Platform competition in the Danish digital payment market

- Swipp vs. MobilePay
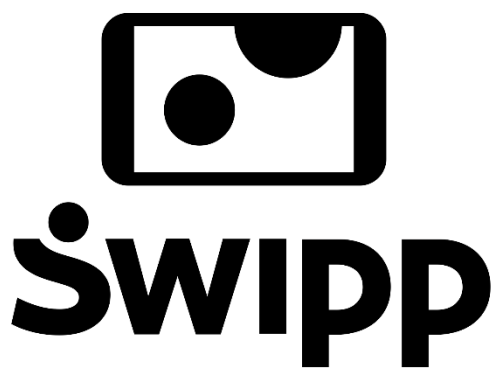
Copenhagen Business School 2016

Study program:	Cand. Merc. Management of Innovation and Business Development
Assignment:	Master's Thesis
Name:	Anders Thesbjerg Tang
Name:	Andreas Gredal
Hand-in date:	July 1, 2016
Supervisor:	Jens Frøslev Christensen
Number of pages and characters:	106 standard pages and 241,679 characters.

Executive summary

In recent years new technologies within IT have been developed and launched at a rapid pace, enabling both incumbent firms and startups to foster new businesses and business models. Among these, a prominent example is a digital platform. Digital platforms face competitive dynamics different from traditional companies. These include strong network effects, high multi-homing costs, and no need for special features, all of which have the potential to create winner-take-all dynamics that makes it difficult a second-mover to challenge an established platform.

This thesis examines how platform specific dynamics influence a second-mover's opportunity to challenge the incumbent platform in the market. It discusses how winner-take-all dynamics affect the competitive situation, and how company resources can be employed in such attack strategies. To further explore the theory, a case study of the Danish market for mobile payment is conducted to investigate the utility of the theory in practice. The study analyses what the second-mover, Swipp, can do to challenge the dominating platform, MobilePay.

Based on the above analysis, this thesis finds that the mobile payment market has no clear winner-take-all dynamics, why it is feasible for a second-mover to challenge the first-mover. Further, it argues that MobilePay has a competitive advantage in their critical mass of users, whereas Swipp has a potential competitive advantage from their cost structure and that these resources should affect their attack strategy. Finally, the thesis argues that the low number of competitors in the market intensifies the competition, as awareness, motivation and capabilities to attack are high.

This thesis concludes that significantly strong first-mover advantages can be established in the platform market, why second-movers might not always be able to challenge a first-mover. Even so, the analysis suggests a strategic path, which might allow Swipp to establish itself as a stronger second-mover, as new competitors are about to enter the market within the next months.

Table of contents

1. Introduction

With the rise of information technology, the network economy (Kelly, 1998), and new alternative business models (Osterwalder et al., 2010; Anderson, 2009), classical industrial logic as Porters (1980) concepts of cost leadership and differentiation are challenged and whole industries undergo transformations (Damsgaard, 2015). Companies are forced to rethink the old and develop new products and services, resulting in a multitude of new businesses and markets (Damsgaard, 2015) as digital platforms disrupt industries.

Network effects become important when companies create platforms and offer their products/services through these platforms (Evans et al., 2006) as value creation of a platform to a high degree is gained from network effects (Shapiro and Varian, 1999a). For digital platforms, significant economies of scale can be achieved since digital products usually contain zero or very low marginal costs but relatively high fixed costs (Hedman and Henningsson, 2015). Therefore, the platform's nature is to gather as many users as possible since every additional user extends the value of the platform and often represents small or no extra costs to the platform owner (Eisenmann et al., 2006). Network effects and zero marginal costs are not a requirement for each other, but the presence of both gives a significant advantage.

Contrary to traditional industry logic, that enables companies to compete on either cost leadership or differentiation (Porter, 1980), other dynamics influence the competitive situation on platform markets. As many platforms are free for a least one user side, a cost leadership strategy has limited effect, and as most platforms extend the value from each additional user attracted to the platform, a differentiation strategy has limited effect. Instead, the competitive situation on platform markets is affected by winner-take-all dynamics, which depend on whether the market has strong or weak network effects, high or low multi-homing costs, and finally, whether there is a demand for special features or not.

Two examples illustrate this well: During the past 20 years, different companies have managed to achieve platform leadership in the market for Internet browsers. Netscape Navigator was market leader in mid 1990'ies (Kubatis, 1996), but Microsoft bundled their Internet Explorer browser to Microsoft's operating system (Anderson, 2009; Eisenmann, Parker and Van Alstyne, 2011), and thereby took market leadership in the beginning of the new millennium (Microsoft's Internet Explorer global market share is 95% according to OneStat.com, 2012). Since then, Google has launched Google Chrome and taken market leadership in the Internet browser market (Wikimedia Traffic Analysis Report - Browsers e.a., 2015).

Another example is Google's intention to take up the competition with Facebook by launching Google+ (Goldman, 2011). Google did not succeed in this (Eadicicco, 2015) as they could not compete with

Facebook's strong network effects, high multi-homing costs, and there was no significant need for special features that Google and not Facebook could offer the users.

Two points are worth noting from these two examples; 1) neither a first-mover nor a second-mover is necessarily going to win a platform battle, merely because they are first or second-movers. 2) Just because a first-mover becomes market leader doesn't mean that this cannot change when other competitors enter the market. Both theory and "live" examples of platform battles are therefore relevant to study further. This is especially the case with the mobile payment market, where platform battles go on in several different countries, and Hedman and Henningsson (2015; p. 305) have stated that "Payments have become a hot spot for digital innovation," which the Danish mobile payment market emphasize. In Denmark MobilePay and Swipp are competing against each other.

MobilePay has to a much higher degree than Swipp managed to attract private users, for whom the service is free to use. In this specific platform battle MobilePay is far ahead of Swipp on several parameters (Nyholm, 2015). Though, Swipp seems to possess resources, which can be applied to challenge MobilePay's dominating position.

1.1 Research question

The incumbent firm, Danske Bank, has launched a free mobile payment app, MobilePay, and has secured a dominant position in the Danish market. However, despite the seemingly lack of opportunities to compete by applying the traditional industrial logic, the later entrant, Swipp, has nonetheless endeavored on a quest to challenge MobilePay's dominant position.

By studying this case, *"We would like to examine the dynamics on the market of a digital platform and seek to answer the following question and sub-questions:*

1. *What are the strategic opportunities and obstacles for Swipp in the Danish mobile payment market facing MobilePay's dominant market position?*

   - To what degree does winner-take-all dynamics influence the competitive situation on the Danish mobile payment market?
   - How do Swipp's and MobilePay's resources affect the competitive situation on the Danish mobile payment market?
   - How does the market dynamics affect the competitive situation between Swipp and MobilePay?"

2. Methodology and methods applied

In this section, we introduce the methodology and methods applied in the thesis. Flyvbjerg (2006) states that problems and not methodology are to drive good social science and that the best fitting methods are to be applied to answer a research question. Further, Wahyuni (2012) distinguish between method as the practical application when doing research and methodology as ideological and theoretical foundation for the methods applied. The approach in writing this thesis has initially been pragmatic, as we have adopted Flyvbjerg's approach of letting problems and not methodology drive the writing of this thesis. We will introduce the methodology and after this, the methods applied. Hereafter, we will discuss the data collection and the data analysis applied in the thesis.

Through the years, a number of platform battles have taken place. However, we do not have theoretical frameworks enabling us to generalize from earlier examples, thus a case study is preferred over a vain search for theories and universals (Flyvbjerg, 2006). This helps us to understand the dynamics in a platform market through a particular case study.

2.1 Methodology

Different research paradigms affect the fundamental assumptions and beliefs, which describe a researcher's behavior. The beliefs are positivism (naive realism), post-positivism (critical realism), constructivism (interpretivism), and pragmatism (Wahyuni, 2012). Positivism defines knowledge as objective and independent of social actors and defines one truth as the right. Post-positivism also relies on objective criteria but accept social conditioning. On the other hand, constructivism defines the world as socially constructed and subjective and thereby accepts that the case studied may change over time. Finally, pragmatism chooses the best achievable view on knowledge to answer the research question (Wahyuni, 2012).

The initial intention of the study was to identify how one platform can challenge another platform and to conduct this study through an approach of constructivism, as we as researchers interviewing the second-mover platform were to influence the research through our presences (Wahyuni, 2012). Though, as we did not manage to get access to Swipp as originally promised by the company, the study relies on secondary data sources. As the study then had to apply secondary data, the methodology turned into a pragmatic approach which made the study depend on a post-positivist epistemology where both observable and subjective meanings can be applied to answer the research question (Wahyuni, 2012).

2.2 Methods applied

Having chosen the methodology, we argue for the methods applied in terms of selection of case, research design, and finally, elaborate the relation between theory and the research. According to Yin (2009), a case study assists in understanding complex social phenomena, and the case study creates a holistic view of real-life events. This is an advantage in this study, as the study covers a fast developing market, where two competing platforms launch new initiatives continually and especially one of the platforms has had tremendous growth rates.

2.2.1 Selection of case

Flyvbjerg (2006; 228) states that " 'the force of example' is underestimated" in scientific development and that generalization to some degree is possible through a case study.

The choice of case influences the ability to generalize the results, and the selection of case is, therefore, a strategic choice of the research (Flyvbjerg, 2006). When choosing a case, the most appropriate case is not always representative, because an average case might not contain the richest information. Atypical or extreme cases might contain more relevant information, which can deepen the insights compared to a representative case (Flyvbjerg, 2006; Wahyuni, 2012). We have chosen an information-oriented case, which increases the ability to utilize the information we can get from single cases (Flyvbjerg, 2006).

The conditions of the cases in platform markets vary in a great extent, as digital platforms serve very different markets. The case of the Danish mobile payment market is, therefore, an extreme case and an extreme case is an advantage in a closely defined sense when obtaining information on unusual cases (Flyvbjerg, 2006). The case of Swipp and MobilePay is unusual, as the first-mover MobilePay has managed to attract an immensely high number of users within only three years, and due to the rapid development in the market, the case contains much interesting information on a competitive situation between two digital platforms. However, we also accept that the case-specific findings can be difficult to generalize to other cases, as the case-specific findings are tied to the payment market, is solely digital, only consider the Danish market and finally, it is a platform battle only between two competitors, the first-mover, MobilePay, and the section mover, Swipp. Therefore, the case is compelling in a closely defined sense on how the second-mover Swipp can try to challenge MobilePay's dominating market position. It is, therefore, possible to generalize on the theoretical level and findings from the thesis, but only to a limited degree on the case-specific findings.

2.2.2 Research design

Yin (2009) states that a case study can be exploratory, descriptive, or explanatory. The aim of the planned study was to understand how Swipp can challenge MobilePay, and therefore, we initially organized the

study with an exploratory approach asking "how" and "why" questions (Wahyuni, 2012; Yin, 2009). Though, as we could not access Swipp for an interview, we applied a pragmatic approach to the study and changed the focus to understand a large body of secondary data sources about the platform battle between Swipp and MobilePay. We have used this knowledge to the applied theories on platform specific dynamics, with the purpose of creating a strategic path for Swipp on how to challenge MobilePay's dominant position in the market for mobile payments. This has also influenced the research question, which initially was to identify how Swipp could challenge MobilePay's dominant position and now take a broader view on platform markets:

We would like to examine the dynamics on the market of digital platforms and seek to answer the following question and sub-questions:

1. *What are the strategic opportunities and obstacles for Swipp in the Danish mobile payment market facing MobilePay's dominant market position?*

   - To what degree does winner-take-all dynamics influence the competitive situation on the Danish mobile payment market?
   - How do Swipp's and MobilePay's resources affect the competitive situation on the Danish mobile payment market?
   - How does the market dynamics affect the competitive situation between Swipp and MobilePay?

The research question and sub-questions confirm the pragmatic methodology applied in the thesis. Initially, we apply an explorative approach in identifying whether the market is a winner-take-all market or not. Hereafter, we apply an explanatory approach to identify the competitive situation on the Danish market for mobile payments in terms of platform specific resources and market dynamics, and finally, we apply a descriptive approach to answering what strategic opportunities Swipp has in challenging MobilePay's dominating position.

2.2.3 Relationship between theory and research

The study initially followed a deductive approach (Andersen, 2009) by establishing a theoretical framework from existing literature on platforms with the intention to develop relevant questions for Swipp, to create the foundation for the case description and the analysis. Through the process of writing the thesis and collecting data, the theoretical body seemed to lack focus on first- and second-mover dynamics. Further, as case data was collected, it was realized that a perspective on a resource based view was relevant to apply, to identify the strengths for each of the two platforms in the mobile payment market.

The resource-based perspective was applied as the market conditions identified indicated that the market might leave room for a second-mover if the second-mover possessed relevant resources which could be applied in challenging MobilePay. Therefore, we also chose not to apply theories relevant for challenging platform leaders in the long term, as the scope of the thesis limited the opportunities in this. These perspectives will be elaborated in the discussion in section 10 of the thesis.

As the study lacked access to Swipp, this gave us the opportunity to study Swipp thoroughly through secondary data sources. This increased our insights on Swipp significantly and enabled us to refine the theoretical section e.g. by increasing focus towards company resources. The approach in establishing a body of theory, writing a case description and conducting the analysis thereby turned into a circular process, working on the different sections simultaneously (Andersen, 2009).

2.3 Data collection

The thesis examines two platforms and case material was collected on both platforms. We have read several online sources such as news articles and other relevant information on Swipp and MobilePay before and during the creation of the theoretical body, writing the case description, and writing the analysis.

We did not ask MobilePay for an interview due to the purpose of the thesis, which is to find strategic approaches to challenging MobilePay's position in the Danish market for mobile payments.

We are aware that it is a limitation only to rely on secondary data sources about Swipp and MobilePay. We have therefore read as much material as we could access on Swipp. Further, we have carefully studied numerous articles on MobilePay and attended public presentations from MobilePay to build a fundamental knowledge about the company and the field of mobile payments in Denmark.

2.3.1 Gaining access

When collecting primary data, gaining access can be complicated, and further access has to be considered a perpetual process (Saunders et al., 2009). However, the research we conducted can add value to the organization, but as researchers, we had to show creditability and be professional to convince the organization that we had to get access to the organization (Saunders et al., 2009).

Initially, it was planned to access Swipp through a contact of our former supervisor. We sent an email to the contact in Swipp, but the contact failed to respond to our request. Afterward, we applied personal contacts to reach out to the CEO of Swipp, who stated that he "would look positively on the request" as a response to our request, which included information on the project and the specific questions we intended to ask. More than a month later, we were informed by our contact, that the CEO of Swipp had indicated to him, that everything was good and that the CEO had managed to find a solution for us. Though we did not

hear anything from Swipp, before or after this, and as the time frame for writing this thesis was close to an end, we were, unfortunately, unable to do any further to get in contact with Swipp. We concluded that their initial interest in participating must have changed. The implications of this will be discussed in section 10.

2.4. Data analysis

Despite, the lack of access to the company, we have managed to access a large body of material through secondary data sources, primarily news articles. As both Swipp and MobilePay is consumer-oriented platforms with many users, the platforms are relatively highly profiled in medias. Therefore, we have managed to access numerous articles on preannouncements, results, and new features, etc. and especially MobilePay has revealed much material on themselves.

Therefore, we have applied much secondary material in the case description and analysis to consolidate our arguments with the material as it is applied to our theoretical framework. We are of course aware that the analysis would have been strengthened either from an initial interview with Swipp or even an interview enabling us to present the analysis and our ideas for Swipp. Though, as this has not been possible, we assume in the thesis, that Swipp, due to their owner structure, has access to necessary human capital, technical ability to conduct the suggested initiatives, and abundant financial resources to make the required investments to conduct the strategy we suggest in the thesis.

2.4.1 Data reliability and validity

As we apply a large body of secondary data, we are highly aware of the reliability and validity of the data. According to Saunders et al. (2009), the source of the secondary data is important to review, as a data source needs to have the authority and/or reputation. In lack of primary data, we have applied numerous articles, primarily from large Danish newspapers. The thesis applies to a large degree the newspapers to establish a chronological overview of the development of the two platforms and collect factual information. Further, we have also used the platform's own websites to collect information. Finally, when considering strategic plans and new strategic initiatives from the platform's, we have primarily taken quotes in newspapers and company press releases into consideration.

To ensure reliability and validity we have therefore considered the collected information critically and discussed the findings. We also take the reservation, that some data can be confirmed and that we in other cases rely solely on statements and press releases from the companies.

In the case of announcing new features to a platform, it is relatively simple to confirm whether the features are launched or not. On the other hand, e.g. number of users or number of transactions on each platform is

internal company data that only the platforms decide whether to publish or not. In this context, we can decide to trust the data or not, and in the specific case of MobilePay, experts, e.g. with knowledge on payment card transactions, has not questioned the reliability and validity of the numbers from MobilePay. MobilePay has had a large public attention due to their rapid growth, which further strengthens the validity and reliability, as much experts and industry insiders has followed the development and media attention. Contrary, the second-mover, Swipp, has only revealed scarce information on number of users, and they do not want to reveal more data yet. Therefore, we have just been able to conclude that Swipp most likely is far behind MobilePay in number of users and transactions. This exemplifies how we critically have reviewed data to ensure reliability and validity.

3. The history of money

Throughout the history of humanity, we have been dependent on transactions between one another. The exchange of physical resources generates efficient resource allocation, which ultimately facilitates trade. Transactions are a foundation for developing wealth. This thesis examines mobile payment platforms. Mobile payments are a new payment method that increases efficiency and minimizes transaction costs, which ultimately can increase trade as payments become easier.

This section will go through the general lines of transactions throughout history and how innovation within payment systems has decreased transaction costs.

3.1 Barter and markets

Around 8000 B.C. nomadic hunters assimilated into agricultural communities, and surplus in production was traded through barter (Westland and Clark, 1999). This created two challenges, which Jevons (1876) denoted the unlikelihood of the double coincidence: You need to find a person who both needs what you sell and simultaneously has what you need to purchase, and the value of both commodities needs to be approximately the same. In times of scarce resources, the chances that both properties are fulfilled and that both men are aware of it are not high. Therefore, "*a common denominator* or *common measure of value"* (Jevons, 1876; p. 5) was necessary to increase efficiency in transactions and simultaneously decrease search costs (Westland and Clark, 1999).

3.2 Payment systems as raw materials

In many ancient countries, payment methods of precious materials such as shells, jade, metals, and other commodities were used to solve this problem and separate the acts of selling and purchasing (The beginnings of coinage, 2016). Within these systems, a man could sell his surplus cow to someone regardless of what commodities the other man had, and after selling the cow, the man was now free to buy exactly the right amount of grain that he needed, from whoever had the most desirable grain, when he needed it.

To make an efficient payment system, it was important to ensure the *utility and value* of the articles, such as shells, bits of leather, or scraps of paper, which in their substances was close to worthless (Jevons, 1876). Even a powerful government was challenged to be successful in getting acceptance of the introduced articles as value denominators. However, it was easier to get recognition of the value of items that had been used as ornaments. This made people rely on the value of the article, and the article could, therefore, be used as value storage (Jevons, 1876).

The weight and bulk of the items were also necessary, to ensure *portability*, so it was possible to transport without any extraordinary cost compared to its value. Further, a requirement of the *durability* of the

articles was necessary. If the items were *indestructible*, it was easier to carry on from person to person, whereas items such as eggs, dried codfish, etc. could be eaten (Jevons, 1876).

Another problem was to ensure the same weight of the articles, which required similar quality. It was seldom that two stones had the exact same weight, and it was, therefore, a challenge to keep *homogeneity* in the articles (Jevons, 1876).

Divisibility was also required since the traded goods did not have one exact value. Therefore, the items had to keep the exact aggregated value even though it was divided into smaller pieces. This was a problem e.g. for skins because a skin cut up into four would not accumulate the same value as before. *Divisibility* was best ensured with metals, which could be divided and afterward melted. This laid the foundation for using metals as the preferred article for payments and later on coins was introduced (Jevons, 1876).

Stability in value was an advantage in keeping an efficient payment system, since fluctuations in value would put either creditors or debtors worse off, depending on the changes. Further, it was required that the money could be easily recognized so that every person did not have to scrutinize, weigh and test it, and distinct marks, which nobody could mistake, was a tool to ensure *cognizability* (Jevons, 1876).

3.3 Coins

Initially, the value of a coin was determined by its size, weight, and purity of the metal, and the round shape made it practical to transport (*Portability*). The innovation was diffused, and metals became a common currency in many parts of the world (Jevons, 1876). However, this method was replaced when empire leaders started to place a nominal value of the coins. Punch marks were used to denote the value of the coins (*Cognizability*).

The challenge in creating coins was to establish a commonly trusted unit of value that each coin represented, but if this value of a coin became widely accepted, different coins could be introduced with smaller or higher values within the same currency *(Divisibility)* (Jevons, 1876).

3.4 Paper money

Coins of gold and silver were also both laborious and unsafe to transport, so, paper money was made (*Portability*), and the gold, that the paper money represented, was stored safely by the ruler (*Stability of value*) (History of Money, 2016). This radically changed the way people engage in transactions of resources. Whereas metal coins represented an actual value of the metal utilized to make the coin, paper money represented a symbolic value, thus making it more practical from a weight-to-value point of view (*Utility and value*). The first paper notes originate from China in the 11th century, and Marco Polo initially introduced paper money to the Europeans around 14th century, but not until the middle of the 17th century

did the concept catch on (Burn-Callander, 2014; Money, 2016). The first bank notes were printed in Sweden in 1661 AD by Stockholm's Banco replacing the copper plates that had previously been used as means of payment. The concept was a success, but eventually, the value of these notes decreased. Now people returned to honor the notes and this high demand caused the bank to run out of coins to redeem the notes and ceased to operate them in 1664 (Stockholms Banco, 2016). Inspired by the success, London goldsmiths began issuing paper notes termed "banknotes", a practice that continued for several decades. Following the trend, the Bank of England in 1694 became the first bank to issue banknotes against the promise permanently to pay the bearer the value of the note on demand (A brief history of banknotes, 2016). As a drawback, paper money seems to be more fragile than coins (*indestructibility*), but *portability* in paying larger amounts appeared to be a greater advantage than the risk of destruction.

3.5 E-money and credit card

In the 19th century, the concept of money was radically innovated once again. In 1860 AD the industry giant Western Union spearheaded e-money with electronic fund transfer via telegram, a service they commercialized in 1871 (Burn-Callander, 2014). This concept of "intangible money" was further developed and in 1946 John Biggins introduced the credit card to his Brooklyn neighborhood (Woolsey and Gerson, 2009). The following decades banks all over the United States began accepting cards as payment, and the concept of a balance subject to these financial charges was introduced (Woolsey and Gerson, 2009). This spread to countries around the globe and both national, as well as international credit card solutions, were initiated. Advances in information technology primarily drove the emergence of the plastic card with a magnetic stripe, and as new technologies such as microchips and the Internet has emerged, innovation of transactions solutions has continued (Woolsey and Gerson, 2009).

The introduction of payment cards introduced a *borrowing facility* through credit cards. It enhanced *security* since the cardholder should not possess larger amounts on him and this increased the possibilities "for spending, withdrawal, and refunding" (Pour et al. 2012: 2). This increased *flexibility* in payments.

3.6 E-business

In 1979 the British innovator Michael Aldrich invented the first online shopping solution. At this point the World Wide Web did not exist; therefore, the solution operated through a TV with a telephone line. The so-called Teleputer allowed the user to make purchases at stores such as Tesco. The technology developed further and in 1994 the first secure online retail transaction happened on the web (British inventor of online shopping on his inspiration, 2013). Not long after in 1995 amazon.com and ebay.com were launched as some of the first retailers using nothing but the web as their sales channel (Gilbert, 2004). Since then online shopping has increased significantly. Online retail expenditure in the UK alone amounted to 35

billion GBP in 2013, which was 20 times the investment in 2000 (Online retail expenditure in the United Kingdom (UK) from 2000 to 2013 (in billion GBP), 2016).

One major challenge within online retailing is the issue of trust (Westland & Clark, 1999). Viruses, phishing, and breaches of data storage can leave consumers vulnerable to fraud. Further, fictive stores can trick people into paying for goods they will never receive. The company Paypal founded in 1998 address this challenge. They have made themselves the mediating platform between buyer and seller and provided insurance to both parties (Om os, 2016).

3.7 Bitcoins

To strengthen the evolving e-business, a number of different E-cash systems have evolved over the last years. Many different systems are taking form, and the purpose is to ensure *anonymity*, *pseudonymity*, *intractability*, *transferability*, *double spending prevention*, *unforgeability*, *no framing*, *fairness*, *recoverability* and *audit ability* (Pour et al., 2012).

One of the new solutions is bitcoins, an open source, peer-to-peer online digital currency. What makes bitcoins unique is that it is the world's first completely decentralized digital payment system. It appraises itself as being a much more secure solution that minimizes the risk of fraud that has plagued the credit card (Uncover the truth about Bitcoin. Learn about its utility and elegance. Get in the know, 2016). Services and products such as bitcoins, mobile banking, contactless payments, etc. are under continual development (Burn-Callander, 2014), and thus, the way that people do transactions perpetually change. This is exemplified by development in payment cards where the magnetic stripe was well established in 2009 (Woolsey and Gerson, 2009), but since then two different standard credit card chips have been introduced (EMV, 2016) and now NFC chips are being implanted in smartphones (Apple Pay, 2016).

3.8 Mobile Payment

Bitcoins are, however, not the only new payment solution. The rise of information technology drives a rapid innovation of the concept of intangible money. Several large corporations are working within the field of mobile payment. Google introduced Google Wallet in May 2011 (Warren, 2011) but replaced it with Android Pay in May 2015 (Popper, 2015). Apple announced Apple Pay in September 2014 (Hof, 2015). In November 2014 Snapchat introduced Snapcash (Introducing Snapcash, 2014), and in March 2015 Facebook launched Facebook Pay (Send Money to Friends in Messenger, 2015). However, none of these players have had significant breakthroughs in with their payment platforms yet. None of the corporations can declare itself winners in online payments, but the future years might bring rapid innovation within the mobile payment industry.

3.9 Summary

Throughout the history of humanity, payment methods have developed from exchange of resources through barter to e-business, bitcoins, and mobile payments. The innovations in payments have been fostered by identifying drawbacks from existing payment methods and introduced new payment methods that in a higher degree addressed these issues. Thereby transaction costs from trade have decreased. The payment methods and their conditions are listed in appendix A.

4. The nature of digital goods

Mobile payment solutions are not physical objects, but applications for smartphones. Thus, companies are as such suppliers of digital goods, which also go under the term information goods[1] (Shapiro and Varian, 1999a). Central to digital goods are the concepts of the network economy, zero marginal costs, bundling, economies of scale and scope, and big data, which are essential elements in understanding digital platforms, as they influence first- and second-mover dynamics.

4.1 The network economy

In the network economy also denoted as the information economy (Kelly, 1997); abundance replaces scarcity (Kelly, 1998). This is to a great extent the case in information markets: Google's search machine does not put anyone worse off if one person searches for information. It is a radical change compared to traditional commodities as oil, food, metals, etc. which are scarce resources, which can only be consumed once. If one person eats a meal, another person cannot eat that same meal. This is, however, not the case in the network economy of digital goods – resources are not scarce due to easy replication. The effect is that high valuations, due to scarcity, are replaced by high values of networks due to a large number of connections (Kelly, 1997; Kelly, 1998). Companies operating within the network economy thus have to; create as many touching points as possible within a network, maximize opportunities for other companies, consider their product, not as commodities, avoid proprietary systems, and finally, rely not on scarcity as a strategy (Kelly, 1998).

4.2 Marginal costs

Marginal costs are the cost of producing one more unit of a product (Salvatore, 2007). The first produced unit requires investments in manufacturing equipment and other assets, e.g. factory buildings and initial costs are thus high, making marginal costs of the first manufactured product substantial (ibid.). Reproduction costs – the marginal cost of the second produced unit - only requires variable costs, and is therefore significantly lower, and the mass production costs decline for every additional unit produced (ibid.). However, costs are associated with every built physical product. E.g. in the shipbuilding industry, marginal costs are high due to costs of commodities and labor.

Regarding digital goods, costs structures are different. The costs of developing a digital good are often high. However, the reproduction costs are zero or very close to zero, due to no substantial costs of replication of software and other digital goods when distributed online. E.g. in the case of an online newspaper, there are no costs from an additional reader of the material. The marginal costs are zero (Anderson, 2009).

---

[1] To keep a consistent terminology, we will use the term digital good.

Since smartphones disrupted the cell phone market, there has been a significant development in the business for mobile applications, where the evolvement of the network economy is dominating (Kelly, 1997). This results in declining prices to the marginal cost and the marginal costs of the digital goods are so close to zero that companies usually round off to zero (Anderson, 2009). This change is necessary to consider as an owner of a digital platform since the owners have to establish alternative revenue streams to finance the fixed costs of development, operation, and cost of invested capital. Consequently, platform owners have to consider innovating one's business model because traditional pricing seems to be harder in the network economy (Kelly, 1998; Staykova and Damsgaard, 2015a).

4.3 Bundling

A traditional approach to increasing the value of a good is to bundle functionalities, and thereby offer a good that supplies more than one particular demand for a customer (Schilling, 2013). In the case of physical products, Sony bundled a Blue-Ray DVD player to their PlayStation 3 console, making the console fulfill two demands: the opportunity to play console games and to watch DVDs (Schilling, 2013).

Bundling is often applied to digital goods. Google launched as a search engine, but today they also provide a webmail, translation, maps, stock prices, trend search, calendar function, and several other products, often tied to a single user account.

When bundling two or more products, users can gain value from the easy access and interaction between the different product's functionalities due to product complementary (Eisenman et al., 2007). However, bundling can also be used to offer cheaper products by selling a package of goods by providing price discrimination benefits (Eisenman et al., 2007). Through Telmore Play, a Danish telecom company, Telmore, offers access to several different platforms such as HBO, Tv2, Politiken, Eurowoman, Mofibo, Telmore Musik, etc. available in certain plans (De fedeste streamingtjenester i én pakke, 2016). The company has successfully bundled several platforms to their product, making a competitive bundle of goods compared to buying the services separately.

It is a popular approach for an existing platform to enter a new market by bundling features, which another platform offers, to the existing platform (Eisenmann et al., 2007).

4.4 Economies of scale and scope

When developing a digital good, the possibility of achieving economies of scale is high due to zero marginal costs by adding additional users (Hedman and Henningsson, 2015; Chesbrough, 2011). Furthermore, companies developing a digital good might also be able to gain economies of scope. Economies of scope can be achieved when developing additional services bundled to the existing, digital product (Chesbrough,

2011). When bundling goods or services, a platform owner has an advantage in developing and promoting the product or service, compared to a new company offering the same product or service, since the proprietor has an established platform from which the new goods or services can be bundled into. If the owner manages to transform this advantage into a price discount for the users or a better bundle of products compared to competitor's offerings, the platform owner can advance from this (Chesbrough, 2011).

4.5 Big Data

IBM have identified big data as one of four major trends within technology in the 2010s (Chen, Chiang and Storey, 2012) and in digital goods, tracking of user behavior is relatively easy to do. Data sets that are so complex and large that they require extensive storage-, management-, analysis- and visualization technologies are denoted big data (Chen et al., 2012).

Big Data can be applied in numerous ways. Transaction data, e.g. from supermarket purchases, can be implemented to create analytical models that can estimate customer purchase behavior (Varian, 2010), real time data can be applied to optimize marketing campaigns (Varian, 2010), and today's technology allows personalization and customization of advertisement (Varian, 2013). Google have effectively bundled numerous features and applications through Android OS, and Varian (2013) describes how a smartphone automatically can integrate a calendar with GPS and real-time traffic information to suggest people what time they should leave for appointments by applying big data.

