile phone functionality, from the perspective of business model formation around it.

According to TNS Sifo (2011), in 2011 the penetration of mobile phone ownership in Sweden has been 97% among the population aged 16-75. This number is very high, and shows a high potential numbers of adopters of mobile wallet. Furthermore, the functionality of paying with a mobile phone in Sweden is being rolled out quickly by different market players: Swish enables person to person transfer of funds (Ryberg, 2012), BART by Swedbank is being tried in pilot projects at Axfood stores (Swedbank, 2013), SEQR has been chosen as the preferred payment solution for mobile transactions at the aforementioned stores after a pilot project has been concluded in 2012 (Axfood, 2012). These are some of the external events and data pointing towards the increasing importance of chosen topic, as the payment industry seems to be hanging on the tipping point to become mobilised soon.

Accordingly, the smartphones and similar devices that can provide extended functionality of payment services are rather new to the market, and that creates an uncertainty in terms of future development options and how the players should act now. The industry at the moment is being shaped by new legislation that has been put in force and affects the environment where the market players are acting, pushes certain authority figures into action, and hopefully creates favourable conditions for development, innovation and competition. The changes in competitive area resulted in the effect of challenging traditional roles of incumbent players, such as banks, in terms of provision of payment services, effectively allowing new players to compete with them. The most prominent example of development in this area likely is the legislation of PSPs – new type of entities that are entitled to provide payment services to the public – Directive 2007/64/EC (European Parliament & European Council, 2007).

Due the novelty of mobile payments as such, the issue of how the companies should conduct business of providing these services, arises. This puts in question the business models that have been accepted for payment services previously and challenges their validity. According to the currently performed research, the industry could be said to split into two camps when it comes to deciding on the mobile payment business models (Arvidsson & Markendahl, 2012). One part is putting trust into the existing business models and hoping that they can be replicated in the mobile wallet as well – mainly reusing the card scheme models of business logics and revenue generation. While the other part of the industry is trying to reinvent how the business should be conducted and operate according to a different logics, such as bypassing the card schemes and traditional clearing institutions. While the existing business models offer convenience and ease of implementation, the newly emerging ones are creating a threat that such services could be more competitive pricewise, more convenient for the customer, or otherwise more acceptable in the market.

Taking the above into consideration, many questions arise: how are companies pursuing the business of mobile wallets? How do they define what a mobile wallet is? What business models are or will be applied in the newly forming market? Is there an optimal number of competitors or solutions on the market? What makes a mobile wallet service provider competitive? Most of these questions deal with the newly emerging business area or industry resulting from a technological shift. Similar situations have already been witnessed in different industries such as recorded music, newspaper publishing, television and radio (Aris & Bughin, 2005). The change represents an area where scientific research is needed.

2 PURPOSE

A review of existing literature on mobile payments and mobile wallets has helped formulate the purpose of the research, which can be expressed as follows: *to research the formation and emergence of business models that is induced by the development of the industry and its implications*. In other words, the purpose of this thesis is to examine and develop knowledge of how business models are being developed in an industry undergoing a technological shift, as exemplified by the introduction of the mobile wallet, considering the perspective of different market actors related to the provision of such services.

To structure the research purpose better, research questions have been formulated. The formulation of the research questions has been an iterative process, as ongoing accumulation of relevant data has pointed to more precise issues, and that has been incorporated into the final statements of these questions. Looking from a managerial perspective, a preliminary research question has been formulated in a way that would connect the transitional situation in the industry and a managerial science subject of business models in the field of mobile wallet. This preliminary research question has been used to build the empirical research methodology and guide theoretical research:

In the light of a technological shift in the payments industry, how does the understanding of the mobile wallet concept influence a market player's behaviour, i.e., business strategy and business models?

However, the research question has been proven to be rather complex and not specific enough to provide clear guidelines for further progression, e.g., choice of interview respondents and other sources to be examined (Bryman & Bell, 2007). The preliminary analysis of strategy and business model concepts verified them to be complicated and intricate (Casadesus-Masanell & Ricart, 2010); therefore, as the research progressed an iterative approach has been applied and the research question was revised as more data was gathered. Instead of ending up with a single broad research question, it has been chosen to have several more specific research questions that are closely related to and partially originating from the analysis framework (see Analysis Framework):

RQ1: How do provider firms develop the business models for mobile wallets?

RQ2: How do market offerings differ according to firms' understanding of the mobile wallet?

RQ3: What technologies do provider firms prefer for mobile wallet business models?

RQ4: What value network architecture prevails in mobile wallet business models?

RQ5: How do provider firms monetize their mobile wallet offering?

The selected research questions are in line with the research purpose. They also reflect the preliminary findings that shaped the research methodology, mainly, the chosen framework for looking into the business model from a four pillar perspective representing crucial ingredients of business model (see Analysis Framework, p.24): market offering (RQ2), technology (RQ3), network architecture (RQ4), and revenue model (RQ5). RQ1 is designed to guide the

research in terms of putting in perspective the decisions driving the mobile wallet business model development and connect business model development theories with empirical findings. While it overlaps to some extent with RQ2-5, the role of this research question is to set the overall direction and put focus on such aspects of business model development as novelty, experimentation, and dynamism.

This thesis provides contribution to the research field in several ways. Firstly, it is an addition to the business model literature as an empirical research of how business models are influenced by definitions officially or unofficially prevalent in business practices. Secondly, it adds to the knowledge on how a change in an established industry, such as a technological shift, affects the business model development. Finally, the paper provides insights on mobile wallet as a newly forming concept, including emerging definitions of mobile wallet and related concepts, and the processes of business development.

3 DELIMITATIONS

The approach of the research has been developed to reflect the implications of technological shift – the industry as a macro environment is analysed, then the focus is shifted to the micro level to reflect the findings on a company or case level. The industry level is mostly taken into consideration to understand the conditions and environment of the market for mobile wallet. Further, individual cases are being studied from a market player's perspective, revealing information crucial to answering the research questions. The nature of the different cases analysed limits the absolute comparison (Yin, 2009), but an effort has been made in selecting the research tools to compare certain aspects that are common within the industry and beneficial for answering the research questions.

An important part of this research paper is to examine different components of business models, and analyse the existing examples from this perspective. In order to do that, the different alternatives of business models are compared, but mostly in a static sense, using the framework derived from the scientific literature on business models based on the work of Mason and Spring (2011). The framework does not encompass all possible aspects of the business model, but rather the ones that are reasonably comparable among the different cases, as mentioned before. A longitudinal study could have provided more insight into the business

model development, but due to the newness of mobile wallet in Sweden it has been decided to compare different cases in a single point of time.

The technological aspect of mobile wallet and mobile payment service provision is a very diverse and interesting one. However, in this research only an overview and focused analysis of different technological solutions in terms of how they influence the business models is provided. Deeper analysis of advantages or disadvantages of specific technological solutions is not considered crucial to understanding the formation of mobile wallet business models and thus excluded from the scope. Due to this reason, mobile payment technologies not providing wallet functionality, such as mobile POS solutions, are left out as well.

The scope of the research is limited to the Swedish market of the mobile wallets, mainly to provide sufficient depth of understanding of the specifics of the market. However, due to increasingly international nature of the mobile payments and mobile wallet, examples and know-how from other countries could not be disregarded in this study. The perspective of the study is also limited to include only the managerial point of view, as analysing the consumer behaviour related to mobile wallets could not be included due to the unknown prevalence of existing mobile wallet users.

4 METHODOLOGY

The working process of the research has been designed with the aim to ensure a continuous workflow, but still allow for different parts to overlap. Thus, incorporating iterative review and alterations, the research process was designed within the guidelines provided by Bryman and Bell (2007) and drawing inspiration from scholarly work on similar industry and thematic (Birgersson & Eriksson, 2011). The outline of the research methodology is provided in Figure 1.

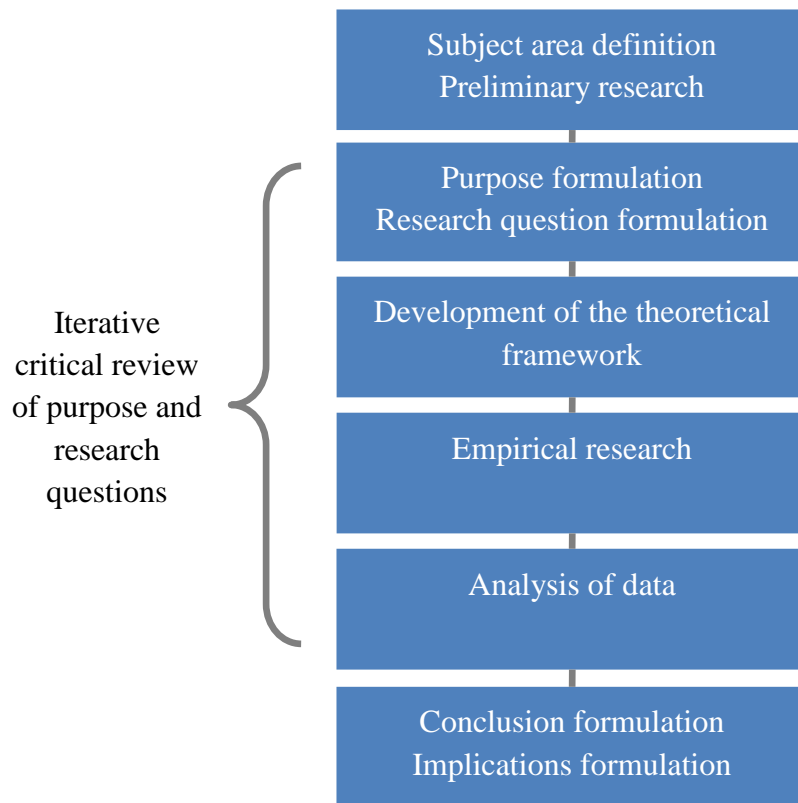


Figure 1 Working process; adapted from Birgersson and Eriksson (2011)

First of all, preliminary research has been performed in order to be able to define subject area more precisely. This included literature review and consulting experts in the research field. Further, according to preliminary research the purpose of the paper has been formulated and tentative research question has been raised. The next step was the development of a theoretical framework for analysing the case data. After that, empirical research was performed and cases were built. Lastly, the analysis of obtained data was performed and research conclusions have been formulated. Also, managerial implications as well as suggestions for further research were derived.

4.1 Research Method

The predisposition for the research method has been chosen according to Arbnor and Bjerke (2008). An abductive reasoning approach has been used, as this approach allows taking a rather flexible stand on the relation between research and theory. These authors state that “the analysis of facts may very well be combined with, or preceded by, studies of existing theory in the literature, not as a mechanical application to single cases, but as a source of inspiration to discover patterns for further explanations” (Arbnor & Bjerke, 2008). As a result, in the research the empirical findings and existing theory are not causally separated, but viewed as

intertwined phenomena. In the context of this research, this means that the mobile wallet is investigated from business models' and their development perspective, taking existing knowledge into consideration.

An interpretivist epistemological stance on acceptable knowledge is used throughout the research. "Interpretive understanding of social action" (Bryman & Bell, 2007) is sought as a result of this paper, meaning that the purpose of investigating how different actions (businesses) are results of varying notions of mobile wallet as a cognitive construct in different environments (organizations) is being fulfilled. At the same time, a constructionist ontological position is assumed, reasoning that "social phenomena and categories are not only produced through social interaction but that they are in constant state of revision" (Bryman & Bell, 2007). It is accepted that it is the understanding of how the social phenomena work is the deciding factor of the way they are construed. At the same time, the dynamic nature of categories is still retained, i.e., it is held that their meaning is built during social interaction. In the context of this research, this also serves to fulfil its purpose of understanding the dynamic nature of the category (mobile wallet and business model) and its meaning in reality.

4.2 Research Design

The research methodology has been built drawing from the framework introduced by Casadesus-Masanell and Ricart (2010). These authors developed the idea of a two stage competitive process, which incorporates: 1) strategy stage where the firms are making their choice of the business model best reflecting their strategic objectives and helping implement them; 2) tactics stage where firms take action based on the choices made earlier. For the purposes of this thesis, mostly the first stage of the competitive process is taken into consideration, due to inherent difficulty to examine the tactics stage, as most of the actors in mobile payments have either started their activities very recently or are only planning to do so. Therefore, the strategy stage is being considered from a perspective offered by the authors through analysing the business models of market players, as: "essentially, strategy coincides with business model, so that an outside observer can know the firm's strategy by looking at the business model" (Casadesus-Masanell & Ricart, 2010).

As the unit of analysis (Yin, 2009), the business model concept is essential for this research due to the fact that while every organization has a business model, not every one of them has

a strategy (Casadesus-Masanell & Ricart, 2010). Also, the broad industry environment is taken into consideration – the analysis is performed by taking into account the background environment of a mobile wallet, mainly, the market in Sweden. This is done to understand how recent changes have influenced both the technological side and legal side of it, in turn shaping business model development. Also, multiple cases are used to perform an analysis on how the market players in Sweden regard the newly emerging phenomenon of mobile wallet – their understanding of it and how they deal with it from the business model point of view.

The practical implementation of the research methodology consists of two parts. Firstly, data and information has been gathered and analysed from available online and printed sources, i.e., desk research. The literature includes industry publications e.g. whitepapers from such bodies as Mobey Forum and GSMA, as well as related legislation, websites and journal articles. The sources have been selected using intelligent keyword search in journal databases and the Internet. The search for existing literature on mobile wallet business model development yielded no directly applicable results; therefore, industry publications and related existing literature on business models and business model development were used.

Secondly, qualitative empirical research has been performed. The qualitative research method was chosen according to the recommendations from Bryman and Bell (2007) and Yin (2009). The preference for qualitative method was rather natural, stemming from the interpretivism and constructionist stance employed in the beginning. And it is the qualitative method that allows investigating the “view of reality as a constantly shifting emerging property of individuals’ creation” (Bryman & Bell, 2007); in this case the mobile wallet business model development.

The implementation of the qualitative method was to perform in-depth interviews with selected market players and construct case studies (Yin, 2009). Multiple case study method was deemed the most appropriate, as according to Yin (2009) it helps to “understand complex social phenomena. In brief, the case study research allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations, and the maturation of industries”. Also, a case study was seen to be the best way to approach the research questions, as it “is preferred in examining contemporary events, but when the relevant behaviours cannot be manipulated” (Yin, 2009). According to Bryman and Bell

(2007), multiple case study method allows to “compare and contrast the findings deriving from each of the cases”, which is suitable for analysis of several mobile wallet provider companies.

Furthermore, a comparative design for the case study was a natural choice due to the purpose of the research, as this type of design “allow[s] the distinguishing characteristics of two or more cases to act as a springboard for theoretical reflections” (Bryman & Bell, 2007). In the case of mobile wallet business model development it is important to understand the commonalities and differences between firms’ behaviour to be able to draw conclusions and reflect on the findings from a theoretical perspective.

The choice of the interview respondents was made with the rationale of understanding the breadth of the value network of the mobile wallet, ability to conduct in-depth interviews, obtain data on current situation in Sweden, cover company’s and/or personal position of the respondents, and gather market forecast information. A range of actors that are interconnected in the value network of mobile wallet service provision was selected; including the payment service providers, developers, experts, institutions, and financial service firms (see Figure 2). This choice helped to cover a variety of important issues and opinions regarding business models, as well as to get a better understanding of the network architecture.

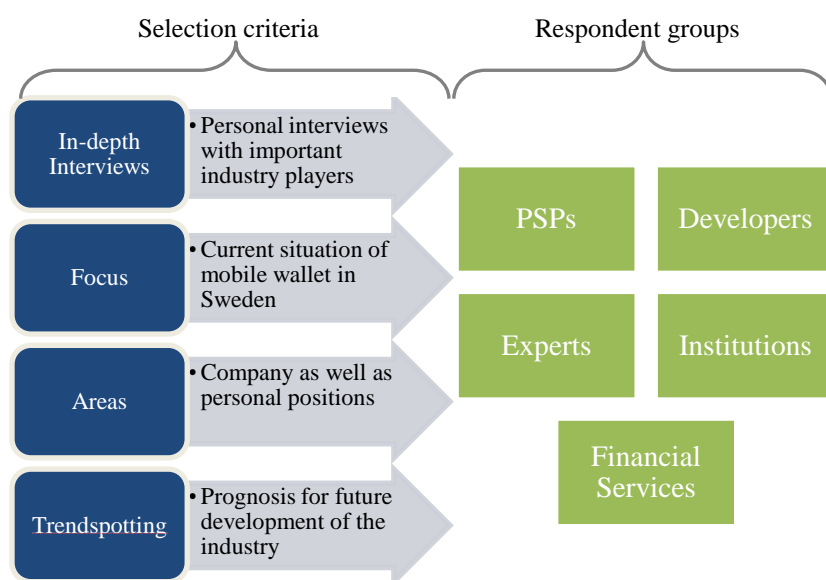


Figure 2 Choice of respondent groups

Another important issue regarding the methodology was the different nature of interviewed companies. As the chosen actors in the mobile payment industry were selected to represent as

varied a sample among the value network actors as possible, the operations and focus of each company when it comes to the business models in mobile payments is quite different. Therefore, the case interviews were conducted in a semi structured way. The semi structured interviewing allowed focusing on a range of subjects applicable to the research sample, but at the same time respecting the variations between different respondents to keep the interview material relevant to the research (Bryman & Bell, 2007).

The outcome of the empirical part was twelve interviews conducted with market actors whose activities are related to mobile wallet and mobile payments, out of which eight cases were constructed. The interviews were conducted face-to-face or over the phone, after initial contact with the potential respondents, presenting them with a list of most important issues to be covered during the conversation. In the semi-structured interviews the respondents were allowed to freely elaborate on the topics and issues they felt were most important for mobile wallet (Bryman & Bell, 2007). The interviewing process took place in Stockholm during the period from 2012-08-01 to 2012-10-09. The length of the interviews ranged from 1 to 2.5 hours. After conducting the interviews and building cases, the data was sent out to the respondents to get their confirmation that the recorded information was interpreted correctly and without bias.

The resulting case report was written following a linear analytic structure proposed by Yin (2009): “the sequence of subtopics starts with the issue or problem being studied and a review of the relevant prior literature. The subtopics then proceed to cover the methods used, the findings from the data collected and analysed, and the conclusions and implications from the findings”. The structure of the thesis corresponds to the proposed structure in the order of Purpose, Methodology, Theoretical Overview, Empirical Findings, Analysis, and Conclusion parts respectively.

Lastly, during the process of the research, the aspect of platform thinking emerged as an important part of mobile wallet business model development. This is discussed in Platform Thinking part of the thesis (see p.69). The background theories used to describe the phenomenon are not used extensively, thus they were not included in the literature review. Such placement of this part in the thesis structure also reflects the chronological aspect of this significant finding emerging during the research.

