ADOPTION AND DIFFUSION OF IN-STORE MOBILE PAYMENT:
Lessons from China

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Abstract

With the evolution of technology and the Internet, the world is heading to a "cashless society". China has moved towards one solution - mobile payment in the recent decade. In every corner of urban life, mobile payment has become a favorite way of conducting transactions for merchants and customers. This thesis aims to get a deep understanding of why mobile payment platform has become so widely used in China, and in particular to explore why merchants choose to adopt it. To investigate the issue, this study has formed a theoretical framework including the topics of mobile payment, platform and multi-sided market, network effects, lock-in effect, technology acceptance model, and other influential factors. Based on the framework, a qualitative study was conducted to examine merchants and mobile payment service providers in terms of adoption and diffusion. The findings show that several factors such as customer demands, cost, initial trust and benefits have significant influence on merchant’s adoption of mobile payment. The study implies the provider’s strategies of diffusion largely depend on the cooperation with merchants and having a massive customer base.

Keywords: mobile payment, diffusion strategy, merchant adoption

1. Introduction

In the past, people use coins and bills to conduct different transactions. With the help of financial institutions, credit and debit card can be an excellent way to have a safe and convenient transaction; however, it still has a high transaction cost that hardly become a beneficial way in micropayment transactions (Mallat and Tuunainen, 2008). The rapid development of new retail channels such as the Internet and mobile commerce required a convenient and secure transaction in these channels; thus, it is necessary to have new payment instruments (Ondrus and Pigneur, 2006). As a result, in recent years, with the development of the Internet and the diversification of electronic payment market, more and more Internet payment providers have offered the customers a variety of services that satisfy their needs by using mobile devices (Lu et al., 2011). Nowadays, people can use mobile devices to solve many problems of their daily lives such as paying for foods, medicines, and shopping (Musa et al., 2015). In China, by June 2009, the people who use mobile payment have reached 155 million, which accounts for 22.6 % of the 687 million cell-phone users. Furthermore, China Internet Network Information Center (CNNIC), a Chinese government agency, have announced that there are 502 million unique mobile payment users in China, which is almost as many as 556 million mobile payment users in the rest of the world (CNNIC, 2017; GSMA, 2016; Aveni and Roest, 2017).

Interestingly, for European market, most of the mobile payment services address specific needs such as parking, vending machines, public transport ticketing (Ondrus et al., 2009) and are
not widely used as a standardized payment method. Many business actors have tried to introduce different mobile payment services, however, the rate of the adoption is lower than their expectations (Mallat, 2007). PostFinance and m-Maestro in Switzerland (Ondrus et al., 2009), O2 Wallet in the UK (Clark, 2014), and Telia Mobil wallet (Telia, 2012) and Bart in Sweden (SvD, 2014) are some examples of the services that were terminated (Apanasevic et al., 2015). Even though some mobile payment initiatives reached their intended end-users, they failed because of the complexity of the phenomenon (Dahlberg et al., 2015). To understand the phenomenon and the reasons behind it calls for researches and investigations. Mobile payment research begins soon after the first conduction of mobile payment transaction when vending machines accepted SMS payments that experimented by Coca Cola in 1997 (Dahlberg et al., 2015). Dahlberg et al. (2008; 2015) have worked for many years examining and analyzing the researches that are related to mobile payment. According to them, a large number of publications focused mainly on two issues: technology and customer adoption. However, there is a lack of research investigating the service adoption by merchants (Dahlberg et al., 2008; Ondrus and Lyytinen, 2011). Mobile payment can be seen as a multi-sided platform and thus need to be both accepted by merchants and customers. The investigation of customer adoption provides limited understandings of mobile payments because merchants also play important roles in the diffusion of mobile payment services.

1.1 Aim

In recent years, the development of China’s third-party mobile payment market has been growing rapidly. More and more users have adopted the mobile payment services to conduct transactions and purchasing goods in-stores. As a result, there is a need to understand the reasons behind the boost of mobile payment market in China. Prior studies have investigated the mobile payment adoption intentions (Mallat, 2007; Kim et al., 2010a; Zhou, 2011; Yang et al., 2011; Daștan and Gürler, 2016). However, these studies have explored this issue mainly from a customer-centric perspective. Hence, it is necessary to move the attention towards merchants’ perspectives. Therefore, our purpose is to investigate the following research question:

*How can platform providers diffuse mobile payment solutions and why do so many Chinese merchants adopt it?*

The aim of this thesis, consequently, is to gain a deep understanding of why mobile payment platform has become so widely used in China and in particular the merchants’ perspectives towards adopting mobile payments. The goal is to find out the ways of how mobile payment providers in China encourage the merchants to adopt it.