The opportunities in getting insights from digital goods through big data are numerous and companies offering digital goods can, therefore, use big data to leverage their business.

4.6 The interrelation between platforms and digital goods

The concepts related to digital goods provide different opportunities for a first-mover to enhance its market position and abilities for a second-mover to challenge a first-mover's dominant position. We will discuss the implications of economies of scale, economies of scope, and big data in this section. The implications of the network economy will be elaborated in section 5.2 on network effects. Marginal cost and bundling's relation to first and second-mover dynamics will be discussed in section 5.3 on pricing.

The nature of economies of scale is to profit from the low costs of adding additional users to a digital platform (Chesbrough, 2011). An established first-mover in digital platform markets can, therefore, achieve economies of scale and take advantages of being the first-mover. Contrary, second-movers are in many cases forced to hold substantial costs on initial investments to challenge the first-mover before economies of scale can be achieved. However, if a second-mover can develop a digital platform applying a better

technology, it might be possible to offer a better product that can attract new user groups and achieve economies of scale.

Economies of scope are also in favor of a first-mover in a digital platform market (Chesbrough, 2011). It is easier to add additional functionalities if a large existing user group start using the features offered. However, contrary to economies of scale, establishing economies of scope is not to the same degree in favor of the first-mover since the introduction of new features can create opportunities for a second-mover to challenge a first-mover (Staykova and Damsgaard, 2015b). We will elaborate this further in section 6.4 on expansion strategies.

Finally, the opportunity to profit from big data increases with the amount of data collected. The larger data sets, the better opportunity to create patterns and knowledge (Chen et al., 2012). If a first-mover from the time of launch has stored valuable data, they might be able to profit from that. However, as big data is still relatively new in most businesses, a second-mover might be able to collect relevant and valuable data that a first-mover has not had the opportunity to collect. Big data might not be as useful in itself as it can replace other revenue streams on digital platforms, but together with other improvements, compared to a first-mover's platform, the usage of big data might enable the possibility for a second-mover to challenge a first-mover's position.

4.7 Summary on digital goods

We have identified a number of characteristics of digital goods, illustrated in the figure below.
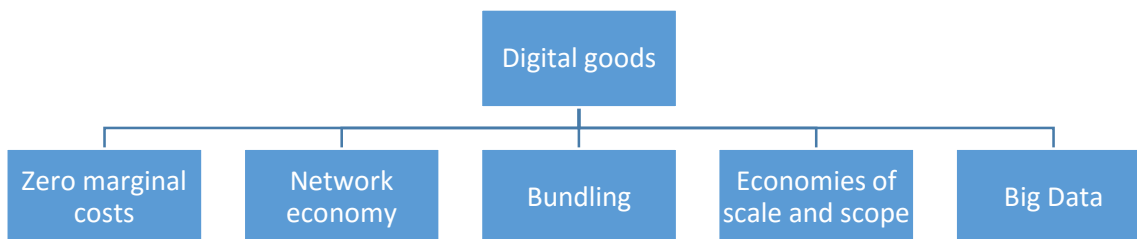

Figure 1: *Characteristics for digital goods.*

The section identifies how these characteristics interrelate with platforms and describe how the characteristics affect first-mover and second-mover dynamics on platform markets. The section finds that digital goods to a higher degree is scalable compared to traditional markets, which enables exponential growth in platform markets.

5. Theory section – platforms

In this section, we will introduce the concept of platforms as it has been defined and discussed in academia. Further, we will introduce concepts central to platform theory, hereunder network effects, pricing, user costs (homing- and switching costs), and lock-in effects, to enable an understanding of the underlying forces that drive platforms and their business models in the market for mobile payment. In addition to introducing platform theory, the section also establishes the theoretical foundation for the case description, which is provided in section 8.

5.1 The concept of platforms

To understand how Swipp might be able to challenge MobilePay's dominant position in the market for mobile payments, we have to specify the characteristics of a platform. In this section, we introduce the concept of platforms and distinguish between one-sided, two-sided, and multi-sided platforms (MSP).

5.1.1 Platform theory in academia

The concept of platforms is not new (Staykova and Damsgaard, 2015a; Hagiu, 2006). When agricultural communities were established 8000 years B.C, trade was facilitated on markets with sellers and buyers of certain resources. This minimized search costs (Shapiro and Varian, 1999b) and can be considered the first platforms in the history (Westland and Clark, 1999). The academia of platforms has developed significantly during the last 15 years (Staykova and Damsgaard 2015a). The digital platforms are especially interesting since they to a great extent are scalable (Hedman and Henningsson, 2015) and enable exponential growth (Rifkin, 2014). New types of business models (Osterwalder and Pigneur, 2010) and advancements in information technology have made platforms more complex and spurred the interest from an academic perspective to define and analyze this new field of platforms.

The increased complexity of platforms has made academia distinguish between one-sided, two-sided and MSPs. Eisenman et al. (2011) elaborate on a definition of a one-sided platform. Two-sided platforms have been studied to a great extent, whereas the MSPs have not been reviewed as carefully (Staykova and Damsgaard, 2015a). We will elaborate the concepts of the different platforms below.

5.1.2 The purpose of a platform

The unique value proposition of a platform is to provide access to other users. Platforms are by their nature designed to solve transaction problems, coordination problems, and minimize search cost between two or more user sides and consist of features and functionalities that facilitate this (Staykova and Damsgaard, 2015a). This could e.g. be a physical market facilitating trade thousands of years back (Westland and Clark, 1999) or a digital platform, connecting different user groups with a certain purpose.

Search cost can be divided into two distinct categories; cases where two or more sides are searching for each other and cases where merely one side is searching for the other (Hagiu, 2006). For example, the central feature of a shopping mall is that it bundles individual merchants to a location, which enables customers to do all their shopping in one place. This reduces the search cost for customers due to reduced transportation time between the merchants and reduces merchant's costs to attracting users.

In effect, a platform's success depends on the platform's ability to reduce search and transaction costs. The value of the platform increases when the platform owner manages to ensure that there are enough users on each side to make involvement worthwhile for all users. The coordination problem has thereby been solved (Evans and Schmalensee, 2013). An example of reducing transaction costs is a payment platform that eliminates the necessity to go through the troublesome process of barter (Hagiu, 2006).

In relation to platforms, some authors discuss the concept of special features, which are features or functionalities that are only attractive/relevant to a smaller part of the market making room to create a niche platform (Eisenmann et al., 2006).

5.1.3 Architecture

Platforms are comprised of a core and often also by a periphery (Gawer and Cusumano, 2002) of features and functionalities. The core contains closely connected main features and functionalities with low diversity from the preliminary number of sides of the platform and has a value on its own. The periphery comprises of sides of the platform, which are added on later as it evolves and merely works as a platform enhancer that cannot stand alone (Staykova and Damsgaard, 2015a). The features and functionalities of the periphery are loosely connected with high diversity (Baldwin and Woodard, 2008). Thus, at the time of the launch a platform merely consists of its core (Staykova and Damsgaard, 2015a).

An airport illustrates this very well. The core of the platform consists of airplane companies and passengers. Aircraft companies are attracted by all the passengers and vice versa, and if one of these sides are removed the entire airport as a platform will vanish. A natural peripheral side to add to this platform is merchants. This generates revenue to the platform but is not crucial for the core to exist (ibid.).
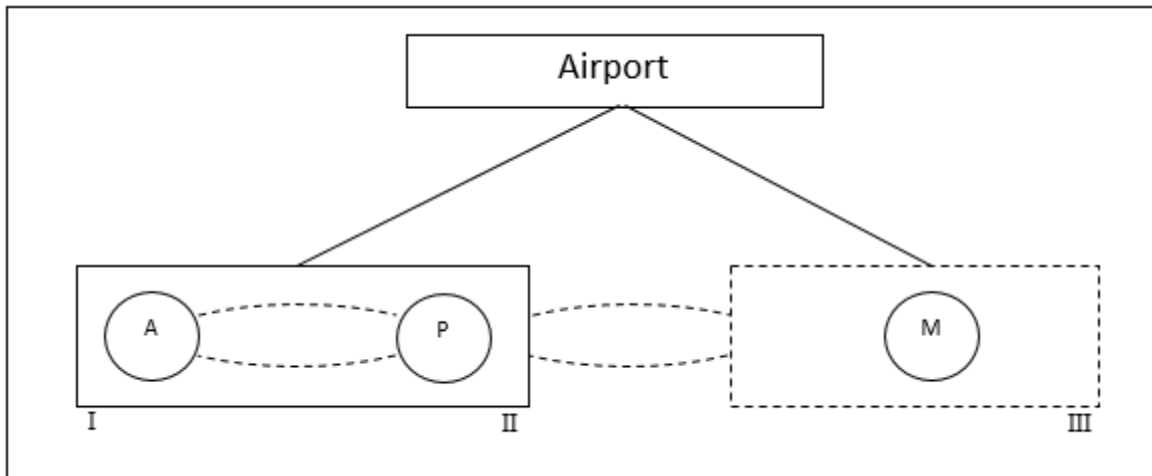
Figure 2: *Adapted from Staykova and Damsgaard (2015a). The architecture of an airport with merchants. Side I represents the airlines (A) and side II represents passengers (P). Together A and P constitute the core of the platform. Side III represents a periphery of merchants of the platform. Airlines, passengers, and merchants are interconnected, which we will elaborate further in section 5.2.*

5.1.4 One-sided and two-sided platforms

A one-sided platform is a platform that serves and connects a single user group. An example of a one-sided platform is a telephone network where all members of the network are both originator and recipient of phone calls and Eisenmann et al. (2011) therefore label it a one-sided platform. Consequently, a two-sided platform is a platform that serves and connects two different user groups. Eisenmann et al. (2011; p. 1273) state *"platforms are two-sided when they serve two distinct and mutually attracting sides of users, as with video game players and developers"*. Another example of such a two-sided platform is credit card companies, which connect payees with merchants. The payees cannot easily change side and become a merchant and vice versa, and the user groups are as such distinct and mutually attracting (Staykova and Damsgaard 2015a) (Figure 3).
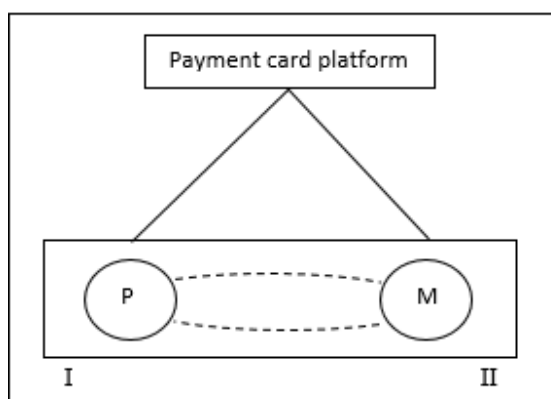

Figure 3: *Payment card platform with two sides. Payers (P) represent the first side (I), and Merchants (M) represent the second side (II). The two sides cannot function without each other - both sides therefore together constitute the core of the platform.*

However, we do not agree that the two sides on a platform necessarily have to be mutually attracted as Eisenmann et al. (2011) state. On Facebook's platform, the users are attracted to each other but are not attracted by advertisers. In such cases, pricing can be used to compensate users, e.g. by providing a product for free to the user group with less attraction to the other user group (Evans, 2009). This will be elaborated further in section 5.3 on pricing.

We, therefore, define a one-sided platform as *a platform with only one distinct user side that attracts similar users, or a platform consisting of two user sides attracting each other, which are easily able to change roles.*

We define a two-sided platform as *a platform that connects two distinct sides that often attract each other but cannot easily change roles*.

5.1.5 Multi-sided platforms

The literature lacks a clear definition for multi-sided platforms (MSPs). Hagiu and Wright (2015) address this by identifying two key characteristics that define an MSP: *"They enable direct interactions between two or more distinct sides"* and *"each side is affiliated with the platform"* (Hagiu and Wright, 2015; p. 5).

Hagiu and Wright (2011; p. 7) have further defined MSP's as "*an organization that creates value primarily by enabling direct interactions between two (or more) distinct types of affiliated customers".* We adopt this definition in this thesis. An example of a multi-sided platform that fulfills this definition is Facebook. Facebook has a side of private users, a side of advertisers, and a side of third-party developers. The platform, therefore, has three sides, and there is a direct interaction between users and advertisers, and between users and third-party developers.

5.2 Network Effects

The concept of network effects suggests that the utility gained for the individual member of a large network is higher than for the members of a smaller network since members of the large network have access to a larger network of people (Hagiu and Wright, 2011). This is also the case with the mobile payment market, and therefore we introduce network effects in this section since they are central to building a successful platform (Gawer and Cusumano, 2014).

Network effects are linked to 'Metcalfe's Law' (Gilder, 1993). The law claims that there is "magic" in interconnectivity:

√n or v=n(n-1)
n = numbers of computers, phones, etc. into a network,
v = result is a network value

You can add "n" numbers of computers, phones, etc. into a network, and the result is a network value (v) equal to √n or v=n(n-1) for large n (Gilder, 1993). Over time, the "value" has become clearer since cheaper and more powerful hardware makes it possible to connect more people, e.g. through platforms like Amazon, eBay, Yahoo and Google (Metcalfe, 2007) and thereby establish the connections that are essential to the network economy (Kelly, 1998).

Network effects are a critical feature to consider for both one-sided platforms, two-sided platforms (Eisenmann et al., 2006) and MSPs (Kazan and Damsgaard, 2014) since network effects can create positive feedback loops, making *same-side* and *cross-side* network effects (Gawer and Cusumano, 2014).

5.2.1 Same-side network effects

Same-side network effects, sometimes called direct network effects, are powerful and strengthen the connectivity between users within the same user side (Gawer and Cusumano, 2014; Staykova and Damsgaard, 2015a). Positive same-side network effects increase the value of a network for each single user on one side of the platform. This means that the more users within a user group, the more the platform will attract additional users within the user group. Same-side network effects can be positive or negative and can vary in strength (Staykova and Damsgaard, 2015a).

Facebook, having more than 1.55 billion monthly active users (Number of monthly active Facebook users worldwide as of 3rd quarter 2015 (in millions), 2016), is a good example of positive and strong same-side network effects. The nature of the platform is to create social interaction, and the primary purpose is thus to connect people in a network. The more people from an individual's network who uses Facebook, the more people the user can interact with and the more valuable the platform becomes to the user (Eisenmann et al., 2006).

Network effects, however, are not always strong. In the case of cell phone plans, some providers offer free calls to other customers of the same provider. However, with today's cell phone plans offering many hours of calling for a fixed price, the offer of free calling among subscribers from the same company is close to worthless, and therefore network effects are, though positive, weak. In the case of gas stations, network effects among car owners are slightly negative. One car owner has no direct gains from another car owner owning a car and in rush hour, the same-side network effects might even be negative since car congestions

will arise, which delays the individual car owner. However, as a car owner, it is necessary that other people drive cars and uses gasoline to keep a market for gas stations, establishing cross-side network effects (Gawer and Cusumano, 2014).

5.2.2 Cross-side network effects

There are several different terms for cross-side network effects. Hagiu and Wright (2011) call this *cross-group network* effects and Boudreau (2012) names it *cross-platform network effects* while Gawer and Cusumano (2014) use the term *indirect network effects*. In this thesis, we will use the notion cross-side network effects when one user side gains value from another and as a result is attracted by the other side. Cross-side network effects can be even stronger than same-side network effects (Gawer and Cusumano, 2014) since one side can attract an entire other side merely by the presence of the first side (Staykova and Damsgaard, 2015a). There is a foundation for cross-side network effects to be established when two user sides interact with each other on a platform (Eisenmann et al., 2006) and Hagiu (2006) claim, that cross-side network effects are essential to establish a real, multi-sided platform.

As with same-side network effects, cross-side network effects can also be strong or weak, and positive or negative (Staykova and Damsgaard, 2015a). As mentioned, Facebook users and advertisers constitute two different sides on Facebook's platform. The growth of the advertiser side is highly dependent on cross-side network effects towards the user side and therefore the advertiser side has strong cross-side network effects from the user side. However, the users have only small or no gains from advertisement. As such, there are at best weak cross-side network effects towards the advertiser side. The presence of too many advertisers might even lead to negative cross-side network effects for the users (Staykova and Damsgaard, 2015a).

Boudreau (2012) researches cross-side network effects in the market for external software producers developing applications for a platform. Since the early 1980's most companies sought to increase the value of its platform by following a strategy of attracting as many third-party developers as possible, but this needs to be reconsidered (Boudreau, 2012). Developers today increase the supply of applications in such a degree that it is more a lottery than a result of the quality of the product developed by each single developer, that determines whether an application will be successful or not. Therefore, negative cross-side effects, where one supplier has a negative impact on another supplier's presence, seems to dominate the supplier side for third party applications, due to the large supply of applications (Boudreau, 2012).

5.2.3 Mutual cross-side network effects

Gawer and Cusumano (2014) argue that two-sided and multi-sided platforms can create *mutual cross-side network effects* where one side on a platform increase its value due to the presences of the other side and

vice versa. Mutual cross-side network effects are present when both sides gain value from the other side respectively (Eisenmann et al., 2006).

A hetero dating website has mutual cross-side network effects. The website cannot function without both men and women, but the advantage of the platform is that both sides are attracted to each other. Contrary, the platform has no same-side network effects since one woman has no gain from the presence of other women.

The Facebook example illustrates the presence of different network effects on one platform (figure 4). The various dynamics on the platform are explained in the illustration beneath.
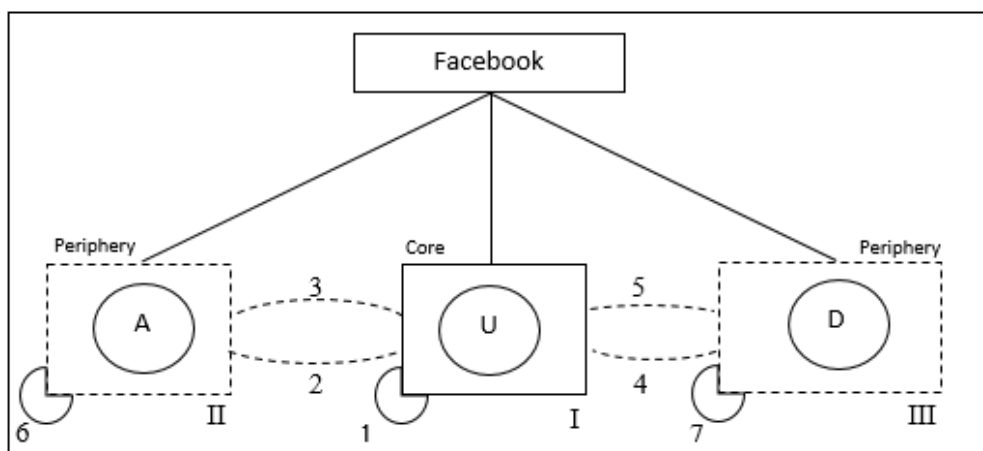

Figure 4: *Facebooks platform architecture.*

Facebook's core is its users (I) and has two peripheries: advertisers (II) and third party Developers (III). The core has strong same-side network effects because the users are highly interconnected (1). Advertisers have strong cross-side network effects from the users (2), whereas users have limited gain from advertiser's presences and those cross-side network effects (3) are therefore weak and might be slightly negative. Third party developers earn money from user purchases, having strong cross-side network effects from users (4), and users have weaker cross-side network effects from third party developers (5). However, they are positive for some of the users. Advertisers have negative same-side network effects (6) since the advertisers try to increase attention on their particular advertisements. This is the same situation for developers, who also face negative same-side network effects (7) because they compete on attracting the user's attention.

5.2.4 Critical mass

The fact that resources in the network economy are not scarce is a significant advantage for companies. However, traditional economists argue that the price in a perfect market will fall to the marginal cost

(Anderson, 2009). When costs decline to zero, prices also drop to zero in many cases. Thus, it is important to establish a critical mass of users, which Economides and Himmelberg (1995) define as the minimum network size that can create equilibrium in the platform market. A network that has reached a critical mass makes it possible to mobilize revenue streams from the platform (Anderson, 2009). However, two-sided platforms and MSPs supplying digital goods often face a chicken-and-egg problem when trying to attract users and need to establish cross-side network effects among two groups, e.g. a hetero dating-platform (Hagiu, 2014). The chicken-and-egg problem is when one side has no incentives to join without the other side, but the other side cannot be attracted without the first side (Hagiu, 2014). Particularly in these cases, it is vital for the development of a digital platform to reach a critical mass of users as fast as possible (Staykova and Damsgaard, 2014).

Most platforms face this problem at launch, and a significant effort to balance the development on two sides is necessary to develop the platform. Here, pricing dynamics can be a vital tool to attract the right amount of users to each side (Evans, 2009). This will be elaborated in section 5.3.

5.2.5 Implications on first- and second-mover dynamics

The stronger network effects a first-mover can create on a digital platform, the larger the chance that the first-mover can obtain a dominant position in the market. Due to increased value from an increased usage, even more users might be attracted. Further, if a two-sided or multi-sided platform has established positive cross-side network effects on the platform the first-mover's position is enhanced due to the chicken-and-egg problem a second-mover might face. Positive same-side and cross-side network effects are therefore a strong advantage for the first-mover in platform markets, making it difficult to challenge the platform leader's dominant position. If a second-mover wants to challenge the first-mover they have to provide new or other value propositions that can compensate for weaker network effects.

5.2.6 Summary of network effects

There are three different kinds of network effects; same-side, cross-side and mutual-cross-side, and have reached an understanding of network effects of either being positive or negative. Further, they network effects can be strong or weak. The section finds that network effects are essential for platforms and the development of platforms, because both same-side and cross-side network effects can, if positive, enhance a platform's growth exponentially. However, both same-side and cross-side network effects can also be negative and not create positive feedback loops from an increased number of users. Finally, we have identified that a critical mass is essential to reap the benefit of network effects, especially in some cases where strong positive same-side and/or cross-side network effects are present.

5.3 Pricing

Pricing is a vital element to consider when balancing incentives across user sides (Eisenmann et al., 2006). This is also the case within the mobile payment market. Therefore, we introduce the dynamics on pricing in this section.

In traditional businesses, the company must evaluate its value proposition and cost structure, and from this assessment, select the pricing level and pricing structure that optimizes profits. Platforms are no exception, but the dynamics of the network effects has to be taken into consideration (Rochet and Tirole, 2003). Eisenmann et al. (2006) highlight how pricing can be used as a lever to help platform growth and attract the preferred amount and types of users. The number and types of users on both sides of the platform have a significant impact on the value proposition it offers. When network effects are positive and strong, the value proposition grows with the number of users (Osterwalder and Pigneur, 2010), as just outlined. Thus, for many platforms, the pricing structure should not be permanent, but rather dynamic and allowed to develop along with the number of users (Eisenmann et al. 2006).

Two-sided platforms and MSPs potentially can have multiple revenue streams, making it a complicated task to create the right pricing structure of a platform (Eisenmann et al., 2006; Hagiu, 2014). Nevertheless, many platforms choose only to capture the revenue from one side, as they strategically distinguish between the user side willing to pay and the user side that would likely leave the platform if it costs money, referred to as the revenue side and the subsidy side respectively (Eisenmann et al., 2006).

The revenue side is the side that can realize monetary value from getting access to the users on the other side of the platform. Thus, they are typically the ones providing a service or product through the platform (Evans and Schmalensee, 2013). Conversely, the other side is usually more price sensitive and therefore subsidized by the revenue side, since the revenue side is willing to pay for reaching a side containing a critical mass. Therefore, the subsidy side typically demands quality rather than supplying it (Eisenmann et al., 2006). The larger the number of users on the subsidy side, the more the revenue side is willing to pay (Eisenmann et al., 2006). Hagiu (2014; p. 76) summarizes the above into the following principles when creating the right pricing structure:

- *"For each group, charge a higher price when the group in question has less price sensitivity."*
- *"If there are no priced transactions between the sides, then charge more to the side that stands to benefit more from the presence of the other side or sides."*
- *"If there is a priced transaction between two sides, then charge more to the side that can extract more value from the other side."*

Shapiro and Varian (1999a) state that companies in a network industry can apply a survival pricing tactic by lowering the price to increase sales, but empirical data shows that the tactic is insufficient to catch up on a competing platform due to higher costs of deployment, training, and support. As pricing and network effects are strongly interrelated on digital platforms (Eisenmann et al., 2006), a permanent price cut seems not to be efficient to protect a position in a platform market to compensate for weaker network effects or less functionality.

Another tactic to establish critical mass is to pay the users to sign up and use the platform. This was the case when PayPal launched and offered a $15 signup reward (Staykova and Damsgaard, 2015a) and thereby applied negative pricing (Anderson, 2009). Shapiro and Varian (1999a) suggest that before applying negative pricing, a platform should ask three questions:

- Will the user group offered negative pricing use the product and will network effects be enhanced?
- How valuable is the created user base, and how and when will the revenue stream start?
- Are you overly optimistic in the bidding war, where other bidders are more realistic?

In addition to the above perspectives on pricing, Eisenmann et al. (2011) depicted that the price of a bundle of products should not surpass the sum of their separate prices accumulated in order to increase sales/users. If done right, bundling can be a beneficial strategy to attract a critical mass of users.

Facebook is an excellent example of these considerations on pricing. For years, Facebook was a one-sided platform merely serving as a social network platform generating no revenue from its price sensitive users. Eventually, they added another side to the platform, namely advertisers. Today, Facebook has 2 million active advertisers, generating around 90% of Facebook's yearly revenue (Facebook annual rapport 2014, 2014). Some platforms have the advantage of being able to grow merely by the power of same-side network effects, as is the case with Facebook. Yet, not all platforms have this benefit, as they face the chicken-and-egg problem requiring two or more sides on the platform from the beginning to offer their value proposition to the users.

5.3.1 Implications on first- and second-mover dynamics

To obtain a dominant position in a digital platform market, a first-mover has to ensure steady growth (Staykova and Damsgaard, 2015b) and a pricing structure that attracts different user sides (Eisenmann et al. 2006). If a first-mover succeeds in this, it can obtain a dominant position (Shapiro and Varian, 1999a).

Digital platforms that have achieved a dominant position can be hard to challenge for a second-mover due to strong network effects and the fact that many digital platforms offer their product or service free or at a very low price due to low or zero marginal costs (Anderson, 2009).

Second-movers can attract users by applying negative pricing temporary to establish a critical mass. However according to Shapiro and Varian (1999a), empirical examples shows that long-term survival pricing to compensate for a first-mover's value propositions and network effects seem not to be a feasible strategy, and pricing strategies have to be followed by product development. To challenge a first-mover, a second-mover can instead create a new bundle of goods offered to the users of the platform (Schilling, 2013). However, a first-mover might be able to bundle the same or similar products to the platform, if technically possible, and a bundling strategy might not be feasible for a second-mover if the first-mover can easily imitate it (Staykova and Damsgaard, 2015b).

Finally, Anderson (2009) describes the possibility of de-monetizing a market by offering a good freely or at a significantly lower price. First-movers with a dominant position should, therefore, be aware of the risk from second-movers de-monetizing the first-mover's revenue stream. However, strong same-side and/or cross-side network effects can protect the position of the first-mover. This threat therefore often requires a significantly better technology and/or a radically new business model to succeed (Anderson, 2009) that is hard to imitate for the first-mover (Staykova and Damsgaard, 2015b).

5.3.2 Summary on pricing

To summarize, a platform has to consider its value proposition in light of network effects when settling on a pricing structure. Further, the platform should identify which user side(s) should be considered subsidy side and revenue side. Finally, pricing structures should be dynamic and follow the development of the platform size, as the value proposition typically increases when the number of users rises.

The degree of subsidy and collection of revenue, as a result, depends on the strength of the network effects, which evolve over time. We summarize the dynamics below with an example of two user sides:

	User side A	**User side B**
Price sensitivity	High	Low
Subsidy/revenue side	Subsidy side	Revenue side
Price strategy	Free or negative pricing	Revenue based
Effect of price strategy	(Weak) Same-side network effects are enhanced, and more users are attracted to the subsidy site of the platform.	The platform collects revenue from user side B due to positive cross-side network effects to user side A. Therefore, user side A attracts user side B despite the related costs for user side B.

Table 1: *Summary on pricing.*

5.4 User costs and Lock-in effects

Pricing can be applied to adjust user incentives on one-, two-, and multisided platforms, e.g. to attract new users. However, it is also relevant to consider costs of using a platform and costs from switching from one platform to another. Users of platforms are facing costs either directly, indirectly or both, when using the platforms. In this section, we will outline user costs and their implication for platform firms.

5.4.1 Switching costs

Switching costs are costs a user face when switching his/her engagement from one platform to another (Farell and Klemperer, 2007). Switching costs can be related to equipment that is incompatible with the new products, learning costs, transactional costs, or contractual bindings (Farell and Klemperer, 2007). Market leaders have an incentive to increase switching costs to keep the customers on the platform and try to establish a dominant design (Shapiro and Varian, 1999a). Some apps, e.g. the Danish Vivino, collect personal information on vines that a user has scanned and rated, making the app able to suggest other vines that the user might like. If a user has collected much data that cannot be transferred to another app, switching costs are high.

On markets with high switching costs, second-movers can only be successful if they manage to offer platform improvements to consumers that increase user value to a degree that exceeds the switching costs a user have to absorb (Eisenmann et al., 2011). To be successful in this, companies can offer increased value, but also try to reduce switching costs for users (Eisenmann et al., 2007), e.g. by providing a migration path for customers (Shapiro and Varian, 1999b). In the case of Vivino, a migration path can enable import of data from Vivino to another app.

5.4.2 Homing costs and multi-homing costs

Homing costs represent the costs a user holds from adoption, operation and the opportunity costs measured in spent time when entering and maintaining a connection to a platform (Armstrong, 2006; Eisenmann et al., 2006; Eisenman et al., 2007).

In the case of game consoles, a game for Xbox cannot be used on PlayStation or Nintendo and vice versa. Due to that the relatively high cost of both consoles and games, incentives to multi-home are small (Eisenmann et al., 2006; Eisenman et al., 2007; Choi, 2010). The level of multi-homing costs varies significantly from market to market, and this affects the users' incentives to multi-home. A market leader, having the majority of the potential customers, has an incentive to increase switching costs to avoid users leaving the platform.

5.4.3 Lock-in effects

A platform owner can increase switching costs and thereby offset incentives for existing customers to multi-home or leave the platform by creating lock-in effects, that can be a useful lever for the successful growth of a platform (Shapiro and Varian 1999a). Staykova and Damsgaard (2015b) argue that payment platforms can evolve from being a one-sided platform to a two-sided platform and eventually become an MSP and that the number of features will vary to what stage the platform finds itself in. This development is, among others, driven by the intention to lock-in the customers. In practice, lock-in effects can appear in many different ways, but Shapiro and Varian (1999b) have identified seven different types of lock-in effects and explained how they increase switching costs. We will introduce lock-in effects in order to enable an understanding of how the functionalities can lock-in customers. Due to the specific conditions a platform has, it differs to what degree it is possible to create lock-in effects, but through the examples below, we describe the seven lock-in effects.

5.4.3.1 Contractual commitments

A product can be given away for free for a period with the purpose of committing people to it to such a degree, that users want to be paying customers afterward (Shapiro and Varian, 1999b) e.g. by increasing other lock-in effects during the free period. As an example, Netflix offers one month of free subscription to all new users to establish a bond with the platform that increases incentives to subscribe after the free month. Another company, Spotify, offers free music in exchange for attention to advertisements on Spotify. To avoid commercials, Spotify offers the opportunity to buy Spotify Premium, which also offers extra features, and this is a way to lock-in users through a contractual commitment.