5 THEORETICAL OVERVIEW

The theoretical overview covers three subject areas: mobile payments and mobile wallet literature review, business models literature review, and a synthesis of theories resulting in an analysis framework used throughout this thesis. The main objective of literature reviews was to analyse the most important aspects of the concepts, establish working definitions, and avoid any further confusion between the terms and their meanings. E.g., mobile payments and the mobile wallet are often used interchangeably, which is not exactly correct, because while mobile wallet is most likely encompassing the feature of mobile payments, it is not necessarily limited to mobile payments only (Mobey Forum, 2012a). Another important aspect of the literature review was to establish the theoretical base for the analysis part. As indicated by Kanninen (2009): “business model creation really seems to be the main focus area for pilots [of mobile payment solutions]”, which emphasizes the importance of the business model development in current situation of the market as well as for this research. Therefore, it is important to understand the concept in depth.

5.1 Mobile Payments and Mobile Wallet

There has been a lot of attention towards paying with the mobile phone in the media recently, therefore it seems that the terms “mobile payment” and “mobile wallet” have become somewhat of a buzzword that is being thrown around without thinking too much what it means (Mobey Forum, 2012b). The analysis of existing sources of information has revealed that there is a distinction in the way both terms are defined. However, the definitions are numerous and limited implicit understanding of what the terms stand for seems to be guiding the actors’ actions in business (Mobey Forum, 2011a); for example: “industry’s media attention remains fixed on mobile wallet apps and the devices where they reside” (Mobey Forum, 2012a). Also, there are different terms supposedly relating to rather similar phenomena, but adding to confusion instead due to being used without an explicit definition in various sources and leaving the reader to infer the meaning from the context (Mobey Forum, 2011a). These include the following: electronic purse (Broex & Vulder, 2008), e-payment wallet (Flatraaker, 2011), digital wallet (Innopay, 2012), and similar. Therefore, only the term mobile wallet will be used in this study to denote the service being investigated.

While being rather different concepts, mobile payments and mobile wallet are overlapping in meaning. So, it might be assumed that the mobile wallet is not that different from mobile payments; however, it is important to understand that mobile wallet encompasses a broader

spectrum of services than just payments (Mobey Forum, 2011a). While definitions of mobile payments do provide an understanding of a specific type of a payment service, it clearly does not encompass everything what a full wallet's functionality would be. For example:

*“[**Mobile payments** are] payments for which the payment data and the payment instruction are initiated, transmitted or confirmed via a mobile phone or device. This can apply to online or offline purchases of services, digital or physical goods.”* (European Parliament & European Council, 2009)

In contrast, mobile wallet is defined in broader terms:

*“[**Mobile wallet** is] the functionality on a mobile device that can interact securely with digitised valuables.”* (Mobey Forum, 2012c)

The latter has been chosen as the working definition for this study, as it encompasses an interesting aspect of business development through the mobile wallet by incorporating interaction with any valuables as opposed to only money. The importance of additional functionality of the mobile wallet is emphasized in reports from Mobey Forum: “providing an ‘easy way to pay’ will not be enough to guarantee mass market adoption of the mobile wallet. Consumers must be lured away from their conventional wallets by the promise of special treatment. They will need some form of unique, additional value in return for agreeing to change their behaviour.” (Mobey Forum, 2012a). Therefore, it can be concluded that mobile payments is likely to be a part of the mobile wallet service package, but a mobile wallet is not limited to payment services only.

It is argued that a mobile wallet is a necessary tool to market the mobile payment services, as the mobile payment services on their own will not be enough to capture the customers' attention (Mobey Forum, 2011a). This is where the concept of value added services comes in:

*“[**Value added services** are] features and services beyond the core offerings of the mobile wallet which are included to increase revenue or make the wallet offering more compelling to consumers. The core function of the mobile wallet is considered to be the execution of mobile payments, while services such as coupons, loyalty schemes and other offers are considered to be value added services.”* (Mobey Forum, 2012a)

As also noted by Broex and Vulder (2008), value added services are one of the new opportunities for businesses to attract customers by making payment services not the only functionality of the mobile wallet: “one way for mobile payment to offer added value is by fully replacing and even surpassing the function of our traditional wallet, making it redundant” (Broex & Vulder, 2008). Lastly, the concept of value added services fits into the chosen definition of the mobile wallet by enabling interaction with a broad range of digitised valuables such as discount coupons, loyalty programme points, and tickets, to name a few.

The evolution of mobile devices to support applications has been the core enabling factor for providing a user friendly interface to the payment and additional services via mobile (Innopay, 2012). Not only the apps expand the functionality of the mobile phone, but they also allow using various sensors and technologies that already exist in the mobile phone. Therefore, the popularity of apps and changing user behaviour enable provision of novel value added services along with payments, which is becoming the de-facto standard for a mobile wallet solution: “apps have truly altered the landscape for mobile payments in a positive way. With the added functionalities and enhanced user experience mobile apps are a serious driver for mobile payments” (Innopay, 2012).

A number of value added services are already considered or expected to be a part of mobile wallets according to research data (Carlisle & Gallagher Consulting Group, 2012):

- Person-to-person transfers replacing this function of cash
- Integration of loyalty programmes, automatic application of loyalty schemes during purchase
- Coupons and discounts
- Integrated personalized offers automatically applied at purchase
- Virtual gift cards residing in the wallet
- Receipt management and storage of purchase proof
- Management of warranties and returns of purchases
- Other, e.g., online interaction on social networks: sharing purchases, price comparison, ratings, and reviews

The variety of these services raises the question of the value network architecture: should the mobile wallet service provider have an integrated value chain or be a part of a value network? While it is probable that an integrated approach could be employed, it has been discovered

that cooperation is a critical and complex issue (Nordlund, Gaaus, & Jansen-knor, 2011). This will likely lead to new collaborations and will require different market players to find common ground for cooperating in creating a successful market offering (Mobey Forum, 2012a). The collaboration issue also leads to a question of how open the mobile wallet solutions should be and what parties should be allowed to participate? There are many proposed business models, ranging from standalone, to bilateral, to collaborative, but most existing sources focus on business models for mobile payments only, which is not the main focus of this study.

The open mobile wallet is sometimes regarded as the “ultimate” solution in literature, and according to Mobey Forum (2011b) the openness is the basis for collaborative business models, where it helps involve many parties and create market reach. However, standardization becomes an issue when different parties are involved, because it is supposed to enable cooperation where interoperability is a key factor (Mobey Forum, 2012a). This is also closely related to another important question – the revenue streams. It is still unclear how the revenue would be shared between multiple parties involved in different value networks and this might be an obstacle in developing partnerships and collaborations (Mobey Forum, 2011b). Furthermore, the multitude of actors and their need for revenue will most likely impact the cost for the end-user of the solution, which is also necessary to take into consideration.

Additionally, security is often mentioned as an important part when it comes to mobile payments and mobile wallet, because the data related to it is sensitive and creates potential privacy issues, risks of theft and fraud (Innopay, 2012; Mobey Forum, 2011a, 2012a, 2012b). However, the security issues seem to largely boil down to low-level technological aspects and consumer perceptions, therefore, it is not considered in this study.

Lastly, there are legal frameworks that govern how the mobile payment and related services should be provisioned. The legal regulations mostly concern the aspects related to mobile payments part of the mobile wallets, however, they also touch upon important issues of internationalization and standardization. In the European Union, for example, there are three important regulatory frameworks; SEPA (European Commission, 2013), the Payment Service Directive (European Parliament & European Council, 2007), and the E-money Directive (European Parliament & European Council, 2009). These regulations are devised to ensure

“an integrated European market for card, internet and mobile payments” (European Commission, 2012). These regulations represent the effort of creating a standardized environment for conducting payments internationally. The Payment Service Directive in particular creates new conditions in the market by allowing a new type of market entities – payment service providers – to provide payment services. The new entrants are disrupting the market by challenging the traditional position of banks as the sole payment service providers (Broex & Vulder, 2008). Since the European Union legislation is implemented nationally, there are specific laws in Sweden that govern these aspects. Also, there are laws governing privacy, data security, buyers’ and sellers’ contract and related areas (see Appendix for more information on the legal regulation specifics).

5.2 Business Models

As a starting point for the literature review regarding business models, the work of Lambert and Davidson (2012) has been used. It provided a valuable overview of existing empirical business model research in terms of definitions and application in scientific studies. These authors’ work is especially useful when it comes to understanding what a business model is. And according to Lambert and Davidson (2012), there are many answers to that. Overall, the review of existing literature helped recognize certain prominent domains related to the understanding of business models. The following areas of importance for business models have been identified during the literature review:

Situational aspect

The business model is a highly situational issue. Basically, it is implied that there cannot be one business model that fits all available situations (Teece, 2010). The idea is that a company needs to adapt to its environment, and based on each player’s situation, the business model would be different. Similar notion is also observed in the dynamic perspective: as the external factors change unpredictably, business models require constant adaptation (Sosna, Treviño-Rodríguez, & Velamuri, 2010).

Not accurately defined

It is rather complicated to define a business model. It is an elusive concept and there often is confusion between what business strategy, business model, and business tactics are (Casadesus-Masanell & Ricart, 2010; Sosna et al., 2010). The lack of uniformly accepted

definitions makes it complicated to use business model concept in scientific research (Lambert & Davidson, 2012). On the other hand, flexible definitions also allow employing the concept in a variety of different research settings and purposes (Lambert & Davidson, 2012).

Unresearched

Although the notion of business model has been used already in the 90's, this area is still largely unresearched. There needs to be more scientific studies that could help establish what a business model actually is, how it is constructed, and what importance it has in overall firm's activities (Lambert & Davidson, 2012). Also, the newly emerged dynamic perspective of studying the change or evolution of business models "has only recently been incorporated into research on this topic" (Sosna et al., 2010).

Underestimated in importance

Many managers and management scientists still largely underestimate the importance of the business model in defining the firm's activities (Zott & Amit, 2010). However, from existing research one could conclude that business model is an important part of understanding where the company is going, how it could achieve the goals of satisfying stakeholders' interests, and how its activities depend on the environment variables such as the network (Casadesus-Masanell & Ricart, 2010; McGrath, 2010; Smith, Binns, & Tushman, 2010; Sosna et al., 2010). Lastly, the business model is a useful tool for scientific business research as a unit of analysis in different contexts (Baden-Fuller & Morgan, 2010).

Constantly evolving

Stemming from the situational aspect, the business model cannot be regarded as a static representation of reality. It can capture a certain situation in time and describe how a firm creates value and engages in business activities, but it should be highlighted that business models are not permanent (McGrath, 2010). The business model might change depending on the alterations in a firm's goals, environment, network, or industry (Sosna et al., 2010). This aspect also facilitated development of theories such as discovery based learning, where researchers conclude that firm's activities cannot be planned too far in advance and it is the uncovering of different circumstances that makes a company change or adapt its business model accordingly (McGrath, 2010; Sosna et al., 2010).

Not separated from strategic planning

Understanding how the firm functions helps the managers to orient themselves better when setting goals and objectives of performance. Also, a clear understanding of the business model helps implement the change when it is needed and align interests of internal stakeholders in the company (Casadesus-Masanell & Ricart, 2010). This results in an overlap between business model and business strategy notions (Casadesus-Masanell & Ricart, 2010), which might make it difficult to distinguish the two in scientific research.

To summarize, there are many approaches to analyzing the business models and also to defining what a business model is, which creates certain difficulties when applying theories in empirical research. Different authors developed various concepts that explain the phenomenon (Lambert & Davidson, 2012), such as the activity system understanding, where the business model is understood as a system of transactions and activities related to them (Zott & Amit, 2010); logics describing the business which is on a higher, more conceptual level than strategy (Teece, 2010); a framework defining how unit of business helps formulate the strategy and key metrics that are used to govern the implementation of the strategy (McGrath, 2010). These are just a few examples of how differently the business model is perceived by the scientific community.

However, due to an empirical nature of this study, a definition that allows drawing more practical conclusions and helps analyse empirical research data had to be selected. This decision has been made based on the insight by Lambert and Davidson (2012) that the conceptualization of the business model varies according to the purpose of research. Therefore, a type of existing definitions based on certain independent variables or categories that the business model consists of, e.g., “Amit and Zott’s widely cited definition of the business model concept notes that it is ‘the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities’” (Sosna et al., 2010), have been looked into. Other definitions being more of an explanatory nature, like “business models as ‘stories that explain how enterprises work’” (Casadesus-Masanell & Ricart, 2010), were left out of further analysis.

Additionally, modern scientific literature points out the fact that business models are often an overlooked subject of scientific investigation, but highlights its importance, especially in an innovative context: “without a well-developed business model, innovators will fail to either

deliver or to capture value from their innovations” (Teece, 2010). Accordingly, this seems to happen due to a predetermined notion that the analysis unit for business studies should be industry, market, firm, or even individual as an entrepreneurial factor. But it is rather impossible to put the business model under any one of those levels; therefore, looking into the subject of mobile wallet business model development would require a different approach (Mason & Spring, 2011).

Furthermore, a big part of the analyzed literature included topics regarding evolution or transformation of existing business models – the dynamic perspective (Demil & Lecocq, 2010). However, in the case of the mobile wallet, most of the firms are inventing and creating their first business model that is new to market, which posed a challenge of applying these existing theories to the case study. However, here the mobile wallet definition and business model theories are closely related in the value added services aspect. From business development and innovation perspective, the basic function of mobile payments does not allow for easy differentiation of the product offering. Also, according to Casadesus-Masanell and Ricart (2010), the winning strategy of competing most likely would be via innovated business models that change the nature of competition. Therefore, the mobile wallet with the value added services can be seen as a business model development platform, in terms of being a base for the service provider to integrate other services with the current offering.

From an innovation management theory perspective, the business models that include value added services are more open for product innovation. The difference in this case is that it is probably easier to sustain a competitive advantage by reinforcing the market position through innovation which stems via product (Gailly, 2011). It takes more concentrated and directed efforts for the companies to come up with a process innovation in comparison to product innovation. Therefore, taking into consideration that the static notion of sustainable competitive advantage has been questioned by the managerial scientists (Gailly, 2011), the companies that are able to protect their position in the market by constantly innovating are more likely to succeed (McGrath, 2010).

5.3 Analysis Framework

This part of the paper explains the rationale of how the model for cross-case analysis has been constructed. According to Lambert and Davidson (2012), a business model definition is usually conceptualized depending on the purpose it is going to be used for. Therefore, further analysis of business model concept has been conducted and it has been established that a

business model is more than just a descriptor of a firm's activities, it can also be used as a focal point when analyzing the development of new businesses (Baden-Fuller & Morgan, 2010). To understand the business model in this study's context, a framework proposed by Mason and Spring (2011) has been employed.

The Mason and Spring's (2011) framework comprises three core elements describing the business model: technology, network architecture and market offering (see Figure 3). These three elements encompass most of the aspects of other definitions found in the scientific literature on business models. The framework captures the essence of what a business model is in a practically applicable way, as it is possible to analyse the empirical findings of the performed empirical research according to it: in each case of mobile wallet business model development in the Swedish market, the framework can be used as tool to structure findings and draw conclusions.

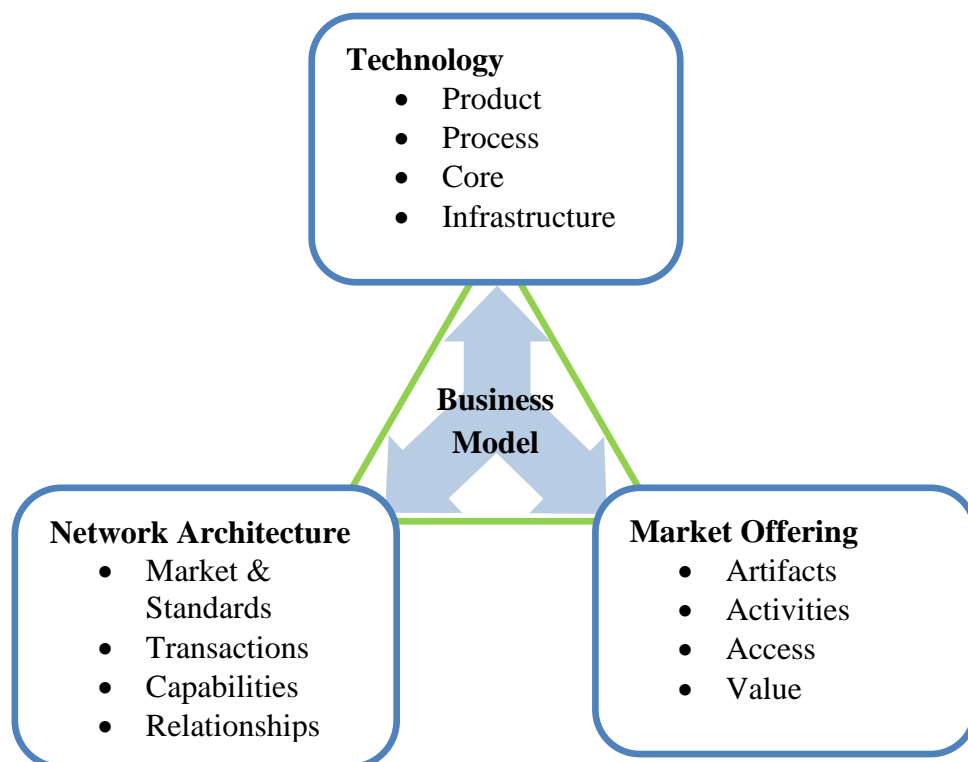


Figure 3 Understanding of a business model (Mason & Spring, 2011)

The definition that these authors propose is as follows:

*“The three key elements consistently identified as the cornerstones of **business models** can be summarized as 1) technology (or the technologies that make up the product/service offering, its delivery and management), 2) market offering (what is actually offered to the customer and*

how) and 3) network architecture (the configuration of buyers and suppliers that make the market offering possible).” (Mason & Spring, 2011)

In the way beneficial for this research, the Mason and Spring’s (2011) definition allows to take a snapshot of a current situation of what the business model is like; however, it still does not rule out the dynamic and evolving nature of the business model. This is an important aspect, which enables understanding how evolution of an industry is reflected in the developments of various business models, and which can be relevantly applied when analyzing the shift and transformation currently occurring in the mobile wallet service provision area. This approach also takes into consideration the network perspective – the way different actors interact, how collective action is coordinated in a multi level and multi site approach, lifting the perspective from firm level (Mason & Spring, 2011).

However, for the purpose of this research, Mason and Spring’s (2011) framework seems to be lacking one crucial element – it does not explicitly take into consideration the revenue sources. Especially in highly networked businesses such as the mobile wallet services, the revenue sources can be numerous. According to Mason and Spring (2011), the transactions can be embedded in various parts of the framework, and while from a theoretical standpoint this is not an issue, the construction of the cases for this study has shown that the revenue model is a prominent and distinguishable area in practice. This is also noted in the works of other authors exploring the business model concept, e.g., Itami and Nishino (2010) define a BM to be a combination of “business system” and “profit model”. Similar constructs can be found in the works of other scholars as well (Lambert & Davidson, 2012).