1.2 Disposition

Following this introduction, in section 2 we will present the related research and explain the topics that are useful for our study. Then we will discuss our research method in sections 3. Section 4 shows the results and we will discuss the results in section 5. Implications and limitations of the
study will be explained in section 6. Finally, we will conclude our study and give suggestions for future research in section 7.

2. Related Research

To answer the research question by identifying mobile payment platform diffusion strategies as well as the reasons of mobile payment adoption, this thesis has formed a theoretical framework which include many concepts and themes. These concepts and themes were selected after the literature study and considered to be relevant to our research. There are three parts of our theoretical framework which includes mobile payment, mobile payment platform diffusion and merchant adoption. The second part of the theoretical framework (mobile payment platform diffusion) involves concepts of platform and multi-sided markets, network effects, and lock-in effect. These concepts would help the author to understand the way of how providers make mobile payment popular in China and attract more merchants to use mobile payment. The third part consists of two themes: technology acceptance model (TAM) and other influential factors. Even though TAM are quantitative to its nature, it describes several elements that would helpful for identifying important factors that influence the merchants’ adoption of mobile payment in China. In addition to TAM, prior studies have found other factors that are important affecting user acceptance of technology (Shin, 2009; Kim et al., 2010b; Duane et al., 2014). The relevant additional factors for our research including cost, trust, and perceived value.

2.1 Mobile payment

Mobile payment is a way to transfer money with a mobile device. It is referred to as “a type of payment transaction processing in which the payer uses mobile communication techniques in conjunction with mobile devices for initiation, authorization, or completion of payment” (Goeke and Pousttchi, 2010). With mobile payment you can pay a wide range of services and goods digitally without using cash, credit cards or checks. The actors that take part in the provisioning of mobile payment were categorized into four groups: technology producers, mobile payment service providers, merchants, and consumers (Ondrus and Lyytinen, 2011). Various technologies are used for mobile payment such as near field communication (NFC) and quick response (QR) code.

NFC is a technology that enables the communication between a mobile device (or a contactless card) and a payment terminal (Faulkner, 2017). In order to make NFC works, a NFC chip that evolved from radio frequency identification (RFID) tech needs to be built in devices (e.g. smartphones and payment readers) (Profis, 2014). Therefore, when placing two devices close to each other, one chip will be activated by another; then, the data can be transferred between the two devices (Faulkner, 2017). Apple Pay (Apple’s mobile payments solution), Android Pay (Google’s mobile payments solution), and Samsung Pay (Samsung’s mobile payments solution) are some examples that utilize this technology.
QR code is a type of barcode that have square patterns which can be scanned by computer systems (Gregersen, 2018). Information such as a web site, basic texts or numeric information can be linked to a QR code. When a QR code is scanned by a laser scanners or a camera on a mobile phone, the patterns are decoded by the software (Gregersen, 2018) and the linked information can be showed. Figure 1 is a demonstration of scanning a QR code with a mobile phone. This technology is implemented by Alipay (Alibaba’s mobile payment solution) and WeChat Pay (Tencent’s mobile payment solution).

![QR code scan](image)

Figure 1. Demonstration of using a mobile phone camera to scan a QR code.

2.2 Mobile payment platform diffusion

2.2.1 Platform and multi-sided market

Platform is defined as products and services that connect stakeholders in two or multi-sided networks (Eisenmann et al., 2006). Similarly, platform is described as an intermediary in a multi-sided market which offers services and product in two or more sides of the market (Seamans and Zhu, 2014). Platform providers offer infrastructure and guide to facilitate different parties’ interactions and serving different markets around the platform (Yoon, 2014). There are many valuable brands function as multi-sided platforms. Expedia is a multi-sided platform that connects travelers, hotels, airlines, and rental cars. Facebook is also a multi-sided platform connecting users, advertisers and third-party game content providers. Visa and MasterCard are functioning as two-sided platforms and enable the interaction between cardholders and merchants (Staykova and Damsgaard, 2015). In the same way, Mobile payment apps (e.g. Alipay and WeChat Pay) can be seen as multi-sided platforms connecting banks, merchants, and customers and facilitating the transactions between them.

The platform industry differentiates from traditional industries in two main aspects: value creation and increasing return (Yoon, 2014). In terms of value creation, in traditional value chain, it moves from the left side which are suppliers to the right side which are buyers (Porter, 1985). But in platform, cost and revenue can be from any directions (Yoon, 2014). Platform providers
thus need to decide which side they can earn money and which side they need to subsidize according to their business strategy. Meanwhile, in order to be successful in a multi-sided market, the platform need to know how to satisfy two or more stakeholders (Evans, 2003). As for increasing return, in traditional business, growth speed goes down after reaching a saturation point; whereas, in platform, more participants make return increases more and this adds the platform value which further attracts more participants. The values of the platform are increasing over time since positive feedback loop are created (Yoon, 2014). As mobile payment attracts more and more users, the return continues to increase. Therefore, the network effects could be a way of how the payment platforms become popular.