5.4.3.2 Durable purchases

Durable purchases are especially common in hardware purchases but are also applied to software purchases. A common model is the bait-and-hook business model (Osterwalder and Pigneur, 2010). Gillette is famous for applying the strategy that subsidizes razors to lock-in people to buy razor blades at a high price (Anderson, 2009). In the case of software, many programs can be purchased for either Microsoft Windows or Apple's OS, and for every program bought, that cannot be used on other operating systems, lock-in effects increase.

5.4.3.3 Brand-specific training

Brand-specific training relates to the use of a certain product, e.g. a piece of software or a physical product (Shapiro and Varian, 1999b). If a user applies a particular piece of software for a period, the user has to learn to use new software in case of replacement, which increases switching costs, especially if the software is complicated to use. In the case of hardware, Apple has introduced a new type of finger touch on

the iPhone 6S, which many people might miss if they replace the phone with another brand that does not offer this functionality. This is a way to create brand-specific training (Shapiro and Varian, 1999b).

5.4.3.4 Information and databases

Online platforms have the ability to store valuable information for the users since the information potentially can lock-in the user (Shapiro and Varian, 1999b). As mentioned in section 5.4.2 on homing costs and multi-homing costs, collected data can be stored by a platform, and if no competitors offer a migration path, the users are locked-in to the platform. Users, therefore, have to accept significant switching costs if leaving the platform, in the form of loss of gathered data (Shapiro and Varian, 1999b). This is the case with running apps, where much information is collected. However, more migration paths are offered in this market, and they minimize the switching costs and thereby the impact of the lock-in effect.

5.4.3.5 Specialized suppliers

When choosing a specialized supplier, consumers or a company usually locks itself to this supplier in the future, e.g. to buy more equipment (Shapiro and Varian, 1999b). As a user or company, the problem is that a supplier of a specialized product can force people to buy more, specialized, complementary products, and prices might increase since there are no alternative suppliers. This is the case with the Danish parliament right now, which is to consider where to invest a huge amount in new fighter aircrafts. The choice of aircraft supplier is important since the government will lock-in the Danish air force to this flight company and their services and software updates for many years (Hansen, 2015).

5.4.3.6 Search costs

If a company through an app manages to gather information that can minimize search cost for a user side, the platform might be able to lock-in its users to the platform (Shapiro and Varian, 1999b). An important feature for platforms is to pair sides that increase consumer surplus from using the application instead of searching for specific information other places since the platform creates more value than alternative search methods for all types of agents (Evans and Schmalensee 2013; Hagiu, 2006). For example, Google in general or the Danish flight search engine, Momondo, in particular, have managed to decrease search costs for information in general and flight prices in specific. Therefore, people tend to use these platforms when searching information because they provide the best results, and the platforms increase their ability to provide better search results every day from accumulated knowledge (Chesbrough, 2011) gained from big data.

5.4.3.7 Loyalty programs

Loyalty programs are a popular lock-in effect to apply. Companies can offer discounts to users for being loyal to a platform by providing additional services free or at a discount especially if this allows other

revenue sources to be mobilized due to the loyal usage (Shapiro and Varian, 1999b). Traditional loyalty programs are the "buy nine coffees, get the tenth free" and "get 30% discount on a year subscription compared to monthly subscription"-offers. This is a well-known method to increase customer loyalty.

Figure 5: *Lock-in effects on platforms. Shapiro and Varian (1999b) describe seven different lock-in effects platforms can apply to lock-in its users.*

5.4.3.8 Implications on first- and second-mover dynamics

It is in the interest of a first-mover on a market for digital platforms to keep homing costs low but multi-homing costs high to obtain a dominant position. By doing that, the users on the platform have small incentives to leave the first-mover's platform since the total homing costs are low. However, to make sure users would not exit the platform even though a second-mover challenges the platform, a first-mover can obtain a dominant position by increasing switching cost through the creation of lock-in effects.

Contrary, a second-mover's chance to challenge a first-mover's dominant position depends on whether it is possible to launch a platform that ensures low multi-homing costs for users that decide to multi-home or not. Further, a second-mover's ability to challenge a first-mover's dominant position also depends on the ability to create migration paths that will lower the switching costs for users that tend to leave the dominant platform or start multi-homing (Shapiro and Varian, 1999a).

A second-mover can decrease multi-homing costs by creating adapters and interconnections to a first-mover's dominant platform to tap into the existing user base (Shapiro and Varian, 1999a). Further, it can try to lock-in user groups who are attracted by special features to develop the platform (Eisenmann et al., 2006).

5.4.4 Summary

Homing costs is a notion for the costs a user holds from "homing" a platform, and if a user decides to use more than one platform, the user will incur multi-homing costs. If multi-homing costs are low, a user tends to multi-home, and if multi-homing costs are high, the degree of multi-homing will more likely decrease.

A platform can minimize the number of customers that leaves the platform (assuming it provides a fair quality/price ratio), by creating lock-in effects, since this increase switching costs a consumer has to accept when switching from one platform to another. Lock-in effects can, in its nature, vary widely, but we have adopted seven categories of lock-in effects (Shapiro and Varian, 1999b), that platforms might be able to implement in order to lock-in customers by increasing switching costs. The lock-in effects are summarized in a table adopted from Shapiro and Varian (1999b; p. 117):

Type of lock-in	Effects on switching costs
1. Contractual commitments	Compensatory or liquidated damages.
2. Durable purchases	Replacement of equipment; tends to decline as the durable ages.
3. Brand-specific training	Learning a new system, both direct costs and lost productivity; tends to rise over time.
4. Information and databases	Converting data to new format; tends to rise over time as the collection grows.
5. Specialized suppliers	Funding of new supplier; may rise over time if capabilities are hard to find/maintain.
6. Search costs	Combined buyer and seller search costs; includes learning about quality of alternatives.
7. Loyalty programs	Any lost benefits from incumbent supplier, plus possible need to rebuild cumulative use.

Table 2: *Adopted from Shapiro and Varian (1999b; p. 117).*

6. Theory section – platform markets

Having introduced platform theory in section 5, we will now introduce platform relevant theories to establish a broader perspective on platform markets. Section 6.1 discusses winner-take-all dynamics, section 6.2 mobilizes theory on resource-based view, section 6.3 introduces theory on competitor analysis and interfirm rivalry, and finally, section 6.4 elaborate concepts on expansion within platform markets.

Section 6.1-6.3 creates the theoretical framework to answer the three sub-questions of our research question, and section 6.4 outlines the framework to create a strategy for Swipp to challenge MobilePay's dominant position in the Danish mobile payment market, built on the actual strategic opportunities and obstacles in the market.

6.1 Winner-Take-All dynamics

When analyzing how to challenge a dominant player on the market for mobile payments, we need to understand whether there are winner-take-all dynamics on the market or not, to understand the type of challenge to initiate.

Mature network industries differentiate when it comes to the number of platforms serving a market. In some markets, several different platforms coexist, as is the case in the movie-streaming industry where Netflix, HBO, Apple TV, etc. all run their own platforms (Eisenmann et al., 2006). Yet, in other markets, multiple companies end up sharing a single platform, which has been the case with the DVD industry (Shapiro and Varian, 1999a). Finally, we see markets where a single platform controlled by a single company dominates the entire market, which is the case with Facebook.

Such a monopoly situation provides an advantageous position for the dominant platform, enabling increasing returns to scale and scope (Hagiu, 2014; Chesbrough, 2011). However, the dominant player has to keep fighting against new entrants to keep its position. Google have not been able to break Facebook's position with their launch of Google+ even though Google tried to bundle Google+ to their other services. Contrary, on the market for music, Spotify has managed to build a payment model attracting users from the decreasing music industry.

Eisenmann et al. (2006) identify three factors that increase the likelihood that a single platform will serve the market alone (Eisenmann et al., 2006: p. 99):

1. *"Multi-homing costs are high for at least one user side."*
2. *"Network effects are positive and strong – at least for users on the side with high multi-homing costs."*
3. *"Neither side's users have a strong preference for special features."*

Figure 6: Winner-Take-All dynamics. Eisenman et al., (2006) identify three parameters that have to be fulfilled if a market is to turn into a winner-take-all market.

Thus, when the demand is likely to be satisfied by mass content when platform size matters, and when users are unlikely to engage with more than one platform, there is an opportunity for a winner-take-all situation in that particular market.

It is important to note, that the most likely winner is not necessarily the first-mover nor the originator of the dominant design (Gawer and Cusumano, 2014; Eisenmann et al., 2011; Eisenmann et al., 2006). Rather, research has pointed towards deep pockets, competitive reputation, preexisting relationships with prospective users, scalability, proper technical architecture, continual innovation, coalition building, etc. as essential aspects in gaining platform leadership (Gawer and Cusumano, 2014; Eisenmann et al., 2006).

As many platform battles go on, it is important to note that the three factors characterizing a winner-take-all market change over time as platforms develop. A platform that is strong on two out of three elements can lose platform dominance over time. If a platform has very strong network effects and users do not prefer special features, second-movers can still challenge the first-mover if multi-homing costs are low, since a second-mover might be able to attract users that have more gain than costs from multi-homing. However, this is only likely to occur if the platform can provide functionality that the first-mover does not provide.

6.1.1 Summary

To summarize, winner-take-all situations are likely to occur in industries where three specific conditions are fulfilled; if there are high multi-homing costs for minimum one user side if the network effects are positive and strong – for the users on the side with high multi-homing costs and if there are no strong preferences

for special features. If these conditions are fulfilled, one player is likely to win the market. Though, obtaining a winning position still requires a demanding strategic effort.

6.2 Platform resources

In platform markets with unclear winner-take-all dynamics (Eisenman et. al, 2006), platforms can compete to obtain platform leadership (Gawer and Cusumano, 2002). Further, one or more platforms can endeavor to challenge a first-mover's dominating position. Due to the characteristics in platform markets, the dynamics in a competitive situation is different from classical, competitive situations in traditional markets (Gawer and Cusumano, 2014).

Therefore, it is relevant to identify both platform leader's and second-mover's capabilities and determine whether each of them possess competitive and/or sustained competitive advantage(s) (Barney, 1991) in relation to platform-specific dynamics like network effects, pricing, user costs, and lock-in effects[2] (Eisenman et. al, 2006; Hagiu, 2014) but also on other company-specific parameters such as costs.

6.2.1 Resource based view (RBV)

Barney (1991) links sustained competitive advantage to firm resources, which include "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm" (Barney, 1991; p. 101). Resources, which can be applied to implement strategies that increase firm's effectiveness and efficiency (Barney, 1991).

Further, Barney (1991) introduces the concepts of competitive advantage and sustained competitive advantage. A firm has a competitive advantage when implementing a strategy that is valuable, rare, inimitable, and non-substitutable (VRIN framework). Further, a competitive advantage is considered sustained when other firms are not able to duplicate the strategy and reap the same benefits from the implementation (Barney, 1991). Some authors discuss how long a competitive advantage needs to be present to become a sustainable competitive advantage (Barney, 1991). However, Barney distinguishes between whether the advantage can be duplicated or not, though, it is not to last forever, since a case of creative destruction can radically change market structures (Barney, 1991; Schumpeter, 1976; Staykova and Damsgaard, 2015a).

As an example, established platforms might have so strong network effects, due to a large user base that it in some cases might be considered a competitive advantage.

---

[2] From here on, network effects, pricing, user costs, and lock-in effects together will be referred as platform specific dynamics.

6.2.1.1 Resource homogeneity and mobility

Barney (1991) states that a condition for getting a sustained competitive advantage is that firm resources are heterogeneous and not perfectly mobile. If resources among companies are homogeny and perfectly mobile, another company might implement the same strategy as the first-mover, and therefore the competitive advantage cannot be sustained.

A first-mover can obtain a competitive advantage due to access to distribution channels, customer goodwill, and positive reputation, before other companies (Barney, 1991). However, if companies are identical, one company cannot possess knowledge about opportunities in the market that another company does not possess, and therefore, heterogeneity in resources is necessary to establish a first-mover advantage (Barney, 1991).

Barriers to entry can also create a sustained competitive advantage, but as in the case of first-mover situations, it requires that the first-mover possesses resources that are not homogeneous and which have limited mobility, since a second-mover in other cases would have the opportunity to follow the same strategy as the first-mover (Barney, 1991).

6.2.1.2 Valuable, rare, imperfectly imitable and non-substitutable

In terms of platforms, it is, therefore, relevant to consider whether a resource that a platform possess is homogeny to a resource that other platforms possess, and whether the resource is mobile or not. If resources are immobile and heterogeneous, Barney (1991) states that resources further need to be *valuable*, *rare*, *imperfectly imitable*, and *non-substitutable* to establish a sustained, competitive advantage. If resources are valuable, it enables a company to implement strategies that increase efficiency and effectiveness. Resources further have to be rare, so that competing firm cannot access them. Valuable and rare resources can help to establish first-mover advantages, but to establish a sustained competitive advantage, firm resources also need to be imperfectly imitable, so that other companies cannot imitate the resources. Finally, to establish a sustained competitive advantage, a resource must also be non-substitutable, so that a second-mover cannot get the same competitive advantage by applying other, similar resources that can make the valuable, rare, and imperfectly imitable resource, possessed by the first-mover, substitutable (Barney, 1991).

Some conditions, to get a sustained competitive advantage, have been introduced above. To establish a sustained, competitive advantage, a platform's resources need to be heterogeneous and immobile and further, the resources should be valuable, rare, imperfectly imitable and non-substitutable. Therefore, strong network effects derived from a large user base cannot be considered a sustained, competitive advantage. A large user base can be valuable and rare, and create value for at platform. However, if other

entry barriers are low, e.g. multi-homing costs, it may be possible to launch new platforms that can also establish a large user base (Eisenman et al., 2006).

6.3 Market analysis and competitive interfirm rivalry

Barney's (1991) perspective on resource-based view is primarily inward-looking and do not consider the market context firms compete within. In contrast, Chen (1996) studies the *market commonality* and *resource similarity* among competing firms.

By identifying interfirm rivalry among platforms (Chen, 1996) with competitive advantages or sustained competitive advantages (Barney, 1991) it is possible to enlighten the competitive situation within a certain platform market without clear winner-take-all dynamics (Eisenman et. al, 2006).

6.3.1 Market commonality

Chen (1999) states that a "market" is to include both product and customer-based concepts as geography, segments and brand and he (1996; p. 106) defines market commonality "as the degree of presence that a competitor manifests in the markets it overlaps with the focal firm". Chen (1996) further states that market commonality is both defined by the strategic importance and the strength of competitors in the markets.

This is in many cases a relevant point for platforms. Two platforms might compete over the same users, however, the degree of overlapping user groups might vary especially if platforms serve groups demanding special features (Eisenman et al., 2006).

6.3.1.1 Resource similarity

Chen (1996; p. 107) defines resource similarity "as the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm". With this definition, it is possible to identify resources that each platform possesses which can be applied in a competitive situation with two or more competing platforms. If a platform possesses resources that a competing platform does not possess, the platform might be able to apply the resources to establish a competitive advantage or a sustained, competitive advantage (Barney, 1991).

6.3.1.2 Competitor reactions

Chen (1996; 105) identifies three factors that describe the organizational action in competitive situations: "the *awareness* of interfirm relationships and action implications, the *motivation* to act, and the *capability* of taking actions". He further states that awareness and motivation relate to market conditions and that capabilities primarily refers to the ability to take action on competitor's initiatives. Therefore, if one platform is not aware of either market commonality or resources similarity, it will not act in a competitive situation.

However, even if a platform is aware of the situation, it might not have the motivation or capability to act. A reason to the missing motivation to act might be an asymmetry in markets: A pair of companies might not see each other as equal threats (Chen, 1996). This might be the case if a large, established platform on a market focuses on possible, international entrants, while a second-mover competing in the same market do not find international entrants important since it is more important for it to get a foothold in the current market (Chen, 1996). If this is the case, the platform leader might only react to a certain degree on initiatives taken by the second-mover, while the second-mover might respond to a larger share of the platform leader's initiatives (Chen, 1996).

6.3.2 Summary

Chen (1996) creates a link between Barney's (1991) resource-based view and companies' ability to be aware of interfirm relations, the motivation to act and the capability to do it. Assuming that two companies in a competitive situation possess heterogeneous resources and resource mobility is limited, a company can establish a competitive or a sustained competitive advantage.

However, by introducing market commonality and resource similarity, it is possible to map the overlapping of competencies among competing platforms. By doing so, one platform can plan attacks on a competing platform by applying its assets, capabilities, organizational processes, firm attributes, information, and knowledge. This might help establish competitive or sustained competitive advantage towards the competitor, which is a significant advantage for a platform challenging another platform within the same market (Barney, 1991).

6.4 Expansion strategies

An established platform can advance from the platform specific dynamics in the network economy. The dynamics are network effects, user costs, and lock-in effects, and the fact that many platforms offer their services for free or at a very low price, making pricing a difficult parameter to compete on. Further, an established platform might possess one or more (sustained) competitive advantages. Though second-movers might also have competitive advantages, which they can apply to attack a first-mover, and further, second-movers can also leverage the platform specific dynamics to attack a first-mover.

If the first-mover platform is already two-sided or multi-sided, it is harder to attack for a second-mover platform with fewer sides because the second-mover might need to deal with the chicken-and-egg problem (Hagiu, 2014).

We will use these findings and draw on Staykova and Damsgaard's (2015b) framework of entry and expansion to assess expansion strategies for platforms. Staykova and Damsgaard (2015b) divide an

expansion strategy into three elements: timing, order, and design. They apply this structure to analyze factors relevant when expanding in platform battles. We will turn this retro-perspective analysis of timing, order, and design into a forward-looking structure to plan a platform expansion. We will, therefore, consider the design of the expansion first, as we need to know 'what' the initiative is before we can determine the right timing and order. We will further consider the timing and order of the initiative if we find it relevant, and if so, mix them, as this seems to be more appropriate due to an operational overlap when planning future expansions.

6.4.1 Design of expansion

The design of expansion is concerned with the 'what' of the expansion. The firms must consider both the mode and the vehicle of expansion, which we will now discuss (Staykova and Damsgaard, 2015b).

The expansion can be conducted in an either innovative or imitating mode. When designing an innovative expansion, the firm applies a proactive strategy where the expansion vehicle is novel to the market. This strategy is costly and risky. However, the reward can be great if the expansion succeeds with the consumers. The expansion design can also be reactive, by obtaining an imitation strategy of launching the same functionalities as other competing platforms have already launched, hereby reaping the benefit that comes from same functionality at a lower cost/price along with lower switching cost for users from competing platforms. While this is not as costly as an innovative expansion design, it does, however, bear the risk that users will abandon the platform to the interest of its competitors due to lack of novelty (Staykova and Damsgaard, 2015b).

A platform that is to expand can do so by increasing the number of users, hereby increasing the *reach* of the platform, or increase the number of sides and features, which increase the *range* of the platform (Staykova and Damsgaard, 2015c).

The increase in reach urges the manager to consider if the platform has reached attracted a critical mass of users. If a critical mass is not established, the platform should focus its resources to increase the reach of the platform to establish critical mass (Staykova and Damsgaard 2015c). The increase in range urges the manager to consider if the platform has the capabilities and opportunities to add additional types of users and features and if a critical mass is established. If this is the case, the platform can increase its range (Staykova and Damsgaard 2015c).

Expanding a platform is a tricky task, and it is important to balance the reach and range when expanding the platform (Staykova and Damsgaard, 2015c). When increasing the range, it has to be followed by a phase of increasing the reach to ensure that a critical mass of people is present on the platform to take

advantage of the increased range. The larger the increase in range, the more increase in reach is necessary afterward to obtain the critical mass of the platform in the new situation with increased range (Staykova and Damsgaard, 2015c).

6.4.2 Timing and order of expansion

The timing of expansion is relevant in terms of preannouncing the future expansion initiatives (Staykova and Damsgaard, 2015b). As the number of consumers adopting the platform significantly determines the success of the platform, preannouncements are an important tactic to provoke reactions from customers and competitors (Staykova and Damsgaard, 2015b). Preannouncements can potentially increase the adoption rate of the platform and delay or decrease users' adoption of other platforms by shaping potential users' expectations (Staykova and Damsgaard, 2015b).

The order of expansion analyses in what order the initiatives of the expansion strategy should be launched. Adding new sides to the platform is a critical phase that can have a decisive impact in a battle between two or more competing platforms. If a first-mover does not expand at the right time, this increases the chance for a second-mover to catch up to the first-mover (Staykova and Damsgaard, 2015c). As introduced in section 5.2.2 on cross-side network effects, an existing user-side can attract a new side to a platform. This is e.g. what Facebook did when they added the side of advertisers to the platform. As a second-mover, it is a very important step to add new sides at the right time, and this is one of the best chances to challenge a first-mover's position (Staykova and Damsgaard, 2015b), as it enables the second-mover to get first-mover advantages by adding new sides.

6.4.3 Summary

Both first and second-movers of a platform market can apply platform specific dynamics and (potential) competitive advantages to either defend itself or attack another platform. The design phase of an attack consists of decisions on, whether to increase reach or range and to apply an imitative or innovative approach. Further, the degree of success of a platform expansion depends on whether the platform succeeds in expanding within the right timing and order.

7. Adaptive theory of second-mover potentials

The theory sections have so far presented and discussed central concepts within the realm of platform theory and market dynamics. However, we have recognized a need to conceptualize the identified theories and frameworks to conduct an analysis of what strategic opportunities a second-mover has facing a competitor's market position.

The following section attempts to operationalize the academic body of literature outlined in previous sections into a framework enabling the analysis of second-mover platform's situation, and on this analysis select the most successful attack strategy. We define an attack strategy as a plan of competitive initiatives designed to challenge one or more firms in the market drawing from existing theory on competitive rivalry like Chen (1996).

7.1 How to conduct an attack

This section is structured around the three elements from theory section 6: WTA-dynamics, firm resources, and the specific market dynamics, and are combined in a framework, which can help to select an appropriate attack strategy.

7.1.1 Analyze level of WTA-dynamics

Initially, it is essential to analyze the strength of winner-take-all dynamics that are present on the market to understand the nature of the competition the second-mover is facing. If the WTA level is significantly high, and the incumbent has ensured a significant head start, a second-mover needs to apply radical approaches like creative destruction and envelopment to challenge the first-mover (Staykova and Damsgaard, 2015a), which will be addressed in section 10.

7.1.2 Analyze resources

If the WTA level is not high, a second-mover having established the feasibility of competing in the market should assess its internal condition to identify its firm resources and subsequently analyze them according to the VRIN framework (Barney, 1991). This analysis, however, should take the platform specific dynamics discussed in section 5.1-5.4 into consideration. It is necessary to understand how the respective resources impact platform specific dynamics by establishing a link between the affected platform specific dynamics and each resource.

To exemplify this: a strong same-side network effect is an intangible platform dynamic. This dynamic materializes because of a large user-base that has reached a critical mass. As such, the number of users can be a resource that enables strong network effects. Another example is pricing. Pricing can be used as a lever when managing the different user groups of the platform and is an important platform specific

dynamic. If a platform has an efficient cost structure, this might enable the platform to engage in competitive pricing in a platform battle. Finally, homing-, multi-homing, switching costs, and the lock-ins that might follow are often linked to platform functionality of the platform. Again, a firm resource can be linked to these platform specific dynamics.

When combining resource based view and platform theory, one must both analyze to which extent the VRIN criteria are met but also analyze the impact the resource has on platform specific dynamics. To continue the example from before; it is necessary to identify whether the features, that are causing lock-ins, can be imitated or not, to understand to what degree this resource can be applied to an attack on another platform. This exercise of identifying firm resources and their impact on platform specific dynamics will enable the company to identify strengths and weaknesses within the company, which can be mobilized in the attack strategy.

7.1.3 Analyze market

When understanding the platform's resources and the foundation of the resources possessed, the firm should analyze the competitors in the market and determine the level of inter-firm rivalry that exists given the market commonality and resource similarity of incumbent firms. This analysis enables the second-mover to find weak spots that can be addressed by the attack strategy, but also understand which strengths the competitor possesses; that might be hard to challenge and thereby demand other attack strategies. Again it is important to emphasize, that this analysis should also pay attention to the particular platform-specific dynamics highlighted. Based on these findings, it is possible to access the competing platform's awareness, which is linked to market commonality, and motivation, which is further connected to resource similarity. The higher the market commonality and resource similarity, the higher the first- and second-mover's motivation to attack and respond to the competitor's attacks and therefore competitive dynamics depend on market commonality and resource similarity.

7.1.4 Select attack strategy

When choosing an attack strategy, the platform owner should plan the design of expansion. This includes initiatives that are to increase reach or range of the platform and further, initiatives that follow either an imitation or innovation approach. A platform can increase reach either through innovative initiatives that are new to the market, or replicate initiatives made prior by other platforms in the market. Further, this is also the case with initiatives that are to increase the range of the platform, which also can follow an innovation or imitation approach. Hereafter, platform owners should also decide the timing and order of expansion so that the planned design of expansion is launched at the right time and in the correct order to increase the chance of a successful expansion.

By following the above steps, our analysis should highlight opportunities for first- and second-movers derived from their internal inventory of resources as well as in competitive situations, leading to the creation of a successful attack strategy. It is important to highlight that this process is an iterative process that should be repeated by the platform. The operationalization of theory, therefore, both facilitate strategic initiatives, which can vary the size, and can be made solely or together with other initiatives.
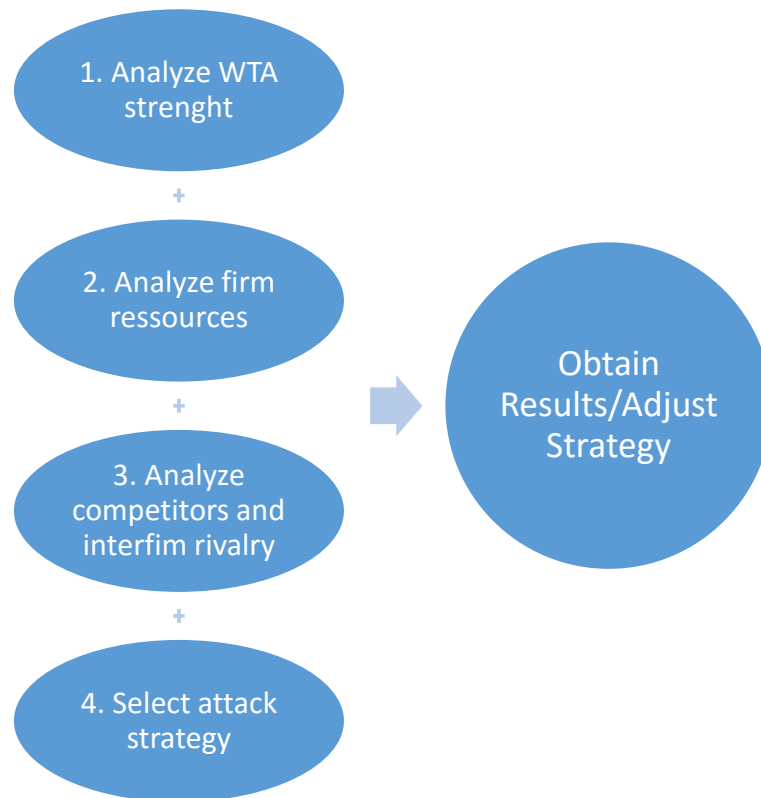
Figure 7: Implementation of expansion strategies. The figure illustrates firstly that a platform owner identifies to what degree winner-take-all dynamics are present on the market. Hereafter they analyze firm recourses. The next step is to identify competitor recourses and identify resource similarity and market commonality. Then the platform selects a suitable strategy for expansion, by deciding the design, timing, and order of expansion, and finally, identify the results. If the obtained results are not satisfying, the platform can adjust the strategy to achieve satisfying results.

7.1.5 Summary on attack strategies

The section summarizes the body of theory providing a toolbox to the platform owner and a framework for considering consequences of applying one or more strategic initiatives. An attack strategy should be perceived as an iterative process enabling the platform owner to introduce initiatives independent of each other, and prior initiatives can be adjusted during execution if conditions change.

8. Case description

MobilePay is the leading platform on the Danish market for mobile payments and Swipp competes as second-mover in the market. Yet, no other platforms operate in the Danish market for mobile payment. This section will provide a case description for both MobilePay and Swipp.

8.1 MobilePay

MobilePay is a digital platform owned by Danske Bank, which is the largest Danish bank having approximately 25 % of all private banking customers in Denmark (Ritzau Finans, 2015).

MobilePay was launched in May 2013 as the first peer-to-peer mobile payment solution on the Danish market (Rindahl, 2013). The app was an instant success with 500,000 downloads within the first four months (Historien om MobilePay og lidt fakta, 2016) and in 2016 MobilePay had 2.9 million active users in Denmark (MobilePay 2015 – året i tal, 2016). In January 2014, when MobilePay reached 1 million users, 64 percent of them were not customers in Danske Bank (Kirk, 2014).

MobilePay was built on existing payment card, enabling people (from heron users) to send money to other users of MobilePay identified by their telephone number (p2p) (Opsætning af MobilePay privat app, 2016; MobilePay Demofil, 2013). In February 2014, MobilePay extended the platform, enabling merchants to receive payments through the app (c2b) (MobilePay forbliver gratis for alle danskere, 2014). The solution is free for private users and merchants pay a fee calculated as a percentage (1%) of the transferred amount, though maximum 5 DKK, and in some cases a fixed fee of either 99 DKK or 199 DKK a month. Further, MobilePay offers customized solutions for larger merchants with more than 50 points of sale (MobilePay Business er mobilbetaling i din butik, 2016).

MobilePay has continually developed the solution, enabling web-shop payments and in-app purchases (MobilePay Business er mobilbetaling i din butik, 2016). Further, MobilePay has added new features such as a receipt storage feature (Betaling som du plejer på en helt ny måde, 2016), a store location feature (Find butikker i, nærheden, hvor du kan betale med MobilePay, 2016), a bonus program (Betaling som du plejer på en helt ny måde, 2016), and a pre-order feature in collaboration with supermarket bakeries (Spring køen over hos bageren, 2015).

MobilePay has relatively high costs related to each transaction made p2p or c2b compared to Swipp, due to a card fee from Nets, which is estimated to 1 DKK for each transaction (Rossau, 2014a; Møllerhøj and Boye, 2014). However, due to the large number of users, MobilePay has managed to attract more than 24,000 merchants (Historien om MobilePay og lidt fakta, 2016), even though MobilePay is forwarding some of

their costs to the merchants. Another limitation in addition to relatively high costs is that the MobilePay app does not function if the payment card system crashes temporarily.

8.1.1 Platform features

MobilePay has a number of features that minimize transaction costs among users by providing an easier method to transfer money peer-to-peer, by storing user's receipts, enabling preordering in supermarket bakeries and offering a bonus program. The number of features has increased over time, and according to MobilePay, the actual features and functionalities in MobilePay is merely the beginning in the development of the platform. In December 2015, MobilePay launched finger touch login for iOS users (Madsen, 2015) and in January 2016, head of the MobilePay division said, that he considered MobilePay one percent completed (Olsen, 2016). We assume that users therefore can expect much more initiatives in the future from MobilePay.

The main feature of the app is to transfer money p2p and c2b. MobilePay has continually increased the daily maxima in p2p and c2b payments respectably and today users of MobilePay can aggregate payments of maximum 10,000 DKK each day in physical stores and aggregated transfer 5,000 DKK to other users (Overfør 5.000 kroner med MobilePay, 2015). The yearly maximum of aggregated payments is 150,000 DKK (Betingelser for MobilePay, 2015).