Therefore, for the purpose of research of mobile payments, the business model definition from Mason and Spring (2011) has been formulated by augmenting it with revenue model – “the system design by which a business monetizes its services” (Popp & Meyer, 2010), or a conceptualization of firm’s revenue sources, revenue streams, and revenue sharing. The resulting four-pillar framework covers relevant issues of how the mobile wallet services are embodied as business models:

1. Market Offering
2. Technology
3. Network Architecture
4. Revenue Model

Since the revenue model can be related to any of the other parts defining what a business model is, the following visual representation has been created to reflect the definition used for the analysis framework:

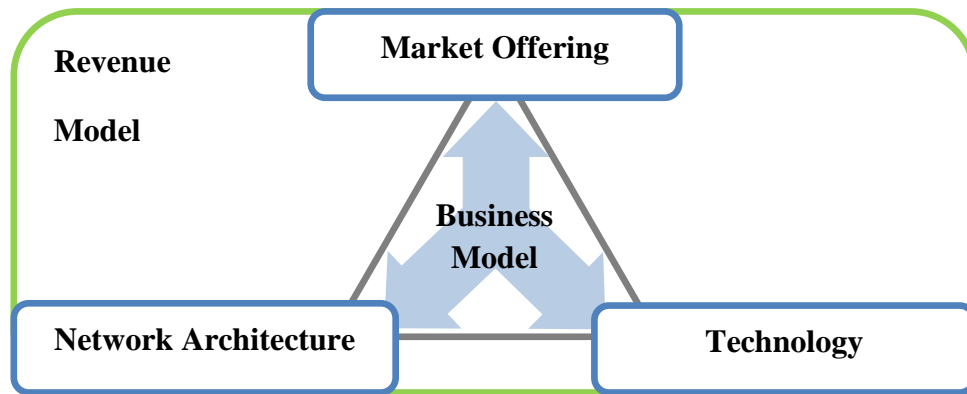


Figure 4 Analysis framework; adapted from Mason & Spring (2011)

Further, a justification why a business model is suitable as a focal point of analysis when it comes to the services of the mobile wallet is provided. Mason and Spring (2011) question the relevant level of analysis, asking if it should be “firm, network, industry or market”. In this study, neither of these seems relevant. The mobile wallet is a new phenomenon that arises from the convergence between communication and finance industries, basically, the latter enabling new ways of providing a service traditionally strictly belonging only to the financial sector. The collaboration aspect makes it difficult to analyse it on a firm level, and early stage development of collaborative business models hinders the application of network perspective. In accord to what Stähler (2002) claims, it would be too early to use the definition of a ‘mobile wallet industry’, as the whole concept is still in a very active development stage and needs significant effort to actually grasp its meaning and define it precisely. Therefore, the business model has been used as the unit of analysis for this study (Yin, 2009), as also supported by Baden-Fuller and Morgan (2010): business models allow “to generate concepts and theories and to investigate empirical domains”.

The resulting framework is being used in the Analysis part of this paper, where a cross-case analysis of the cases compiled from the interviews is performed in order to answer research questions. The research questions are closely related to the structure of the analysis model, as

each of the four pillars of the framework relate to a particular question: market offering – RQ2, technology – RQ3, network architecture – RQ4, and revenue model – RQ5.

6 EMPIRICAL FINDINGS

In order to understand what is happening on the micro-level in the Swedish market regarding mobile wallet, twelve interviews have been conducted. Out of them, eight interviews were used to build cases for this explanatory case study (Yin, 2009) and are presented further in this chapter. The remaining four were used as supporting material for analysis; summaries of those interviews can be found in the Appendix.

The interview respondents and interview material have been anonymized due to non-disclosure requirements by some of the respondents and potentially sensitive data revealed in the interviews. Certain information was deemed to be confidential, including financial data and projections, thus it was not used in the work. This was done in accordance to Yin's (2009) view on the case identities: "anonymity is necessary on some occasions".

The interview material has been summarized into separate business cases according to the scheme provided below in order to ease the cross-case analysis. The cases are structured so as to reflect the analysis framework, i.e., Market Offering and Technology, Network Architecture, and Revenue Model parts correspond to respective parts of the framework. The first three parts of the case structure also help answering RQs related to the analysis framework (RQ2-5), while the Strategic Aspects and Market Overview parts provide data for answering RQ1. The structure of the cases is as follows:

- Market Offering and Technology
- Network Architecture
- Revenue Model
- Strategic Aspects
 - Competitive position
- Market Overview
 - Current situation
 - Future outlook

Disclaimer: during the interviews the respondents have been asked to reveal their personal opinions, so the facts and opinions recorded do not necessarily represent the official standpoint of an organization.

6.1 Case A

Company A is a technology provider serving the issuers a MP solution. Company A has released their first product related to mobile payments several years ago.

6.1.1 Market Offering and Technology

The product is “a technology platform, including all the processes. It is not ready made, but can be quickly customized (one big customer took 3 months, for example)” (Respondent A, 2012). For instance, a bank has the contract with the merchant and customers, whereas Company A provides all the technology needed – the code for the terminals, customized and branded app for the smartphones including added services that the partners want, i.e., up to 30-70% of the final solution.

Their platform is built on secure authentication. “Cloud based technology ensures high security level, also meaning that losing a phone is not an issue” (Respondent A, 2012). Company A’s “focus is payment, but [they] do other services, e.g., loyalty programme, withdrawal from ATM with mobile instead of card” (Respondent A, 2012). The solution is technology independent, so any technologies can be used. The underlying idea was that how the mobile device communicates with the POS should not matter. Company A wants to be technology independent, because their thinking is that NFC cannot be considered as ‘the mobile payment technology’.

6.1.2 Network Architecture

Merchant, issuer, account holder(s) of both sides in transactions, and the payer are identified as important of stakeholders. Issuer in the case of Company A is the most important, as “merchant just adopts the method and it works” (Respondent A, 2012). Users are also crucial partners who accept and adopt the solution. Among the most important customers banks, mobile network operators, and big brands were mentioned.

Regarding value added services, the platform is open and additional developments from other providers can be built in easily if needed. Loyalty, coupons for offers, gift cards – there is a lot that can be done: “in Norway there is a company called ValueCodes who have the

technology for that” (Respondent A, 2012), for example. The company is building a partner network currently.

6.1.3 Revenue Model

Mobile payments are a new area, so it is a new source of money. In projects Company A gets: “a one-time project fee; maintenance and support (e.g., yearly contracts); yearly fee per active user” (Respondent A, 2012). Which is comparable to how the fees are structured while using the card payments, i.e., Gemalto receives fees for their chip being used. Respondent A (2012) does not think in terms of transaction fees as revenue.

6.1.4 Strategic Aspects

It has been decided that the area of payments would be a priority. Company A’s strategic orientation is business-to-business service provision. It is their customers who would push the final product to the end users. The solution owned by the Company A works internationally and is highly scalable. The problem of going international is that it needs to be done via partners.

According to Respondent A (2012) the wallet is not needed per se, “but somehow it has become the thing that the market is selling”. However, the mobile payment is the most important. Respondent A (2012) stated that: “P2P transfer is the first move and the most interesting, because it is a function that the cards do not provide. Swish, for example, provides only P2P when they launch”. Secondly, “online mobile payment is also a good choice because the security of transaction can be increased and it is easy to add it to the stores as payment method” (Respondent A, 2012). Thirdly, the POS and vending machines are also important. To be successful, mobile payments should be not more expensive than the credit card payments because the merchants would not go for it.

6.1.4.1 Competitive position

According to Respondent A (2012), the combination of 5 aspects is Company A’s competitive advantage: “1) security – which is the most important probably; 2) ease of use; 3) flexibility – server side application, easy to update on the server, no need to push out new versions of it; 4) independence of devices – any phone, any network, any SIM, any operator; and 5) cost – TCO is low, transactions cost little”. In mobile payments the competitors can cover one or two payment situations, but the Company A’s solution covers any usage scenario. Respondent A (2012) claims this solution is the widest in terms of service availability. Convenience

including the ease of use and security were mentioned as important characteristics for the users. The weakness of the Company A's system is that it needs to be online all the time.

Company A is one of the first movers in the business of mobile payments. When they started, they "had to meet a lot of people: banks, Google, PayPal, Visa, MasterCard, etc." (Respondent A, 2012). The goal was to get the potential partners acquainted with the offering. Now that the market is developing, the customers are seeking them out themselves.

6.1.5 Market Overview

Respondent A (2012) perceives the number of players in the mobile wallet market as the number of how many parties are interested in mobile payments. The Swedish customers are eager to use mobile payments if it is secure, but the problem is which solution would be the first in the market. "Somebody has to establish a merchant network. P2P transfer services could be a gateway to the market" (Respondent A, 2012).

6.1.5.1 Current situation

There seems to be little direct competition to Company A. One of mentioned competitors, PayEx, is doing the account holding for the customers, which makes them a PSP. WyWallet, as another example, basically performs only marketing: persuade the merchants to join, and similar. Some competitors "will experience problems because they go against banks" (Respondent A, 2012).

The market is not mature as there are too few functioning mobile payment installations. Also, the lack of standards is a hinder. Company A is trying to set a standard in the market and provide the standard for free for others to use, "but setting a standard is a task of a very big scope" (Respondent A, 2012).

The popularity of NFC was also indicated as a limiting obstacle: "the big operators want to do NFC payments, they want to use built in NFC with built in security in SIM. But their starting aim is to make it work with 3 phone models" (Respondent A, 2012). Additionally, NFC is tricky, as there are two NFC schemes: one is the Google Wallet – storing credentials on special memory; the other is GSMA standard – SIM card is used for storing the credentials (Respondent A, 2012). This orientation clashes with the technology independence philosophy of Company A.

6.1.5.2 Future outlook

In the future mobile payments scene of Sweden two players are expected to prevail – WyWallet and Swish. There will be some niche players, but the aforementioned two would be the biggest.

Regarding the development of mobile wallet use, first the big players will make a move, e.g., ICA retail chain could accept and use mobile payments. “A big player like ICA would be good for the market development, because more people purchase there often” (Respondent A, 2012). Small purchases such as buying coffee were also indicated as important factor of future mobile wallet spread.

Technological background should develop as follows: NFC for POS should be available “according to an optimistic scenario in 3 years, pessimistic scenario 8-10 years” (Respondent A, 2012). The Company A’s solution could be the bridge solution until NFC is available everywhere.

6.2 Case B

Company B is a financial service enterprise that has been involved with developing mobile wallet and payment solutions for a couple of years already. The company represents a major force in the financial services market in Sweden. Company B has also been involved in multiple projects related to mobile payments and mobile wallet in the Swedish market.

6.2.1 Market Offering and Technology

The mobile payment product portfolio of Company B consists of two parts: Product 1 is consumer to business payments; Product 2 is consumer to consumer payments. Product 2 is prioritized for transactions between people and so far there is no model for consumer-to-business transactions in this case. Other potential uses for Product 2 could be public transit, small purchases where card payment is not optimal. But Respondent B (2012) stated that there is “no willingness to compete with cards with [Product 2]”. Replacing cards with Product 2 would be a gigantic project, however the customer value would not be that high. Product 1 and Product 2 are solving different needs, but as two different payment products they “need to be integrated into the context” (Respondent B, 2012). So, it depends on the market situation how the products will change in the future.

According Respondent B (2012) only the payment products are necessary to exist in the mobile wallet. “Payments, storage of valuables (not photos or ID, but receipts, warranties, loyalties, offerings, etc., related to everyday spending), keeping track of finances” were mentioned among the possible value added services by Respondent B (2012). Product 1 and Product 2 have just the payment part now, but other services are planned to be integrated in the future.

6.2.2 Network Architecture

Core partners of Company B are the banks. They are collaborating around the infrastructure to be able to provide a very clear interface to the retailers, so that the merchants do not have to do much integration. Another priority stakeholder is the merchants to develop business together with. Also, loyalty aggregators, receipt aggregators, and new marketing channel players for the phones should come into play.

Currently, Company B is trying to define the value network and discuss how to define a collaborative scheme for the partners. “There are no standards in this respect which makes it complicated, e.g., a merchant does not want to lock themselves with one provider only” (Respondent B, 2012). So the business model is not defined yet, but “there is an idea to build a third party gateway that would serve as a breaking point between the unstandardized architecture and merchants and banks” (Respondent B, 2012).

Respondent B (2012) stated that their current business model is based on existing business models for cards and payments. There is a “need to integrate into other business model contexts, but [Company B] do not go there since it is not their core business and it could threaten the merchants. [Company B] takes care of the payment and makes a platform for merchants and customers to interact between each other” (Respondent B, 2012). Company B’s position is “not to interfere with business models of other players” (Respondent B, 2012) with their market offering, but rather treat them as partners.

6.2.3 Revenue Model

The revenues are the same as in card payments in Product 1; and transaction-based revenue scheme is implemented in Product 2. Company B is not planning to provide any value added services themselves as it is outside their core business. There is no plan to charge for value added services, but additional revenue streams could be available through value added services, though. Such services could include: “‘talking back’, being always accessible

through direct access, safety from loss or theft, perceived control of purchase, handling of the mobile phone (what happens when the battery is low, screen is broken, etc.), household economy services” (Respondent B, 2012).

6.2.4 Strategic Aspects

The strategy of Company B has been summarized in three major points:

- 1) Secure the position in the value chain, both on consumer and merchant side. The payment cards are not the brand carriers anymore, and the Company B wants to capitalize on that (e.g., if a card is connected to a certain mobile wallet, consumers interact with the mobile wallet directly instead of the card).
 - 2) Protect their position in transactions of card payments and money transfers, both from consumer and merchant perspective. So, Company B needs to make the products relevant for their customers and partners.
 - 3) Find new revenue flows, new transaction sources, and reduce the cash usage.
- According to Respondent B (2012), Swedish consumers are keen on not using cash.

In order for the final solution to work well, the operations need to be performed in real time. That would require a lot of information processing, e.g., payment confirmation data at the cash desk. Therefore, a local setup is only possible at the moment, not international; although in the long-term it might be possible to deploy the solutions on the European Union level.

The Product 1 is fit to be global – the model can be scaled by reusing the card infrastructure. The Product 2 is very domestic on the other hand, but it can be implemented in different markets as well. Also, Product 1 is developed in a separate organizational part of the Company B focusing on relationship with retailers, so it is “something for merchants, but might have disregarded the consumer perspective” (Respondent B, 2012). Therefore, since early 2012 Company B has redefined the development to include the end-user needs.

6.2.4.1 Competitive position

As a first mover, Company B experienced a lack of cooperation, but they are in progress of getting other market players to collaborate: “For example, [a potential solution could be] to come up with a generic platform for using all kinds of cards [...] the merchants and the customers want to be with all the banks” (Respondent B, 2012). It also indicates that is hard to

push a proprietary product to the market. Respondent B (2012) also believes that better products need to be built.

It was stated that the Company B competes with card payments and cash, not other players such as WyWallet or Seamless, for example. Company B's competitive advantage is the big existing user base, consisting of both private customers and businesses. "The customers expect [Company B] to play in the mobile payments area" (Respondent B, 2012).

A competitive disadvantage is that the end users do not want to move their money to the wallet – direct access to the bank account would be preferred. Also, there is risk that the consumers might become used to other wallets, especially if other solutions target low value but high volume transactions (e.g., purchases at coffee shops). Then the competition would be channel related – the competitors could start offering other services, because the consumers start moving their everyday spending into other channels than the ones provided by financial service firms. So, Company B needs to make an effort to secure their revenue.

6.2.5 Market Overview

"There are certain user prejudices when it comes to mobile payments. Payment has no value of its own – customers can pay with a card, why bother with the phone" (Respondent B, 2012). The customers also express a need for simple and understandable processes. But after all, Respondent B (2012) sees a demand for introducing new payment products: "the mobile payment is a natural evolution of card payments in this respect" (Respondent B, 2012).

6.2.5.1 Current situation

Company B conducted pilot projects of Product 1 with retailers in Sweden. The plan to get a certain number of pilot users was accomplished and no technical malfunctions were observed. So from the technical perspective the mobile payment pilot projects were a success. When the end users were asked if they would like to continue paying with Product 1, they responded positively. The Product 1 currently is a beta version and only considered to be applicable for early adopters, but piloting helps to future proof the product for broad market acceptance. The PayPass solution from MasterCard has not been included in the studies or pilot projects, so it is unclear yet how it could influence the competitive situation.

"There is a competitive pressure that is why the strategic aim is to protect the place in the value chain" (Respondent B, 2012). Many niche products are eroding the margins and are

slowly taking over Company B's existing market share. Additionally, low availability of development competencies at Company B is another barrier for market penetration at the moment: "the business developers are busy with loads of tasks" (Respondent B, 2012).

6.2.5.2 Future outlook

Regarding the technological solutions, Respondent B (2012) did not indicate that there is going to be one 'winning solution', because of different technical backgrounds in different regions. One of the prevailing technological infrastructures could be the card payment schemes, but "there will be more and more competing infrastructures, such as Apple, Google, PayPal; which can result in an entirely new solution" (Respondent B, 2012).

Respondent B (2012) thinks that there will be standards developed around the mobile wallet in the future. NFC's success as a standard is questionable on the other hand. "MNO's, trusted service providers, etc. – many believe the NFC would be the standard" (Respondent B, 2012), but Respondent B (2012) thinks more sceptically about that.

The long term vision of Company B is to "pilot MasterCard's PayPass that will be introduced globally, focusing on m- an e-commerce" (Respondent B, 2012). This could help achieve ultimate goal of Company B's mobile wallet – a broad target audience and market acceptance.

6.3 Case C

Company C provides a mobile wallet solution to the market. It was established by a collaborative effort of several companies. The end-users are able to download a smartphone application to use the wallet on their devices.

6.3.1 Market Offering and Technology

The major aspect of Company C's offer is that the service has to be relevant to end-users. Existing alternatives in the market are strong in different ways, but the key to success for Company C is SMS payments. Company C's target market is the consumers paying by SMS as the company has the access to a large portion of the Swedish population. According to Respondent C (2012), people using SMS payments often do not realize the fact that it is a mobile payment, so they are asked to move their payment activities to the proposed mobile wallet. For businesses, the mobile wallet provides the ability to identify both ends of a transaction and thus gather important customer data.

From the technological perspective, Company C “tried the NFC stickers, already were familiar with SMS payments, and also tried QR codes” (Respondent C, 2012). Company C is sceptical towards QR codes as these have a “learning curve and are relatively slow to operate” (Respondent C, 2012). But, the alternative NFC technology is not completely viable yet as well. So, there are two technological solutions that can be used with Company C’s product:

Using SMS – a user can send a code which would work even without a smartphone. The smartphone app, however, simplifies the sending of an SMS if the mobile wallet is selected as a checkout mechanism.