8.1.2 Platform architecture

MobilePay was launched as a one-sided platform that increased its reach significantly and quickly due to its instant success (Staykova and Damsgaard, 2015c). With the launch of the business solution in February 2014, MobilePay became a two-sided platform with a core of users and a new core of both users and merchants. Further, with the launch of the receipt storage feature in collaboration with the Danish company Storebox (Med kvitteringsfunktionen i MobilePay undgår din forretning bøvlet og omkostningerne ved papirkvitteringer, 2016), MobilePay became a multi-sided platform, and the architecture of MobilePay has thus developed significantly since the launch in May 2013. As this new periphery was added, the platform turned into a platform with two cores that connect to the periphery.
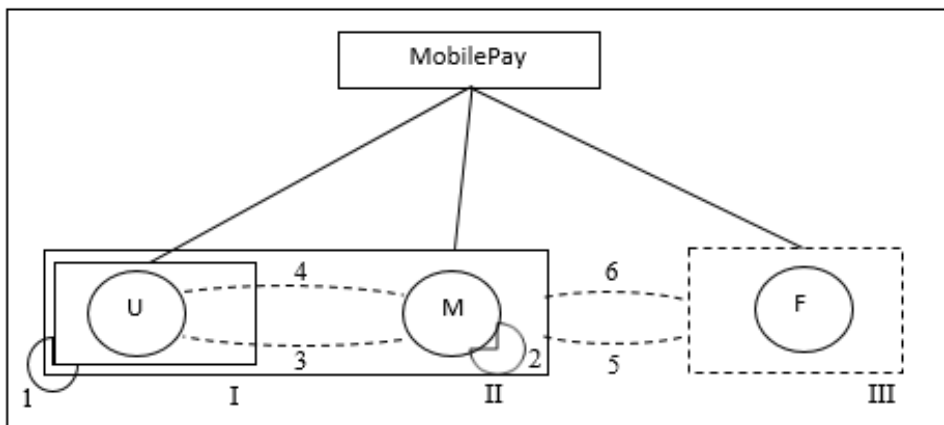
Figure 8: *MobilePay's architecture. Users (I), Merchants (II), and Features provided by MobilePay, Storebox, and Bakeries (III) represents the sides on the platform. The platform consists of two cores (I and II) with a periphery of features (III). The users (I) have strong same-side network effects (1), whereas the merchants (II) have slightly positive same-side network effects (2). The cross-side network effects between users and merchants (3 and 4) from users to merchants and from merchants to users are positive. Finally, cross-side network effects (5 and 6) from the two cores of users and merchants to the features provided (III), has different levels of strengths.*

8.1.3 Network effects

MobilePay is a multi-sided platform consisting of two sides that are highly dependent on network effects and a third side which is a periphery attached to the core of the platform. At the launch in May 2013, the platform launched as one-sided facilitating p2p payments. It was therefore important to establish a critical mass of users from the beginning, as each additional user enhances same-side network effects because users could pay p2p to more users (MobilePay demofilm, 2013). The pace of growth in number of users surprised MobilePay (Kjær, 2014), a critical mass was established quickly, and by end of 2015, MobilePay had become the third most used app in Denmark (MobilePay 2015 – året i tal, 2015).

In October 2013, MobilePay tested an increase in range by offering a merchant solution in taxies, hotdog stands, and mobile coffee bars (MobilePay kan nu bruges i udvalgte butikker, 2013) establishing cross-side network effects between merchants and the users of MobilePay. The test proved to be successful and in February 2014 MobilePay launched MobilePay Business (Første danske mobilbetalingsløsning til erhvervsdrivende, 2014b).

8.1.4 Pricing

At launch in May 2013 MobilePay was free, however they stated that they would charge the non-Danske Bank customers from January 2014, and that the price would depend on market conditions (Slip for kontanter på lommen, 2013). In January 2014, MobilePay extended the free period until January 2016 (MobilePay gratis for alle danskere, 2014) and finally, in November 2014, MobilePay announced that the

solution would remain free for all private users in the future (MobilePay forbliver gratis for alle danskere. 2014). A reason for this decision seems to be that private users are extremely price sensitive (Det er fortsat gratis at overføre penge mellem brugere i MobilePay, 2016), and that other solutions such as Swipp could have attracted much of MobilePay's users if MobilePay charged private users and if Swipp continued to offer a free solution.

When MobilePay launched their business solution in February 2014, it was free until October 2014, with the purpose of attracting merchants. Hereafter an initial establishment fee of 1,000 DKK and a transaction fee on one percent per transaction (though maximum 5 DKK for each transaction) were introduced (Første danske mobilbetalingsløsning til erhvervsdrivende, 2014). With this pricing structure, MobilePay turned the merchant side into a revenue side and thereby MobilePay created a revenue stream for the platform. Danske Bank still does not profit from MobilePay, however they do not consider it a problem (Olsen, 2016).

8.1.5 User costs

The homing costs a user holds from using MobilePay are low (Eisenmann et al., 2006). The app is free to download, there are no fixed costs related to the usage, and the storage requirements on a smartphone are insignificant. It is easy and cheap to apply other mobile payment systems (Eisenmann et al., 2006). This leads to low switching costs, however users have no incentives to delete the app and close the MobilePay account due to the low homing costs, but MobilePay needs to keep the users committed and stay active (Eisenmann et al., 2006).

8.1.6 Lock-in effects

MobilePay apply three of seven lock-in effects suggested by Shapiro and Varian (1999b). MobilePay has managed to attract merchants, and therefore customers in those stores over time will get used to pay with MobilePay. Thereby, an indirect *brand specific training* is created (Shapiro and Varian, 1999b). Further, MobilePay has added two features, which creates potential lock-in effects. The receipt storage feature stores receipts digitally for the individual users (*information and databases*) (Betaling som du plejer på en helt ny måde, 2016), and the more receipts stored, the more valuable it becomes to the user. This feature increases switching costs and thereby locks-in the user due to the fact that the receipts remain at the MobilePay platform even if the user switches to another platform. Further, the bonus system is a classical *loyalty program* for the users where merchants reward users. This makes MobilePay the facilitator in enabling loyal customers to get discounts in stores. Therefore, we consider the bonus system an indirect lock-in effect for MobilePay. Users can't transfer their earned bonuses to other platforms, and thereby users are indirectly locked-in to MobilePay's platform (Shapiro and Varian, 1999; Betaling som du plejer på en helt ny måde, 2016).

8.2 Swipp

Swipp is a digital platform and is the banking sector's mobile payment solution, owned by more than 70 Danish banks, which includes almost all Danish Banks except Danske Bank (Swipp. Så er der betalt, 2016).

Swipp launched in June 2013 (Elberg, 2013) a month after MobilePay and research by Staykova and Damsgaard (2015b) indicate that the launch was expedited due to the launch of MobilePay. Most banks in the collaboration were not ready for the launch, which limited the number of potential users and thereby limited how many other users a user could transfer money to (Hannestad, 2013). Further, bank customers of Danske Bank (approximately 25 % of the Danish banking customers) cannot use Swipp (Østergaard, 2015). The number of active users on Swipp is unknown (Lunde, 2016).

Swipp launched as a p2p mobile payment solution built on the bank account infrastructure, enabling people to send money to other Swipp users through their phone number directly from account to account (Sådan tilmelder du dig Swipp – ny bruger, 2015). Swipp expanded the platform in May 2014, offering merchants a c2b solution enabling them to receive payments through Swipp (Rossau, 2014b). The solution was initially free for all users and merchants, and the free period for the merchants have been extended till July 2016 (Priser for brug af Swipp, 2016).

Swipp tried to attract the owner bank's 3.3 million customers (Østergaard, 2015) by bundling Swipp into the mobile bank apps owned by the individual banks (Hannestad, 2013). However, people did not start using Swipp (Nyholm, 2015) and in September 2015 Swipp launched the solution as an independent app, debundling Swipp from the different mobile bank apps (Swipp lancerer ny, selvstændig app og unik betalingsløsning med landsdækkende Matas-samarbejde, 2015). The app was launched for iOS and Android users, but an app for Windows Phone was not launched and is still not, excluding approximately 7 percent of the potential users (Distribution of smartphone ownership in Denmark in May 2015, by brand, 2015). Thereby, approximately 30% of all potential users of Swipp can't asses the platform yet.[3]

The account-to-account solution puts Swipp in an advantaged situation in relation to costs, since both p2p and c2b transfers are free to manage for Swipp: The variable costs of a transfer is thus zero (Andersen, 2014) as it applies the interbank system that does not hold any variable costs from conducting a transfer (Nyholm, 2015). The number of users of Swipp seems to be significantly lower than MobilePay's (Bentow, 2015), but Swipp has still managed to attract more than 21,000 stores to their business solution (Swipp. Så er der betalt, 2016), primarily due to significant lower costs for the stores when receiving money (Plesner,

---

[3] 100% - (25% Danske Bank Customers * (100% - 7% Windows Phone users)) – 7% Windows Phone users = 30.25% that cannot join Swipp's platform.

2016). In addition to the low costs, Swipp does not risk breakdowns in the account-to-account system when the card payment system breaks down.

8.2.1 Platform features

Swipp facilitates payments among users (p2p) and from users to merchants (c2b). The daily spending limit is 25,000 DKK (Swipp hæver beløbsgrænsen til 25.000 kr., 2015), and due to the account-to-account system, there are not any technical or regulatory barriers limiting the maximum amount the app can transfer. It is therefore up to Swipp itself to decide the daily spending limit (Nielsen, 2014) and CEO og Swipp, Martin F. Andersen, has stated that the ambition for Swipp is that people can buy a car with Swipp (Zigler, 2014).

8.2.2 Platform architecture

At launch, Swipp was a one-sided platform facilitating p2p payments among users (Staykova and Damsgaard, 2015a). At the expansion of the platform c2b payments was made possible, and the platform turned into a two-sided platform, which it still is today. The group of users is an independent core on the platform and further, the merchants establish the platform as a two core platform with no periphery.
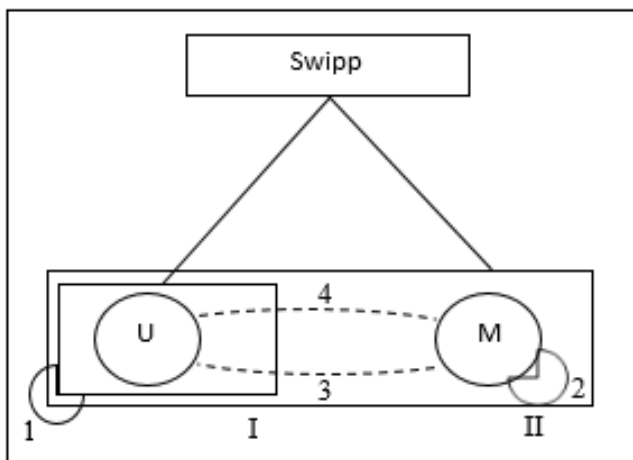

Figure 9: *Swipp's architecture. Users (I) and Merchants (II) represents the sides on the platform. The platform consists merely of core (I and II). The users (I) have same-side network effects (1) among the users, whereas the merchants (II) have neutral same-side network effects (2). The cross-side network effects among users and merchants (3) and (4) are positive.*

8.2.3 Network effects

Swipp is a two-sided platform, consisting of private users and merchants, that is highly dependent on network effects. The platform launched in June 2013 as a one-sided platform relying on same-side network effects among the users. Due to the sporadic launch, same-side network effects were difficult to establish.

Since the number of users is unknown, it is difficult to assess whether the platform has reached critical mass or not.

8.2.4 Pricing

When Swipp launched, it was stated that the price for a p2p payment would be 0.25 DKK for each transaction from 2014 (Lønstrup, 2013), however despite this, it is still free to make p2p transactions on Swipp.

From July 2016, the cost of establishing a business solution will be 1,000 DKK (Priser for brug af Swipp, 2016). Both sides on the Swipp platform, users and merchants, are therefore subsidy sides but the intention is to turn the merchant side into a revenue side.

The variable prices for stores will depend on the number of yearly transactions:

Number of Swipp payments within 12 months	Price pr. C2B payment
0-19,999	0.60 DKK
20,000-99,999	0.55 DKK
100,000-199,999	0.50 DKK
200,000-399,999	0.45 DKK
400,000-	0.40 DKK
Source: Priser for brug af Swipp, (2016)	

Table 3: *Prices for receiving c2b payment through Swipp.*

Swipp has applied negative pricing to attract more users (Appendix B). In November 2015, users could buy chocolate bars or water for 1 DKK in a portable vending machine placed in different shopping malls and coffee for 1 DKK in 7Eleven stores. In November/December 2015, users of Swipp could request 25,000 DKK from a telephone number owned by Swipp and one of the requests was approved. This competition was repeated in January/February 2016 and the offer on coffee for 1 DKK in 7Eleven was also repeated in February 2016 (Appendix B).

8.2.5 User costs

Homing costs from being a user of Swipp is low, due to no monetary costs from download or usage, no significant storage requirements, and no significant costs in terms of time, learning, or training associated with the mobile payment solution. This increases the incentive to multi-home in mobile payment solutions. The switching costs are also low, as the platform requires no equipment that is incompatible with MobilePay, has no significant learning costs, no transactional costs, or any contractual bindings (Eisenman et al., 2006), but due to the low homing costs, inactive users might not leave the platform, but as with

other digital platforms that are highly dependent on same-side and cross-side network effects, it is important to keep users active on the platform.

8.2.6 Lock-in effects

Swipp has not launched any features creating lock-in effects for the consumers (Shapiro and Varian, 1999b). However, as the number merchants have increased to more than 21,000, an indirect *brand specific training* can arise since users over time might get used to pay in the specific stores with Swipp.

8.3 Summary

MobilePay is in number of active users the leading mobile payment platform in Denmark with 2.9 million active users, while the number of users of Swipp is unknown. A large number of users are the foundation for MobilePay's very strong same-side network effects and the cross-side networks between merchants and users. Swipp has not managed to create same-side network effects even close to being as powerful as MobilePay. One significant reason could be that not all users can use Swipp's platform. Further, MobilePay has also managed to create lock-in effects that might make it more difficult for other payment platforms to attract MobilePay's users.

Swipp has in terms of number of users (reach) and features (range) a weaker position compared to MobilePay. Though, due to another technology applied on the platform, Swipp has one stronghold, due to their cheaper cost structure, which enables them to offer cheaper prices for merchants. Despite a lower number of users, Swipp has therefore managed to attract a large number of merchants that receives c2b payments, due to their cheaper cost structure towards merchants.

The findings on MobilePay and Swipp is summarized in the below table:

	MobilePay	**Swipp**
Platform features	MobilePay enables users to make p2p payments and merchants to receive c2b payments. MobilePay enables users to pay 10,000 DKK in physical stores and 5,000 p2p. Further, it possible to store the users' receipts from C2B payments, preorder in supermarket bakeries, and finally MobilePay offers a loyalty program opportunity between merchants and users.	Swipp enables users to make p2p payments and merchants to receive c2b payments. Swipp enables users to pay 25,000 DKK daily through the app.
Platform architecture	MobilePay consists of a core of users and a core with two mutually attracting (users and merchants) sides, and a periphery of the receipt storage company Storebox.	Swipp is a platform with a core of users and a core of users and merchants, making c2b payments possible.

Network effects	Strong same-side network effects among users and strong cross-side network effects between users and merchants.	Weak same-side network effects due to low number of users and a relatively large share of potential users that cannot join the platform due to technical constraints.
Pricing	Free for users to pay p2p and c2b. Merchants pay an initial establishment fee on 1,000 DKK and a 1 percent transaction fee, though maximum 5 DKK. Variable costs for MobilePay on each transaction is relatively high.	Free for users to do p2p and c2b payments. Until July 2016, it is also free for merchants to sign up and receive c2b payments. From July, costs for merchant for receiving money will be 0.40 – 0.60 DKK. Swipp has no variable costs related to transactions.
Homing costs	Homing costs for users are low, due to no monetary costs and low storage requirements.	Homing costs for users are low, due to no monetary costs and low storage requirements.
Multi-homing costs	The multi-homing costs for users from applying other payment solutions are low.	The multi-homing costs for users from applying other payment solutions are low.
Switching costs	Switching costs for users considering to leave MobilePay is relatively low, but users might need the strong network effects and the larger the degree that users apply the different features that lock-in users, the higher the switching costs become.	Switching costs for users considering leaving Swipp is relatively low.
Lock-in effects	MobilePay has introduced different lock-in effects that increase switching costs - especially the opportunity to store receipts is a valuable feature for users.	Swipp have not introduced any features that creates direct lock-in effects towards users and the only lock-in effect is the indirect effect of users getting used to make c2b payments in the stores that have chosen Swipp as payment platform.

Table 4: *Summary of case description.*

9. Analysis

In the following section, an analysis will identify the opportunities and obstacles for Swipp in the Danish market facing MobilePay's dominant market position. In section 9.1, the sub-question on to what degree winner-take-all dynamics influence the competitive situation is addressed. Section 9.2 identifies how Swipp and MobilePay's resources affect the competitive situation in the market, and section 9.3. identifies how the market dynamics affect the competitive situation. As these three sections each answer the sub-questions in the research question of the thesis, this enable us to suggest a strategy for Swipp in section 9.4, that rely on and address opportunities and obstacles for Swipp in the Danish market for mobile payment.

9.1 Analysis of winner-take-all dynamics

As identified in section 6.1, three factors are the primary variables in whether a platform market turns into a winner-take-all market or not: **High multi-homing costs** for at least one user side, **positive and strong network effects** for at least the users with high multi-homing costs, and finally, no **strong preferences for special features** on either side. We will analyze the Danish mobile payment market to identify to what degree the market leaves room for a second-mover that are to challenge the market leader, MobilePay. In the particular case, winner-take-all dynamics are also influenced by dynamics identified in section 3 on the history of money and section 4 on digital goods, which we will also consider in the following analysis.

9.1.1 Multi-homing costs

This section will analyze homing costs of the platform, by firstly examining those of the private users, and subsequently, analyze those of the merchants.

For private users, the homing cost in monetary terms for both Swipp's and MobilePay's apps are kept at zero, as the apps are free to download, set up and operate, and there are no storage costs. Further, the homing opportunity cost measured in time is kept to a minimum. To ensure high adoption rate, the apps have been designed to require a minimum effort in both the adoption and operation phase (Krog, 2014). There's no significant training needed to get familiar with the app, and it is easy to use, such that the time spent on the app is reduced to a minimum. Therefore, homing costs for private users can be considered low for both platforms.

For merchants, the homing costs are low as well. Establishing a business solution has relatively low cost of 1000 DKK on MobilePay's platform (Første danske mobilbetalingsløsning til erhvervsdrivende, 2014), and is free on Swipp's platform (Priser for brug af Swipp, 2016). Operating the platform is free for merchants using Swipp (Priser for brug af Swipp, 2016), while MobilePay has different prices for merchants in the

range between 0 DKK and 199 DKK each month (MobilePay Business er mobilbetaling til din butik, 2016).

Finally, merchants on MobilePay's platform pay a fee of one percent of the transaction value. There is no

transaction fee for Swipp users until July 2016, but from then on the fee will be 0.40-0.60 DKK per

transaction (Priser for brug af Swipp, 2016)(Appendix C). Similarly to the private user side, the apps have

been designed to require a minimum of training and maintenance (Krog, 2014). However, while homing

costs are low, merchants must balance being able to facilitate a variety of payment solutions, while offering

simplicity to their customers. This is well illustrated by the CEO of the Danish retailer Coop, which owns

1200 stores, who said to the Danish Media, Finans.dk, in February 2016: "Our checkout counters are not be

transformed into a Tivoli of MobilePay boxes, Apple widgets, and card payment terminals. There has to be

a shared infrastructure" (Andersen & Hansen, 2016).

On this basis, we argue that Swipp offers the lowest homing costs for merchants. However, MobilePay also

offers relatively low homing costs. Thus, the costs for multi-homing are low in the market.

With its large user base of 2.9 million users (Historien om MobilePay og lidt fakta, 2016), it is in the interest

for MobilePay to increase switching costs and create lock-in effects, so that their users remain loyal

towards MobilePay. On the other hand, Swipp can take advantage of the low multi-homing costs in the

market. Swipp's CEO has earlier stated that Swipp has lost the competition on p2p payments in Denmark

(Nyholm, 2015). However, low multi-homing costs give Swipp the opportunity to make strategic initiatives

that will attract users and increase incentives to multi-home. Thus, both MobilePay and Swipp have

incentives to make initiatives that will alter the current level of multi-homing costs to their advantage, and

we will, therefore, observe that the level of multi-homing costs are not static in the market.

9.1.2 Network effects

Strong and positive network effects characterize the Danish mobile payment market. For the private user-

side, users can only transfer and receive money from other private users if they are registered on the

platform. Therefore, the applicability of the platform increases for every person added to the user group

(Gilder, 1993). The private user-side has thus strong and positive same-side network effects.

The number of private users on the platform is also what drives the incentive for merchants to use the

platform due to cross-side network effects. The mobile payment solution gives merchants the opportunity

to increase the convenience for costumers. However, if the customers do not have the app installed, they

cannot use the solution, and the merchants have wasted their resources on a non-value creating offer. The

merchant user-side thus has strong and positive cross-side network effects. One could argue that these

cross-side network effects are mutual, as the increasing opportunities to use mobile payment solutions in

stores creates value for private users and thereby attracts later adopters who need stronger arguments for downloading the apps.

MobilePay has succeeded in using these network effects to their advantage. Their app is installed on 9 out of 10 Danish smartphones (MobilePay 2015 – året i tal, 2016), which creates almost uniquely strong same-side network effects. From this large critical mass, strong mutual cross-side network effects have further increased the number of merchants signed up for c2b payments to 24,000 (Historien om MobilePay og lidt fakta, 2016)

Despite Swipp's lower number of active users relative to MobilePay, Swipp has managed to attract 21,000 stores to the platform (Swipp. Så er der betalt, 2016) establishing cross-side network effects between Swipp users and merchants. This significant merchant user-side could potentially pose an opening for Swipp to attract private users through the cross-side network effects. Both same-side and cross-side network effects in the mobile payment market are positive and strong, especially for MobilePay, though, Swipp has succeeded to establish cross-side network effects between the users and the merchants.

9.1.3 Special features

In markets where there is a demand for special features, there is room for niche providers to take a share of the market. If the special features cannot be bundled into a single platform, this market situation makes it complicated for the platform leader to obtain winner-take-all dynamics.

The Danish mobile payment market has not been subject to any of such special features. Both MobilePay and Swipp provide almost identical features on p2p and c2b payment (Appendix E). In isolation, this situation increases the likelihood of winner-take-all conditions on the market. However, if competing platforms can master innovative product development and introduce special features that MobilePay cannot match due to a lack of capabilities in the specific area, this might provide an opening to challenge MobilePay's dominant position. Swipp has set a spending limit of 25,000 DKK per day and compared to MobilePay's daily spending limit of 10,000 DKK. Given the sizeable difference; we consider Swipp's high limit a special feature. However, the demand for this feature is not significant enough to create room for niche customers, why we do not assess this to affect the winner-takes-all dynamics for mobile payment solutions.

9.1.4 Payment implications

In addition to the above-identified dynamics, winner-take-all dynamics in the Danish mobile payment market are also affected by fundamental dynamics from payment industries, which was elaborated in section 3 on the history of money. As payment markets have developed since nomadic hunters assimilated

into agricultural communities around 8000 B.C. (Westland and Clark), payment methods was created to lower transaction costs, especially by pursuing standards and increased efficiency in transactions (Jevons, 1876; Westland and Clark, 1999; Simplot-Ryl, Traoré and Everare, 2008; Pour et al., 2012)(Appendix A).

Swipp was initially planned as a joint solution among all Danish banks, also including Danske Bank, but Danske Bank decided to leave the collaboration due to missing opportunities to scale the solution into the other markets, which Danske Bank is represented in (Nyholm, 2015). Further, Danske Bank believed they could develop a better and less complicated solution (MobilePay: Kundefokus i en app, 2016).

Danske Bank launched MobilePay as first-movers in May 2013 (Rindahl, 2013) and earned significant first-mover advantages and established a large user group fast (Historien om MobilePay og lidt fakta, 2016). Swipp launched in June 2013 (Elberg, 2013) but Swipp's launch was not as successful measured in number of attracted users (Nyholm, 2015). However, Danes were offered two different mobile payment systems that were incompatible. Back in history, while different materials such as shells, bits of leather, or scraps of paper were used as value denominators, a challenge was to ensure utility and value. This means a wide acceptance of the particular articles as valuable assets that could be applied in exchange of other goods (Jevons, 1876). If different groups of people relied on various materials as payment denominators, it was difficult to trade between the groups. In the case of MobilePay and Swipp, trust is not a problem, but efficiency in payments is minimized when different, incompatible payment systems are competing against each other within the same market.

Due to MobilePay's successful launch, the room for a second-mover in digital platform markets should, therefore, be limited. However, the low multi-homing costs have enabled Swipp to enter the market. Further, the competition has enhanced competitive dynamics in the market, which has been in favor of the users and merchants, e.g. illustrated by the cancelation of planned fees by both Swipp and MobilePay (MobilePay forbliver gratis for alle danskere, 2014; Priser for brug af Swipp, 2016).

9.1.5 Implications from digital goods

Eisenman et al. (2006) identify the three above mentioned conditions that affect winner-take-all dynamics on the market. However, these conditions relate to network industries, which includes physical products such as the DVD-standard war of discs, DVD-players, video cameras, etc. (Schilling, 2013).

The mobile payment market, though, is in its nature a market of digital platforms. In the case of digital goods, which was elaborated in section 4, scarcity replaces abundance, marginal costs are often zero, which makes prices declining to zero, bundling of digital products can in some cases be easier than bundling physical products, and the low marginal costs increase the ability to achieve economies of scale and scope.

Finally, digital platforms can collect user data. If both platforms can profit from big data, a first-mover having collected more data than a second-mover can thereby profit more than a second-mover, assuming the two platforms possess the same capabilities of profiting from big data (Varian, 2010; Varian, 2013; Chen et al., 2012).

Therefore, the dynamics for digital goods favor a first-mover, but it does not prevent a second-mover to take up the competition. Though high development costs and low marginal costs is an advantage for a first-mover and significant commitment from a second-mover is required to challenge a digital platform with a dominant position (Hedman and Henningsson, 2015).

9.1.6 Conclusion on winner-take-all dynamics

Strong network effects, limited demand for special features, dynamics for payment systems, and implications from digital goods all point towards the fact that the Danish mobile payment market could turn into a winner-take-all market. However, as long as multi-homing costs are low, this might leave room for a second-mover to challenge the dominant platform, and this is what Swipp has tried. Swipp has not succeeded yet, but they have to some extent overcome entry barriers related to the significant first-mover advantages that MobilePay initially earned. Therefore, Swipp should have an opportunity to challenge MobilePay as long as multi-homing costs can be kept low, and we will, therefore, analyze the resources Swipp and MobilePay can mobilize in a competition between the two platforms.

9.2 Analysis of company resources

Since no explicit winner-take-all dynamics are identified on the Danish market for mobile payments, we will identify the resources of MobilePay and Swipp respectively to assess whether Swipp can challenge MobilePay's dominant position. Through the identification of the resources of each company, it is possible to identify more specific approaches, rooted in organizational capabilities and resources, to attack MobilePay. We will apply the theory introduced in section 6.2 to identify platform resources for MobilePay and Swipp.

9.2.1 Platform resources

9.2.1.1 MobilePay

We have identified that MobilePay has one competitive advantage, which is the critical mass of users on the platform. MobilePay has 2.9 million active private users and 24.000 merchant users. Their strong position and wide adoption among the Danish population were confirmed by the fact that the word 'MobilePay' was awarded "the word of the year" by The Danish Language Council in 2014 (Kristiansen & Lohse, 2014). MobilePay was very successful in attracting users from launch (Kjær, 2014) due to a high demand for a mobile payment solution. Further, MobilePay utilized network effect dynamics to increase their user base. For example, existing users could transfer money to people who were not yet users notifying them via SMS that they had money waiting for them to sign up on the platform (MobilePay demofilm, 2013). Another aspect that has helped them obtain critical mass is the fact that their technical solution gives the advantage that everybody who possesses a payment card can use the platform and are as such potential users (Rossau, 2014a).

As stated in section 3 on the history of money, *utility and value* of an article used as payment denominator are crucial, since a wide acceptance of the value is necessary to create an efficient payment system (Jevons, 1876). Reaching a critical mass has made the platform useful and valuable to users and ensured wide acceptance of the payment solution. Further, the utility of the platform increases by every user. As such, critical mass is essential for MobilePay to create *value* due to their users.

The critical mass is not only valuable because of the increased value it provides to users. To the owner, Danske Bank, the large critical mass they have access to through MobilePay, which far exceeds Danske Bank's customer base, is a valuable target group for increasing their customer base. Further, the access to users has enhanced Danske Bank's ability to develop new products in collaboration with users (Olsen, 2016).

Finally, from a platform perspective, the critical mass of 2.9 million active users enhances the strong network effects that are highly valuable for MobilePay, (Historien om MobilePay og lidt fakta, 2016). Thus, critical mass is without a doubt valuable for MobilePay.

MobilePay's big critical mass is also *rare* due to its uniquely high number of users. Compared to other apps, MobilePay's app is the third most used app in Denmark. Only the Facebook app and the FB-messenger app are used by more people in Denmark (MobilePay 2015 – året i tal, 2016). Further, compared to other mobile payment solutions in the Danish market, the size of the user base is unprecedented. The critical mass on MobilePay should, therefore, be considered rare, because no other apps with the same amount of users facilitate the same, easy opportunity to make p2p and c2b.

However, MobilePay's position in mobile payment is not *imperfectly imitable*. The banks owning Swipp tried to bundle Swipp into the web banks to access 3.3 million existing users and obtain critical mass (Østergaard, 2015), but they did not succeed. Further, Facebook, owning the two apps used more than MobilePay in Denmark, has introduced Facebook Pay in the US (Christensen, 2015a), which they might introduce payment in Denmark as well when the new PSD2 regulative is introduced in EU (Christensen, 2015a). If this occurs, they will obtain critical mass. Thus, MobilePay's advantage in number of active users in mobile payment is not *imperfectly imitable*. However, no platform in the Danish mobile payment solution market has managed to imitate it yet.

Finally, for a competitive advantage to be sustainable, the resource also has to be *non-substitutable*. Critical mass is what generates the value and usefulness of a platform to its users and cannot be substituted, as it is the very nature of platforms to attract and connect users. Therefore, critical mass should be considered non-substitutable.

MobilePay's critical mass is not their only resource. MobilePay's technical solution is built around the credit card. Therefore, all credit card users are potential customers, and as the vast majority of Danes possess a credit card and a smartphone, their solution expands their market size significantly. Thus, their technical solution is as a physical resource for MobilePay. The solution itself naturally brings *value* to the end users as it enables mobile payment and builds on a strong and trusted existing payment infrastructure. This is also of value to MobilePay. However, the solution has another valuable implication. Because the banks do not allow the necessary access to withdrawing directly from the customers' bank accounts, it would not have been possible for MobilePay to create a mobile payment solution without the payment card technology (Rossau, 2014a). The solution, however, is neither rare, inimitable nor non-substitutable, as all other players can set up the same solution.