Using NFC – at a POS, a buyer is able to use the mobile device at the NFC terminal. PIN control is optionally applied above certain value of transaction or by user choice.

6.3.2 Network Architecture

Interesting aspect of Company C is that it has been established by several market actors. As such, Company C is basically used to outsource payment services in order to ease compliance with the regulation. However, it still benefits from the existing user base of founder firms.

The partner network is complicated to define: “internet and digitalisation makes almost every company to reassess their line of business and business model thus the borders and delimitations are becoming blurred these days” (Respondent C, 2012). Partners and competitors can be both: iZettle for example is a competitor, despite the fact that Company C could work together and integrate both solutions into a product for merchants. According to Respondent C (2012), Company C could be a partner to credit card companies. Respondent C (2012) also indicated that the big brands are an important target as partners, but those not necessary are fast enough to adapt to changes in the marketplace. For example, SF Bio is one of the most popular apps in Sweden, so Respondent C (2012) thinks they could be a great partner. Company C’s solution leaves out the banks altogether.

6.3.3 Revenue Model

All the revenues come from the merchants who are taxed a transaction fee. The end-user has a free account and free transactions, except the person-to-person transactions which would be charged for in the future. “The question remains if the free-for-customer revenue model is feasible or not” (Respondent C, 2012). Respondent C (2012) also mentioned that it is still under consideration whether it would be worth it to charge for transferring funds to the wallet account or not. According to Respondent C (2012), the payment services are not enough to

sustain the business and merchant transaction revenues are questionable as the sole revenue source. Therefore, value should be extracted from other stakeholders as well.

6.3.4 Strategic Aspects

Company C employs a three-step strategy:

- 1) Migrate mobile payments existing today (SMS payments mainly) into their solution, focusing on public transit tickets, as “there is an established behaviour when people use the phone to buy such services as tickets, hourly parking, and donation” (Respondent C, 2012).
- 2) Make their solution relevant for both merchants and customers by being present in online stores and replacing the checkout with a credit card or an invoice.
- 3) Become relevant in POS of physical stores.

This results in three different perceived categories of payments: SMS, online, and POS. From timing perspective, they all were started at the same time, but “clearly, cash will not be replaced in a short time” (Respondent C, 2012). The future plan is to make the mobile wallet more relevant for the merchants and the customers than other forms of payments; for example, by providing feedback, targeted marketing and personalized discounts: “the card does not tell how much money is left on the user’s account, whether the transaction succeeded, etc.” (Respondent C, 2012).

6.3.4.1 Competitive position

Key success factors of Company C’s solution are: “convenience (speed and ease of use) and availability” (Respondent C, 2012). The competitive points of Company C’s solution are the potential customer base, speed of transaction, and versatility for the user: “the mobile wallet can be associated with a credit card, but also can be used for invoices at the end of the month, thus making the phone either a substitute or a complement” (Respondent C, 2012). As another competitive advantage, low cost was mentioned, which would be relevant “for the user and some of the merchants, probably more for the smaller ones” (Respondent C, 2012).

6.3.5 Market Overview

It was “very important to launch the solution as soon as possible” (Respondent C, 2012), so that the company could establish the consumer behaviour and to become the money transfer tool. The drawback of this approach is low willingness to adopt the solution from the

consumer side: “there is an interest, but people are somewhat sceptical” (Respondent C, 2012). Other mobile wallets on the market also have suffered more from this ‘wait and see’ attitude.

6.3.5.1 Current situation

One of the drivers of the development of the mobile wallet was the previous success of SMS payment business. Secondly, the regulatory pressure from the EU with the PSD and E-Money directives resulted in some companies being regulated as financial service institutions. So for them it was better to outsource payment services to comply with the regulations easier, thus the decision to create Company C was made. Business development was the third development driver, because smartphones have created more opportunities to make money: “the market potential is estimated by attributing at least one online purchase per month per individual in Sweden” (Respondent C, 2012).

One of the major obstacles in the market currently is that potential partner companies are not such fast movers as they might appear when it comes to adopting mobile wallet. Another issue for mobile payment spread is that the credit risk becomes higher for the service provider and the SMS purchases make the mobile phone bill grow which harms the brand image of mobile operator, so the operators do not want mobile payment transactions on their bill.

6.3.5.2 Future outlook

“Integration of loyalty cards and programmes such as coupons, offers, bonus and loyalty cards is eminent, enabling people not to carry their physical cards anymore” (Respondent C, 2012). Virtualization of the commercial life means the physical invoices and receipts would cease to exist, and the mobile wallet could become the repository of receipts, invoices and purchase history. “The next step could be to provide the analytical tools to analyse the household behaviour” (Respondent C, 2012).

From a technological perspective, NFC would be the winner. Respondent C’s (2012) standpoint is a belief in NFC, as the penetration of enabled devices is much quicker than it was expected before: “on the merchant’s side the terminal for cards wear out, so merchants need to invest in new ones quicker than thought before” (Respondent C, 2012). But the NFC ecosystem is still uncertain: operators want the solution with the NFC in the SIM card which is a large investment. Company C wants their solution to function even with the NFC inbuilt in the phone. Optical Character Recognition technology could also be a future option. Another

technology could be RFID stickers, but Company C has no economic interest in distributing those.

Respondent C (2012) believes that in 3 years the mobile wallet will be up and running in the Swedish market, if the relevance of market offering is increased: “the make-or-break factor is the inclusion of it in online purchases to sustainably grow and be absolutely relevant” (Respondent C, 2012).

6.4 Case D

Company D is a financial service enterprise. The company represents a major force in the financial services market in Sweden. Company D has also been involved in several projects related to mobile payments in the Swedish market.

6.4.1 Market Offering and Technology

Company D does not develop any particular mobile wallet solution on their own. However, they participate in collaborative efforts of developing such a product with other actors of financial service market.

Respondent D (2012) highlighted that a mobile wallet is not a payment instrument: “it is a storage and access instrument”. Respondent D (2012) thinks this is often missed out from a narrow stakeholder point of view by “thinking it is the whole solution for everything”. In the long run, Company D would have to develop a proprietary mobile wallet app where for example VISA and MasterCard would be accessible as payment instruments. Respondent D (2012) recognizes that “there was a general gap in person-to-person payments, and real-time payments”, thus, Company D is investigating that as well.

Essential element of a mobile wallet is “access to instruments, such as payment and authentication, coexisting with coupons and other things. The mobile wallet itself is not a part of the business model as it only holds different payment instruments or other facilities” (Respondent D, 2012).

6.4.2 Network Architecture

Respondent D (2012) does not see that the parties already playing a role in payment service provision would change much due to mobile wallet, but: “there will be newly added roles – e.g. with contactless payments when one downloads card numbers to the phone (TSM role)”. New roles would appear when the solutions require them, especially in the technical value

chain. “But they [technology providers] are not part of the payment, they are in other areas” (Respondent D, 2012). The mobile wallet business model should be more related to connections in the value chain: “TSM, secure element, who pays what and to whom” (Respondent D, 2012). However, it was mentioned that the payment services business model and network architecture at financial service institutions is unlikely to change.

Company D does not aim to expand their core business in terms of value added service provided through the mobile wallet. This would probably result in more collaboration with other businesses that Company D has not been in close contact before. Company D would also trust VISA and MasterCard to develop a technology from the mobile payments perspective.

6.4.3 Revenue Model

Mobile wallet is not a potential source of revenue for Company D as “the payment value chain is well established” and “mobile wallet is just a part of normal development of the channel” (Respondent D, 2012). Additional revenue streams from value added services are not Company D’s area of interest as well.

6.4.4 Strategic Aspects

Company D regards the mobile wallet only as a channel for reaching the customers and providing them existing services: “different ways should be there to access various services” (Respondent D, 2012). Still, Respondent D (2012) is sceptical that customers would show much interest in the mobile wallet. Company D is currently deciding to what extent and what services the customer should be able to access via mobile devices.

As mentioned before, the company would trust card scheme providers to develop the mobile payments. “VISA calls it a wallet” (Respondent D, 2012); however Respondent D (2012) is not convinced that it would be the wallet of Company D’s choice – the mobile payment solutions from aforementioned manufacturers would probably be only a part of Company D’s proprietary mobile wallet. “To call something a mobile wallet it has to be so much more than just getting access to a payment instrument. And that cannot be provided by VISA or MasterCard” (Respondent D, 2012). So, Company D has to look into how they will define their mobile wallet. Respondent D (2012) thinks that the future mobile wallet would be similar to the physical wallet nowadays.

6.4.4.1 Competitive position

There is a lot of buzz in the media about “high-tech and fancy things, but in the real world [...] it is just about storage and access in a convenient way” (Respondent D, 2012). Regarding the mobile wallet, the Respondent D (2012) stated that it is just another channel or a ‘wrapping’ for providing services to consumers from Company D’s perspective. The main question is “how one will be able to access [the services]” (Respondent D, 2012).

According to Respondent D (2012), consumers do need new kind of access to services, and since there is existing infrastructure in place, it is best to develop on it. The convenience factor is very highly rated by the customers: “if [Company D] cannot [provide] existing services in a convenient way – that would be a competitive disaster” (Respondent D, 2012). The financial service providers “need mobile payments in the future – not from a fancy analytical point of view, but for the real factor of trust” (Respondent D, 2012). A good reputation of existing Company D’s products might provide an advantage in this respect.

Company D is not planning to be a first mover in mobile wallets. The differences between mobile wallet solutions would probably disappear when the market has matured: “for the wallets it will be very much a copy-paste thing” (Respondent D, 2012). They would try to have as good or better offer than everybody else on the market.

6.4.5 Market Overview

Swedish market has no specifics that would hinder the expansion of the mobile wallet: “the users are very keen to test new things, highly trusting payment service provider” (Respondent D, 2012). The development in the mobile payment area is happening more on the side of the consumer than on the merchant, but “even for the shops – they are very eager to move ahead. [...] Sweden is a positive market to act upon” (Respondent D, 2012).

6.4.5.1 Current situation

Respondent D views the market situation as rather hectic and lacking direction at the moment: “The demand for mobile payment solutions is a combination of a customer need and mobile payments being a ‘trend’ at the moment – other players are doing it. Otherwise the demand cannot be explained. It is a gold rush right now in the market – everybody is out digging, but no one knows where they will end up. It is mostly IT related companies who are out trying to capture value now, but the banks and other actors are thinking how to place mobile payments

into their service offering, how it would affect risk and availability. The market is very messy now, one cannot see where we are heading” (Respondent D, 2012).

Respondent D (2012) voiced a rather critical opinion on the existing mobile wallet solutions: “Wallet is a buzzword; the definition here is even fluffier. WyWallet for example [...] is called a wallet, but it is not a wallet at all. It is one part of a wallet to be”. There are many solutions being developed, but the provider firms often represent very limited parts of the value chain, only thinking about their business and small parts of the overall solution which Respondent D (2012) sees as a general idea of a wallet. “In a wallet one should have all different payment instruments, different cards, and other internet banking applications, coupons, loyalty, ID. Still, no one in the market is there yet” (Respondent D, 2012).

The new legislation encourages open competition and new entrants, but “it is important that the prerequisites for them are the same, regardless of their size everyone should play the same game in the same playground” (Respondent D, 2012). This results in market fragmentation at the moment and “the EC has a very counterproductive standpoint that encourages all kinds of newcomers and tries to create standards at the same time. Yes, there needs to be innovation stemming from new players, but one needs to be able to see that being only in own business area does not encourage collaboration in a broader perspective” (Respondent D, 2012). The standardization is important and the ambition to implement it should be in everyone’s interest, according to Respondent D (2012).

Respondent D (2012) was rather sceptical about the role of established financial service institutions being challenged by new entrants: “there is room for special segments, but this is basically the payment service, and the reason for the customer to abandon their regular service provider is probably not that there is a small player providing a new service. Companies like PayPal step out of their normal business and want to be a part of every payment situation in the whole world although they have been in very closed segments up till now. That could be a bit of a concern” (Respondent D, 2012).

According to (Respondent D, 2012) “it is not relevant to speak of wallet as a part of competition, it is more about payment instruments. It is essential thing to extract from discussions – otherwise, it will be a war of technical solutions, and this is not about technical solutions. It is about what lies beyond making use of the payment or other instruments in the wallet”. So, the basis of the competition should be what resides in the wallet.

The barrier to wide acceptance of mobile payments is low adoption, despite the existing standards for enabling transactions and the infrastructure being at least partially in place. Also, it is somewhat hard to penetrate the market: “who should finance new terminal in the stores, for example? That is more of a problem that new entrants might have” (Respondent D, 2012).

Also, it is important to recognize the hardships for the new entrants creating new brands in comparison to existing players. “It is like starting a new railway and building a new infrastructure for it. It would be much easier to tag along with what exists and have a good business proposal, than reinventing it” (Respondent D, 2012).

6.4.5.2 Future outlook

Respondent D (2012) does not see any technology as the winner in the future and is rather sceptical about NFC: “Naturally there will be NFC, but one has to see that in Sweden there is not so much need for NFC – transactions online are prevalent and fast”. Respondent D (2012) also thinks that the consumers will definitely adopt the mobile payments, but “in the beginning they will probably have to live with several different mobile payment apps before they get a mobile wallet worthy of the name”. Lastly, the payment service value chain is not likely to change.

6.5 Case E

Company E is a provider of technological infrastructure for mobile payments.

6.5.1 Market Offering and Technology

Company E offers a hardware infrastructure (POS terminals) as well as a software mobile wallet solution for mobile devices. The software works by integrating user account into an app on a mobile device. The payment functions are carried out with the help of NFC stickers attached to the phones or a code-verification process. “Person-to-person transfer, payment at POS, payment online, payment at a vending machine, and payment within an app” – these are the usage situations covered by the proposed solution (Respondent E, 2012). Company E also has an application for the merchants providing the functionality of a cash register.

Delivering the infrastructure was a reinvention of the business model. The possibility of additional services, such as “coupons, gifts (e.g., Wrapp), loyalty cards, mobile authentication

devices, tickets” (Respondent E, 2012), to be included in the mobile wallet is also part of Company E’s market offering.

6.5.2 Network Architecture

Company E wants to be and positions itself as the value network player that does not interact with end-users; that is left for the other companies. The company deals with business customers who want to acquire a mobile wallet or a mobile payment solution.

6.5.3 Revenue Model

Transaction fees are the only source of revenue from mobile wallet. Company E only provides infrastructure otherwise.

6.5.4 Strategic Aspects

Company E provides a technological solution for mobile payments, but leaves it to other organizations to market it to the users. The company only deals with corporate clients, but when they developed the concept of their offering it was supposed to be “appealing to merchants as well as the end-users due to its ease of use, high control and simplicity” (Respondent E, 2012).

6.5.4.1 Competitive position

The competitive advantage of Company E’s solution is “the unique working package in the market as well as a broad service portfolio: e.g., invoicing could be integrated” (Respondent E, 2012). The corporate clients choose their solution for these reasons.

So far, Company E is “the only one to offer full infrastructure for mobile payments” in Sweden (Respondent E, 2012). There are similar providers in the market, but Company E differs by being only an ingredient-brand, not an end-user label.

6.5.5 Market Overview

“The phone is becoming a tool for everything” (Respondent E, 2012). Convenience is important for consumers: “they want to do same things through different channels, and use one device” (Respondent E, 2012). The mobile phone is becoming increasingly popular for these reasons, and should be used instead of a wallet.

6.5.5.1 Current situation

Company E has successfully carried out a pilot project in Sweden with a limited number of merchants and users, where they tested the mobile payment solution’s viability. “A successful

trial is now used to prove that mobile payments can work and to demonstrate the added value. [...] The key is to provide an instrument that works” (Respondent E, 2012).

Company E feels confident about their customer base which provides a strong position in the market. Also, the company’s portfolio of payment services is strongly positioned compared to competitors in Sweden. As stated by (Respondent E, 2012), they “have the experience required to succeed – although it is not necessary, but specialization might help (for example, only operating in certain region)”.

“Convenience of use might encourage users to leap between channels” (Respondent E, 2012); therefore, the barrier is not being available in all the channels yet. Covering multiple usage scenarios would help adoption of paying with the mobile phone as well.

Regarding the legislation, Respondent E (2012) stated that it is harmonizing the business side rather than the technological part of the mobile wallet. Respondent E (2012) regards the security aspect of mobile wallets to be a point of parity in among various solutions rather than a differentiator.

6.5.5.2 Future outlook

Company E believes in NFC as the future technology: “the forecasted spread of NFC should be rapid and it has more uses, is secure and fast” (Respondent E, 2012). In the future QR codes and NFC could not really coexist, at least not in the way they are used today: “QR codes are not fit for every situation” (Respondent E, 2012). NFC is regarded to be more suitable as a means of paying, while QR codes are thought of more as a means of obtaining information about the shopping basket. “In the end, the technologies can coexist but for different purposes” (Respondent E, 2012).

According to Respondent E (2012), the winning solution for the mobile wallet would need to be “multichannel, fast and secure”. Also, the “solutions in the future should interoperate, presuming there will be more than one winning mobile wallet solution” (Respondent E, 2012). The future evolution of mobile wallets could probably be compared to the evolution of card payments acceptance.

“In 5 years there will standards in the industry, but multiple solutions” (Respondent E, 2012). According to Respondent E (2012), it is not reasonable to say there will be only one solution in the market, more likely there would be three or more different ones. Consolidation of actors

in the market might happen in the future, while the critical mass of mobile wallet users is expected to be reached in 5 years.

It is unclear what the position of big international players would be when their solutions would enter the Swedish market. But since they mostly use a wrapping for card payments, maybe there would be room for local players, although that is still a threat for existing business. “It depends a lot on how well one can be a global player but still satisfy the local needs – maybe it could lead to three different solutions: one local, one glocal, one global?” (Respondent E, 2012).

6.6 Case F

Company F is a provider of payment solutions. It has been functioning in the international payment services market for several years already. The company is involved in many projects in the Swedish market and internationally, some of them directly related to mobile payments.

6.6.1 Market Offering and Technology

Company F offers a mobile wallet app that is optimized for various devices. Additionally, the company has a solution for the merchants to accept card payments. Their solutions also allows operating mobile payments securely without storing or connecting any information related to the credit card in the mobile device.

Another important part of Company F’s market offering is security due to protection for transaction parties that the company provides. The provision of security measures means there is “a lot of work to prevent fraud, and [Company F] have a very small fraud rate, especially if compared to the number of credit cards that get hijacked in Sweden per year” (Respondent F, 2012). The security measures of Company F protect the buyers and cover the merchants from credit card fraud risk.