Within MobilePay's organizational architecture is another resource. MobilePay has since 2015 had a partnership with Storebox. This partnership has yielded synergies to the two companies from the bundling of their products. The partnership creates the opportunity for a wider pool of knowledge and capabilities and enables joint innovation within the mobile payment technology and related products and services. Big data on consumer patterns is valuable, and though it is not exploited yet, the data holds the potential to enable development of the platform. Further, the receipt storage that Storebox provides creates a lock-in effect, as users do not want to lose their receipts as they would if they abandon the platform. The resources relating to Storebox creates value, but is not rare as the payment provider NETS have bought Storebox, and it seems that the feature will be bundled to other payment solutions in the future (Zigler, 2015). Finally, the partnership is not inimitable, as other companies might be able to develop similar solutions. The resource is not non-substitutable. However, it is possible to obtain synergies from a partnership with other businesses having a similar or even different product or service portfolio to generate value for platform users.

Being owned by a resourceful company is a resource to MobilePay, which has several implications. Danske Bank provides financial resources to Mobile pay, and the capital influx ensures continuous investment in the development of the platform and ensures that managerial focus is not diluted by having to put effort into raising money. Danske Banks commitment into mobile payment is stressed by the fact that it is not considered a problem, which MobilePay yet has significant deficits (Olsen, 2016).

Another resource aspect of the ownership is the access to human capital it provides. MobilePay is part of the new, innovative organization in Danske Bank called 'MobileLife', which embrace experimentation, tries to create an independent culture of innovation, is inspired by Google, Spotify, etc. instead of classic banking dynamic. They see themselves as a cultural startup working with lean startup principles (Wittorff, 2015; Christensen, 2015b). This community is coupled with access to a large pool of people with know-how within the financial sector that increases the social capital of the company - people they would have a hard time attracting.

Finally, MobilePay has been able to capitalize on the Danske Bank brand of trust and reliability. The bank is a well-established and widely recognized bank, which the general population has confidence in. As people, in general, are more conservative when it comes to money-related products and services, being under the Danske Bank umbrella, has helped MobilePay persuade consumers to become users. Further, the ownership structure has given MobilePay the opportunity to advertise their product to Danske Bank customers. Thus, the brand and existing customer base have helped MobilePay overcome the chicken and egg problem.

The ownership is unarguably a valuable resource. However, in the light of potential entry from players such as Google and Apple, it cannot be considered rare or inimitable. Finally, the resources that come from the ownership structure could be obtained through substitutable channels such as an incubator network, partnerships or the like.

To summarize, MobilePay possesses a competitive advantage on its critical mass of users, their solution is built on a strong existing payment infrastructure, and additionally, a partnership with Storebox, and the organization has a culture that facilitates innovation. Further, MobilePay has access to funds, human capital and a customer base, and finally, MobilePay possesses a clear brand.

9.2.1.2 Swipp

Swipp uses a different technology than MobilePay, enabling Swipp to transfer money p2p and c2b without any costs associated with the transaction (Nyholm, 2015). This resource has allowed Swipp to offer free c2b payments, provisionally until July 2016 (Priser for brug af Swipp, 2016). Companies receiving payments through Swipp for a product priced 300 DKK save 3 DKK compared to MobilePay's price. From July, the price saving will be between 2.40 and 2.60 DKK for the same transaction (Appendix C). Particularly in industries with low margins, savings on transaction costs can be important. As long as Swipp keeps the price at zero for merchants, Swipp commoditizes' MobilePay's revenue stream. However, it also cuts its own revenue stream, and if Swipp is to do so in the longer term, it is necessary to establish new revenue streams, e.g. by adding a new user side, which can function as a revenue side.

According to Staykova and Damsgaard (2015c) reach regarding active users is necessary to increase the range of a platform to avoid the chicken-and-egg problem many two- and multisided platforms face. Therefore, Swipp should, according to theory, struggle to attract a second side of merchants, but they have managed to attract more than 21,000 merchants (Swipp. Så er der betalt, 2016). According to Swipp's CEO, Martin F. Andersen, the primary reason is the low costs that Swipp offers (Plesner, 2016), which confirm the relation between pricing and cross-side network effects that Eisenmann et al. (2006) describes.

The technical ability to offer such a low cost for C2B payments is *valuable* (Barney, 1991). Merchants hold significant costs from handling cash payments (Omkostninger ved betalinger i Danmark, 2012), and Swipp is cheaper than receiving payments through payment cards and cash (Omkostninger ved betalinger i Danmark, 2012)(Appendix C). Therefore, the ability to offer low costs represents an opportunity to create significant *value*. However, Swipp still needs more active users if merchants have to profit from the low costs. If Swipp manages to increase the number of c2b payments, it has an excellent opportunity to create *value*. Though, Swipp suffers from the fact that Danske Bank customers and Windows Phone users cannot use Swipp, which decrease the value of the resource. If Swipp enables Danske Bank customers and

Windows Phone owners to use Swipp, the *value* will increase significantly. However, the costs for Swipp will also increase, due to higher costs from card payments. Therefore, Swipp's cost advantage will be lowered to some degree, but since it is required that all can assess a platform, to establish an efficient payment system this is necessary to do.

Further, their solution is also *rare* as it is only available to providers who can make contractual agreements with the respective banks in the market – something Swipp has succeeded to do because of their ownership structure.

The Swipp solution, withdrawing money through the interbank system, is not unique in international perspective. Several other mobile payment platforms have been launched in other countries applying the national bank account infrastructures in different degrees. This is e.g. Pingit, owned by English Barclays (Pingit, 2016), mCASH, owned by Norwegian SpareBank1 (mCash, 2016) and Swish, owned by the majority of Swedish Banks (Swish, 2016). In Denmark, however, it is difficult to *imitate* the system and transfer money through mobile payment, as long as the banks owning Swipp do not allow new entrants to access user's account. Therefore, the cost advantage seems to be imperfectly imitable within the next years. However, a new regulation (PSD2) is to be implemented to decrease payment infrastructure costs within EU (Christensen, 2015a). The precise regulation is not known yet, but Swipp risks that other companies might be able to build payment systems that can compete on costs since payment infrastructure, with the new regulation, are to be shared to a larger degree (Christensen, 2015a).

Finally, the technical solution is difficult to *substitute*, since a payment system facilitating both p2p and c2b payment needs the ability to withdraw money either from a bank account or a payment card. However, in a longer perspective, companies from other industries might enter the market. In relation to this, a company like Starbucks has managed to attract millions of users in the US to their mobile payment platform, which simultaneously is a successful loyalty program (Kell, 2015). As large corporations facilitate mobile payments themselves and increase reach significantly, it might be possible to increase the range e.g. by offering p2p payments among users and thereby substitute Swipp's mobile payment platform.

Therefore, Swipp's capabilities regarding costs can potentially turn into a competitive advantage in the next years, but on the longer run, different threats can imply that Swipp's cost can only be a competitive advantage and not at a sustained, competitive advantage.

Swipp has not managed to create the organizational capabilities and agility in the development of the platform that MobilePay has. They have not launched additional features as MobilePay, and they have

primarily focused on initiatives towards integration with merchants but seem to lack capabilities to establish an innovative organization, which can create the innovativeness that MobilePay has.

One cannot point towards one single reason to the missing innovativeness in Swipp, but one among more reasons can be the governance structure. The many owners of Swipp, more than 70 banks (Swipp. Så er der betalt, 2016), are very different and includes large banks as Nordea, Jyske Bank, and Sydbank but also small local banks (Nyholm, 2014). Thus, the owners came to the table with different ambitions and capabilities to take part in the project, and the ambiguity and political games that this caused have made agility difficult. This is exemplified in the uncoordinated launch of Swipp where Nordea launched Swipp for their customers in December 2013 (Back, 2014), six months after the launch of Swipp in Jyske Bank (Elberg, 2013; Nyholm, 2015).

Similar to MobilePay the owners of Swipp are also highly resourceful. The banks owning Swipp can also provide financial resources to Swipp if needed.

Another resource, Swipp has through its owners, is the access to human capital. Martin F. Andersen was pulled in from one of the banks owning 30% of the shares, Nordea. Swipp is competing with a big player on the market who is far ahead, which stress the need for qualified people.

Like MobilePay Swipp also have access to an even larger pool of potential customers compared to MobilePay through the owners. The owners of Swipp give access to approximately 75% of all bank customers in Denmark. This should give Swipp unique opportunities if exploited right.

To summarize, Swipp possesses a potential competitive advantage on no variable transaction costs, also has access to funds, human capital, and a customer base through the owners of Swipp.

9.2.2 Conclusion on platform resources

In the Danish market for mobile payment where no clear winner-take-all dynamics are present due to low multi-homing costs, MobilePay possesses a competitive advantage from strong network effects that enhance their dominant position. However, the second-mover, Swipp, can gain a competitive advantage from its ability to offer very cheap c2b payments compared to MobilePay, and this resource might be possible to apply to challenge MobilePay's position in a market with low multi-homing costs.

9.3 Analysis of the market conditions

Swipp has the opportunity to establish a competitive advantage concerning costs, and MobilePay has significant same-side and cross-side network effects caused by its big critical mass, which is a competitive advantage. However, to understand the competitive situation between two competing platforms, a

perspective on the competitive environment is necessary to conduct to understand interfirm rivalry (Chen, 1996) and we will, therefore, apply the theories introduced in section 6.3. The larger resource similarity and market commonality, the more intense the competitive situation within the market. Therefore, we will examine resource similarity and market commonality between MobilePay and Swipp.

9.3.1 Resource similarity

By analyzing resources for Swipp and MobilePay respectively, we have identified that the two firms possess different resources. Swipp has the potential to turn an advantage of variable costs into a competitive advantage, and MobilePay has a competitive advantage from its big critical mass that creates strong network effects. However, a more detailed examination of the resources of the two platforms is expedient to conduct, to identify similarity and differences in resources possessed by the platforms. Chen (1996) states that the strategy a company can implement depends on and is constrained by the level of resources. He further states *"Resource similarity is defined as the extent to which a given competitor possesses strategic endowments comparable, in terms of both type and amount, to those of the focal firm"* (Chen, 1996; p. 107).

Therefore, the resources a company possesses can be defined as a bundle of resources, and if a company's bundle of resources is unique and includes resources that are valuable, rare, inimitable and non-substitutable, it is possible to establish a competitive advantage which can be applied in the competition among other platforms. In the following, we will go through the bundles of resources of Swipp and MobilePay.

	MobilePay	Swipp
Large user base	X	
No variable transaction costs		X
Partnership with Storebox	X	
Built on strong existing payment infrastructure	X	
Culture that facilitates innovation	X	
Access to funds (through owner)	X	X
Access to human capital	X	X
Access to customer base	X	X
Clear brand (trust and reliability) one owner	X	

Table 5: *Resources possessed by MobilePay and Swipp.*

Both Swipp and MobilePay was launched as one-sided platforms facilitating p2p payments (Hannestad, 2013) and both Swipp and MobilePay expanded into two-sided platforms by introducing the opportunity to

make c2b payments on the platform (Rossau, 2014b; MobilePay forbliver gratis for alle danskere, 2014) making the platforms two-sided cores. Both platforms, therefore, possess fundamental technical and managerial capabilities to establish such platforms.

9.3.2 Market commonality

The 'market' is broadly defined by Chen (1996). In this thesis, the market we study is defined as the Danish market for mobile payment solutions. Thus, the definition limits the market to the particular service of mobile payment and the particular geography of Denmark. The following section will analyze the degree of presence-overlap between the competitors in the market.

The payment processing company Nets have stated that they are to launch a mobile credit card solution in autumn 2016 (Grønnemann & Johannesson, 2015). The solution is yet not launched, and the information is limited on how the solution should work. Further, the Danish retailer, Coop, stated in March 2015 that they would launch their mobile payment solution before the end of 2015 (Plesner, 2015). However, this was delayed. In February 2016, a test was soon to be started by coop (Andersen & Hansen, 2016) but no significant news has been communicated since. The solution has primarily targeted the 1.5 million members of Coop (Andersen & Hansen, 2016), and the app only seems to facilitate c2b payments in Coop stores, which excludes same-side network effects among users and cross-side network effects towards other stores where MobilePay and Swipp payments are possible. Finally, international giants such as Apple, Facebook, Google, and Snapchat might enter the Danish market though they have not taken concrete action yet.

Since the above solutions are not launched yet, we will not include them in the list of competitors in the mobile payment market but define Swipp and MobilePay as the only competitors in the Danish market on mobile payment. The presence of potential entrants, however, underlines the evolving nature of the market. Therefore, Swipp and MobilePay must continually pay attention to the potential arrival of new competitors.

When analyzing the commonality in the service offered by the two firms, both MobilePay and Swipp offer the same core features of p2p and b2c transactions and compete for the same users. Also, MobilePay has created peripheral features and thereby differentiate itself from Swipp, and Swipp has up until now not copied features and functionality to catch up to MobilePay. Thus up until now, we see a clear market overlap for the two competing platforms.

When analyzing the commonality of the geography covered, MobilePay has launched the solution in Norway and Finland (The story of MobilePay – and a few facts, 2016). MobilePay, therefore, competes in

three different markets, while Swipp only focuses on the Danish market for mobile payment. Chen (1996) discusses that some markets can have an asymmetry, which is the case in the Danish mobile payment market. This means that Swipp sees MobilePay only as a competitor on the Danish market while MobilePay also has other competitors outside the Danish market. Due to the ownership structure of Swipp, where small regional banks of Denmark is present, it is unlikely that Swipp will expand abroad as MobilePay has. On the contrary, Danske Bank is present in several countries, and one cannot rule out that they might continue further expansion abroad increasing the asymmetry we already observe. For the time being, however, MobilePay is primarily engaged in the Danish market and due to the scope of the thesis, we will not pay further attention to the Norwegian or the Finish market, but rather define Swipp and MobilePay as direct competitors in the Danish market on mobile payment.

MobilePay and Swipp are merely competing head to head in the mobile payment market. However, if taking the parent companies into account, one could argue that the firms are facing a degree of multimarket contact. Danske Bank owning MobilePay can utilize the critical mass of MobilePay potentially convert these users into customers in Danske Bank along with obtaining market shares on the more general payment market. Similarly owning Swipp gives its owners the opportunity to expand the products and services that they offer to their customer. Thus, from a strategic point of view, mobile payment is just one of many elements in the banks' market profile. We, therefore, argue, that one should not forget the larger context of fighting for costumers in the banking market in general when analyzing the competitive dynamics of MobilePay and Swipp.

9.3.3 Awareness, motivation and capability

Due to the high market commonality and the fact that MobilePay's network effects are valuable, rare and non-substitutable, a second-mover's opportunities in imitating the network effects of MobilePay seems limited, however, multi-homing costs are low. Therefore, Swipp might enhance their opportunities in challenging MobilePay by applying their potential, competitive advantage in cost. We will elaborate this further in this section that relates the market conditions to Chen's (1996) thought on awareness, motivation, and capability.

Possessing a given bundle of resources does not mean that a platform will apply it instantly in a battle for platform leadership to attack or respond to a competitor's attack. Chen (1996) argues that the first requirement of applying company-specific resources is to be *aware* of own and competitor's market position and capabilities. Further, *motivation* is also needed to trigger a reaction, and e.g. market asymmetries can abstain a platform to attack or respond to a competitor's attack. Finally, even though a platform is aware of a particular situation and has the motivation to react, it is also necessary to possess

the *capabilities* to respond (Chen, 1996). These capabilities might not necessarily be the right ones when a platform are to compete against another platform making the platform insufficient to compete. We will, therefore, analyze Swipp's and MobilePay's awareness, motivation and capabilities in attacking and responding to attacks on the market for mobile payment in Denmark to evaluate their ability to compete against each other.

9.3.3.1 Awareness

Assuming that Swipp has followed the flow of information that MobilePay has revealed for the public, Swipp should know much about MobilePay since MobilePay is quite transparent in its communication. Regarding vision, MobilePay announced in January 2016 that they only considered MobilePay one percent complete (Olsen, 2016) and further, MobilePay has revealed quantitative material on MobilePay's performance (MobilePay 2015 – året i tal, 2016). Therefore, Swipp can know much about MobilePay's actual situation. However, they might not know much about MobilePay's future initiatives. An essential finding here is that MobilePay has managed to get its app installed on 9 out of 10 Danish smartphones (MobilePay 2015 – året i tal, 2016). From this information, Swipp knows that MobilePay's future strategy might, to a much larger degree, be to introduce more functionality and increase the range of the platform, since the number of users soon may get to a saturation point.

Swipp hasn't revealed as much information as MobilePay. The essential information here is, that Swipp for an extended period has denied revealing any information on number of users or user activity (Lunde, 2016) and it seems that Swipp has much fewer users than MobilePay. MobilePay should, therefore, know, that Swipp should, assuming that they behave rationally, try to attract more active users and thereby increase the reach of the platform.

As the two are the only competitors in the Danish market, they are to a large extent aware of each other's strategic moves ex-post. Therefore, we argue that awareness is high for both companies, with Swipp being the most aware.

9.3.3.2 Motivation

Swipp has made different initiatives to increase the number of users and awareness about the platform. They have conducted TV-campaigns (Engholm, 2015), negative pricing campaigns (Appendix B), and they have had a significant focus on improving their c2b payment solutions for merchants (Nyholm, 2015).

Swipp has made different preannouncements for future launches, hereunder the most central, that Swipp highly prioritized to enable Danske Bank's customers access to the Swipp platform. This was announced in June 2015 (Nyholm, 2015). However, no initiatives have been launched to address this since. Further, Swipp

has also communicated that they were to launch an app for Windows Phone users in Q1 2016 (Appendix D), though, also this initiative has come to nothing so far.

Even though a number of different initiatives have been taken to increase awareness and attract users to Swipp, it also seems, by the actions (not) taken by Swipp, that the platform lacks the motivation to engage fully in the platform battle. This motivation is crucial if Swipp wants to be successful in challenging MobilePay's dominating position. This might tie to the ownership structure as the profits and benefits generated by Swipp are split between multiple owners. As such, their motivation to value maximize might be limited.

MobilePay seems to be highly motivated to develop the platform to keep the position as market leaders in Danish mobile payment market. A large deficit is not considered a problem (Olsen, 2016), and already from launch, MobilePay focused on developing the platform fast. They have launched new features that increase the range of the platform, and they prioritize to engage users in the development of the platform (Wittorff, 2015; Christensen, 2015b). MobilePay thus seems very committed taking up the competition in the market on mobile payments.

However, we also note that MobilePay, with their strong position, might consider future, potential entrants as Facebook, Google, Apple, etc. their biggest competitor, so the motivation might also be to prepare MobilePay to resist competition from large potential entrants and less the potential competition from Swipp. Therefore, MobilePay might not react to all initiatives from Swipp, if this is in conflict with other strategic plans. Conversely, Swipp is highly motivated to compete with MobilePay, as it is the only major competitor they are facing.

9.3.3.3 Capability

As stated above, Swipp has not managed to execute the preannounced initiatives, and whether this is caused by lack of motivation or lack of capability, or perhaps both, we don't know. However, if Swipp is to successfully implement a strategy that utilizes their potential, it is necessary to plan and efficiently execute the suggested strategy. This will require certain managerial resources, which we assume they should be able to mobilize due to the group of resourceful banks owning Swipp.

In addition to managerial capabilities, Swipp as a second-mover that are to challenge MobilePay also is to compete against MobilePay's strong network effects. As concluded in section 9.1 on winner-take-all dynamics, Swipp's opportunity in challenging MobilePay seems to be through creating stronger incentives to multi-home and in the best case, Swipp should take advantage of their potential, competitive advantage on costs.

MobilePay has from its launch been far ahead of Swipp in number of users. Further, MobilePay has managed to expand the platform to a new side of merchants before Swipp (Staykova and Damsgaard, 2015b), and MobilePay has introduced features in addition to p2p and c2b payments. Finally, MobilePay is innovative and has not yet been seriously challenged by attacks from Swipp.

If Swipp applies an innovative approach to introducing features that MobilePay does not already provide, we expect that MobilePay will be capable of imitating these initiatives if these features merely rely on having an existing user base (reach). If Swipp is to challenge MobilePay's dominating position, they should, therefore, apply their potential competitive advantage on cost and further try to launch features that establish first-mover advantages related to these new features.

9.3.4 Conclusion on market analysis

Two platforms are competing against each other in the Danish mobile payment market, and market commonality is high. Regarding resource similarity, MobilePay possesses a competitive advantage on strong network effects while Swipp can create a competitive advantage at low costs. Further, both platforms own a number of resources, but MobilePay possesses additional resources, a clear brand, and a partnership with Storebox.

As Swipp and MobilePay are the only head to head competitors in the market, the awareness and motivation to compete for both firms are high. While MobilePay seems to be very motivated to keep the position as market leaders in Denmark, they are also facing and potentially preparing for further international competition on the mobile payment market. Thus, there could be a slight asymmetry in the awareness and motivation. On the capability side, Swipp has several times preannounced initiatives, which have not been executed afterward. This points towards a lower level of capability to compete relative to MobilePay. Thus, whereas Swipp shows a higher degree of awareness and motivation, MobilePay shows a greater level of capability to compete.

9.4 Attack strategy for Swipp

Swipp is to attack MobilePay's dominating position in the Danish market for mobile payments, and the findings in the previous analysis are helpful in identifying an appropriate strategy.

The findings in section 9.1 point towards the fact that Swipp can make strategic initiatives to challenge MobilePay's network effects and increase incentives to multi-home. These are two out of the three parameters that determine whether a market has winner-take-all dynamics or not, and as the Danish mobile payment market is still not a clear winner-take-all market, Swipp's strategic initiatives should deal

with MobilePay's strong network effects and increase incentives to multi-home to avoid MobilePay establishing winner-take-all dynamics.

The low number of active users initially limits Swipp's strategic opportunities, as Swipp needs to increase reach before increasing the range of the platform. The suggested strategy is thus constrained by a need to increase the number of users before launching new features or sides to the platform.

We will now introduce our strategy for Swipp. The different initiatives take the findings in section 9.1-9.3 into consideration. The strategy consists of five initiatives. The first initiatives (#1 and #2) are to increase the reach of the platform, while the next initiatives (#3 - #5) are to increase the range of the platform. The figure below gives an overview of these initiatives.

#1 Enable Increase in reach
- Card payment
- Windows Phone App

#2 Increase reach
- Apply negative pricing

#3 Increase range
- Imitation of features

#4 Increase range
- New features (#4A)
- Online shopping (#4B)
- Online advertisement (#4B)

#5 Increase range
- Establish new revenue streams
- Demonetize MobilePay's revenue stream
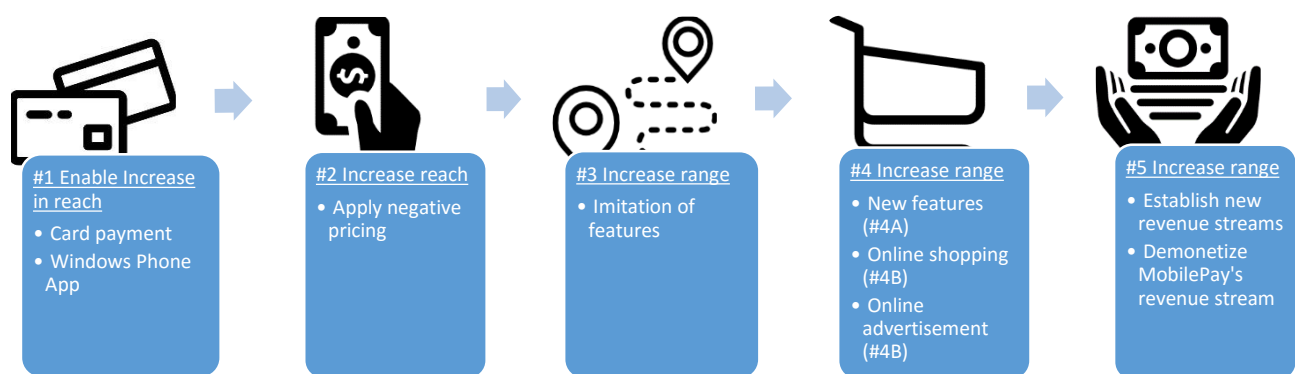
Figure 10: *The five strategic suggestions to how Swipp should try to challenge MobilePay's dominant position in the Danish market for mobile payments.*

Icon credits: Icons designed by Freepik (1), Gregor Cresnar (2)(4)(5), and Madebyoliver (3) for Flaticon.com

All initiatives will individually be introduced in the below sections 9.4.1 – 9.4.5. Each element of the strategy is explained through design, timing and order of expansion, and it is described whether the initiatives are likely to increase reach or range, and finally, the implications for each strategic initiative are elaborated before the next element of the strategy is introduced. The strategy assumes that Swipp does have the managerial, technical, and economic resources to take the strategic initiatives, as the owners are resourceful and have access to much human capital.
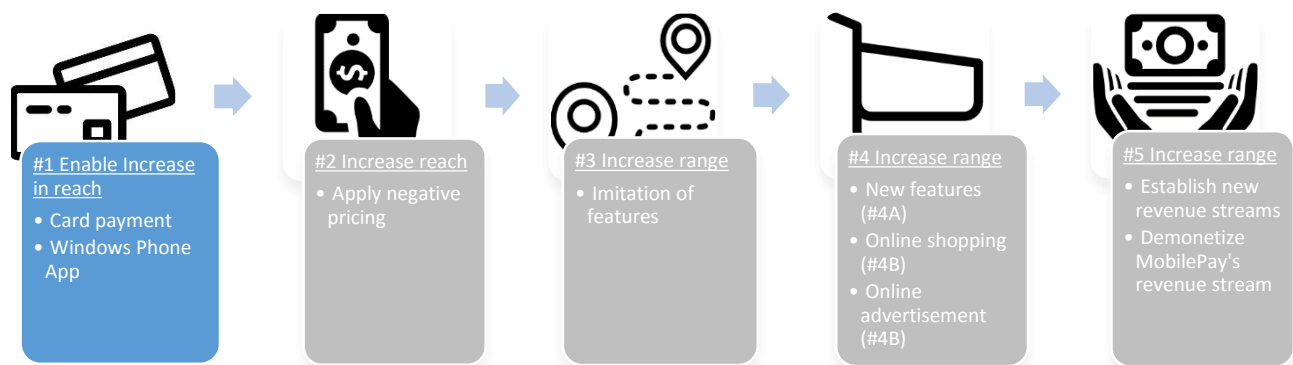
As identified in the case description in section 8, approximately 30 percent of Swipp's potential users cannot use Swipp's platform due to the technical incompatibility with Windows Phones and restricted access to Swipp's platform for customers in Danske Bank. Swipp needs to address this by creating solutions that allow all users to join the platform. In a market with such a dominant first-mover as MobilePay, the first-mover might turn the market into a winner-take-all market if it does not face serious competition, and a second-mover is required to enable all potential users to join the platform to conduct a serious competition to the first-mover.

As Swipp only launched one month after MobilePay, Swipp could potentially have minimized MobilePay's lead if all Danes had been able to become Swipp users. This was not the case, as most banks weren't ready for launch until a long time after the official launch (Hannestad, 2013) and approximately 25 percent[4] of the Danish population were excluded from using the platform, as they were Danske Bank customers. Therefore, MobilePay's first-mover advantage on same-side network effects was already significant short after the launch.

9.4.1.1 Design of expansion – initiative #1

The initiatives required to address the problem is solely to facilitate an increase of reach of the platform. The task is two-fold: To launch an app enabling owners of Windows Phones to download Swipp and to introduce a solution that enables customer's in Danske Bank to join Swipp's platform.

---

[4] The number of excluded users increased from about 25 percent (Danske Bank customers) to about 30 percent, when Swipp debundled the app from the mobile banks in September 2015 but did not develop an app for Windows Phone users.

Initiative #1, therefore, consists of two individual actions, which both have an imitative approach, as the goal is to make all people with a smartphone potential users for Swipp and thereby enhance network effects and increase reach.

We suggest Swipp to apply the same solution as MobilePay by introducing a card payment facility to enable Danske Bank customers to join Swipp. Though, it represents additional variable costs for Swipp and further minimizes two of Swipp's advantages for users towards MobilePay: If the card payment system fails, Danske Bank customers using Swipp can't transfer money, and further, these users can't be offered the same, high spending limits as other Swipp users. If Swipp manages to attract Danske Bank customers (25%) and non-Danske Bank customers (75%), as on the general banking market, Swipp is to hold approximately 25% of the variable costs that MobilePay holds on transactions. Therefore, Swipp will still possess its potential competitive advantage on cost by doing this, however slightly limited compared to before. However, no users are worse off from these drawbacks compared to using MobilePay today. Developing a Windows Phone app and introducing a card payment solution is thus a much better than the scenario that excludes 30 percent of all potential users from the platform.
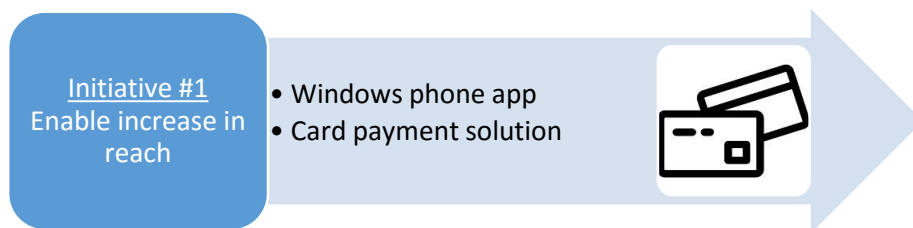
9.4.1.2 Timing and order of expansion – initiative #1

This is the first strategic initiative we suggest, as it is a prerequisite for the next initiatives we propose to implement, and thereby also a requirement for challenging MobilePay's dominating position. Swipp should launch an app for Windows Phone users and introduce a card payment solution for Danske Bank customers as soon as possible, as this is the foundation for enhancing network effects and thereby increasing the chances of success.

As long as a group of potential users cannot use Swipp, Swipp will not fully benefit from other initiatives taken to develop the platform. The fact that Swipp has not responded to MobilePay's success earlier has enhanced MobilePay's strong position, and if Swipp is to challenge MobilePay, the initiative should be taken sooner than later. This initiative should not be difficult to implement, as it merely requires development of an app, though Swipp, of course, has to allocate the necessary resources. Further, the card payment solution should be relatively easy to replicate as it is both used by MobilePay and other, international mobile payment platforms.

9.4.1.3 Implications – initiative #1

The launch of the Windows Phone app should, of course, attract Windows Phone users. Similarly, an introduction of a card payment solution for Danske Bank customers should also attract users. Though, Swipp still needs more functionality and has weaker same-side network effects compared to MobilePay. Therefore, we do not expect the initiative to attract a large number of users only from this initiative.

We will now introduce the next initiative, which has the purpose to attract more users to the platform.

9.4.2 Negative pricing – initiative #2
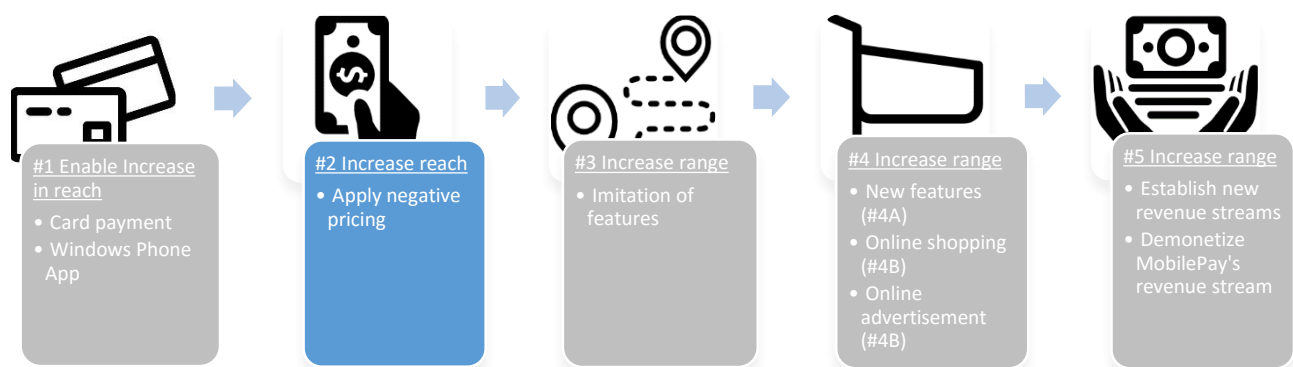
Swipp should apply its potential competitive advantage on costs to increase reach of the platform by attracting more users. Eisenman et al. (2006) find that pricing can be applied as a dynamic tool to attract different user groups. Private users are today a subsidy side for Swipp, as they do not pay to use the platform and merchants are the revenue side from July 2016 (Priser for brug af Swipp, 2016). As MobilePay is also free for private users, the fact that the app is free does not attract users to Swipp by itself. Due to Swipp's cost advantage, Swipp's variable costs will be approximately 25 % of MobilePay's variable costs (assuming that initiative #1 with a payment card solution is implemented).

9.4.2.1 Design of expansion – initiative #2

It is necessary to overcome the first-mover advantage that MobilePay has from establishing a large user base by balancing incentives between user sides with pricing, as Eisenman et al. (2006) suggest. At launch, PayPal offered visitors 15 USD for signup and opening an account (Staykova and Damsgaard, 2015a). By applying negative pricing, Swipp should also be able to increase the reach of the platform since a monetary incentive as negative pricing can attract more users (Anderson, 2009).

As the initiative can be costly, it is often limited to what degree it is possible to apply. However, as Swipp holds significantly lower variable costs compared to MobilePay, this should to some extent be possible, due to Swipp's potential competitive advantage on cost.

Shapiro and Varian (1999a) suggest asking three questions before applying negative pricing, which we answer in relation to Swipp to sharpen the initiative:

1. If Swipp offers negative pricing to potential and existing users, will they use the product and will network effects be enhanced?
2. How valuable is the created user base for Swipp, and how and when will Swipp start to earn revenue?
3. Is Swipp, if doing this, overly optimistic in the bidding war, whereas MobilePay is more realistic?

Answer 1) It is fair to assume that network effects will be enhanced from this initiative, as it is to attract more users. Swipp has applied negative pricing initiatives earlier, though, the initiatives were not tied to ongoing usage but only tied to sign up to the platform and one single action as buying a bottle of water or request to win a competition (Appendix B). New negative pricing initiatives should to a higher degree be tied to ongoing usage and signup rather than only signup.

Answer 2) Swipp plans to profit from their money side of merchants, but it is necessary to establish a large user base to attract merchants and enhance cross-side network effects that create value for the money side of merchants. It is hard to estimate when Swipp will generate a profit, but MobilePay still invests significant money in the development of the platform (Olsen, 2016) and we expect that Swipp needs to make substantial investments before earning profits from the initiative on the longer term. Though, it seems to be the only opportunity for Swipp, as more users (increased reach) are required before strategic initiatives, that increase the range of the platform, can be conducted.

Answer 3) Whether this initiative is overly optimistic or not is difficult to assess. Though, it is possible to apply Swipp's cost advantage, e.g. by paying a small amount for each transaction a user conducts, either p2p, c2b, or maybe both p2p and c2b, and still keep Swipp's variable costs lower than MobilePay's (Nyholm, 2015). The initiative might be optimistic, but the initiative applies Swipp's competitive advantage on costs, and therefore they should offer negative pricing to increase the reach of the platform.

Initiative #2
Increase in reach

• Apply negative pricing
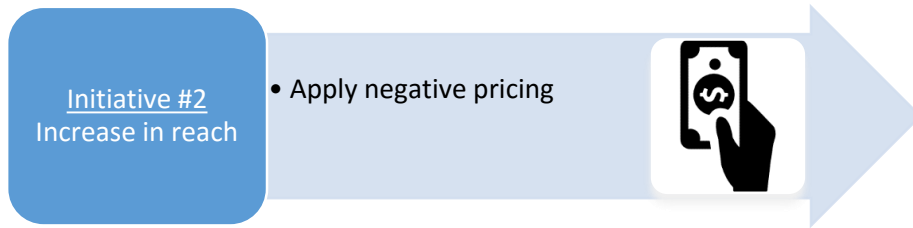
9.4.2.2 Timing and order of expansion – initiative #2

The timing of initiative #2 is critical, as it is essential to be successful in attracting as many active users as possible for the resources dedicated. By preannouncing the initiative, Swipp might be able to get media attention, but the initiative should also be coordinated with relevant stakeholders. The more exposure gained from media attention, the larger the chance for success. MobilePay was hugely successful at their launch e.g. due to their initiative to send messages to users that were not signed up to MobilePay (MobilePay demofilm, 2013), and if Swipp can include social media elements and word-of-mouth marketing, this should increase the chances of succeeding. Therefore, detailed coordination, which includes timing of expansion, is essential to maximize output.

It is required that all people can access the Swipp platform before launching this initiative, as the primary purpose of the initiative is to enhance network effects. To get the most attention, the initiative can be launched simultaneously with initiative #1 that enables all users to join the platform. Thereby Swipp sends a powerful signal that all potential users can access Swipp and that Swipp is really committed to attracting users by applying negative pricing.

Whether MobilePay will respond to initiative #2 is uncertain, as MobilePay already has higher variable costs from each transaction compared to Swipp. If MobilePay also applies negative pricing, their variable costs will increase further, and due to the potential lack of motivation to respond identified in section 9.3, this might be an initiative that MobilePay will not respond to as it does not enhance MobilePay's position as MobilePay is already close to market saturation in number of users.

9.4.2.3 Implications – initiative #2

By applying negative pricing, the intention is to compensate existing and potential users for Swipp's weak network effects and thereby attract more users and increase usage of Swipp´s platform. Pricing is suggested as a tool to overcome the barriers that are established because of MobilePay's competitive advantage on a large number of users and derived strong network effects. As the payment process for both p2p- and c2b-transactions are quite similar for Swipp's and MobilePay's customers (Appendix E) and multi-homing costs are low, Swipp should be able to attract new, active users by applying negative pricing. Some of this usage might to some extent decrease the usage of MobilePay if users get a monetary incentive to

conduct the same transaction through Swipp as they intended to do on MobilePay. Thereby, Swipp might succeed in attracting users by applying their potential competitive advantage on cost and simultaneously weaken MobilePay's strong network effects. Thus, Swipp limits one of the factors that enhance MobilePay's chance to turn the market into a winner-take-all market and increase number of users. We will now introduce initiative #3, which has the purpose to lower switching costs by imitating features offered by MobilePay.

9.4.3 Imitate features – initiative #3
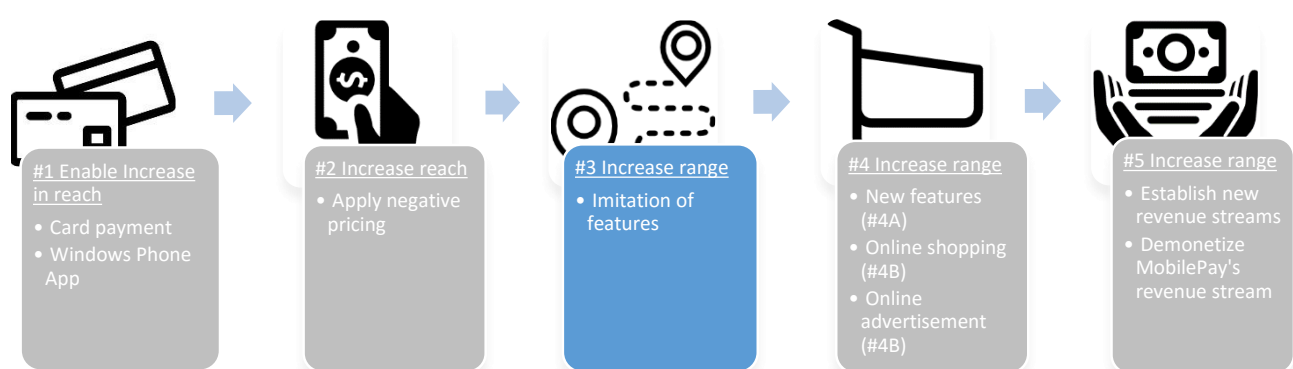
In addition to the core of the platform consisting of users and merchants that can make p2p and c2b payments, MobilePay has increased the range of the platform by introducing a periphery of new features, which include receipt storage in collaboration with Storebox, a bonus scheme, a merchant location finder, and a preorder function. Swipp does not offer its users this functionality, and therefore needs to imitate these features to make sure users are not worse of regarding features, compared to using MobilePay.

MobilePay has not launched significant updates to any of the four additional features within the last months. The reason might be that these specific features have reached the level of usage that MobilePay wanted, though it is difficult to conclude definitively to what degree the features are a success for MobilePay. Though, if just a share of the users finds the features valuable, Swipp might have an incentive to imitate them and thereby minimize switching costs for the users of MobilePay, which are potential users of Swipp. This is to ensure that the users who are attracted by initiative #2 on negative pricing are not worse off by using Swipp instead of MobilePay. The features are also required to further development the platform, which will be elaborated in section 9.4.4.

9.4.3.1 Design of expansion – initiative #3

By introducing the four suggested features, Swipp is imitating features from MobilePay to increase the range of the platform. The intention with initiative #3 is to ensure that the users attracted to Swipp are not worse off by using Swipp rather than MobilePay. We further suggest Swipp to create a migration path from MobilePay's receipt storage feature so that receipts from multiple sources can be stored in Swipp. Storebox was earlier an independent startup, which is now owned by NETS (Zigler, 2015). As NETS is also to enter the mobile payment market (Grønnemann & Johannesson, 2015), it is difficult to assess whether Swipp can tap into this solution or if they have to develop a solution themselves. If own development is required, MobilePay has a first-mover advantage, as Swipp has to develop another solution instead of collaborating with Storebox as MobilePay does. This can be costly, but the initiative is essential to conduct the next initiatives #4A and #4B.

As Swipp has not imitated MobilePay's features yet, Swipp has the opportunity to imitate the features, optimize them, and earn second-mover advantages from the imitation approach. Swipp can, however, face a disadvantage of being a second-mover if the agreement between MobilePay and Storebox do not allow Storebox to collaborate with competitors on the same market.

Intiative #3
Increase in range

• Imitation of features:
• *Reciept storage*
• *Bonus scheme*
• *A store location finder*
• *Preorder function*
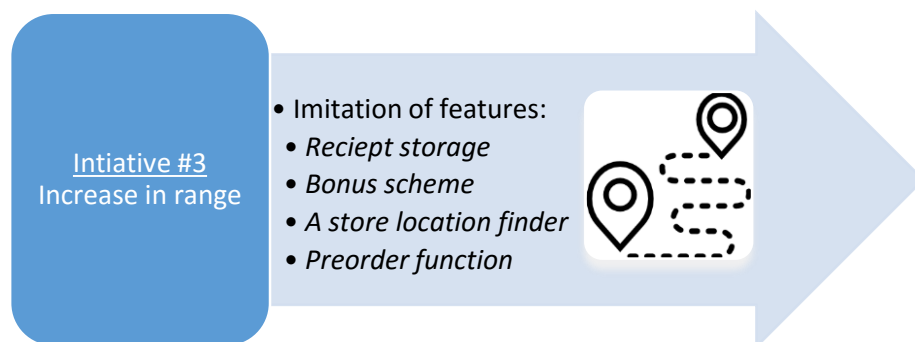
9.4.3.2 Timing and order of expansion – initiative #3

As this initiative includes a number of independent features, these can be launched individually or together as one larger initiative, and some of the features can even be applied with initiative #4A and #4B. It is important to launch these features before the introduction of the features suggested in the next section on initiative #4A and #4B. As the initiatives are imitating features already initiated by MobilePay, MobilePay cannot respond to the replication, though, it does not exclude MobilePay from improving the features or introduce new, additional features. Therefore, Swipp needs to monitor MobilePay, to imitate what they find relevant to imitate.

9.4.3.3 Implications – initiative #3

Imitating features is not a significant strategic initiative that shifts the market power from MobilePay to Swipp. Further, the initiative does not apply Swipp's potential competitive advantage on costs nor does it weaken MobilePay's strong network effects. However, Swipp should implement these features and thereby increase the range of the platform, as it will ensure, that no users attracted by initiative #2 on negative pricing are worse of in accessing features compared to MobilePay. Further, the features are needed for the next strategic initiatives. With this initiative, Swipp´s platform expands from being a two-sided platform to a multi-sided platform if Swipp manages to create a partnership with Storebox. Further, the features minimize switching costs if any users consider to multi-home and increase usage of Swipp and decrease usage of MobilePay.

9.4.4 Strengthen interaction between merchants and users – initiative #4A and #4B
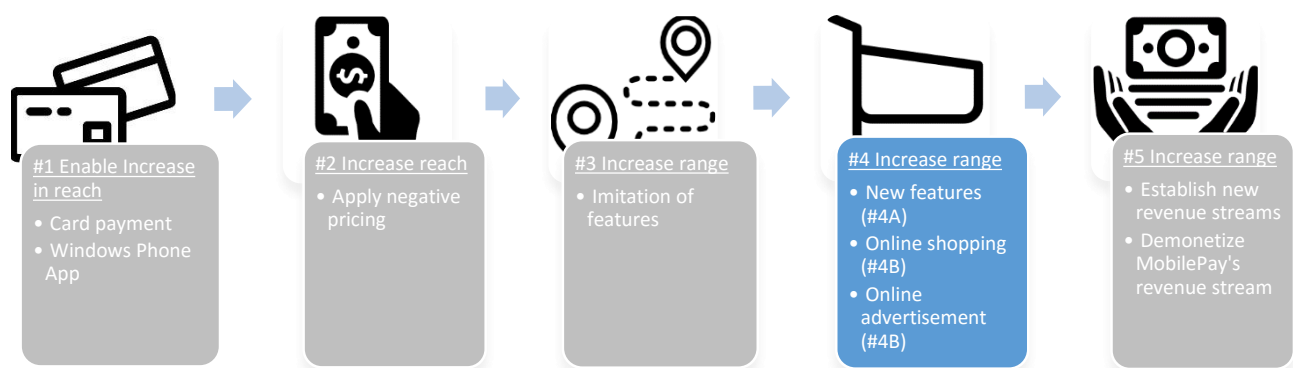
MobilePay collects revenue from merchants due to strong cross-side network effects between the merchants and the large user base. Similarly, Swipp's plan is to collect revenue the same way from July 2016 (Priser for brug af Swipp, 2016). As MobilePay is soon to meet market saturation regarding users (MobilePay 2015 – året i tal, 2016), MobilePay's cross-side network effects between merchants and users cannot be enhanced much further without introducing additional features.

As there is a strong connection between network effects and pricing, Swipp has a window of opportunity to challenge MobilePay's dominating position, at least until the PSD2 regulation possibly enable MobilePay to lower its costs (Christensen, 2015a). Therefore, Swipp should take a larger strategic initiative to enhance the relation between users and merchants to increase the value of the transactions. This initiative has two purposes: Increase user value and increase merchant value without increasing costs for merchants or users. We introduce this through initiative #4A and #4B.

9.4.4.1 Design of expansion – initiative #4A and #4B

The previous initiatives suggested in this analysis have focused towards ensuring a proper infrastructure (initiative #1), attracting more users to increase the reach of the platform (initiative #2), and imitate features from MobilePay to increase incentives to multi-home (initiative #3). Initiative #4A and #4B is solely innovative as the intention is to increase the range of the platform by introducing new features to users that MobilePay does not already offer.

By providing features that are new to the market, Swipp should be able to attract more users as they are given a higher incentive to multi-home. Further, the initiative should also offer advantages to merchants that MobilePay does not provide, with the purpose of attracting more merchants and maybe, on the long run, draw some of MobilePay's merchants due to better functionality, lower price and access to a similar amount of users.

If Swipp has to challenge MobilePay's dominating position, we find it necessary to create a larger platform ecosystem around shopping rather than just facilitating c2b payments. The suggested initiatives, therefore, consist of a number of new features with the intention of enhancing cross-side network effects, create lock-in effects, and still keep costs low for merchants (initiative #4A). Further, the initiative will increase Swipp's market power within retailing (initiative #4B).

The strategic initiative we suggest Swipp to execute will increase switching costs for users and make shopping more convenient by integrating the following elements of shopping into the Swipp platform (initiative #4A):

- *Shopping list*: When shopping groceries, people can create shopping lists on paper to remember what to buy or write a shopping list on their smartphone. To encourage people to use Swipp to a larger degree, Swipp should facilitate that users conveniently can write a shopping list in the app through a new feature.
- *Suggest purchases:* However, a shopping list needs to be intelligent to increase convenience for the users. By applying big data, an intelligent shopping list can recommend purchases due to knowledge on prior purchases, suggest purchases by applying knowledge about other users that purchases similar goods as the particular user, and suggest season-dependent groceries. The intention is to make it easier for users to remember to buy everything needed, by applying big data.
- *Suggest where to buy goods:* If users adopt Swipp's shopping list functionality, Swipp may get an opportunity to increase value for merchants from cross-side network effects between users and merchants. By having an extensive network of merchants, through the shopping list, knowledge on

what groceries the users want to buy, it may is be possible to create a feature that suggests users where to buy the groceries they need, and e.g. optimize purchases for the user on other parameters such as "shortest distance" or "cheapest price". If the Swipp platform should be able to optimize on "shortest distance" it is required for Swipp to imitate the feature from MobilePay on store location, as it needs to know the user's GPS location and where the merchants are situated (suggested in initiative #3). To be able to suggest the "best offer" Swipp should utilize the same technology as the Danish app eTilbudsavis and tilbudsaviseronline.dk, which offers its users access to online advertising circulars, and potentially partner with them to merge their services into Swipp's platform. With this initiative, Swipp can attract customers to the stores that are connected to Swipp and deliver information to users on prices and what goods the merchant sell. The functionality can potentially move customers from stores not connected to Swipp towards stores that are a part of Swipp's platform. By doing so, Swipp is also able to attract more customers to the stores and offer them additional goods when they click – "where to shop groceries", and thereby increase sales for merchants.

- *Bonus system:* If Swipp imitates MobilePay's receipt storage feature, Swipp could compare the user's shopping lists to their actual purchases and offer different kinds of bonuses if the users 1) use the shopping list, 2) buy groceries in a store having Swipp, and 3) pay with Swipp. By doing this, Swipp effectively creates a lock-in effect that ties the user to go through all three steps, which increase value for both users (increased convenience) and merchants (increased sale). Thereby Swipp increases switching costs for both users and merchants. Finally, Swipp users lose potential bonuses every time they do not use the shopping list, buy groceries in a store that receive Swipp payments, and pay with Swipp.

Initiative #4A
Increase in range

- New features:
  - *Shopping list*
  - *Suggest purchases*
  - *Suggest where to buy goods*
  - *Refined bonus system*
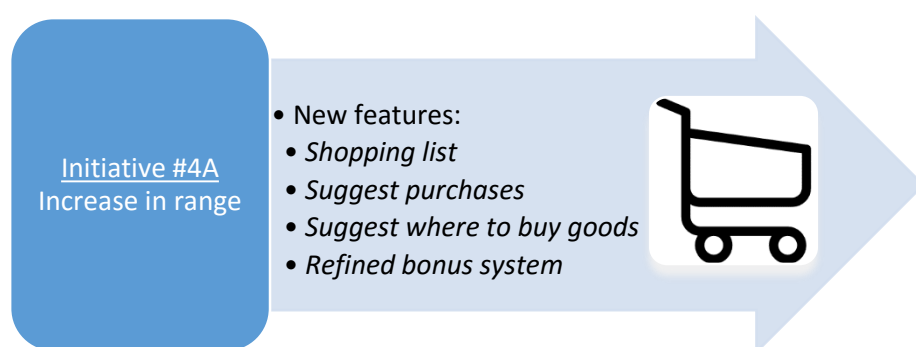
In addition to the above suggestions, Swipp should also try to bundle additional functionality to the platform to turn the platform into a shopping and payment ecosystem rather than just a payment platform (initiative #4B).

A well-known approach to developing digital platforms is to create strategic partnerships that can leverage the platform by bundling features. Swipp should expand the architecture and thereby the range of the platform by creating either strategic partnerships, merge with, or acquire functionalities provided e.g. by the Danish company eTilbudsavis that offers access to online advertising circulars (Tilbudsaviser, 2016). Further, we also suggest Swipp to collaborate with online retailers as the Danish Company Nemlig.com (Nemlig.com, 2016) and Osuma (Dagligvarer lige til døren, 2016) (initiative #4B).

The intention is to enable its users to browse online advertising circulars on the Swipp platform and easily add goods to the shopping list. Hereafter, Swipp and merchants can profit from the earlier suggested initiatives that increase Swipp-user's incentives to do their shopping in a store that collaborates with Swipp.

According to Simonsen (2015), online grocery shopping is not successful in Denmark yet and online grocery shopping is much more common in England. However, by bundling Swipp to one or more online retailers as Nemlig.com and Osuma, Swipp would be able to make shopping even more convenient for the users, as they have the choice between letting the app suggest the cheapest store, shortest distance, or an online store that delivers all goods.

We expect these initiatives to increase the number of c2b payments through the Swipp platform due to increased convenience in shopping and thereby enhance cross-side network effects among users and online supermarkets. Further, it can potentially change or move the market power within retailing and advertisement in retailing to Swipp. The initiatives also increase convenience in shopping for users and make it easier for people to shop. As section 3 on money describes how innovation within payment has decreased transaction costs within trade through history, this is an example of how mobile payments can further reduce transaction costs. Finally, the initiatives can increase switching costs and lock-in users to Swipp's platform without increasing costs for either users or merchants, as the suggested features do not create additional variable costs for Swipp, but rather open for new revenue streams. This will be elaborated in section 9.4.5 on initiative #5.

Initiative #4B
Increase in range

• New features:
• *Browse online advertising circulars*
• *Enable only grocery shopping*
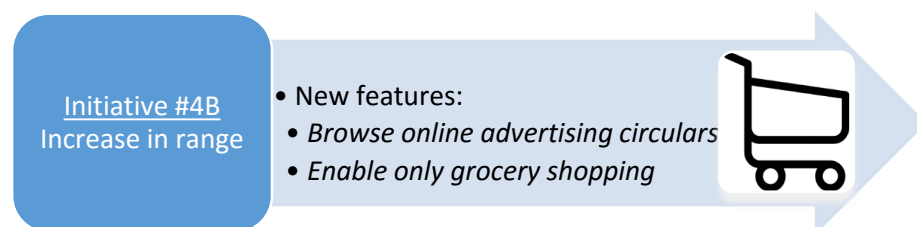
By implementing initiative #4A and #4B, users will experience this process in buying groceries through the Swipp app:
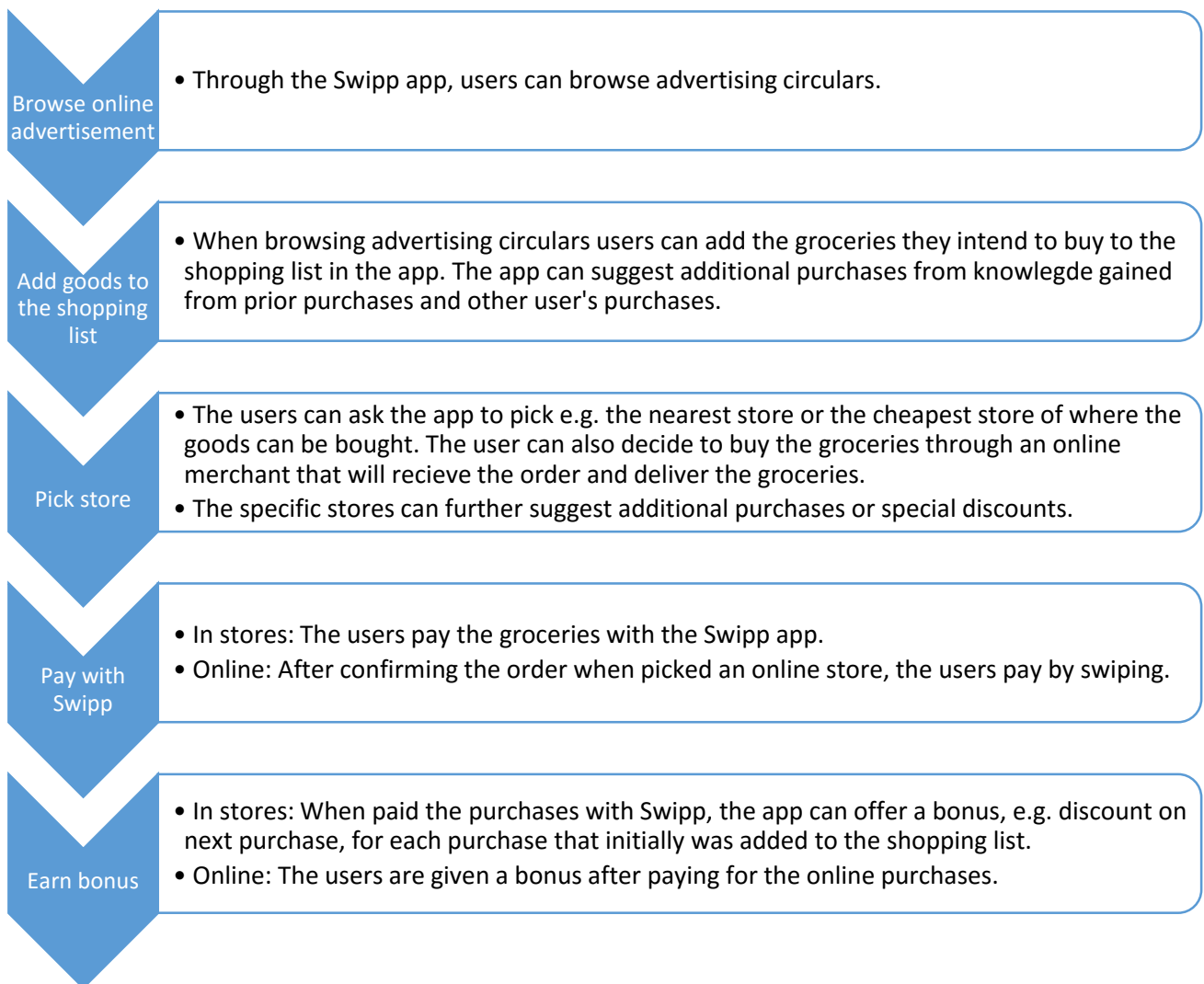
Figure 11: New shopping and payment process users will experience through the Swipp app after introducing initiative #4A and #4B.

9.4.4.2 Timing and order of expansion – initiative #4A and #4B

As initiatives #4A and #4B involve several elements and have a large impact on both users and merchants and suggests adding online supermarkets and online advertising circulars to the Swipp platform, timing is essential to execute this successfully, as it involves a number of stakeholders who need to coordinate the expansion. The initiative can potentially create significant value for both users and merchants and increase Swipp's bargaining power within retail. Though, users are required to get used to much new functionality, and therefore preannouncements are important to communicate what users and merchants will experience from the new features.

MobilePay has not launched similar initiatives. Therefore, Swipp has the potential to create first-mover advantages on these initiatives e.g. by attracting the largest online retailers and the largest online

advertising circular platform, as Swipp should try to get exclusive agreements with the online retailers and the online advertising circular platforms, eTilbudsavis and tilbudsaviseronline.dk. Further, Staykova and Damsgaard (2015b) argue that expansion into new platform sides can be the best chance for a second-mover to take the position as market leader, as an introduction of new user sides to the platform can add significant value for existing user sides. Therefore, Swipp should keep much attention to these initiatives, as it seems to be one of the best chances to change the power in the Danish market for mobile payments or at least take market shares. The suggested initiatives represent a vast increase in the range of the platform, and it is not certain that Swipp users will adopt and use all features if launched at once. Therefore, it is important to engage users and merchants in the development and focus on the user experience.

The ability to create the partnerships is limited as there are only a few established online retailers and online advertising circulars are primarily facilitated by the company etilbudsavis.dk and tilbudsaviseronline.dk. If Swipp manages to create at least one exclusive partnership with online grocery stores (preferably more) and collaboration with eTilbudsavis and/or tilbudsaviseronline.dk, it will be difficult for MobilePay to imitate the initiative. Therefore, Swipp might earn significant and valuable first-mover advantages from initiative #4B.

9.4.4.3 Implications – initiative #4A and #4B

The two initiatives #4A and #4B is a bundle of new features that increase the range of the platform. If Swipp manages to make exclusive agreements with online retailers and an online advertisement circular platform, it might take time for MobilePay to imitate similar solutions or substitute them. With the initiatives, Swipp offers both users and merchants more functionality at a lower cost compared to MobilePay. Therefore, these initiatives are essential in challenging MobilePay, as it potentially can establish first-mover advantages.

If Swipp manages to launch this successfully, it is possible to get supersede MobilePay regarding provided features offered to users and merchants, and further, the initiatives suggest to create new sides on the platform that can create more value to the relationship between users and merchants.

Though, the initiatives require that Swipp still keeps their costs for merchants low, to maintain a strong value proposition by applying the potential competitive advantage on cost.

By applying new features, existing MobilePay users are given a larger incentive to multi-home and also use Swipp. Further, the different functionalities such as the receipt storage, bonus program, and shopping list features create lock-in effects on the Swipp platform.

The most interesting initiative is the opportunity to engage with online retailers and implement online advertising circulars on the platform as this have the potential to create new revenue streams for Swipp. This has several interesting implications, which will be elaborated in section 9.4.5.

The two initiatives are by far the largest development of the platform, and it might require significant managerial capabilities, resources, and funds. Though, as identified in section 9.3.1 on resource similarity, Swipp has access to funds and human capital through owners, and if the initiatives require resources larger than Swipp possess, we assume that the owners are willing to invest these resources, as it is required to challenge MobilePay's position.

The initiatives are not impossible for MobilePay to replicate, and if MobilePay does so, their access to big data on purchases might be larger than Swipp's. MobilePay might be able to replicate initiative #4A, however, initiative #4B might be harder to imitate as the number of established companies within online retailing and advertising, that are potential partners, is limited, and if Swipp manages to create exclusive agreements, at least within a given period, Swipp will gain significant first-mover advantages.

Initiative #4B on different collaborations might enable Swipp to create new revenue streams. This will be elaborated in the following section.

9.4.5 Opportunities for new revenue streams – initiative #5

Initiative #4B might enable Swipp to create new revenue streams on the platform by bundling other value chains that MobilePay do not control today, into the Swipp platform. Anderson (2009) describes that one platform can commoditize another platform's revenue stream by offering the same service freely. If Swipp applies its potential, competitive advantage on costs and manages to get first-mover advantages towards online retailing and advertising circulars, it might be possible to commoditize MobilePay's revenue stream

from merchants. Therefore, Swipp should try to commoditize MobilePay's existing revenue stream from merchants, to challenge MobilePay's opportunity on profiting long term.

9.4.5.1 Design of expansion – initiative #5

If Swipp launches collaborations with online retailers, Swipp could profit from this as it will attract more customers. Further, bundling of online advertising circulars into the platform creates more exposure of the discounts provided by the stores, and this increase value for advertisers. The features will increase the scope of the platform by adding new sides that can collect revenue, as it is valuable for online retailers and advertisement platforms. The exposure might also increase sales for online retailers and conversion rates for advertisers.