Company F’s value proposition includes fast, easy, secure and global payments. (Respondent F, 2012).

6.6.2 Network Architecture

Company F works with various partners, for example, in the US they partner with a company providing terminals in the retail outlets where store clients can enter a mobile number and a PIN code to pay. Many retailers are considered as the company’s partners as well.

Company F's business unit functions are split among several countries. Although the company is big, they are "agile, people are flexible and experienced" (Respondent F, 2012). Respondent F's (2012) view is that operating in different countries is beneficial, as "local people can help customize service for the local markets".

Company F strives to be the full service provider and vertically integrate the value chain to "get more contact with the consumer, as well as to build a more secure value chain" (Respondent F, 2012).

6.6.3 Revenue Model

Company F tries to make the fee structure very transparent, so that the customers are not confused later on. "There needs to be trust", Respondent F (2012) explained the reasoning. According to Respondent F (2012), "augmented services and transactions are equally important" as sources of revenue.

6.6.4 Strategic Aspects

The reason why Company F is engaging in pilot projects to try out different methods of payment and collecting feedback is "to listen to people's opinions" (Respondent F, 2012). This helps the company to build competences and follow up emerging market trends. Company F's experience and high growth rates in the area of mobile payment solutions date several years back.

The company has a bank licence for operations. They did not choose to be a payment service provider as "it is easier for the expansion, safety, etc." (Respondent F, 2012).

6.6.4.1 Competitive position

Company F has a global presence in payment services: "the only global payment service provider, bypassing the barriers of different card systems" (Respondent F, 2012).

Currently, Company F's biggest focus is the mobile segment. Company F wants to get the EU and the rest of the markets mobilized. Also, they are thinking about additional services: "there are already different loyalty programs in place in different countries where the company operates" (Respondent F, 2012). Another part of the company's strategy is "trying to fill in as many slots of the payment market as possible. The merchant or the buyer does not have to bother when using [Company F's] solution" (Respondent F, 2012). Company F is able to

leverage the strength and awareness of their brand: “in Sweden people also know it” (Respondent F, 2012).

6.6.5 Market Overview

Company F is covering a large part of mobile transactions in Sweden (Respondent F, 2012). Also, Swedish people are very safety oriented, which is important for mobile wallet.

6.6.5.1 Current situation

The situation in Scandinavia seems positive: “the business is booming, a large number of active accounts, Scandinavians purchase from abroad as well” (Respondent F, 2012). Some Swedish retailers are already Company F’s partners. Additional enabling circumstance is that Sweden is the biggest ecommerce country in Scandinavia.

“People would love to try mobile payments – they are looking up goods on their mobiles, but not committing to the purchase”. Thus, Company F faces a challenge to make the consumers use the mobile phones for conducting transactions.

6.6.5.2 Future outlook

It is unclear, how the payment world will look in the future – that is the argument why Company F is trying out different kinds of solutions: “it is hard to have a universal solution” (Respondent F, 2012). The technological solution of the future depends on the consumers, as they would really push for what would be the easiest to use. Respondent F (2012) hopes that Company F can spot the opportunities and pursue them in time.

A question for the future technology of the mobile wallet is if the solution would be an app or if a mobile web approach would be adopted. Still, the solution “needs to be fully mobile – sign up, transfer, coupons, etc. No need to fill forms, use internet bank [to start using the solution] – otherwise it is not completely mobile” (Respondent F, 2012).

Regarding the competition in the future, Respondent F (2012) stated that “the real difference will be the payment data”. Consumer data would be important in the industry, as it is relevant in helping the merchants target their customers directly, providing: “digital receipts, loyalty programmes, gift cards” (Respondent F, 2012).

In Sweden there is room for several players: “two to three key players, maybe some niche players also, but the latter not accounting for the big mass of users” (Respondent F, 2012).

The critical mass of mobile wallet users is here already, and the mobile wallet market prospects are evaluated positively: “before 2020 there will be 50% market adoption” (Respondent F, 2012).

6.7 Case G

Company G is a provider of mobile payment solutions. The company has been active in the mobile transactions field for more than a decade, starting with prepaid solutions and moving into mobile transactions and person-to-person transactions.

6.7.1 Market Offering and Technology

Company G’s solution is a generic backend that connects bank accounts, and loyalty programmes. Company G “is currently deploying NFC support. It works using a passive NFC chip or an active NFC terminal” (Respondent G, 2012). The system identifies where the transaction is taking place by any means available, the user’s phone transmits its location to the transaction switch and is identified as ready to pay. The seller processes the transaction and the invoice is sent to the transaction switch where the buyer and seller are matched. Verification is sent both to buyer and seller and a confirmation of payment takes place. The solution uses real-time clearing with the bank/account provider of the buyer. The proprietary transaction switch technology developed by Company G “allows low cost operation; the platform is a new technology which is very scalable and has a reliable backend” (Respondent G, 2012). Banks have their own account in Company G’s app, so “there can be branding inside the app” (Respondent G, 2012).

Respondent G (2012) also claims that Company G is leading the technological development race: “a technology that is easily available in many places, [they perform] clearing themselves, have the best offer for the merchant cost-wise – no installation cost, no hardware need, no time-bound contracts, half the transaction fees, quick ROI; and best user benefits – free and most convenient to use”.

According to (Respondent G, 2012), the solution allows overcoming many of the security issues that are present in a regular transaction scheme: “card numbers are not used in the system [...]. Even if the solution could be hacked it is protected as it uses a public key infrastructure. Therefore, security level is much higher than that of a card”.

User friendliness is very important to Company G, thus they apply the same usage scenario in every payment. In their portfolio the company has “POS, m-commerce, e-commerce, person-to-person transaction payments, and bill payments” (Respondent G, 2012). Also, QR code becomes a vehicle to make a direct purchase, as “direct payments from TV commercials, for example, or the QR codes on subway advertisements are made possible” (Respondent G, 2012).

As additional services, “viewing account balance is important, digital receipts to have the warranty or store the receipts, automatic loyalty programmes, offers, etc.” (Respondent G, 2012) are available in the Company G’s solution.

The value proposition of Company G’s solution is as follows: “for the consumer it is completely free payments and the merchant pays half of VISA or MasterCard fees” (Respondent G, 2012).

6.7.2 Network Architecture

In a typical card payment, the acquiring bank fetches the money from the issuer. Company G has changed that, bypassing the card payment schemes, as they have “a forward payment by sending the order to the issuing bank and asking them to clear it. Real-time clearing but not settlement is taking place. [...] The payment transaction fee is only shared between the transaction switch and the issuing bank. For the card schemes it is not good” (Respondent G, 2012). The real-time clearing means that they “need to connect to all the banks and other account providers” (Respondent G, 2012). But currently Company G collaborates with very few banks.

Company G is running a pilot project with “the world’s largest prepaid product company operating in 38 countries to move from paper coupons to digital vouchers” (Respondent G, 2012). Company G also does loyalty programme integration with partners and it is part of their revenue streams.

6.7.3 Revenue Model

Revenue streams consist of several parts: credit “the invoice is free up to 45 days, but the payers who are late get to pay a reminder fee. Due to the interest rates this business is very profitable” (Respondent G, 2012). The transaction fee is another part of revenues: “the card scheme fees are gone and the bank is the only party to share the fees with” (Respondent G, 2012). The third revenue source is “advertising/offers/loyalty” (Respondent G, 2012); the user

information related to this is very sensitive so the company needs to handle it very carefully. One of the revenue streams is split with the bank, and credit revenues are split with a credit institution.

6.7.4 Strategic Aspects

Mobile payments are Company G's core business, while the mobile wallet is perceived rather as storage for value. Company G provides generic mobile payments, replacing credit cards, debit cards, and other forms of payment. They have "experience in POS integration, reaching out to the merchant, etc." (Respondent G, 2012).

Company G is set to replace card payments, but they are "creating opportunities for other kinds of payments and enabling micro payments. Micro payments do not cost a fixed fee, so the merchants have more motivation to accept those" (Respondent G, 2012). However, Respondent G (2012) does not think that the cards will be replaced completely, but Company G's solution might become a dominant scheme of payment. Merchants who choose to accept the solution will encourage the users to pay with the mobile phone which can facilitate its position as a dominant payment method.

6.7.4.1 Competitive position

Company G positions their solution as follows: "it is a generic solution, applicable to m- and e-commerce. As an ecommerce site, one doesn't even need to encrypt anything, the security level is the same as POS. In m-commerce a user gets a button or a link for performing a transaction" (Respondent G, 2012). Company G is "among the few in the world who have a generic payment solution" (Respondent G, 2012).

6.7.5 Market Overview

Respondent G (2012) stated that Company G is present in 26 countries today. "The solution is built to be international from the start and trials are running in Romania and UAE" (Respondent G, 2012).

6.7.5.1 Current situation

It is perceived that now is the time to pursue market opportunities: "The technology was developed 3 years ago, but it was too early: the people were not ready, and the business model was unclear. However, suddenly everybody had smartphones, QR codes gained recognition

and people learned what it was due to advertising. So the technological issues resolved on their own” (Respondent G, 2012).

Company G is the sole provider of free person-to-person transactions, as “Swish is not going to be free” (Respondent G, 2012). Regarding other competitors, Company G sees them as mostly indirect: “WyWallet is a premium SMS payment solution; BART is based on reverse QR and thus only viable in POS to a limited extent; Google Wallet is not limited because they accept cards, but they have NFC solution so they are bound to POS; PayPal has a bit wider application with their accounts and PayPal Here, so maybe they are one of the closest competitors. LevelUP is a similar company in US – they take no charge from user, but they charge a lot for bringing in customers” (Respondent G, 2012).

6.7.5.2 Future outlook

Company G wants their logo to become a generic payment symbol, like VISA and MasterCard is at the moment. Currently, there are no standards in the industry, but there will be, in time. An important part of Company G’s system is openness, as they do not think they will be “the only player in the world” (Respondent G, 2012). Looking at the competition, no competitors perform what Company G’s solution does; thus, it is Company G’s intention to build a global mobile payment infrastructure.

6.8 Case H

Company H is a financial service enterprise. The company represents a major force in the financial services market in Sweden. Company H has also been involved in several projects related to mobile payments in the Swedish market.

6.8.1 Market Offering and Technology

Company H does not develop any particular mobile wallet solution on their own. However, they participate in collaborative efforts of developing such a product with other actors of financial service market.

Mobile payments that are card payment based are the responsibility of the division represented by Respondent H (2012). The technological choice is still being discussed, but the predominant “technological packaging for mobile payments is more or less defined to be NFC” (Respondent H, 2012). A new business model is being proposed where telecommunications and financial service industries would collaborate closely.

In order to go mobile, Company H needs to “be on par with chip and pin, but also faster, convenient, easier to use”, as sometimes chip and PIN is not the perfect payment solution: “public transport, lunch restaurants, bars – where it takes too long to complete an operation” (Respondent H, 2012). A mobile device has a user interface, so two-way communication is possible, as well as provision of additional services. Respondent H (2012) stated that the most suitable framework to implement the augmented services is the mobile wallet. The mobile wallet could be filled with value added services to cover areas related to mobile payments. It is a priority area for Company H to deliver value added services and to be competitive in this way.

6.8.2 Network Architecture

MasterCard is an important stakeholder, as this company is more or less setting the standard by building on existing card payment scheme and business model. Company H is trying to influence MasterCard to develop a good mobile payment solution, thus Company H chose not to develop a solution on their own as it would be too costly. Instead, the choice is to collaborate with VISA and MasterCard.

Company H already has “know-how and tools and skills from co-branding initiatives, so accordingly there is no need for change. Also, [Company H is] extremely open to new value added by other entities: couponing, merchant campaigns, etc.” (Respondent H, 2012). But the consumers will be the stakeholders who control what is inside their wallets, allowing the partners they prefer.

6.8.3 Revenue Model

The revenue model would still be based on card transactions. The existing card scheme based revenue model works well at the moment. If the added value services are successful, Company H would charge for those as well.

6.8.4 Strategic Aspects

Company H has “around 50 years of creating contractual relationships with consumers, cardholders and other financial institutions. For new entrants to achieve that would require a tremendous investment” (Respondent H, 2012), thus leveraging the network is an important aspect to their strategy when it comes to mobile wallet. Payment service is a low-margin and low-volume business, thus Company H focuses on large scale and low cost service provision. According to (Respondent H, 2012), the company is in the position for further growth and

customer-partner relationship building: “the extent of tools, experience, skills, products, and services enables that”. A separate entity on a corporate level is focused on such development which “also leads to good results” (Respondent H, 2012).

Company H is currently involved in developing convenient checkout for ecommerce, focusing on small screen devices. Respondent H (2012) stated that “the main goal is to stop and prevent the loss of business and reposition the organization among the mobile commerce checkout options by creating a convenient checkout method”. Company H has their own view on what convenience is for the consumers, so they can influence how MasterCard and VISA should develop their respective solutions. Currently, the focus is on remote card-not-present transactions, POS should come at a later stage. Company H is looking into solutions that the consumers would use and like – “finding that is a barrier” (Respondent H, 2012). Also, a solid business case is needed to initiate the development.

6.8.4.1 Competitive position

The target group is the consumers currently using bank cards. “For a long lasting success, the organization needs to build on current business model and contractual relationships. Trust factor can be leveraged by building on trusted existing brands. That is a ‘good enough’ solution to payment problems” (Respondent H, 2012).

Company H wants to be the first mover with mobile wallet in e-commerce. The prerequisite of this would be “an existing business model, and conformance to the brand promise that [they are] delivering – function everywhere and every time” (Respondent H, 2012). Sweden will be the country where these services would appear first.

Brick and mortar business is not worth the first mover strategy, so Respondent H (2012) stated that it would not be pursued here. Although, Company H regards brick and mortar business as a strategically important area: “big retailers such as McDonald’s and Starbucks for example want to be up to date and they need a payment service in mobile channel” (Respondent H, 2012).

6.8.5 Market Overview

“People tend to enjoy shopping, and then comes the less fun part – payment; so the more seamless and convenient, invisible, painless the payment is, the better” (Respondent H, 2012).

According to Respondent H (2012), Scandinavia is very card-usage-savvy and IT-savvy already, therefore it is a lucrative market.

6.8.5.1 Current situation

“In the ecommerce in Sweden there is a variety of payment options – direct debit, card payments, invoice, etc.” (Respondent H, 2012). E-commerce is also one of the leading areas of quick growth and there is a demand to perform ecommerce on a mobile device. “Still big volume of transaction is regular card payments” (Respondent H, 2012). Card payments are working well due to efforts from merchant and consumer, and there is an accepted level of security for this type of payment.

“The market position from the customer side and merchant side is confident, there is no competitor that could overcome [Company H] overnight” (Respondent H, 2012). However, “the number of innovations of mobile payment area in Sweden is rather high: iZettle, PayAir, Seamless, etc.” (Respondent H, 2012). Technological giants could also challenge Company H’s position in mobile wallet area: “especially Apple. Apple is a bigger threat than a Swedish startup” (Respondent H, 2012).

A current barrier in e-commerce is invoice as a checkout option. A lot of payments are made through invoicing and this means lost business for Company H. There are two reasons for this: “clumsy process of payment with the card – up to 150 keystrokes, and this is the industry standard; Swedes also like the idea of receiving the goods first and then pay the invoice” (Respondent H, 2012). Also, there are a number of problems that Company H is facing in the mobile payment and shopping areas in Sweden: “growing from nothing organically, being domestic, and not fulfilling the need of consumers to have more than a payment in the wallet” (Respondent H, 2012). This hinders making an impact on the market.

6.8.5.2 Future outlook

There is room for several solutions in the future: “there will probably be a couple of different wallets. There won’t be one single winner” (Respondent H, 2012). Respondent H (2012) is not concerned about the new entrants capturing a big market share; the new entrants would probably be strong niche players.

When it comes to leading mobile wallet technologies in the future, “best educated guess is that there will be one technological solution” (Respondent H, 2012). Also, since convenience

is very important, “an open global solution would be the winner. These are the ones that can offer the consumer most convenience. Domestic local solutions would not be the winners in the future” (Respondent H, 2012).

7 ANALYSIS

Following the purpose of the research to look into how the business mobile wallet business models are emerging from the perspective of market actors, a cross-case analysis has been conducted. The research questions were kept in mind when conducting the analysis of empirical data:

RQ1: How do provider firms develop the business models for mobile wallets?

RQ2: How do market offerings differ according to firms’ understanding of the mobile wallet?

RQ3: What technologies do provider firms prefer for mobile wallet business models?

RQ4: What value network architecture prevails in mobile wallet business models?

RQ5: How do provider firms monetize their mobile wallet offering?

The analysis part of the thesis is organized in three main parts. Firstly, the macro view of the mobile wallet as an industry and local market specifics of Sweden are analyzed. This gives an overview of what conditions impact the development of business models for mobile wallet and what are the concerns and expectations of market players and contributes to answering RQ1. Secondly, the micro level of business models is analysed. Here, the novelty aspect of mobile wallet business model development is investigated, helping to answer RQ1. Further, each part of analysis framework is investigated, helping to answer respective RQs: market offering – RQ2, technology – RQ3, network architecture – RQ4, and revenue model – RQ5. In the final part of analysis, the importance of value added services for the business model development is studied, adding to the answer to RQ1. Drawing from the analysis findings, conclusion and discussion are presented in later chapters.

7.1 Mobile Wallet in Sweden

The case study spans a variety of market actors that are operating in the Swedish market and are either already providing mobile wallet or mobile payment services (Case A, Case B, Case C, Case E, Case F, Case G), or are planning to do so in the near future (Case D, Case H). Therefore, it was decided to analyse the specifics of the market in order to get a better

understanding of the background influences for the development of mobile wallet business models.

7.1.1 Market Situation

It is generally agreed that mobile wallet is a rather fragmented business area (Molvig, 2012). The same circumstances can be observed in the Swedish market; currently, there are many players that are competing for transaction made via the mobile phone such as PayPal, PayEx, Seamless, Swedbank, and others. Also, many are trying to enter the market (Respondent 2, 2012). The case analysis has proven it to be true at the moment. Most of the respondents mentioned during the interviews that there are many (potential) competitors (Respondent A, 2012; Respondent B, 2012; Respondent D, 2012; Respondent E, 2012; Respondent G, 2012).