These new potential revenue streams might enable Swipp to keep both the user side and the side of physical merchants subsidy sides. Expanding the platform into two new sides requires time, however, if Swipp meanwhile turns its potential competitive advantage on costs into a competitive advantage and attracts more users, Swipp might be able to commoditize MobilePay's revenue streams from merchants. This will be a severe challenge for MobilePay if they do not manage to create new revenue streams

Initiative #5
Increase in range

- Collect revenue from new sides
- *Try to commoditize MobilePay's revenue stream*
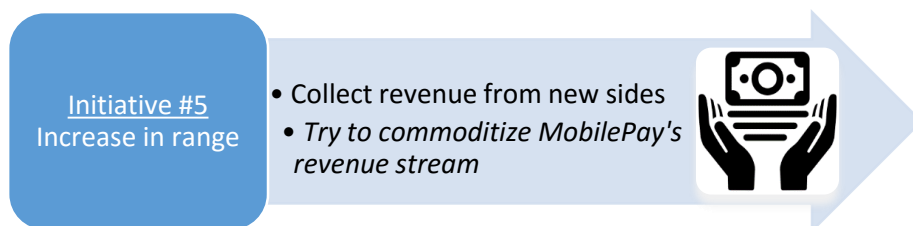
9.4.5.2 Timing and order of expansion – initiative #5

It is an important decision whether to capture revenue from other sides than initially planned. Therefore, it is necessary to ensure that partnerships are negotiated before publicly announcing anything, along with announcing that merchants in the future are not to pay for C2B payments. Further, as the initiative is to establish first-mover advantages for Swipp that makes imitation difficult for MobilePay, it is necessary that MobilePay does not know about the initiative before negotiations with relevant collaborators are ended.

On the other hand, preannouncement of the initiative is highly required as the success of the initiative to a large extent depends on user's adoption of the new features. When Swipp has managed to negotiate agreements with online retailers and an online advertising circular platform, it is important to preannounce the initiatives to shape user expectations and attract more users to the app by the expectation of useful features that are soon to be launched.

It is possible for Swipp to launch the new sides without revealing the intention to demonetize the market for c2b payments, though, as all sides interrelate on the platform, the correlation between preannouncements and actual actions highly influence whether the initiative will be successful or not.

Swipp risks losing their potential competitive advantage on costs within a few years due to the new PSD2 regulation, which might enable MobilePay lowering their costs. Therefore, we argue that Swipp should be proactive and take the risk from MobilePay replicating the features, by preannouncing the initiatives as soon as the partnerships are established, but the actual decision should also depend on the degree of success with the previously suggested initiatives (#1, #2, #3 and #4A).

9.4.5.3 Implications – initiative #5

The initiative of adding new sides to the platform has large implications. The purpose is to create new revenue streams and challenge MobilePay's dominating position by commoditizing MobilePay's existing revenue stream and further to create first-mover advantages that limit MobilePay's ability to imitate the new functionalities that Swipp launches. The intention is to establish an ecosystem around shopping instead of merely a payment solution between merchants and users, and thereby increase value for users and merchants.

There are certain risks affiliated with this, as preannouncement can increase the risk that MobilePay tries to imitate the initiatives. On the other hand, a preannouncement of free c2b payments in the future can be a lever to success in the initiative.

This initiative is an important step in challenging MobilePay's dominating position as it has the potential to undermine MobilePay's revenue stream. If Swipp is successful in this, MobilePay has to develop new revenue streams to secure long-term profitability of the platform. Though, we also note, that after increasing range in such a degree as suggested, Swipp needs to increase reach significantly afterward before making more initiatives to increase range.

If Swipp is successful in launching these features, users are given strong incentives to multi-home. As the initiative further requires that Swipp has managed to enhance its network effects prior, they have, if successful, managed to decrease the level of the WTA-dynamics and challenge MobilePay's position in the market.

9.4.6 Conclusion on attack strategy for Swipp

This section outlines our suggested attack strategy of five initiatives on how to challenge MobilePay's dominant position in the market for mobile payments. The strategy includes an initiative #1 that enables all potential users to access the Swipp platform, though, the expected amount of new users attracted by this is

limited. Further, initiative #2 should attract more users to Swipp's platform by applying negative pricing. Assuming that this initiative will increase the reach of the platform, Swipp should implement initiative #3 to imitate MobilePay's features with the purpose of ensuring that no users are worse of switching from MobilePay to Swipp regarding functionality. Hereafter, initiative #4A and #4B introduce new features to create an ecosystem around shopping rather than just payment, and finally, initiative #5 contains an application of initiative #4B that might enable Swipp to commoditize MobilePay's revenue stream.

The execution of the strategy has to be conducted in the suggested order, as the increase in reach is a prerequisite to increasing the range of the platform. Further, the recommended initiatives with the purpose of increasing the range of the platform also rely on each other; hence it is necessary to create the features in the suggested order.

The strategy assumes that Swipp is successful in each step. As identified in section 9.3, we do not consider that MobilePay will respond to all initiatives taken by Swipp, but one must assume reactions from MobilePay on some of the initiatives. However, a competitor's reactions are difficult to predict.

WTA-dynamics in a market is not static, and initiatives from both Swipp and MobilePay can change the strength of network effects and the level of multi-homing costs. Though, the strategy does not suggest implementing further special features in addition to Swipp's higher spending limits, as we have not identified opportunities in this. To what degree the recommended strategy is enough to challenge MobilePay's dominating position is difficult to assess, though, we expect that the suggested strategy will enable Swipp to enhance its position in the market significantly.

10. Discussion

The intention of this section is to broaden the perspectives of the thesis and its implications. We will discuss prominent findings within the actual case study, the practical implications related to the case study and the implications of the applied theories. Further, the limitations of the thesis are discussed and finally, we will recommend further research.

10.1 Prominent findings

We find that Swipp as a second-mover in the Danish market lacks significant reach on the platform, which means that they need to increase the number of users in order to challenge MobilePay's position. Firstly, it is required to implement a card payment solution and a Windows Phone App to allow potential users to join Swipp, as it is essential that all potential users can access the platform.

Secondly, Swipp possesses a potential competitive advantage on low variable costs due to their technical solution. Swipp can apply this to attract more users through negative pricing while simultaneously weakening MobilePay's strong network effects.

Thirdly, Swipp needs to introduce new functionality on the platform to increase user's incentive to multi-home. The analysis examines how some of these new features might enable Swipp to commoditize MobilePay's revenue stream, which is a central element in challenging MobilePay's dominating position. These features should seek to apply Swipp's potential competitive advantage.

Whether Swipp will be able to challenge MobilePay's dominant position or not is unsure. We find that Swipp is in a difficult position, but the suggested strategy might enable Swipp to create a strong second-mover position in the market.

10.2 Practical implications

We suggest a strategic roadmap for Swipp on how to challenge MobilePay's dominant position by applying company resources. The strategy consists of five steps that are necessary to conduct in the suggested order, as it is a prerequisite for Swipp to increase the number of users before increasing the scope of Swipp's platform.

The first initiatives are mostly inward looking ensuring proper infrastructure and attracting more users, while the later initiatives add new features, not provided to the market yet, and to try to challenge MobilePay by commoditizing their revenue stream. If Swipp implements the strategy, they should be aware that it attracts MobilePay's attention and increase competition.

Increased competition can spur a need to take additional initiatives during execution, which is also presented by Chen (1998), who states that motivation to react to competition can increase as competition increases. Therefore, Swipp should not consider this a final strategy that can be executed in any case, but a conceptual roadmap that needs to be adjusted during implementation, as strategies cannot be considered static but a dynamic tool that has to take market conditions into consideration.

10.3 Theoretical implications

As the Danish market for mobile payments has not turned into a winner-take-all market, the thesis applies Barney's (1991) perspectives on resource based view to identify platform specific resources for Swipp and MobilePay. The purpose is to identify capabilities and resources for both platforms. Though, as the resourced based view is inward looking in its nature, the thesis applies Chen's (1991) perspectives on resource similarity, market communality, and awareness, motivation, and capability, enabling us to study how Swipp can apply its resources to challenge MobilePay. By combining the resourced based view with platform theory on network effects, user costs, pricing dynamics etc., the theoretical body enables us to identify case-specific information on both platforms, which is the foundation in identifying how Swipp can challenge MobilePay. Though, other theoretical perspectives could also have been applied on how Swipp, on a longer term, can challenge MobilePay. This will be discussed in section 10.4 on limitations and section 10.5 on recommendations for further research.

10.4 Limitations of the research

To sharpen the scope of the thesis, some limitations have been made.

10.4.1 Access to Swipp

Swipp's initial interest in participating in an interview changed through the process of writing the thesis. Therefore, the analysis is conducted on data accessible through secondary data sources. Though, as the development of Swipp and MobilePay has attracted relatively large public attention, much information on the actual conditions in the platform battle has been published, and through the study, we have managed to answer a very large part of the initial questions we intended to ask Swipp by reading secondary data sources. As the thesis research the actual market situation with no clear winner-take-all dynamics, it takes a short-term perspective applying actual resources. Therefore, the study has only been limited to a small degree by the missing access to Swipp, as much information on resources has been accessible. Though, an interview with Swipp would have provided better insights on organizational capabilities, which would have provided relevant information on what competences Swipp might need to execute the suggested strategy.

10.4.2 Empirical scope: Time

In the process of writing this thesis, both Swipp and MobilePay have launched new initiatives, which are taken into consideration in the analysis. The initial intention was not to consider any new information after the intended interview with Swipp, as this would have violated the premises the interview was made on. As additional initiative from Swipp and MobilePay in smaller or larger degrees changes the conditions for the analysis, we decided not to include new market information after the 1st of May 2016, which include that we do not consider the forthcoming entrance of Coop and Nets on the market for mobile payment, as they have only revealed very little relevant information.

10.4.3 Empirical scope: Geography

Mobile Payment solutions are developing rapidly in many countries, and especially the Scandinavian countries are leading this development. Swipp's technical solution is only designed to operate on the Danish market, but MobilePay's solution has enabled them to enter both Norway and Finland. Further, Danske Bank is also collaborating with large Swedish banks on the solution called Swish. Though, to get a clear picture of the competitive situation, we have only considered the Danish market for mobile payment, as nothing indicate that Swipp consider to expand their solution to other countries.

10.4.4 Theoretical limitations

The thesis applies a number of relevant theories, primarily related to platform-specific dynamics, firm resources, market dynamics, and competitive dynamics, to answer the research question. Though, the thesis could also have shed light on the case through other theories to answer the problem statement from additional perspectives.

If the market had WTA-dynamics, theories say that Swipp should consider challenging MobilePay through an envelopment attack (Eisenman et al., 2007) or through creative destruction (Staykova and Damsgaard, 2015a). However, as it was possible to identify a feasible strategy through a resource-based view, we decide not to elaborate on more radical strategies like creative destruction and envelopment, which would have been riskier and costly.

The thesis could also have been further elaborated with theory from Christensen (1999) on new market disruption and low-end disruption. By applying these theoretical perspectives, it might have been possible to analyze the case on a long-term perspective for how Swipp can challenge MobilePay by introducing new technology that will make MobilePay's solution technologically inferior.

Further, section 9.4.5 in the analysis suggests Swipp to commoditize MobilePay's revenue stream by creating new revenue streams to Swipp's platform. If Swipp manages to do this, it could be an example of a company that increases its power through vertical integration within the value chain.

Bresnahan and Greenstein's (1999) thoughts on industry structures within the computer industry could have been applied to a larger degree to analyze the implications of this. Further, Bresnahan and Greenstein (1999) argues that platforms over time will suffer from a need to create backward compatibility, which at the same time might prevent a platform to adopt newer and more efficient technologies. This concept of platform erosion could have been applied as a long term perspective for Swipp.

Finally, Gawer and Cusumano (2008) describe the broader concept of platform tipping, where platform battles include technical standards and incompatible technology, sales, pricing, marketing, product development and coalition building. The concept of tipping is to establish platform leadership by "tipping" the market into favoring the platform's technology over another platform's technology. Though, due to the scope of the thesis, and as multi-homing costs are low in the mobile payment market, we found it more fitting to apply a resource perspective to identify Swipp's opportunities in challenging MobilePay's dominating position.

10.5 Recommendations for further research

The field of mobile payment solutions develops rapidly in these years. This opens for a number of different interesting topics for further research. Below, we will introduce our recommendations for further research.

10.5.1 EU regulation

The topic has been slightly touched in the thesis. A new regulation (PSD2) is being implemented within the next years to lower the costs of monetary transactions costs within EU. This would be interesting to study, as decreasing costs might change the market power within mobile payments, and challenge MobilePay's dominating position, as established institutions might get challenged by other companies within the industry, from startups, and from large international firms from other industries. Here, the theories on creative destruction, envelopment are very relevant to consider as new entrants can apply these methods when entering the market. The regulation is further to eliminate Swipp's potential, competitive advantage on costs.

10.5.2 The entrance of large companies

As large companies can enter a market that is already highly competitive, this fosters interesting perspectives on entry strategies. If Google, Apple, Snapchat and/or Facebook enter the market, it is relevant to study how an efficient envelopment strategy can be conducted, where such firms should attack

in the market, and how many resources are required to enter the Danish market. Further, this entrance might also open for interesting partnership opportunities within the market.

10.5.3 How should MobilePay protect its position

As this thesis examines how Swipp should challenge MobilePay's dominant position it could also be interesting to examine how MobilePay can protect its position. MobilePay's large user base creates strong network effects, which represent a competitive advantage, but if Google, Apple, or Facebook, who all have a significant number of users, enters the market, MobilePay could be challenged much more compared to the threat Swipp represent. Therefore, if some of the larger companies preannounce that they will enter the Danish market and reveal information on how to enter the market, studies on how MobilePay can protect its position will become highly interesting to conduct.

10.5.4 The entrance of NETS and COOP

The thesis does not analyze the upcoming entry of the payment processing company NETS, and the large retailer, COOP. Though, preannouncements from the companies confirm the findings from the analysis that the market has not turned into a winner-take-all market, as the two established companies are to enter the market in the near future. Limited information has been revealed about their specific solutions, but if the two companies launch as preannounced in autumn 2016, this will change the competitive situation in the market. The entrance of NETS with 'Mobil Dankort' is interesting as most Danes already have a 'Dankort' and many payment terminals are already prepared for NETS' mobile payment solution. This might be a challenge for MobilePay, and further, the entrance of the two competitors' might also decrease Swipp's position further, if significant strategic steps are not soon taken by Swipp. The upcoming entrances, therefore, open up for interesting studies on the new market dynamics with four resourceful competitors.

10.5.5 Nordic perspectives

Within the Nordic countries, the Fintech sector is rapidly developing. In Sweden, the companies Swish, Wywallet, and SEQR are competing against each other, and in Norway, Danske Bank has introduced MobilePay that competes against mCASH.

General perspectives can, therefore, be compared within the Nordic region. The Swedish solution, Swish, e.g. builds on a similar technology as the Danish company Swipp. The Nordic countries, therefore, spur interesting opportunities for competitive studies across the markets. Studies could identify similarities and differences on competitive dynamics, individual growth strategies and identification of resources and capabilities across the platforms. This knowledge might enable a translation of industry specific conditions to identify empirical findings on how platform leadership is obtained.

10.5.6 Mobile payment implication on market transactions

Section 3 outlines the history of money and identify the conditions required to establish an efficient payment system. Mobile payment increase divisibility in payment, as it is not required to have the exact amount of cash to pay p2p due to mobile payments. Further, the analysis also suggests creating an ecosystem around shopping instead of just facilitating c2b payments. As mobile payment takes a larger share of the market within payments, the effect in terms of number of transactions, transaction sizes, and more general implications on society from this development in mobile payments is interesting to research.

10.5.7 Long term challenge of MobilePay

As mentioned, the thesis applies a resource-based view to identify what Swipp can do to challenge MobilePay's dominating position in the market for mobile payments. If multi-homing costs had been higher, it would have been even more difficult for Swipp to challenge MobilePay's dominating position. As stated in section 10.4.4, a number of theories could have been applied to identify long-term perspectives in challenging MobilePay. It would therefore be interesting to research platform erosion factors that might limit MobilePay's development on the long run. Further, Swipp might also be able to introduce new technology that can create creative destruction on the actual market. Another strategy might be to create strategic partnerships enabling an envelopment attack on MobilePay. Finally, the part of the strategy suggesting vertical integration within retailing could also be an interesting topic to study further.

Though, as a common characteristic for these studies, it is required to get more insights on Swipp's future plans and organizational capabilities to conduct these studies on long-term perspectives. Access to Swipp and collaboration with them is therefore required to conduct the suggested study on long term perspectives.

11. Conclusion

The market for digital platforms has within the last decade experienced a rapid development. Both entrepreneurs and incumbent firms have developed new business models, services, and products including platforms for lending, crowdfunding, carsharing, dating, social medias, house renting, and movie streaming. Successful platforms in these industries have managed to attract millions of users, and this fast growth has spurred our interest to conduct a study of the dynamics on the market of digital platforms.

Contrary to traditional markets with upstream and downstream activities in the value chains, a new set of competitive dynamics influence digital platforms. Our theoretical review has highlighted winner-take-all dynamics, affected by network effects, multi-homing costs, and switching costs, which significantly alters the way platforms compete for market shares in comparison to traditional industries. Further, firm resources and the state of competition in the market are affected by these platform specific dynamics. From this theoretical context, this paper has conducted a case study of the Danish mobile payment industry and sought to answer the following questions:

1. *What are the strategic opportunities and obstacles for Swipp in the Danish mobile payment market facing MobilePay's dominant market position?*

   - To what degree do winner-take-all dynamics influence the competitive situation on the Danish mobile payment market?
   - How do Swipp's and MobilePay's resources affect the competitive situation on the Danish mobile payment market?
   - How does the market dynamics affect the competitive situation between Swipp and MobilePay?

We find that the Danish market for mobile payment is characterized by strong network effects and a low demand for special features, thus creating opportunities for winner-take-all dynamics. Further, the dynamics within payment systems and implications from digital goods increase the likelihood that the market turns into a winner-take-all market. MobilePay has managed to establish a significant lead in the size of the use base. Thus, Swipp may have difficulties in challenging MobilePay's position as Swipp faces the chicken-and-egg problem in trying to establish a critical mass of users. The analysis, however, further finds that multi-homing costs currently are low in the market, increasing the likelihood of users to use both Swipp and MobilePay. This offers Swipp an opportunity in challenging MobilePay's dominant position. Still, strong network effects, the low demand for special features, and the dynamics from payment and digital goods, which favors the first mover, complicate this task for Swipp.

Having established that the platform specific dynamics of the market does enable Swipp to challenge MobilePay, the analysis explored the capabilities and resources of the firms that enable them to attack and retaliate.

We found that MobilePay has gained a competitive advantage from derived network effects due to its large number of users. MobilePay launched in May 2013, one month ahead of Swipp, and has been far more successful than Swipp in reaching its critical mass. Swipp, however, applies a technology that enables costless account-to-account transactions giving Swipp a potential competitive advantage on costs, which enables them to take a number of strategic initiatives to increase incentives to use Swipp and multi-home. Thus, the two firms each have a unique and potential competitive advantage, that can be utilized in the competitive situation.

Having identified company specific resources for each platform, the analysis examined the degree of market commonality and resource similarity of the two competitors and the impact on awareness, motivation, and capability to participate in the competition on platform leadership.

We found that there is large resource similarity and market commonality in the Danish market for mobile payment. While the two firms do have unique resources available to them, as highlighted in the previous section, they do to a large extend have their resources in common. Similarly, while there are large market commonalities, it is also somewhat asymmetric. MobilePay's focus may to a larger extend lie on international expansion, the risk of international entrants, and on increasing the range of the platform rather than reach, since 9 out of 10 Danish smartphone users have downloaded MobilePay. On the contrary, Swipp needs to increase the reach of the platform by attracting more users. This commonality asymmetry increases Swipp's opportunities to take a share of the market as MobilePay might lack the motivation to react to all strategic initiatives taken by Swipp. Further, MobilePay lack the capability to react to initiatives, where Swipp applies its potentially competitive cost advantage. Thus, the market dynamics imply some openings for attack strategies for the two platform firms.

The last part of the analysis outlined a strategic roadmap of five steps Swipp should make to challenge MobilePay's dominating position. The strategy argues that Swipp should 1) develop necessary infrastructure to enable access for all potential users, 2) apply negative pricing, which potentially weakens MobilePay's strong network effects, 3) imitate features that MobilePay has developed, and 4) innovate new features that the market currently does not offer, which increase value for both user groups and generate lock-in effects. A possible way to do so is to collaborate with online retailers and online advertising circular platforms to create a shopping eco-system. Finally, Swipp should 5) commoditize MobilePay's revenue

stream earned from c2b payments. With this initiative, Swipp can undermine MobilePay's source of revenue, and thereby challenge MobilePay's dominant position.

The strategic roadmap suggests that Swipp can turn its potential competitive advantage on cost into an actual competitive advantage. However, the suggested strategy does have limitations. A new regulative from EU (PSD2) might enable MobilePay to lower its costs on transactions within a few years, which can make Swipp's potential competitive advantage on costs redundant. Further, the strategy assumes that Swipp will be successful in each suggested step as a specific order of implementation is required. Finally, it assumes that MobilePay will not develop other significant revenue streams while Swipp's strategy is implemented.

The market seems not to turn into a winner-take-all market within the next coming years, and the Danish retailer, Coop, and the Danish payment solution company, NETS, have preannounced that they are to enter the market. This thesis, however, has not identified resources and capabilities, controlled by Swipp, which are strong enough to significantly weaken MobilePay's position as market leader in the Danish market for mobile payments. The suggested strategy, however, can enable Swipp to enhance its position as a strong and established second-mover in the market.

Competition between digital platforms is increasingly common, as platforms have penetrated more and more markets. A set of competitive dynamics influences the competitive situation in favor of the first-mover. However, cases where winner-take-all dynamics are not dominating the market, second-movers can apply competitive advantages and other resources to challenge a platform leader.

This thesis confirms, that the task for a second-mover to win platform leadership is complicated and not always possible, even in markets with unclear winner-take-all dynamics. As such, the field therefore leaves room for much further studies.

Bibliography

A brief history of banknotes. (2016, February 22). Retrieved from
http://www.bankofengland.co.uk/banknotes/pages/about/history.aspx

Andersen, I. (2009). *Den skinbarlige virkelighed*. Frederiksberg, Denmark: Samfundslitteratur.

Andersen, L., & Hansen, M. (2016, February 11). Coop indfører helt ny betalingsmetode. Retrieved from
http://finans.dk/finans/finans/ECE8434588/coop-indfoerer-helt-ny-betalingsmetode/

Andersen, P. B. (2014, January 14). Swipp får baghjul af Danske Banks populære app. Retrieved from
http://politiken.dk/oekonomi/privatoekonomi/ECE2181805/swipp-faar-baghjul-af-danske-banks-
populaere-app/

Anderson, C. (2009). *Free: The future of radical price*. New York City, New York: Hyperion.

Apple Pay. (2016, February 22). Retrieved from http://www.apple.com/apple-pay/

Armstrong, M. (2006). Competition in two-sided markets. *RAND Journal of Economics, 37*(3), 668-691.

Back, D. (2014, January 29). MobilePay lammetæver Nordea-app. Retrieved from
http://finans.borsen.dk/artikel/1/275479/mobilepay_lammetaever_nordea-app.html

Baldwin, C. & Woodard, C. (2008). The Architecture of Platforms: A Unified View (Working Paper No. 09-
034). Retrieved from http://www.hbs.edu/faculty/Publication%20Files/09-034_149607b7-2b95-4316-
b4b6-1df66dd34e83.pdf

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99-
120.

Bentow, D. (2015, September 28). Så meget bruger danskerne MobilePay. Retrieved from
http://finanswatch.dk/Finansnyt/Pengeinstitutter/Danske_Bank/article8055261.ece

Betaling som du plejer på en helt ny måde. (2016, February 9). Retrieved from
http://www.mobilepay.dk/da-dk/Pages/mobilepay.aspx

Betingelser for MobilePay. (2015, November 5). Retrieved from https://www.danskebank.dk/PDF/PRISER-
VILKAAR-FAKTAARK/Netbank-og-selvbetjening/Betingelser-for-MobilePay.pdf

Boudreau, K. (2012). Let a Thousand Flowers Bloom? An Early Look at Large Numbers of Software App
Developers and Patterns of Innovation. *Organization Science 23*(5), 1409-1427.

British inventor of online shopping on his inspiration. (2013, September 16). Retrieved from
https://www.youtube.com/watch?v=dI6EG7KrKig

Burn-Callander, R. (2014, October 20). The history of money: from barter to bitcoin. Retrieved from
http://www.telegraph.co.uk/finance/businessclub/money/11174013/The-history-of-money-from-barter-
to-bitcoin.html

Butikker får nemmere vej til mobilbetaling - Swipp og Verifone lancerer samarbejde. (2016, June 28).
Retrieved from https://www.verifone.dk/da/Denmark/Om-Verifone/Nyheder/Butikker-far-nemmere-vej-
til-mobilebetaling/

Chen, H., Chiang, R. & Storey, V. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. *MIS Quarterly, 36*(4), 1165-1188.

Chen, M. (1996) Competitor Analysis and Interfirm Rivalry: Toward a Theoretical Integration. *The Academy of Management Review, 21*(1), 100-134.

Chesbrough, H. (2011). *Open Services Innovation*. San Francisco, CA: Jossey-Bass.

Choi, J. (2010). Tying in two-sided markets with multi-homing. *The journal of Industrial Economics, 58*(3), 607-626.

Christensen, A. B. (2015a, April 9). Nu skal bankkontoen også være social. Retrieved from http://magasinet.f5.dk/nu-skal-bankkontoen-ogsaa-vaere-social/

Christensen, A. B. (2015b, July 15). Sandheden om MobileLife: Danske Bank er blevet en hip software-virksomhed. Retrieved from http://magasinet.f5.dk/sandheden-om-mobilelife-danske-bank-er-blevet-hip-software-virksomhed/

Dagligvarer lige til døren. (2016, May 30). Retrieved from https://osuma.dk/

Damsgaard, J. (2015). *Den Digitale Omstilling.* Copenhagen, Denmark: Jurist og Økonomforbundets Forslag.

De fedeste streamingtjenester i én pakke. (2016, April 1). Retrieved from https://www.telmore.dk/telmoreplay

Det er fortsat gratis at overføre penge mellem brugere i MobilePay. (2016). Retrieved from http://www.mobilepay.dk/da-dk/Nyheder/artikler/Pages/Det-er-fortsat-gratis-at-overfoere-penge-mellem-brugere-i-MobilePay.aspx

Distribution of smartphone ownership in Denmark in May 2015, by brand. (2015, May). Retrieved from http://www.statista.com/statistics/438176/smartphone-ownership-in-denamrk-by-brand/

Eadicicco, L. (2015, April 26). Why Google+ failed, according to Google Insiders. Retrieved from http://uk.businessinsider.com/what-happened-to-google-plus-2015-4?r=US&IR=T

Economides, N. & Himmelberg, C. (1995). Critical Mass and Network Size with Application to the US FAX Market (Discussion Paper no. EC-95-11). Retrieved from http://www.stern.nyu.edu/networks/95-11.pdf

Eisenmann, T., Parker, G., & Van Alstyne, M. (2007). Platform Networks – Core Concepts (Working Paper No. 232). Retrieved from http://ebusiness.mit.edu/research/papers/232_VanAlstyne_NW_as_Platform.pdf

Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2006). Strategies for Two-Sided Markets. *Harvard Business Review, 84*(10), 92-101.

Eisenmann, T., Parker, G., & Van Alstyne, M. W. (2011). Platform Envelopment. *Strategic Management Journal, 32*(12), 1270-1285.

Elberg, S. (2013, June 10). NU kan du swippe penge i din Mobilbank. Retrieved from https://kundepanel.jyskebank.dk/2013/06/10/nu-kan-du-swippe-penge-i-din-mobilbank/

EMV. (2016, February 22). Retrieved from https://en.wikipedia.org/wiki/EMV

Engholm, P. (2015. September 29). Ny kampagne: Swipp begynder – næsten – forfra. Retrieved from http://www.bureaubiz.dk/Nyheder/Artikler/2015/Uge-40/Ny-kampagne-Swipp-begynder-naesten-forfra

Evans, D. & Schmalensee, R. (2013). The Antitrust Analysis of Multi-Sided Platform Businesses. Forthcoming in: Roger Blair and Daniel Sokol, eds., *Oxford Handbook on International Antitrust Economics*, Oxford University Press.

Evans, D. (2009). Two-Sided Markets. ABA Section of Antitrust Law, Market Definition in Antitrust: Theory and Case Studies, Forthcoming. Retrieved from http://ssrn.com/abstract=1396751

Evans, D. S., Hagiu A., & Schmalensee, R. (2006). *Invisible Engines. How Software Platforms Drive Innovation and Transform Industries.* Cambridge, MA: MIT Press.

Facebook annual rapport 2014. (2014). Retrieved from http://files.shareholder.com/downloads/AMDA-NJ5DZ/1179060959x0x852173/F61276C5-0AE9-49DE-BFD9-087398F85EC8/FB2014AR.pdf

Farrell, J. & Klemperer, P. (2007). *Coordination and Lock-in: Competition with Switching Costs and Network Effects*. Handbook of Industrial Organization, Volume 3. Retrieved from http://www.nuff.ox.ac.uk/users/klemperer/Farrell_klempererWP.pdf

Find butikker i nærheden, hvor du kan betale med MobilePay. (2016, May 30). Retrieved from http://www.mobilepay.dk/da-dk/funktioner/Pages/find-butik-privat.aspx

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry, 12*(2), 219-245.

Første danske mobilbetalingsløsning til erhvervsdrivende. (2014, February 11). Retrieved from http://www.danskebank.com/da-dk/Presse/nyheder/Nyheder/Pages/mobilbetalingsloesning_til_erhvervsdrivende.aspx

Gawer, A. & Cusumano, M. (2008). How Companies Become Platform Leaders. *MIT Sloan Management Review, 49*(2), 28-35.

Gawer, A. & Cusumano, M. (2002). The elements of Platform Leadership. *MIT Sloan Management Review, Spring 2002*, 51-58.

Gawer, A. & Cusumano, M. (2014). Industry Platforms and Ecosystem Innovation. *Journal of Product Innovation Management, 31*(3), 417-433.

Gawer, A. (2014). Bridging differing perspectives on technology platforms: Toward an integrative framework. *Research Policy 43*(2014), 1239-1249.

Gilbert, A. (2004, August 11). E-commerce turns 10. Retrieved from http://www.webcitation.org/6TgElLnuG

Gilder, G. (1993, September 13). Metcalfe's Law and Legacy. *Forbes 152*(6), 158-167.

Goldman, D. (2011, July 14). Google+ grows to 10 million users. Retrieved from http://money.cnn.com/2011/07/14/technology/google_q2_earnings/index.htm

Grønnemann K. & Johannesson T. (2015, December 9). Dankortet slår igen – vil erobre mobilbetalinger. Retrieved from borsen.dk/nyheder/avisen/artikel/11/128682/artikel.html

Hagiu, A. & Wright, J. (2011). Multi-sided platforms. (Working Paper No. 12-024). Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.394.7305&rep=rep1&type=pdf

Hagiu, A. & Wright, J. (2015). Multi-sided platforms. (Working Paper No. 15-037). Retrieved from http://www.hbs.edu/faculty/Publication%20Files/15-037_cb5afe51-6150-4be9-ace2-39c6a8ace6d4.pdf

Hagiu, A. (2006). Multi-Sided Platforms: From Microfoundations to Design and Expansion Strategies. (Working Paper No. 07-094). Retrieved from http://www.hbs.edu/faculty/Publication%20Files/07-094.pdf

Hagiu, A. (2014). Strategic Decisions for Multisided Platforms. *MIT Sloan Management Review, 55*(2), 71-80.