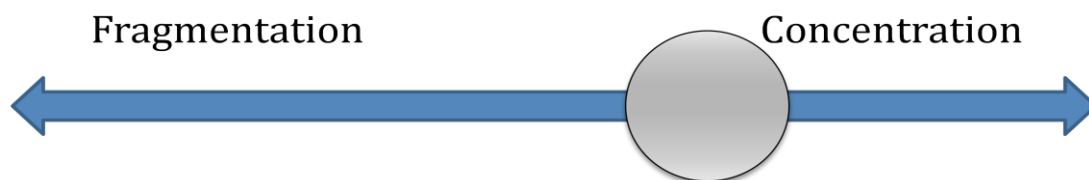


Figure 5 Market concentration predictions (compiled from interview data) *

However, while current situation represents a fragmented market, it is expected that the direction of development would turn towards more concentration (see Figure 5): “two players in Sweden” (Case A); “there will be some niche players” (Case A); “Consolidation in the market is likely” (Case E); “two to three key players, maybe some niche players” (Respondent F, 2012). This proves the assumption that the mobile wallet market is immature and is in very early stage of development. Implications for business model development are that the business models are likely to change, reflecting the situation in the maturing market.

The future of the market development demonstrates a trend that the mobile wallet or at least mobile payments are expected to become mainstream somewhere between 3-5 years, as forecasted by the majority of interviewees (see Figure 6). According to that it is possible to foresee that this period is used for strategic planning of action by the market players; and the mobile wallet and related business models are likely to experience intense development in the upcoming several years.

* In this and further diagrams, respondents' opinions are represented on spectra, size of circles indicating the prevalence of ideas or thinking. The visualizations represent a static snapshot of existing situation (2012 QIV).

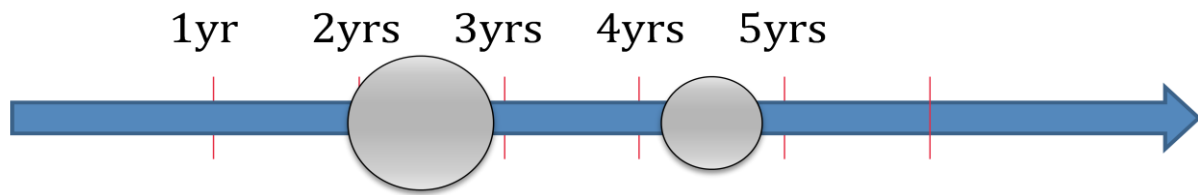


Figure 6 Mobile wallet penetration predictions (compiled from interview data)

Both the industry concentration and mobile wallet penetration projections are interesting from a business development perspective. The question left unanswered is what kind of solution would be the ‘winning mobile wallet’, and which market player(s) would be the leading one(s). This indicates a high amount of uncertainty in the early development stage. Potential future implications are numerous – ranging from intense competition and ‘survival of the fittest’, to the need of a strategic orientation that encompasses constant re-evaluation and redesign of current business models as the environmental conditions change (McGrath, 2010; Sosna et al., 2010).

7.1.2 Market Specifics

Sweden seems to be a very suitable market for developing mobile wallet services. First of all, the smartphone penetration is high: according to Google (2012), 51% of the population were smartphone owners in 2012 which not only is shaping the consumer behaviour, but also provides opportunities for businesses that focus on mobile devices. Secondly, the average consumer is open to trying out new things and is very technologically savvy (Respondent F, 2012).



Figure 7 Consumer need for mobile wallet (compiled from interview data)

However, despite such a lucrative market, the mobile payments and mobile wallet has not experienced the expected growth. Consumers welcome the idea, but there is no clear need expressed yet (Case A; Case C; Case D; Respondent 1, 2012). It can be summarized by the dominant ‘Why not?’ attitude rather than ‘I need this’ (see Figure 7). As indicated by the respondents, various issues need to be addressed first, such as security, ease of use, fees, and

availability. Also, there seems to be a dilemma when it comes to market adoption: the merchants are unwilling to invest in infrastructure because the existing user base is low; however, for the consumers to adopt the mobile wallet the acceptance needs to be high (Respondent 4, 2012; Respondent D, 2012). Therefore, these issues need to be addressed by the market players when they review their business models.

7.2 Business Models

The market is a changing place where there is a need to find new ways of conducting business. In the case of mobile payments, the technological revolution that enables transactions to be carried out using a mobile device is the change. Usually, such transformative developments in industries spawn a new generation of business models, e.g., when recorded music became digitalized (Mason & Spring, 2011). Such development can be seen currently taking place in the payment service industry with the mobile wallet emerging. An important finding regarding the current situation is that the development is rather fragmented and there are different views when it comes to a common understanding of what a mobile wallet actually should be. The development has been characterized by a number of pilot projects (Case A; Case C; Case E; Case F; Case G). As indicated by Kanninen (2009): “business model creation really seems to be the main focus area for pilots”, which further emphasizes that market players are trying to test their concepts and establish business models. The case study revealed that most of the business model aspects discovered in literature are encountered in the real world as well.

Situational aspect is illustrated by the business models being different, although the players are acting in the same market, have access to the same consumers and function under same regulations. Company G, for example, is facing difficulties due to lack of cooperation with banks, which makes their value network structure different than expected and likely impacting their decisions about the business model in the future, although the Respondent G (2012) stated otherwise: “It has always been our strategy to create a business model that improves the payment situation for the merchant. In markets with high card penetration this causes card issuing and acquiring banks to feel threatened. However we remain confident that this is the key to success and we do not have any intention to change this business model”. In Case H the company seems to be most interested in ecommerce, more specifically, online checkout for mobile devices – the situational aspect here is that Company H has been involved in a related area of business, thus their existing resources and capabilities enable them to pursue

similar opportunities in mobile wallets. Thus, the situational aspect is not necessarily detrimental: “good designs are likely to be highly situational, and the design process is likely to involve iterative processes” (Teece, 2010).

Not accurate definition of the business model has been an issue during most of the interviews, as there was a lack of coherence when the respondents were answering BM related questions. Respondent F (2012) and Respondent G (2012) were the only ones explicitly mentioning the value proposition of their companies, for instance. Thus it can be concluded that the definitions of business models are more of an implicit nature and thus are not uniform or easily communicated between stakeholders. According to Mason and Spring’s (2011) reasoning, BMs become sited in different ‘sites’ as they are communicated to stakeholders, which is important to “make sense and share understanding”. The lack of internalized business model definition should not be taken lightly because of this, and it leads to another aspect of BMs – their importance.

Business models might be *underestimated in importance*; again, as proved by the difficulty of communicating them during the interviews. Although, Respondent E (2012) communicated succinctly that the business model of Company E was delivering infrastructure for mobile wallet and providing additional service integration. Still, in majority of other cases, the importance of business model seemed to be obscured by describing the features of solutions that are superior to competitors instead. According to Teece (2010), “business model innovation can itself be a pathway to competitive advantage if the model is sufficiently differentiated and hard to replicate for incumbents and new entrants alike”. Therefore, it should be important for the market players to fully internalize what their business model is in order to make the best of the market situation.

Constantly evolving aspect of business models was detected during the case study as well – as Respondent C (2012) explained Company C’s strategy, it became apparent that the evolutionary aspect is embedded in company’s thinking: the three-step strategy requires gradual adjustments in the business model to achieve all the goals, and the respondent even openly questioned the validity of the chosen “free-for-customer” revenue model. Respondent F (2012) also conveyed the idea embedded in Company F’s thinking, that constant development of the business model is important. This was highlighted by the importance of pilot projects that help stay in touch with the market situation in Case F. Company H seems to

internalize the importance of reinventing their business model, as demonstrated with their current focus on restoring revenues from ecommerce in Case H. Respondent D (2012) on the other hand was sceptical that the business models are changing in the financial service industry, however, still granted that the change happens, especially among the technology solution providers for mobile wallets. From a theoretical standpoint, “business models often cannot be fully anticipated in advance. Rather, they must be learned over time, which emphasizes the centrality of experimentation in the discovery and development of new business models” (McGrath, 2010). This author also argues that the businesses have abandoned the notion of sustainable competitive advantage, and are instead exploiting temporary advantages. In the light of that, she claims that most of the business model design decisions are made on a discovery basis instead of by planning. Such behaviour can be noticed in some of the case study companies as well (e.g., Case F).

To summarize, the change in technological background and recent emergence of the mobile wallet should make the market players look more attentively into their business models to ensure they are successful. “Technological innovation does not guarantee business success – new product development efforts should be coupled with a business model defining their ‘go to market’ and ‘capturing value’ strategies” (Teece, 2010).

7.2.1 Novelty Aspect

This case study and previous research suggest that the business models can be divided into two groups according to the novelty aspect (see Figure 8). The first group of companies are reusing existing business models from the card schemes, while the other group of firms are reinventing the way they conduct business with mobile payments and wallet (Arvidsson & Markendahl, 2012). While these findings relate to mobile payments to a large extent rather than mobile wallet, the link between the two is further analysed in the following section (see: Market Offering).



Figure 8 Novelty of business models (compiled from interview data)

Case study participants such as Company E have reinvented their business model: Respondent E (2012) stated that the choice of providing infrastructure for the mobile wallet is a newly cultivated business model – the company has decided to distance themselves from the end users and focus on the workings behind the MW. Company G is another example of an innovative business model – according to the Respondent G (2012) they have reconfigured the value chain to bypass the card schemes. On the other hand, there are companies who strongly believe in existing business models, especially when it comes to payment services (Case D; Case H).

Additionally, there are companies that either choose or are forced to foster both existing and new types of business models. Case F is a good example of such behaviour; Respondent F (2012) mentioned that Company F engages in experimenting with various solutions in order to be able to follow market acceptance trends, while still maintaining their initial business model for the mobile wallet. Financial service institutions face the dilemma of new development among new market entrants potentially challenging their existing positions and would be forced to do the same (Case B; Case D; Case H). According to Smith et al. (2010) this is called “paradoxical agendas”, where exploration of new possibilities clashes with exploitation of existing situation. In such case the companies need to execute paradoxical strategies and manage the tensions arising from competition for organizational resources, market shares and between strategic goals to sustain complex business models (Smith et al., 2010).

7.2.2 Market Offering

The author has attempted to classify the market offerings related to the mobile wallet in the Swedish market. The resulting spectrum (see Figure 9) reflects the strategic position of firms towards the mobile wallet and ranges from the MW being regarded only as an access measure to other services (Case D), to mostly focusing on mobile payments (e.g., Case G), to regarding it as a platform for business development (e.g., Case B). During the interviews, most of the respondents have stated in one way or another that the mobile payment by itself is not an attractive value proposition by itself, e.g., “the payment function is one among other functions in a mobile wallet. Additional services attract the customers” (Respondent 4, 2012). However, in multiple occasions the focus of the business models seems to be mobile payments. Largely depending on the definition of the mobile wallet, the mobile payments fall

under this very concept as well, but the implicit dominant understanding that only payments do not constitute the wallet (Respondent D, 2012) clashes with the focus on mobile payments.

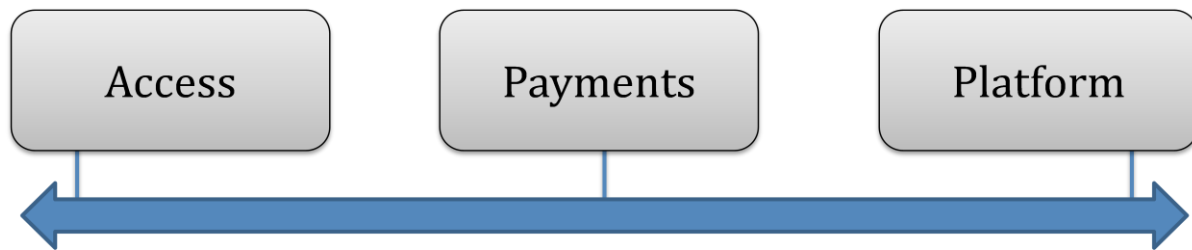


Figure 9 Strategic importance of the mobile wallet (compiled from interview data)

A question arises at this point – why are the market players focusing on the mobile payments when they acknowledge that the mobile wallet with additional services could provide the value that would motivate the consumers to adopt their smartphones as a means of payment? As Respondent D (2012) put it: “no one in the market is there yet” in regards to a full package of a mobile wallet. In order to overcome this barrier, the market players could adopt a service logic perspective, which fosters a focus on value-in-use (Vargo, Maglio, & Akaka, 2008). This could allow them to take a broader view on the value proposition from a service centred view which is very customer centred and market driven (Vargo & Lusch, 2004). In the end it is the value that customers perceive as highest that would be the best bet in the competitive game of the mobile wallet.

Mason and Spring (2011) mention activities as an important part of the market offering, comparing them to ‘services’. Furthermore, these scholars see the activities as “opportunities for differentiation and extra profit” (Mason & Spring, 2011). In the case of mobile wallet, mobile payment could be regarded as one of the activities that could be complemented by other activities (i.e. value added services) in order to reap the aforementioned benefits. The universally agreed upon among the respondents artefact – the smartphone app – gives the access to a range of possible activities. Thus, it can be concluded that the ‘platform’ end of the strategic importance spectrum for mobile wallet could be regarded as a potential aim of business model development.

7.2.3 Technology

Mason and Spring (2011) suggest that business model analysis should take into consideration four types of technology: product, process, core and infrastructure. The product technology is almost uniformly smartphone applications, with some cases allowing the fallback to SMS

(e.g., Case C). The process technology is outside the scope of this work, as mostly the core technology is as well with one interesting exception: Case G. Company G has developed a proprietary backend which includes a transaction switch bypassing the card payment schemes (Respondent G, 2012). The proprietary core technology influences the business model for mobile payment part by allowing a different value network structure, but creating a challenge to persuade necessary partners to collaborate and thus impacting the viability of their business model (Case G). Otherwise, the infrastructure technology is generally the internet; however, there is still a question of what technology would be used for the mobile wallet to communicate with the POS terminals. This seems to be a relevant issue as it potentially has an impact of how the value network is structured.

According to the case study findings, a part of current players strongly believe in NFC technology as the infrastructure technology (Case C; Case E); other respondents are not so enthusiastic about NFC for many reasons. For example, Respondent A (2012) stated that NFC is complicated due to diverse standards and in general had a view that a wallet should support any technology, agreeing with Respondent 3 (2012). Respondent D (2012) doubted if NFC is necessary in Sweden due to existence of well functioning online transactions. See Figure 10 for a graphical depiction.



Figure 10 Mobile wallet technology of the future (compiled from interview data)

The technology choice enables the development of new business models (Mason & Spring, 2011). For example, the NFC or QR technologies enable marketers to communicate with consumers in retail and other environments: “a QR code becomes a vehicle to make direct purchase” (Case G). The technologies are important for business models, as they are “part of the network of internal and external actors that practice the business model” (Mason & Spring, 2011). Therefore, the choice of infrastructure technology should be made with careful consideration of its potential effect on the future business model development. If the mobile wallet should be considered as a result of the technological progress, it is crucial to emphasise that a “technology by itself has no single objective value. The economic value of a technology

remains latent until it is commercialized in some way via a business model” (Chesbrough, 2010).

7.2.4 Network Architecture

The relationships and connexions between firms constitute networks in which they operate (Mason & Spring, 2011). The networks are important sources of expanding a firm’s capabilities and transactions take place between the network actors. While transactions are how the firm’s revenue streams are construed, Mason and Spring (2011) argue that it might be complicated to point out where and the transactions should take place. Therefore, the revenue models require additional attention and are analysed in the next section (see: Revenue Model). According to these authors, relationships are equally important, especially when it comes to business model development, which is apparent in e.g., Case F and Case G. Vargo et al. (2008) also build on network theories, advocating the service system thinking – collaborative creation of value in an interactive configuration of exchanges. Teece’s (2010) article connects the network’s importance to the development of mobile wallet, by arguing that technological innovations only succeed with good business models. This author’s ‘profiting from innovation framework’ discusses value chain integration and outsourcing approaches, with in-between solutions.

The main characteristics of different value chains for mobile wallets have been compiled in Table 1, relating to two ends of integration-outsourcing spectrum, while placing a collaborative approach in the middle. Most of the cases from this study fall under collaborative or outsourced value chain classification according to the company functions in the provision of mobile wallet services and how the service provision is organized in the value network. Case F demonstrates an attempt of integrating the value chain for the purposes of “more contact with consumer” and security (Respondent F, 2012), but at the same time Respondent F (2012) stated that in development projects Company F is collaborating with partners. Therefore, it is unlikely that in mobile wallets, where technological and market aspects are complex, there would be a truly integrated solution provider. This is in accord to Mason and Spring’s (2011) thinking that the business model should not be viewed only from an isolated firm perspective, but also taking into consideration other relevant levels of analysis.

Table 1 Value chain typology; adapted from Teece (2010)

	Integrated Value Chain	Collaborative Value Chain	Outsourced Value Chain
Strategic Direction	Focus on product portfolio	Focus on core function	Focus on core competencies
Collaborative Orientation	In-house infrastructure and development	Partnerships with other players	Keeping part of non-core functions in-house
Revenue Streams	In-house revenues	Revenue sharing	Revenue split
Capabilities	In-house competencies	Market relationships as a source of competencies	Buying missing competencies on the market
Consumer focus	Direct interaction with consumer	The coordinator interacts with consumer	The coordinator interacts with consumer

Standardization is another aspect of collaboration. According to Mason and Spring (2011), the standards emerge as the markets develop. These authors also developed the idea of standard development as a gateway for a firm to “access network counterparts' capabilities” and specialize. The majority of case study participants indicated that currently there is a lack of standards for the functioning of mobile payments and wallet. Respondent A (2012) stated that Company A is trying to set a standard in the market and make it available for others to use, claiming that the market is still immature. Respondent D (2012) on the other hand had a slightly different opinion – there are existing standards, but there is no standard that could be universally accepted. Lastly, standards are especially important in terms of international development, and the development of these mostly stems from international bodies, such as GSMA (European Payments Council & GSMA, 2010) and European Union institutions (see Appendix for more information on standardization).

From a business model development perspective, the cases demonstrate that there is a high level of interdependencies between various actors involved in mobile wallets. Company A and Company E act as providers of technology and infrastructure, while Company C assumes the role of coordinator and is in direct contact with the end users of mobile wallet, for example. Thus it should be acknowledged that the relationships are an important determinant

of “how a firm’s business model evolves” (Mason & Spring, 2011), and standards should be seen as an enabling factor for cooperation.

7.2.5 Revenue Model

The revenue model is not separated as a part of Mason and Spring’s (2011) business model framework; these authors rather leave the analysis of revenue streams as an embedded part of network architecture. However, when it comes to mobile wallet in Sweden, it is interesting to look specifically into how the revenue streams are interwoven in the business model designs. The revenue model in this case studies would be considered to be the way a firm monetizes its mobile wallet offering (Popp & Meyer, 2010), similarly to a ‘profit model’ notion of Itami and Nishino (2010): “how a firm sells”.

According to Mobey Forum (2011b), establishing the revenue sources for different stakeholders is one of the core objectives when building the business model for mobile payments. The revenue streams are unclear both for the mobile payment and mobile wallet services as the case study shows. Case A and Case E represent infrastructure providers with slightly different revenue models. In Case A the revenue model involves a project fee paid once, support fees paid yearly, and fee per active user paid yearly. In Case E the revenues come from transaction fees. Case B and Case H are examples of financial service institutions, and in both cases the revenue model would be based on existing card payment business model – the transaction fees. Respondent H (2012) also mentioned that value added services could also be charged for if they are successfully implemented. Company D is another financial service institution; however, Respondent D (2012) explained there were no potential revenues from mobile wallet for them. Case C is a good illustration of a mobile wallet service that is free for the customer, but Company C is considering charging for person-to-person transactions and account deposits in the future (Respondent C, 2012). Respondent C (2012) also doubted the sustainability of the free-to-customer revenue model, as the transaction revenues from the merchants might be insufficient, and thus mentioned that revenues probably could be received from other stakeholders as well. Case F and Case G are interesting due to their focus not only on transaction revenues, but also indicating that revenues from value added services are equally important (Respondent F, 2012; Respondent G, 2012).

A question of ‘price carrier’ arises in these revenue models (Mason & Spring, 2011). Mostly, the respondents seem to concentrate on the mobile payments as the revenue source in a mobile wallet, where the transaction is almost exclusively the price carrier. This might be

regarded as reusing the existing card payment revenue model (see Figure 11). On the other hand, in Case F, Case G and Case H, the value added services were indicated as one of the sources of revenue. However, these respondents did not specify how the revenue is earned from value added services, indicating potential issues of establishing the price carrier: what is different stakeholders' willingness to pay, whether the revenue should be generated from transactions, whether the buyer or the merchant should be charged, what kind of logics should be applied when calculating the fees and revenue sharing, to mention a few. The revenues from value added services represent a new wave of revenue models, which at the moment seem to be lacking definition and certainty.



Figure 11 Novelty of revenue models (compiled from interview data)

It appears that the revenue model uncertainties arise in the case of innovative business models. According to Respondent C (2012), such mobile wallet service providing companies are rather prone to apply the trial-and-error approach when it comes to developing their business models, partially because there is limited amount of time and resources available to perform extensive initial research of how successful one business model or another would be. Also, another important factor creating uncertainty is that the business models are untried yet, and there is few possibilities to actually test them in real life – there are limitations on the spread of use of mobile wallet both from customer and merchant sides. Also, long-term implications of business model choice cannot be estimated at the current point of time. This extends to revenue models as well. All these factors combined create a situation where the companies with novelty business and revenue models are experiencing a large amount of uncertainty and engage in experimentation or ‘trial-and-error learning’ (McGrath, 2010; Sosna et al., 2010).

7.3 Platform Thinking

Sawhney (1998) explored the concept of ‘platform thinking’, defining it as: “process of identifying and exploiting commonalities among a firm’s offerings, target markets, and the processes for creating and delivering offerings”. Literature review and the case study reveal that the platform view might be one of the plausible directions for development of the mobile

wallet. Taking mobile payments one step further and augmenting these with value added services in the mobile wallet would be in line with Sawhney's (1998) platform thinking, as illustrated in Case B, Case C, Case F, Case G and Case H.

According to Teece (2010), "the bundled provision of complementary products and services is often necessary, not just to help capture value, but to help create it in the first place". In this sense, it is possible to draw a conclusion that it is important to view the mobile wallet not as an isolated service, but rather as a platform for provision of mobile payment and value added services by exploiting commonalities in a firm's internal and external environment (Sawhney, 1998). This approach would go along with theoretical recommendations from the research on business model development – if the mobile wallet is considered to be a platform for provision of a wider range of services, a firm can freely experiment with what the service package should be. In such way, the firm is also likely implementing product and process innovation (Gailly, 2011), which allows keeping up with the market situation.

Furthermore, adopting the platform view would enable connexions (Mason & Spring, 2011), due to a common customer that the value added services is targeted to. For example, a mobile wallet technology could be also applied as a vehicle to make a direct purchase (Case G, 2012), the existing customer base could be offered related services (Case H, 2012), the brand image could be leveraged in various contexts (Case G; Case H), or a company might expand its activities in related fields through vertical integration (Case F).

According to the theories of business model development, one way to successfully innovate following technological progress is the development based on experimentation. Some authors name it the "discovery based approach" (McGrath, 2010), others call it experimenting or effectuation (Chesbrough, 2010), but the main idea remains the same – the firm needs to question their existing logics of the way the business is conducted; otherwise, there will be others who will do it. Currently, the mobile wallet providers might not internalize this thinking completely, but existing effort in development of VAS (e.g., Case F) might lead to a realization that platform thinking might bring the benefits of speed, cost efficiency, design quality, coherence, referenceability and option value (Sawhney, 1998).

8 CONCLUSION

The case study of mobile wallet in Sweden has provided many insights into the understanding of the mobile wallet and the business model development. First and foremost, few of the market players seem to internalize the difference between the mobile wallet and mobile payments, although most of them agree that the mobile wallet is meant to provide more than just a payment function. The view where the mobile payments are central to the firm's offering poses risks of low consumer adoption, as the consumers need to be motivated by additional value of the package, for which the mobile wallet provides the opportunity. The VAS seem to be the missing link towards the market penetration of mobile payments services. Therefore, the service providers should reconsider their marketing perspective – instead of adopting a narrow minded product marketing approach and putting forward the mobile payments as the core of their offering, they should focus on service logic and adopt platform thinking. This would enable them to better understand the consumer's experience of using a physical wallet and how it could be transferred to the mobile device in an attractive package. The long-term vision should include the competitiveness of the offering, which would be decided by the overall value to the customer. One should not forget that existing payment systems with all their drawbacks and advantages are rather well functioning and widely adopted in Sweden, thus a payment service only is unlikely to win the market.

RQ1: How do provider firms develop the business models for mobile wallets?

When it comes to the business model development, many market players are using tried and true models, mostly borrowing from existing payment service models. However, there are actors that engage in experimentation with the business models by reinventing them. From a dynamic perspective of business model development, the latter approach is most likely to succeed in the market. However, no common understanding exists regarding what a mobile wallet is or should be; the companies only seem to have an implicit understanding of it. Currently, the dominant thinking is still focused on mobile payments rather than an extended functionality of a MW, which seems to narrow the perspective of business model development.

RQ2: How do market offerings differ according to firms' understanding of the mobile wallet?

The way company approaches mobile wallets depends on its understanding of it: the internalized definition appears not to be explicitly communicated, but rather constitute a

dominant logic and is reflected in what priority in firm's activities, resource allocation, and attention MW receives. According to these findings, the market offering of a mobile wallet service can be defined as a spectrum ranging from a strategic priority to yet another channel for reaching the consumer.

RQ3: What technologies do provider firms prefer for mobile wallet business models?

There is no consensus on what the winning technological solution might be. There are many players that believe in the future success of NFC. However, many others take a more cautious approach and do not bet on NFC as the sole winner. From the way consumer needs are perceived by the players in the market, it seems that the wallet supporting almost any technology could be the most promising solution, at least until a leading technology emerges.

RQ4: What value network architecture prevails in mobile wallet business models?

The most commonly found network architecture in mobile wallet solutions is a collaborative one. It implies a high level of interdependencies among various actors and a need for orchestrated effort. Standards are only being developed at the moment which hinders the extent of interoperability and makes collaboration more complicated. The network architecture also has a significant impact of how the revenues are distributed among stakeholders, which is another area where matters are not completely settled currently.

RQ5: How do provider firms monetize their mobile wallet offering?

There seems to be a lack of final concepts of revenue models for mobile wallets. One of the approaches is to reuse existing models from card payment schemes, focusing on transaction fees; while another approach is to reinvent the revenue model altogether or build upon existing models. However, in the case of VAS many potential issues arise in regards to establishing the price carrier. The ambiguous understanding of what a mobile wallet is and the lack of clearly defined business models makes establishing revenue models a complex task.

8.1 Future Implications

Overall, Sweden is regarded as a positive market for the development of mobile wallet services. The case study revealed mostly optimistic attitudes regarding the future development. The market is likely going to develop into a competitive situation similar to oligopoly. Strong existing market players are considered the most likely winners due to the power behind them and an established access to the local market; however, technological

giants, mainly Google and Apple, need to be taken into consideration. Likely, the emerging leaders would capture the lion's share of the market, but there would be niche players where the innovation in the industry would stem from and who would challenge the position of the leaders. The development of the market might lead some actors to a failure; therefore, strategic aspects such as business model development should not be taken lightly.

It seems that few actors in Sweden that are supposed to be providing mobile wallet services are actually internalizing the difference between the concepts of mobile payment and mobile wallet. It impacts the way they construct their business models in a way that the majority of the BMs are mobile-payment-centric. Possible implications are that the companies will have to re-evaluate their strategies and reconsider the established business models as they approach the understanding that the value created with the mobile payments is not the only value that the customers are looking for. However, bearing in mind that the whole market segment is rather new and there is little experience in the mobile wallet sector, it could be inferred that the solution to this might be the flexible approach of trial-and-error learning that these companies adopt facing the uncertainties of entering unknown market. On the other hand, the incumbents of the financial sector mostly seem not to be pressed hardly enough by the emergence of potential competitors to be devoting substantial attention to the issue; which poses a question of what actions they might be required to take in the future.

In the end, the winning technology or the winning method of paying with the mobile phone will not be what defines the winning service provider. If the above holds true, it will be the overall perceived value of the solution, including both: the payment service and the value added services. Of course, the future solutions will be closer to what the consumers expect in terms of ease of use, convenience, and features (Carlisle & Gallagher Consulting Group 2012).

8.2 Discussion and Suggestions for Future Research

This thesis contributes to science by shedding more light on the concept of the mobile wallet. It highlights the differences between the mobile wallet and mobile payments, and also provides insight on how an internalized understanding of a concept influences a firm's development of a business model. The research also expands the existing base of knowledge of dynamic business model development, particularly in the area of mobile wallet exemplifying newly emerging industries resulting from a technological shift.

The case study has been conducted focusing on the Swedish market. Therefore, it is highly market specific. It cannot be disregarded however that in other parts of the world the mobile wallet developments might be much more advanced already and the good practice and know-how might be applied in Sweden readily. One such aspect is the nature of relationships and partnerships among different industries. As an example, in France the BNP Paribas bank has been collaborating with an MNO, Orange, to launch mobile wallet service (Orange, 2011). In Sweden such collaborations seem to exist only inside industries, e.g., Swish as a collaborative effort of the largest banks (Swish, 2012), or WyWallet as a cooperation of MNOs (Computer Sweden, 2012). The value networks for mobile wallets are a potential topic for research.

Furthermore, the cases represent only a part of actors that do or will have a stake in the mobile wallet in the future. Therefore, further studies are possible in order to investigate the mobile wallet development even more in-depth. Related to this, the selected respondents had a low willingness to disclose information about the ongoing development, as the mobile wallet and mobile payments are rather new areas in Sweden. Thus, caution to reveal sensitive information that potentially could be used by the competitors could have limited the extent and validity of collected data. Also, not all the data gathered during the interviews was allowed to be published, thus a decision to keep the case identities anonymous has been made. Likely, in the future when early market penetration strategy would not be so critical, more data could be gathered and analysed in longitudinal scientific studies.

Another limitation of studying the mobile wallet was the current market players' focus on mobile payments rather than the more extensive concept of a mobile wallet. This might have been encountered due to early stage of development of mobile payments, since the market players seem to agree that the payment part is the core functionality of a wallet, thus it is important to get it right – and there is no universally agreed upon solution for that yet. The novelty of the studied phenomenon also posed certain limitations to the research – for example, there is a lack of reliable market data on how the mobile wallet is adopted by consumers and merchants. The aforementioned issues also led to exclusion of consumer behaviour from the scope of the research – the potential difficulties of collecting valid data make such research hard to accomplish at the moment. However, once the market has stepped forward in usage of mobile payments and mobile wallets, this could be an interesting area for scholars.

Moreover, the technological aspect of mobile payments and mobile wallet has not been analysed in depth, as the focus of the study was to investigate the business model development. Therefore, security of the solutions was not included in the scope of the research, for example. But the technological aspect offers many exciting and practically applicable research topics, such as how the choice of technology influences the structure of the value chain, hinder or enable adoption on the consumer and merchant side, and similar.

An analysis of drivers, opportunities, challenges and threats (see Table 2) offers a list of potential research areas. The network and partnership structures in the mobile wallet, smartphone as a tool for marketing, business model innovation with VAS, market specifics enabling the development of MW, competitive situation and risks of cartels, usage of systems lacking interoperability, costs of infrastructure, consumer behaviour, and security – all are areas that could benefit from further scientific investigation and help businesses be more successful in the future. From marketing science perspective, this thesis highlights the possibility of using the mobile wallet as a platform for business development, which might be a particularly interesting area of research.

Table 2 Drivers, opportunities, challenges and threats for mobile wallet

Drivers and Opportunities	Challenges and Threats
Leveraging existing partner networks	Competition between solutions
Growing popularity of smartphones	Proprietary systems
Possibility to add additional services	Big investment (development, POS)
Technologically advanced market	Adoption from consumers
Players' propensity to collaborate	Security concerns

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10 APPENDICES

10.1 Appendix: Interview Questionnaire for Companies

Y experience:

- What is Y's position regarding mobile wallets?
- What is your business strategy? What is the business model and revenue model of Y mobile wallet (revenue sources – existing or new, cannibalizing competitors)? Is mobile payments just a complement to cards or is it a new independent line of business with a lot of potential?
- What about Swish in Sweden? How do you regard WyWallet? Which is of the major importance?
- What role should Y and other banks play in the MP value chain?
- What is the core competitive advantage over the competitors (same industry, different industries)?
- What was the development path of Y mobile wallet solution? How did you decide on a technological solution? What is the consumer action sequence to perform a transaction with Y?
- How did the mobile wallet trials go in Sweden if there were any? (maybe reports or presentations are available?)
- Who are the most important stakeholders in your business model?
- Who is your target customer and why?
- What barriers do you face (both internally and externally) when developing mobile wallet?
- How does the diversity of the technological environment influence the development? Is the chosen technology expected to remain in the future?
- Sustainability and expandability of the business model: what are your future plans? What are the opportunities of expanding? What might facilitate and hinder expansion locally / internationally? How sustainable do you think the business model is (can be copied by competitors, other solutions become better, etc.)
- What decisions were critical turning points in the development of Y mobile wallet?
- Do you regard Y as a first-mover? If so, what do you see as the advantages and disadvantages of it?

- How do you react to the criticisms against (if those exist)?
- How could the favourable brand image used in Sweden (if it is possible)?

Mobile wallets in general:

- What are essential elements of the mobile wallet business model?
- What technological solutions do you think will prevail in the future?
- What do you see as additional value creation opportunities that could be attached to mobile wallet (value-added services)? Which ones would you name among the most important ones?
- How do you see the partner network in the mobile wallet business – what partners are crucial? To what extent should / could companies undertake only tasks according to their core competencies / develop everything inside?
- How do you see the development of the mobile wallet in the future (consumer adoption, technological solutions, legal regulations, value-added services, time span, etc.)? What are the most important deciding factors, in your opinion?
- How do you regard the legal regulations that govern mobile wallet services? For example, as it creates grounds for a very intense competitive environment, how would that influence future development of mobile wallets? If PSPs can easily obtain a licence, but a next step in financial service provision is much more complicated, how would that influence the future of the payment market?
- Do you feel that the traditional role of the banks is challenged by the new legislation and new players?
- To what extent does the lack of standardization in the industry influence the development of the industry? How do you see this issue several years in the future?
- What would you regard as the specifics of the Swedish market that influences how mobile wallets are developed / adopted by the users? What are the key success factors to win the Swedish consumer? What are the consumer “pains”?
- How do you see the development of the competitive environment in the future (number of local / international players, market shares, winning solutions, etc.)?
- What characteristics of the mobile wallet would you see as becoming a point-of-parity in the market (security, low transaction fee, etc.)?

Future outlook questions:

- How would you define a critical mass of active mobile wallet users (percentage)?
- In how many years do you believe that mobile wallet will gain a critical mass of users?
- In how many years would you see your company becoming profitable?
- In 5 years there will be a broad number of mobile wallets/mobile payments on the market (1 do not agree at all – 5 totally agree).
- In 5 years There will be high level of standardization and different players will be more specialized in different components of the wallet (1 do not agree at all – 5 totally agree).

10.2 Appendix: Supporting Interview Questionnaire**Sweden**

- What is the role of X in mobile payments and in mobile wallet in Sweden? What functions does perform in this sector?
- How are the payment service providers governed?
- How is the payment service market regulated in Sweden – legislation and bodies?
- What kind of regulations are imposed on payment service providers? How are the fees regulated? The scope of activities, competitiveness, standardization, licences, checking of the activities?
- What is the current situation in the payment service providers market in Sweden? Mobile payments? Mobile wallets?
- How do you see the market of payment services having changed recently / changing in the near future?
- What do you see as the biggest barriers for the development of mobile payment systems, especially in the Swedish market?
- What do you see as the biggest opportunities for mobile wallet development in Sweden?
- How does the Swedish legislation relate to security issues in mobile payments and mobile wallet? How does it compare to the EU legislation?
- How do you regard the legal regulations that govern mobile wallet services? For example, as it creates grounds for a very intense competitive environment, how would that influence future development of mobile wallets? If PSP can easily obtain a licence, but a next step in financial service provision is much more complicated, how would that influence the future of the payment market?

- What do you see as additional value creation opportunities that could be attached to mobile wallet (value-added services)? Which ones would you name among the most important ones? How does the regulatory bodies and legislation impact the opportunities / implementation / development of value added services?
- Could X be regarded as a partner of mobile wallet providers, i.e., do they develop legislation on their own, or together?
- How do you see the development of the mobile wallet in the future (consumer adoption, technological solutions, legal regulations, value-added services, time span, etc.)? What are the most important deciding factors, in your opinion?
- To what extent does the lack of standardization in the industry influence the development of the industry? How do you see this issue several years in the future?
- Competition issues – how do you see big cooperations (Swish, WyWallet) from the competition law perspective?

EU

- To what extent is the EU legislation usually adopted in Sweden? How does that apply to the legislation regarding mobile payments, payment service provision, mobile wallets?
- What do you see as the most important developments in the legislation EU-wide concerning mobile wallet?
- How do you evaluate the effort of the EU to make the payment service provision harmonized and having fewer barriers to competition?
- How is inter-industry cooperation regarding the mobile payments/wallet impacted by the EU and EU legislation?
- What do you see as the major effects of the EU legislation and regulations related to mobile wallet?
- How would you evaluate the success of harmonizing and standardizing payment service provision in the EU? What are the pros and cons of this process?
- How does the EU legislation relate to **security issues** in mobile payments and mobile wallets?

Future outlook questions:

- How would you define a critical mass of mobile wallet users (percentage)?