Hannestad, A. (2013, August 3). Bankerne kæmper om betaling på mobilen. Retrieved from http://politiken.dk/oekonomi/privatoekonomi/ECE2037534/bankerne-kaemper-om-betaling-paa-mobilen/

Hansen, D. B. (2015, November 11). Kampfly for milliarder: Politikere frygter ny IC4-skandale. Retrieved from http://nyheder.tv2.dk/samfund/2015-11-11-kampfly-for-milliarder-politikere-frygter-ny-ic4-skandale

Hedman, J. & Henningsson, S. (2015). The new normal: Market cooperation in the mobile payments ecosystem. *Electronic Commerce Research and Applications, 14*(2015), 305-318.

Historien om MobilePay og lidt fakta. (2016). Retrieved from http://www.mobilepay.dk/da-dk/Pages/Om-MobilePay.aspx

History of Money. (2016, February 22). Retrieved from http://www.historyworld.net/wrldhis/PlainTextHistories.asp?historyid=ab14

Hof, R. D. (2015). Apple Pay. *MIT Technology Review, 118*(2), 50-53.

Introducing Snapcash. (2014, November 17). Retrieved from http://blog.snapchat.com/post/102895720555/introducing-snapcash

Jevons, W. S. (1876). *Money and the Mechanism of Exchange*. Retrieved from http://www.econlib.org/library/YPDBooks/Jevons/jvnMME1.html.

Kazan, E. & Damsgaard, J. (2014). An Investigation of Digital Payment Platform Designs: A Comparative Study of Four European Solutions. Proceedings of the European Conference on Information Systems (ECIS) 2014, Tel Aviv, Israel, June 9-11.

Kell, J. (2015, July 24). Startbucks wants your phone as much as it wants to sell you coffee. Retrieved from http://fortune.com/2015/07/24/starbucks-mobile-investments/

Kelly, K. (1997, September 1). New rules for the new economy. Retrieved from http://www.wired.com/1997/09/newrules

Kelly, K. (1998). *New Rules for the New Economy.* New York City, NY: Penguin Group.

Kirk, S. S. (2014, January 26). MobilePay stormer frem: Så mange bruger det nu. Retrieved from http://www.mx.dk/penge_erhverv/nyheder/story/20730628

Kjær, C. (2014, May 7). MobilePay overgår vores vildeste forventninger. Retrieved from http://nyheder.tv2.dk/nyheder/article.php/id-73540653%3Amobilepay-overgår-vores-vildeste-forvetninger

Kristiansen, A. L., & Lohse, G. (2014, December 12). Tillykke til Danske Bank: Årets ord er MobilePay. Retrieved from https://www.dr.dk/nyheder/kultur/medier/tillykke-til-danske-bank-aarets-ord-er-mobilepay

Krog, T. B. (2014, August 21). Mød ingeniørernes Mr. MobilePay. Retrieved from https://ing.dk/artikel/moed-ingenioerernes-mr-mobilepay-169939

Kubaitis, E. (1996, June). Browser Statistics for June 1996. Retrieved from
http://web.archive.org/web/20010507151448/http://www.ews.uiuc.edu/bstats/months/9606-month.html

Kunderne i centrum for MobilePay-udviklingen. (2016, May 17). Retrieved from
https://www.danskebank.dk/da-dk/Erhverv/Nyheder/Pages/Kunderne-i-centrum-for-MobilePay-
udviklingen.aspx

Lunde, N. (2016, January 19). Niels Lunde: Mens vi venter på tallene fra Swipp. Retrieved from
http://borsen.dk/nyheder/avisen/artikel/11/131471/artikel.html

Lønstrup, D. (2013, November 13). Rentedage er væk: Nu kræver banken gebyr for hurtig pengeoverførsel.
Retrieved from http://politiken.dk/oekonomi/privatoekonomi/ECE2129772/rentedage-er-vaek-nu-kraever-
banken-gebyr-for-hurtig-pengeoverfoersel/

Madsen, M. S. (2015, December 4). Nu kan du logge ind på MobilePay med dit fingeraftryk. Retrieved from
http://www.computerworld.dk/art/235715/nu-kan-du-logge-ind-paa-mobile-pay-med-dit-fingeraftryk

mCash. (2016, May 11). Retrieved from https://mca.sh/

Med kvitteringsfunktionen i MobilePay undgår din forretning bøvlet og omkostningerne ved
papirkvitteringer. (2016, May 10). Retrieved from http://www.mobilepay.dk/da-
dk/funktioner/Pages/kvitteringer-erhverv.aspx

Metcalfe, R. (2007, April 20). It's All In Your Head. Retrieved from
http://www.forbes.com/forbes/2007/0507/052.html

Microsoft's Internet Explorer global market share is 95% according to OneStat.com. (2002, December 16).
Retrieved from http://www.onestat.com/html/aboutus_pressbox15.html

MobilePay 2015 – året i tal. (2015, December 30). Retrieved from http://www.mobilepay.dk/da-
dk/Nyheder/artikler/Pages/MobilePay-2015-aaret-i-tal.aspx

MobilePay AppSwitch er mobilbetaling i din app. (2016, June 28). Retrieved from http://mobilepay.dk/da-
dk/erhverv/Pages/mobilepay-appswitch.aspx

MobilePay Business er mobilbetaling i din butik. (2016, February 9). Retrieved from
http://www.mobilepay.dk/da-dk/erhverv/Pages/mobilepay-business.aspx

MobilePay demofilm. (2013, September 25). Retrieved from
https://www.youtube.com/watch?v=eeSyS9gmbYE#t=62

MobilePay forbliver gratis for alle danskere. (2014, November 17). Retrieved from
http://danskebank.com/da-
dk/Presse/nyheder/Nyheder/Pages/MobilePay_forbliver_gratis_for_alle_danskere.aspx

MobilePay gratis for alle danskere. (2014, January 14). Retrieved from http://www.danskebank.com/da-
dk/Presse/nyheder/Nyheder/Pages/MobilePay-en-million-downloads.aspx

MobilePay kan nu bruges i udvalgte butikker. (2013, October 2). Retrieved from
https://www.danskebank.dk/da-dk/Erhverv/Kundeservice/Aktuelt/Pages/MobilePay-erhvervsloesning.aspx

MobilePay: Kundefokus i en app. (2016, May 17). Retrieved from
http://www2.deloitte.com/dk/da/pages/financial-services/articles/mobilepay-kundefokus-i-en-app.html

MobilePay Online er mobilbetaling i din online butik (2016, June 28). Retrieved from http://mobilepay.dk/da-dk/erhverv/Pages/mobilepay-online.aspx

MobilePay Point of Sale er mobilbetaling i din kasselinie. (2016, June 28). Retrieved from http://mobilepay.dk/da-dk/erhverv/Pages/mobilepay-point-of-sale.aspx

Modtag betaling med Swipp. (2016, June 28). Retrieved from: https://swipp.dk/erhverv

Money. (2016, February 22). Retrieved from https://en.wikipedia.org/wiki/Money

Møllerhøj, J. & Boye, M. (2014, November 17). Danske Bank dropper gebyrplaner: MobilePay forbliver gratis. Retrieved from http://www.version2.dk/artikel/danske-bank-dropper-gebyrplaner-mobilepay-forbliver-gratis-71379

Nem mobilbetaling med Swipp – uden ekstra udstyr. (2016, June 28). Retrieved from: https://www.verifone.dk/da/Denmark/Start/Tjenester/Swipp-Mobilbetaling/Swipp-og-Verifone-Gode-sammen/

Nemlig.com. (2016, May 30). Retrieved from http://www.nemlig.com/forside.aspx

Nielsen, M. (2014, September 8). Optrapper betalingskrig: Sådan vil Swipp bekæmpe MobilePay. Retrieved from http://nyheder.tv2.dk/nyheder/article.php/id-73827171%3Aoptrapper-betalingskrig-s%C3%83%C6%92%C3%82%C2%A5dan-vil-swipp-bek%C3%83%C6%92%C3%82%C2%A6mpe-mobilepay.html

Nu kommer terminalen til bade MobilePay og kort (2016, March 2). Retrieved from http://mobilepay.dk/da-dk/Nyheder/artikler/Pages/Nu-kommer-terminalen-til-baade-MobilePay-og-kort.aspx

Number of monthly active Facebook users worldwide as of 3rd quarter 2015 (in millions). (2016, April 25). Retrieved from http://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/

Nyholm, P. (2015, June 22). Nu kommer det store angreb på MobilePay. *Berlingske Business*, p. 6-8.

Olsen, S. M. (2016, January 11). MobilePay kan give bagslag for Danske Bank. Retrieved from http://www.business.dk/finans/mobilepay-kan-give-bagslag-for-danske-bank

Om os. (2016, February 22). Retrieved from https://www.paypal.com/dk/webapps/mpp/about

Omkostninger ved betalinger i Danmark (2012). Retrieved from https://www.nationalbanken.dk/da/publikationer/Documents/2011/12/Rapport_omkostninger_betalinger_i_Danmark_web.pdf

Online retail expenditure in the United Kingdom (UK) from 2000 to 2013 (in billion GBP). (February 28, 2016). Retrieved from http://www.statista.com/statistics/283165/online-retail-expenditure-in-the-united-kingdom-uk/

Opsætning af MobilePay privat app. (2016, February 9). Retrieved from http://www.mobilepay.dk/da-dk/help/privat/Pages/opsaetning.aspx

Osterwalder, A., Pigneur, Y., & Clark T. (2010). *Business Model Generation*. Hoboken, NJ: Wiley.

Overfør 5.000 kroner med MobilePay. (2015, September 18). Retrieved from http://www.mobilepay.dk/da-dk/nyheder/artikler/pages/h%C3%B8jere-beloebsgraense-mobilepay.aspx

Pingit. (2016, May 11). Retrieved from https://www.pingit.com/

Plesner, M. (2016, March 11). Coop klar med mobilbetaling i år. Retrieved from http://finanswatch.dk/Finansnyt/article7535325.ece

Plesner, M. (2016, March 18). Swipp: "MobilePay-påbud er vand på vores mølle". Retrieved from http://finanswatch.dk/Finansnyt/article8522999.ece

Popper, B. (2015, May 28). Google introduces Android Pay, a replacement for its wallet app on mobile. Retrieved from http://www.theverge.com/2015/5/28/8661867/google-introduces-android-pay-replace-wallet-app

Porter, M. E. (1980). *Competitive strategy*. New York, NY: Free Press.

POS-integration med Swipp. (2016, June 28). Retrieved from: https://swipp.dk/media/1315/104639_brochure_a5_swipp_erhverv_kasseintegration_opslag_high_res.pdf

Pour, M., Husin, A. & Dahlan, H. (2012). BESTCASH: A new E-cash for Micropayment. Proceedings of the International Conference on Innovation Management and Technology Research (ICIMTR) 2012, Malacca, Malaysia, May 21-22.

Priser for brug af Swipp. (2016, Marts 29). Retrieved from https://www.verifone.dk/Global/Denmark/Swipp/Swipp_Bilag_Priser.pdf

Rifkin, J. (2014). *The Zero Marginal Cost Society*. New York City, NY: Palgrave Macmillan.

Rindahl, N. (2013, May 7). Danske Bank lancerer betaling med mobilen. Retrieved from http://finans.borsen.dk/artikel/1/257361/danske_bank_lancerer_betaling_med_mobilen.html

Ritzau Finans. (2015, October 29). Danske Bank taber markedsandele på udlån men vinder på indlån. Retrieved from http://finans.dk/live/erhverv/ECE8166257/Danske-Bank-taber-markedsandele-p%C3%A5-udl%C3%A5n-men-vinder-p%C3%A5-indl%C3%A5n/?ctxref=ext

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

Rossau, K. (2014a, March 11). MobilePay giver kæmpestort underskud for Danske Bank. Retrieved from http://www.business.dk/finans/mobilepay-giver-kaempestort-underskud-for-danske-bank

Rossau, K. (2014b, May 12). Swipp er klar med erhvervsløsning. Retrieved from http://www.business.dk/finans/swipp-er-klar-med-erhvervsloesning

Salvatore, D. (2007). *Managerial Economics in a Global Economy*. New York City, NY: Oxford University Press.

Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students*. Essex: Pearson Education Limited.

Schilling, M. (2013). *Strategic Management of Technological Innovation*. New York City, NY: McGraw-Hill.

Schumpeter, J. (1976). *Capitalism, Socialism & Democracy*. London, England and New York, NY: Routledge.

Send Money to Friends in Messenger. (2015, March 17). Retrieved from http://newsroom.fb.com/news/2015/03/send-money-to-friends-in-messenger/

Shapiro, C. & Varian, H. (1999a). The Art of Standard Wars. *California Management Review, 41*(2), 8-32.

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

Simonsen, P. (2015, February 22). Derfor er dagligvarer på nettet ikke slået igennem. Retrieved from http://finans.dk/live/erhverv/ECE7460306/Derfor-er-dagligvarer-p%C3%A5-nettet-ikke-sl%C3%A5et-igennem/?ctxref=ext

Simplot-Ryl, I., Traoré, I. & Everare P. (2008). Distributed Architectures for Electronic Cash Schemes: A survey. *The International Journal of Parallel, Emergent and Distributed Systems x*(x),1–28

Slip for kontanter på lommen (2013, May 28). Retrieved from http://www.danskebank.com/da-dk/Presse/nyheder/Nyheder/Pages/Slip-for-kontanter-paa-lommen.aspx

Spring køen over hos bageren (2015, August 4). Retrieved from https://www.danskebank.com/da-dk/Presse/nyheder/Nyheder/Pages/mobilepay-order-and-pay-app.aspx

Staykova, K. & Damsgaard, J. (2014). A Model of Digital Payment Infrastructure Formation and Development: The EU Regulator's Perspective. Proceedings of the International Conference on Mobile Business, (ICMB) 2014, Atlanta, GA, June 4-5.

Staykova, K. & Damsgaard, J. (2015a). A Typology of Multi-sided Platforms: The Core and the Periphery. ECIS 2015 Completed Research Papers. Paper 174.

Staykova, K. & Damsgaard, J. (2015b). The Race to Dominate the Mobile Payments Platform: Entry and Expansion Strategies. *Electronic Commerce Research and Applications, 14*(5), 319-330.

Staykova, K. & Damsgaard, J. (2015c). Introducing Reach and Range for Digital Payment Platforms. International Conference on Mobile Business (ICMB). Paper 5.

Stockholms Banco. (2016, February 22). Retrieved from https://en.wikipedia.org/wiki/Stockholms_Banco

Swipp hæver beløbsgrænsen til 25.000 kr. (2015, September 18). Retrieved from https://swipp.dk/media/1075/09-18-2015-swipp-heaver.pdf

Swipp lancerer ny, selvstændig app og unik betalingsløsning med landsdækkende Matas-samarbejde. (2015, September 9). Retrieved from http://swipp.dk/media/1073/09-09-2015-swipp-lancerer-ny.pdf

Swipp og Verifone. Gode sammen. (2016, June 28). Retrieved from: https://swipp.dk/media/1447/105631_swipp_verifone_flyer_app_terminal_148x210_to.pdf

Swipp. Så er der betalt. (2016, March 4). Retrieved from https://swipp.dk/

Swish. (2016, May 11). Retrieved from https://www.getswish.se/aktivera/

Sådan tilmelder du dig Swipp – ny bruger. (2015, September 8). Retrieved from https://www.youtube.com/watch?v=8yU0p0ghAPk

The beginnings of coinage. (2016, February 22). Retrieved from http://www.britishmuseum.org/explore/themes/money/the_beginnings_of_coinage.aspx

The story of MobilePay – and a few facts. (2016, June 27). Retrieved from http://www.mobilepay.dk/da-dk/pages/The-story-in-English.aspx

Tilbudsaviser. (2016, May 30). Retrieved from https://www.etilbudsavis.dk/

Uncover the truth about Bitcoin. Learn about its utility and elegance. Get in the know. (2016, April 8). Retrieved from https://www.bitcoin.com/faq

Varian, H. R. (2010). Computer Mediated Transactions. *American Economic Review, 100*(May 2010), 1-10.

Varian, H. R., (2013). Beyond Big Data. Proceedings of the NABE Annual Meeting, September 10, 2013, San Francisco, CA.

Wahyuni, D. (2012). The Research Design Maze: Understanding Paradigms, Cases, Methods and Methodologies. Jamar, 10(1), 69-80.

Warren, C. (2011, May 26,). Google Reveals Mobile Payment System: Google Wallet. Retrieved from http://mashable.com/2011/05/26/google-mobile-payment-system-liveblog/#t3dwXih_xZqn

Westland & Clark (1999). *Global Electronic Commerce.* Cambridge, MA: The MIT Press.

Wikimedia Traffic Analysis Report - Browsers e.a.. (2015, March 10). Retrieved from http://stats.wikimedia.org/archive/squid_reports/2015-03/SquidReportClients.htm

Wittorff, J. Ø. (2015, October 30). Her er Danske Banks særlige udviklingsafdeling: Tag med på besøg i "Projekt X". Retrieved from http://www.computerworld.dk/art/235364/her-er-danske-banks-saerlige-udviklingsafdeling-tag-med-paa-besoeg-i-project-x

Woolsey, B. & Gerson, E. S. (2009, May 11). The history of credit cards. Retrieved from http://www.creditcards.com/credit-card-news/credit-cards-history-1264.php

Yin, R. K. (2009). Case study Research Design and Methods. Thousand Oaks, CA: Sage Inc.

Zigler, T. (2014, September 9). Han vil købe sin næste bil med Swipp. Retrieved from http://finans.borsen.dk/artikel/1/290304/han_vil_koebe_sin_naeste_bil_med_swipp.html

Zigler, T. (2015, December 16). Iværksættere sælger betalingseventyr. Retrieved from http://borsen.dk/nyheder/avisen/artikel/11/129246/artikel.html

Østergaard, N. V. (2015, August 17). Ny Swipp-app ubrugelig for hver fjerde bruger. Retrieved from http://www.business.dk/finans/ny-swipp-app-ubrugelig-for-hver-fjerde-forbruger

Appendix A: Development in payment systems

Four different pieces of literature describe the conditions required to build efficient payment systems. The below table describes the conditions required for establishing payments through raw materials, coins, paper money, e-money/credit card, e-business, and e-cash. Further, the table shows which of the conditions the different literature have identified.

	Jevons (1876)	Westland and Clark (1999)	Simplot-Ryl, Traoré and Everare (2008)	Pour et al (2012)
Payment systems as raw materials	Utility and value			
	Portability	Portability / Ease of use		Portability / Ease of use
Coins	Indestructibility	Durability		Durability
	Homogeneity			
	Divisibility	Divisibility		Divisibility
	Stability of value			
	Cognizability			
Paper money				
E-money/ credit card		Privacy		Privacy
		Security		Security
		Flexibility		Flexibility
E-business		Transaction costs		Transaction costs
		Borrowing		Borrowing
				Mediating

				Accessibility
E-cash			Anonymity	Anonymity
			Psedonymity	Psedonymity
			Intraceability	Intraceability
			Transferability	Transferability
			Double spending prevention	Double spending prevention
			Unforgeability	Unforgeability
			No framing	No framing
			Fairness	Fairness
			Recoverability	Recoverability
			Auditability	Auditability

Appendix B: Negative pricing examples

This appendix shows examples of negative pricing Swipp have conducted through 2015 and 2016.

Coffee for 1 DKK, February 2016

Winner of 25.000 DKK, second competition, January/February 2016

Winner of 25.000 DKK, first competition, November/December 2015

Coffee for 1 DKK, November 2015

Water and chocolate bars for 1 DKK, November 2015

Appendix C: Prices for C2B payment, Swipp, MobilePay, and compared

The below tables show prices for merchants for receiving C2B payments through Swipp (from the 1st of July 2016) and MobilePay. The third table compares the different prices and calculates price differences measured in various amounts and number of payments received.

Costs for merchants for recieving C2B payment through Swipp

		Amount recieved			
		kr. 50.00	kr. 100.00	kr. 300.00	kr. 500.00
Number of yearly trans-actions	0-19,999	kr. 0.60	kr. 0.60	kr. 0.60	kr. 0.60
	20,000-99,999	kr. 0.55	kr. 0.55	kr. 0.55	kr. 0.55
	100,000-199,999	kr. 0.50	kr. 0.50	kr. 0.50	kr. 0.50
	200,000-399,999	kr. 0.45	kr. 0.45	kr. 0.45	kr. 0.45
	400,000-	kr. 0.40	kr. 0.40	kr. 0.40	kr. 0.40

Costs for merchants for recieving C2B payment through MobilePay

		Amount recieved			
		kr. 50.00	kr. 100.00	kr. 300.00	kr. 500.00
Number of yearly trans-actions	0-19,999	kr. 0.50	kr. 1.00	kr. 3.00	kr. 5.00
	20,000-99,999	kr. 0.50	kr. 1.00	kr. 3.00	kr. 5.00
	100,000-199,999	kr. 0.50	kr. 1.00	kr. 3.00	kr. 5.00
	200,000-399,999	kr. 0.50	kr. 1.00	kr. 3.00	kr. 5.00
	400,000-	kr. 0.50	kr. 1.00	kr. 3.00	kr. 5.00

Costs advantages for merchants using Swipp compared to MobilePay

		Amount recieved			
		kr. 50.00	kr. 100.00	kr. 300.00	kr. 500.00
Number of yearly trans-actions	0-19,999	kr. -0.10	kr. 0.40	kr. 2.40	kr. 4.40
	20,000-99,999	kr. -0.05	kr. 0.45	kr. 2.45	kr. 4.45
	100,000-199,999	kr. -	kr. 0.50	kr. 2.50	kr. 4.50
	200,000-399,999	kr. 0.05	kr. 0.55	kr. 2.55	kr. 4.55
	400,000-	kr. 0.10	kr. 0.60	kr. 2.60	kr. 4.60

Appendix D: User requests for Windows Phone App

This appendix shows a few selected user requests from potential users of Swipp sent on Swipp's Facebook page within the last months and the responses from Swipp.

Stefan Kielkowski Rosquist ▶ **Swipp**
27. april · 🌐

nu har jeg ventet siden september på i gad og lave den swipp funktion i
fjernede ... så nu vil jeg gerne vide om jeg skal skifte til Danskebank. da
mobilepay fungere uden problemer, eller om i har en app klar i
NÆRMESTE fremtid.. jeg kan ikke vente 1-2-3-4-5 måneder mere på i
nosser jer sammen!... på de 8 måneder der er gået kunne man lave de
første 20 swipp apps! ... det er så simpelt at konvertere apps fra iOS til
UWP! ..

jeg kræver præcis det samme fordele som alle andre med andre
mobiler har!...
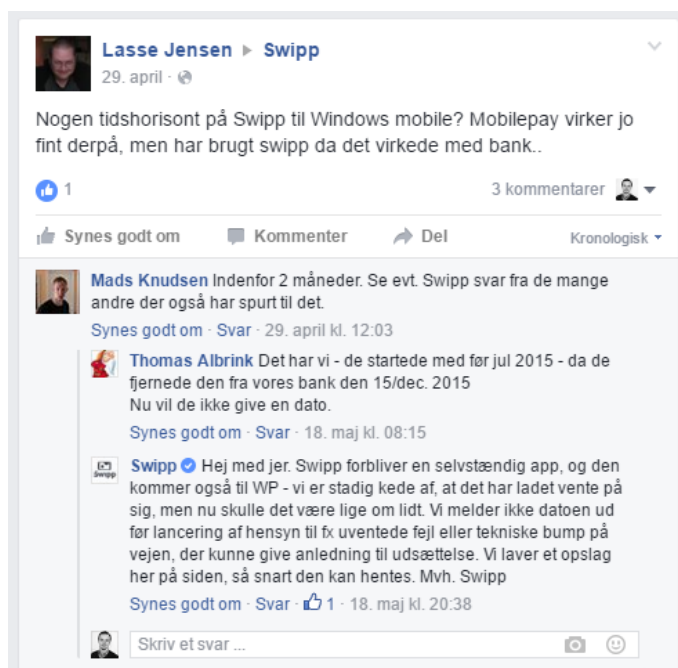
3 kommentarer 👤 ▾

👍 Synes godt om　　💬 Kommenter　　➤ Del　　　　Kronologisk ▾

Mads Knudsen Der er en app til WP indenfor 2 måneder det har de sagt
Synes godt om · Svar · 27. april kl. 13:15

Stefan Kielkowski Rosquist Men igen.. Jeg kan ikke vente 2 måneder...
Men de griner nok endnu overe i danske Bank. De kan jo godt finde ud af
at lave en app alle kan bruge.
Synes godt om · Svar · 27. april kl. 13:17

Swipp ✓ Hej Stefan. Vi er kede af, at det har været til ulejlighed at vente,
efter at Swipp flyttede ud af netbank – godt nyt er dog, at app'en til
Windows Phone ganske snart er klar, og vi forventer bestemt at lancere

---

Martin Jeppesen ▶ **Swipp**
15. april · 🌐

Får vi ikke snart app'en til Windows 10 Mobile? Pleeeeaase! 😊

1 kommentar 👤 ▾

👍 Synes godt om　　💬 Kommenter　　➤ Del　　　　Kronologisk ▾

Swipp ✓ Hej Martin. Inden for et par måneder har vi en app til Windows
Phone klar 🙂 Mvh. Swipp
Synes godt om · Svar · 👍 1 · 15. april kl. 10:18

Skriv en kommentar ...　　　　　📷　☺

Kjeld Hansen ▶ **Swipp**
8. april · 🌐

App til Windowsphone ? Kommer det i det hele taget ?

1 kommentar 👤 ▾

👍 Synes godt om　　💬 Kommenter　　➤ Del　　　　Kronologisk ▾

Swipp ✓ Hej Kjeld. En app til Windows Phone står højt på vores
udviklingsdagsorden. Meldingen lyder stadig på foråret. Vi har senest fået
besked på, at det bliver sent forår, så for at forventningsafstemme, er vi
begyndt at sige "første halvår i 2016", fordi kalenderen jo siger forår nu, og
den ikke er lanceret. Mvh. Swipp
Synes godt om · Svar · 8. april kl. 09:32

Kjeld Hansen Ok - glæder mig, men I dansk sammenhæng er det
almindeligt at betragte foråret som månederne marts, april og maj.
😊
Synes godt om · Svar · 8. april kl. 09:45

📷　☺

Skriv en kommentar ...　　　　　📷　☺

Appendix E: Payment solutions for Swipp and MobilePay

The peer-to-peer (P2P) payment solutions Swipp and MobilePay apply different technologies. Further, Swipp and MobilePay also offer different solutions for payment to merchants (C2B). We will describe these solutions below, both regarding what the user and merchants experience when transferring money or paying, and what technically happens when the money is transferred.

Swipp - Peer-to-peer (p2p)

A user of Swipp who is transferring money to another user enters the amount he/she needs to transfer. Hereafter the person enters the mobile number of the user has to receive the payment. By swiping the finger across the screen, the money is transferred from the sender to the receiver's bank account. The receiver is notified of the transfer on his/her smartphone.

Technically, the mobile numbers of both sender and receiver are linked to the person's bank account, and the money is sent from the sender's bank account to the receiver's bank account through the interbank system. However, Danske Bank customers cannot use Swipp since Danske Bank is not connected to the Swipp platform, which excludes customers in Danske Bank from using Swipp. Further, Windows Phone users cannot access the Swipp platform as the app is not developed for Windows Phones.

Swipp - Consumer-to-business (c2b)

Swipp offers different solutions to merchants enabling them to receive payments through Swipp. The solutions are described below.

Swipp to mobile number

Swipp to mobile number is the simplest c2b payment solution, which enables merchants to receive money when customers send money to the mobile number that is connected to the merchant's bank account. Technically, the solution works as a p2p transfer.

Cashier integration

Swipp is compatible with various Point of Sales-systems making cashier integration to Swipp possible (Modtag betaling med Swipp, 2016). When a user pays in a store, he/she should open the app and choose pay with self-scanning code, and hereafter a QR-code appears. In the store, the clerk has a CCD-barcode scanner, and when scanning the QR-code on the user's phone, the barcode will change to the amount the user should pay, and the user can approve the payment by swiping (POS-integration med Swipp, 2016).

Technically, the money is still transferred from the user's bank account to the merchant's bank account. The difference, compared to the 'Swipp to mobile number' solution is that the payment goes through the

cashier system making bookkeeping easier and includes sales paid through Swipp into the sales statistics in the individual POS-systems.

Verifone payment terminals

Merchants that already have a Verifone card payment terminal can receive payments from Swipp users through the existing terminal. The user has to hold his/her smartphone close to the terminal, and the amount will show up on the smartphone. Hereafter the user can confirm the payment by swiping. The communication between the terminal and smartphone works with a Bluetooth Low Energy chip making the payments contactless (Butikker får nemmere vej til mobilbetaling - Swipp og Verifone lancerer samarbejde, 2016).

As with the other c2b payment solutions that Swipp offers, the backend still facilitates a direct account-to-account payment instantly (Swipp og Verifone. Gode sammen, 2016). If a store has an old Verifone terminal, the price for installing a chip in a terminal is 299 DKK and a monthly fee of 19 DKK. For new terminals, the required chip is pre-installed (Nem mobilbetaling med Swipp – uden ekstra udstyr, 2016).

MobilePay - Peer-to-peer (p2p)

When one user sends money to another, the users meet a quite similar interface as with Swipp. The user enters an amount, hereafter a mobile number and finally swipe to send the money. Instantly the receiver gets notified that he/she has received the money.

Technically, MobilePay links the sender's telephone number to a payment card, from which the transferred amount is withdrawn and sent to the receiver's bank account.

MobilePay - Consumer-to-business (c2b)

MobilePay offers some different solutions enabling merchants to receive C2B payments. The solutions are described below. All business solutions withdraw money from the user's payment card when paying.

MobilePay Business

MobilePay Business includes various solutions, minded to either 1, max. 15, max 50, or more than 50 outlets. The solution functions as a p2p payment where the money is transferred to the merchant's telephone number (MobilePay Business er mobilbetaling i din butik, 2016).

In addition to MobilePay Business, MobilePay has launched a payment terminal receiving both card payments and payments through MobilePay (Nu kommer terminalen til både MobilePay og kort, 2016) which is a significant advantage for restaurants and similar merchants as it eases the transaction process.

MobilePay Point-of-Sale

MobilePay Point-of-Sale combines mobile payment with cashiers in stores by either scanning a QR-code or through Bluetooth. After connecting through one of the solutions, the user needs to confirm the payment as any other payment in MobilePay (MobilePay Point of Sale er mobilbetaling i din kasselinie, 2016).

MobilePay Online

MobilePay also offers payment solutions for web shops. When a user pays for a purchase online he/she enters his/her phone number on the website and after that receives a request on the phone, that just needs a confirmation by swiping in order to complete the payment (MobilePay Online er mobilbetaling i din online butik, 2016).

MobilePay AppSwitch

Finally, MobilePay offers an opportunity to receive money through payments in smartphone apps. When a user needs to make a payment, e.g. a train ticket, he/she chooses to pay in MobilePay, and the app hereafter redirects the user to MobilePay, where the payment can be confirmed. Hereafter, the user is directed towards the app where the purchase was made (MobilePay AppSwitch er mobilbetaling i din app, 2016).