- In how many years do you believe that mobile wallet will gain a critical mass of users?
- In how many years would you see your company becoming profitable?
- In 5 years there will be a broad number of mobile wallets/mobile payments on the market (1 do not agree at all – 5 totally agree).
- In 5 years There will be high level of standardization and different players will be more specialized in different components of the wallet (1 do not agree at all – 5 totally agree).

10.3 Appendix: Supporting Interview Summaries

10.3.1 Interview 1

The respondent's organization deals with transactions, being the middleman and enabling transfers, between financial service firms.

The existing settlement system in Sweden is open and all the payment service providers can use it. There is a rulebook for the payment systems defining the rules for new entrants, anyone can join, if they meet these and regulations after yearly audits. The systems also are supervised by the Central Bank and the Finance Inspection in Sweden.

What would the settlement be in the future? Mainly, it will be products for corporate customers, i.e. the payment systems. Real time clearing is being developed at the moment, so for person to person transfers that would be the infrastructure part (not the card scheme). The key advantage for the user is that with an app direct transfer from their cell phones would be possible. This means usability and convenience.

Mobile wallet is an interesting development in the market, which makes the banks feel threatened as new players are entering their field. Despite the fact that the payment transactions are not a big business for banks, it is rather a necessary part of a bank's operations. The respondent thinks that the merchant segment will be rather important as digital players are entering the retail world.

For the MW to be adopted widely, the cost of use for merchants should be lower, and for consumers it should be more convenient. The mobile wallet needs to be more user friendly and reduce the risk of using a credit card. But security is a tricky part. If the users would transfer the money to the wallet, it would be the best option for the wallet providers.

According to the respondent, a virtual wallet will become common in more than 5 years in Sweden.

10.3.2 Interview 2

The respondent's organization is responsible for payment service provision licences and supervision (e.g., ensure that PSPs have safeguard measures for funds).

There is an issue regarding the expansion and development of payment services, the legislation is a bit complicated to interpret sometimes. But everyone on the market is aware whom they should check with. A PSP licence could be revoked if the company does not comply with legislation.

The most important distinction mentioned in the interview was between mobile payments and mobile wallets. The respondent stated that these are two different things: the former is a service, while the latter is e-money. In both cases, however, a permission to operate is needed. E-money is mostly used for micro payments (up to 200 EUR), and mostly online. Mobile wallet and mobile payments correspond to issuing money and providing payment service. The wallet should not be viewed as a savings account, because then a PSP should be a bank. Sometimes it is hard to understand the difference between e-money and a deposit. Practically, it is exactly the same to obtain e-money and PS licence (EU wanted to make one directive, but the timing was not good, so there were two. They will be reviewed in a few years, maybe merged).

There was a boom of applications to become PSP in Sweden at the moment. Also, there are quite a few new players – mostly with technologically innovative ideas. Right now things are slowing down a little bit as Sweden is not such a big country. But on the EU level e-money seems to be more common.

The main purposes of the related EU directives are customer protection and applying the same rules all over EU. Legislation encourages collaboration and formation of new entities. Also, the legislation makes the services more legitimate, i.e., the customers would trust them more. The mobile payment regulation was a result of the legislation.

Sweden adopts EU legislation fully, but some other countries have different regulations. Thus, the harmonization of payment service provision is working to a point. The players in the market usually are not credit institutions which makes a big difference. The legislation is

imprecise in terms of some key definitions being rather vague – this could be considered to be purposeful, so that in the future the legislative acts should not be required to be changed too often. The grey areas arise because sometimes it is hard to define and decide if a service is a payment service or not. But it is complicated for the small players to adapt and understand the legislations as well. It is a good thing to regulate this area, however.

The respondent's organization does not govern the security issues specifically, but that falls under the risk and privacy regulations, so it can be said that it is self-regulated according to broader legislation.

Some of the services that mobile operators provide are payments services, so they need a permit and should be supervised (for example, anti money laundering and counterterrorism measures). Regarding competitive environment, it is just the matter of whoever wins the race for the customer; the respondent's organization is not concerned about that. There have been some discussion about competitiveness of collaborative entities, but other organizations are responsible for those issues.

Currently, the actions of the respondent's organization are complaint driven – they act depending on what the end-users are complaining about. The future plans are to look into the payment service provision area more closely. The market development will decide what the respondent's organization's functions will be in the future, now they are sort of in a start-up phase and being shaped according to the situation in the market. The market players have to show that they do something to safeguard information and perform risk management. Respondent's organization's responsibilities are also shared with other institutions. However, the supervision process is just starting because they were focusing on the licensing process before. They have started to supervise now, so organizational functions might be changed or added in the process.

The respondent's organization is trying to collaborate with the market actors, but they are also bound by the regulation and what the politicians want them to do. They get market's opinion on certain issues, but it is not always possible to take that into consideration as the regulations are more for the customer's and the society's good.

Mobile wallets will increase in popularity, but it is not certain that there will be a big amount of users. But there will be people who will replace traditional payment services with mobile

wallets. Today, no solution can take over simply because they only work within their own payment system. Solutions need to be concentrated on usability, people should be able to use mobile wallet everywhere and without going back to using cards. Collecting all cards on one device would be good according to the respondent. Seamlessly working interaction should be mandatory. In Sweden it is easy and cheap to use credit cards (surcharging is not allowed here, so paying with the card is free), but in other countries there are more opportunities.

Currently, it is hard to tell how the market will be forming in the future – the leader could be a small new player or could be old established players providing a solution. From personal experience, there were many ideas but the standardization is low. The use of mobile internet is the common denominator, so is the security, but technologies seem to be pretty different. Personally, the respondent thinks that Sweden is not big enough to handle that many solutions, but there will be some survivors in the market in the future. When the usage simplicity of a mobile wallet is comparative to a card payment – then it should take off.

Mobile payments would influence the competition on the transaction fees, for the merchants especially. But it is still hard to tell if there will be major competitors. Value added services are not of the respondent's organization attention. MW would not replace cash – not in Sweden at least, but it can substitute cash, e.g., when no ATM is available or in the countryside.

Lastly, the big international players are of interest to a limited extent only. The respondent's organization could supervise a branch or an agent, but they do not really have responsibilities in that respect. Action could be taken if the aforementioned entity does not follow national regulation of the country they operate in.

10.3.3 Interview 3

The respondent's company is a consulting company looking how to extend card payments to mobile payments. The front part is different in card payments, but the essence is the same in mobile payments. The access device is different, but there are more times where it makes sense to have a transaction where you may not be physically present or buying an intangible thing. Even when buying in a physical place, action through a smartphone is an option to aggregate actions with payment – which can bring additional benefits.

With a smartphone one has the computing power and a user interface – it makes sense to make transactions, whereas additional things in the wallet become more and more embedded into these transactions (meaning all of the things that one puts into a wallet today).

A mobile wallet is going to have to have a list of 4-5 things in order to attract the consumers to make the investment mentally and physically in order to adopt the new type of wallet. Shopping experience, couponing, identification, all to go beyond early adopters – for most people, two or three of these will do, it will look compelling because it might be useful. When would people feel comfortable with going out only having their phone not the wallet? E.g., can one have a driver's licence on the phone? Gym card, ID, etc. – these things can make the mobile wallet compelling.

The respondent does not believe that any one of current mobile payment technologies will be the winner per se, same as VHS vs. DVD – which technology was to win then? Many phones will have NFC-like capabilities; QR codes will be a solution that will be used with different payment schemes. There is an example on the market in the US where a picture of the owner pops up at the merchant's side, the payer does not even have to directly scan anything as the smartphone sends a geolocation signal that a customer is ready to pick up the order. Otherwise there is a QR code that is scanned.

So there will be a number of conglomerations of different technologies, the mobile wallet of the future will be flexible enough to allow all mechanisms in a single wallet. A preference from consumer is that there is a single app that facilitates all transactions, but in the short term the respondent doesn't see this as a solution. In the long term there will be an app that wraps all the wallets into one place, a more integrated version will be evolving. Most people have multiple accounts and multiple cards, so the respondent thinks that the winning capability of a wallet will be automatic choice of the best payment method and optimization of the choice according to the situation of the transaction.

The bank would prefer that all of their customers would use their proprietary wallet, but the consumers' choice is not that. Although the traditionalist user segment might be interested in such solution, that is definitely not the answer for other segments. So the banks are going to have to play along and let others take part of transactions from a wallet. The bigger banks will have a proprietary solution, but they will join the open solutions as well (like ISIS or Google Wallet). The largest will join all of them just like VISA and MasterCard. It is more of a

network, not integrated value chain – but then the revenue sharing can become complicated, i.e., does one still get enough money. But the consumer touch points are the crucial places where the players want to be. The respondent does see a network developing, and the actors have to be extremely efficient as the money will not be much. The players are going to be the big retailers, banks and technology titans. The small players who come up with own solutions will be bought.

Standardization is a number of years away from – because the actors can wait for now, but in a number of years they would say that the standardization is helpful to make more money and operate easier. Presuming there will be several winning solutions, so the others will die slowly.

The mobile payment is an evolution, but it won't replace cash and cards entirely. Person-to-person transfers can become very popular, but it has a number of uses and can advance the spread of mobile payments. Receipt management, convenience, returning of the items – all of these are better with mobile payments.

10.3.4 Interview 4

The respondent's organization does not develop nor promote use of any mobile payment solutions. The organization represents banks and financial institutions. It also tries to affect how the payment service market is regulated in Sweden.

The respondent's position is that mobile payment solution should be secure enough, easy to handle, and less expensive than alternatives. This would drive acceptance by the market – the factor of crucial importance for such innovation.

Another important aspect is the significance of standardization. As the market acceptance grows, the standardization should start. As an example, when Swish payment system was being developed, ISO standards were used.

The respondent provided personal comments regarding his ideas on the business model of a mobile wallet. The payment function is one among other functions in a mobile wallet. Additional services attract the customers. But if the payment is the most important function like in Swish, the other services are not that important in such case. Otherwise, the respondent thinks that the value added services are not so important to reach a global number of users.

A niche-market mobile wallet would be reasonable, though. In the future, there will be lots of niche offerings for generic services. However, there is not enough room for many solutions.

Ease of use and simplification are core components of mobile wallet success. Also, it should be perceived as free.

According to the respondent, all stakeholders are important if they have customers interested in the mobile payment services. Banks are an example among many others. Respondent noted that there is a quite transparent collaboration between stakeholders in Europe.

Operational risk and security issues will and do arise, and it is the purpose of respondent's organization to facilitate collaboration in order to overcome these. They also facilitate decisions on recommendations, best practices, etc., as well as help mitigate risks.

All Nordic markets are similar. The specifics of consumer behaviour enables development of mobile payment services in the Swedish market – the Swedes are early adopters, digital use of financial services is prominent already. Another market defining factor is that the banks in Sweden were quick with the technological development in the past.

The purpose of the new legislation is to open the payment market to more actors (referring to upcoming Payment Service Directive 2), but banks have a good established position for the payment service provision. Can banks do a successful mobile wallet on their own then? A solution like Swish could work, and the respondent believes it will be successful.

Standards will be more important over time. Collaboration depends on it. Currently there is little standardization in mobile payments, but in the future there will be more. Standardization will be a parallel process to mobile payment services development.

The new development in the payment service provision will affect how the payments are done. However, mobile payments should not make a very big difference.

It does not have to be mobile necessarily that brings the change. However, the respondent noted that one type of new behaviour would be person-to-person mobile payments.

As a comparison of how the mobile wallet could develop in the future, the respondent mentioned e-invoice with an emphasis that it has taken a very long time to reach high usage volumes. However, the respondent believes that critical mass of mobile wallet users could be

reached in approximately 1 year. Overall, the respondent is positive about it and thinks that mobile wallet has potential. Especially the younger generation should adopt it very quickly, similarly to the way it happened with SMS service adoption.

10.4 Appendix: Legal Regulation

The legislative frameworks are being constructed on a broader level, such as the EU, industry organizations and bodies. In order to ensure that the standardization and regulation is future proof, there is a conscious effort not to make the proposed standards, guidelines and laws too limiting; therefore, the legislation might be perceived as somewhat fuzzy and unclear at the moment (Respondent 2, 2012). However, the freedom that comes with a rather open interpretation of the legislation is an enabling factor for further innovation. The current stage of legislation and standardization initiatives also points to the fact the industry itself is rather young and is still in the stage of formation and intense development. For example, the Swedish authority responsible for supervision of mobile payment service provision currently is taking a step back when it comes to supervision of such service providers and rather concentrates on the issuing of licenses (Respondent 2, 2012). This is being done due to uncertainty and also allowing the market to self-regulate in a way, as not to limit the early development of mobile payment services.

The purposes of the legislation concerning the provision of mobile payment services can be described as follows (Respondent 1, 2012; Respondent 2, 2012, Respondent 4, 2012):

- Facilitate development of an integrated ecosystem of payment solutions, including mobile payments
- Establish the “rules of the game”
- Deal with current market fragmentation
- Provide for future technology development
- Create uniform regulations throughout the EU in order to leverage the single market advantages
- Take into account the new entrants in the market
- Create convenience for consumers, businesses, and public administrators

As such, there are two levels of legislation that are important for the provision of mobile payment services and the mobile wallet. The first level applicable to Sweden is the European Union efforts to harmonize the payment service provision which also to a large extent influences how the mobile payments and mobile wallets are being developed and regulated. The EU wide efforts are as follows:

SEPA (European Commission, 2013)

- No distinction between cross-border and domestic electronic retail payments
- Retail payments – transactions where at least one party of the transaction is not a financial institution
- Facilitates the European payment market: to provide the basis for more integrated and secure payment innovations and include non-euro currencies, expand transaction scope

E-Money Directive (European Parliament & European Council, 2009)

- Core concepts: Electronic money – digital equivalent of cash; Electronic purse – where users store relatively small amounts of money; E-money can also be stored on (and used via) mobile phones
- Directive aims to: enable new, innovative and secure electronic money services to be designed; provide market access to new companies; foster real and effective competition between all market participants.

Payment Service Directive (European Parliament & European Council, 2007)

- Basically covers two areas: payment service providers and the services itself
- Major impact – disrupting the existing payment service market.

The following bodies govern the legislative process related to mobile wallet and mobile payments in the EU (European Commission, 2012):

- **European Commission (EC)** oversees the legislation development.
- **European Central Bank (ECB)** coordinates inter-bank transactions, credit operations, etc. and facilitates SEPA implementation.

- **European Payments Council (EPC)** works with industry self-regulation; defines position for core payment services; provides guidance for standardisation; works with best practices, product schemes, and frameworks.

The second level of regulative efforts stems locally in-country. In Sweden, the local regulatory frameworks that are related to mobile payments and the mobile wallet are mostly adapted from the EU legislation initiatives. The local laws are constructed in a way that the Swedish payment service provision legislation has a very high compatibility with the EU proposition (Tipik, 2011). As of now, it is rather complicated to estimate how this could influence the mobile payment services provision in the future, but it clearly shows that the payment services provided from Sweden should be to high level compatible with the other countries in the European Union, which implies that internationalization of Swedish companies dealing with mobile payments and mobile wallet should not be hindered by local legal barriers.

The following legal acts are in place in Sweden to regulate the provision of mobile payment services (Tipik, 2011):

- SFS 2010:751 Lag om betaltjänster - Act on Payment Services
- SFS 2010:738 Lag om obehöriga transaktioner med Betalningsinstrument - Act on Unauthorised Transactions with Payment Instruments
- SFS 2009:62 Lag om åtgärder mot penningtvätt och finansiering av terrorism - Act on measures against Money Laundering and Terrorist Financing
- 2005:59 Distans och hemförsäljningslag - Act on Distance and Domestic Sales
- SFS 2004:297 Lag om bank- och finansieringsrörelse - Act on Bank and Financing Business
- SFS 1995:1559 om årsredovisning i kreditinstitut och värdepappersbolag - Act on Yearly Reports in Credit Institutions and on Securities Companies
- FFFS 2010:3 Föreskrifter och allmänna råd om betalningsinstitut och registrerade betaltjänstleverantörer - Regulations and general guidelines governing Payment Institutions and Registered Payment Service Providers
- SFS 2009:93 Förordning med instruktion för Finansinspektionen - Regulation with Instructions for the Financial Inspection Authority

- SFS 2007:1041 Förordning med instruktion för Allmänna reklamationsnämnden - Regulation with Instructions for the General Reclamation Organisation
- SFS 2009:400 Offentlighets- och sekretess lag - Public Access to Information and Secrecy Act
- SFS 1944:181 Lag om redovisningsmedel - Funds Accounting Act
- Lagrådsremiss Betaltjänster - Legal proposal on Payment Services

10.5 Appendix: Standardization

The mobile wallet is currently a rather unstandardised phenomenon (Respondent 1, 2012). This has various different implications: on the one hand, the market players are free to “think outside the box” and come up with new and innovative offers to satisfy the market needs while keeping the barriers to entry low in the marketplace (Respondent 2, 2012); on the other hand, the lack of standardization results in a market situation where there is no leading solution, which basically implies that the market shares are fragmented, the effort of the players is not orchestrated, various solutions might not work together, and the competition bar is raised but still the players are not aware on which grounds they would actually win the race for the customer (Respondent 1, 2012; Respondent 2, 2012; Respondent 3, 2012).

According to the industry experts, the current legislation that regulates mobile wallet and mobile payments is developed to reflect the position of open-mindedness from the regulatory perspective – i.e., to encourage innovation, ease the entry to market for the small players, and in general promote the competitiveness in payment service provision area (Respondent 2, 2012). Also, as noted in the interviews, the legislation currently is rather fuzzy and not very specific (Respondent 2, 2012). One opinion on why that might be the case is that the regulators purposefully formulate it to be future proof, this way avoiding too many amendments and changes when the markets and technologies develop (Respondent 2, 2012).

Standardization is closely related to many aspects of the mobile wallet and mobile payments solutions that need to be taken into consideration by market players. Different potential issues create challenges not only for market players, but also administrative bodies. These are summarized in Figure 12 below.

Interoperability	Technological Barriers	Legal Compliance
<ul style="list-style-type: none"> • Different emerging technologies • Different mechanisms of transaction require different security measures • Non-standardized transactions • Differences on international level – e.g., is a customer from UK able to pay in Sweden? • Competition rather than partnership is currently prevailing in the market • Dealing with theft/loss 	<ul style="list-style-type: none"> • Divergence of technological solutions • Implementation differences – various technologies cannot provide same level of security • No leading technology developer to focus security standardization on • Imperfection of current solutions • Technological development can be considered a sunk cost • Data recovery 	<ul style="list-style-type: none"> • International differences in legal regulation • Privacy laws are important, as mobile wallets (might) contain sensitive data • Relatively new legislative area, low level of specificity e.g., in definitions • Potential lock-in effects and limitation of competition by high requirements of security levels • Preventing unauthorized access

Figure 12 Potential issues related to standardization