2.2.2 Network effects
Network effect is described as a phenomenon which is related to the utility, a value that users get from goods or services, increases as others users start using the same services or products (Katz and Shapiro, 1985). In a multi-sided platform, there are two kinds of network effects: same side effect and cross side effect (Yoon, 2014). Same side network effect, which also known as direct effect, refers to users prefer a product or service due to a broader user base. Cross side network effect, which also called indirect effect, means users prefer a product or service because of its combinations of multiple parts (Eisenmann et al., 2006).

Under the same side effect, people use a product or service and once they find out the product or service is meaningful and useful, they will affect others’ decisions to use the same product or service (Wang and Chou, 2016). Similarly, merchants also can affect other merchants to join the mobile payment service when they think it is valuable. Cross side effect involves values that are from different side of the platform (Staykova and Damsgaard, 2015). For example, a mobile application store functions as a platform that attracts both application developers and customers. Customers perceive the store as valuable and more developers will sell their applications on this platform. At the same time, more customers will be attracted to the abundant application. Thus, the cross side network effect increases the value of the platform (Yoon, 2014). The mobile payment’s provider can take advantage of cross side network effect by creating promotions which are attached to mobile payment such as shop discounts, loyalty points, and others to attract more customers to join the platform. With cross side network effect, merchants will be affected by customers when the amount of the customers using the mobile payment increases; and they will adopt mobile payment. Some of the merchants will sign a cooperative contract. And when there are more cooperative merchants which means more shops offering discounts, there will be more customers. At this point, a positive feedback loop of a platform can be created and the values of the platform continues to increase (Yoon, 2014).

2.2.3 Lock-in effect
Lock-in refers to a status when a particular product or service has been introduced and it is challenging to offer a competing product or service (Hanseth, 2001). When a lock-in is created, customers will find it extremely hard to leave the product or service provider. The lock-in can be made by both positive and negative approaches. Usually, customers are locked-in because they
cannot change their choice without substantial cost or inconvenience (Connolly, 2013), which are negative lock-ins. For example, it will cost much money on coordination and training if a firm wants to change their standardized product or service (Shapiro and Varian, 1999). The positive approach, on the contrary, can make the customers lock themselves in. This is because the provider creates enormous values through their products or services, which brings the customers back to the products and services again and again (Connolly, 2013).

Positive lock-in can be created by designing loyalty programs and offering accumulating benefits. Loyalty programs must increase the value proposition of services and products (Dowling and Uncles, 1997). Two illustrative examples for loyalty programs are a frequent-flyer program (Farrell and Klemperer, 2007) where customers can have the reward points based on the money that they spent on their flights and Starbucks’s “My Starbucks Rewards” where customers can collect “Stars” to get rewards. Firms that create lock-in effect were found to deploy a strategy consisting of two phases (Klemperer, 1987). In the first phase, they focus on attracting customers to use their platform by lowering the prices. And then in the second phase, they raise the prices when the platform is powerful enough (Klemperer, 1987).

2.3 Merchants adoption

2.3.1 Technology acceptance model (TAM)

Technology acceptance model (TAM) has been widely used for studying user acceptance of technologies in many fields (Liao et al., 2007; Ervasti and Helaakoski, 2010; Abroud et al., 2013). This theory is also commonly used in studying mobile payment adoption ((Dahlberg et al., 2008). TAM was developed by Davis (1989) to explain the user motivation when adopting a new technology. It fundamentally argued that users act rationally when they decide to use a technological product or service. In his research, perceived usefulness (PU) and perceived ease of use (PEU) were found to be the two factors that have direct influence on user behavioral intentions (Chuttur, 2009). PU refers to the degree to which people perceive using a technological product or service will achieve a better job performance (Davis, 1985). The job performance, as far as our concerns, may consist of the speed of accomplishment and the outcome of job. A person may prefer a new technology because it helps him/her to finish the job quickly and with a good result such as a higher income. PEU involves the degree that people think of a product or service is difficult to use and how much mental and physical efforts are needed for performing the requiring tasks (Davis, 1985). A system that is complicated and hard to use is less likely to be adopted while a competitive system which requires little effort using it can prevail easily. For the adoption of a mobile payment system, in our opinion, the efforts may include efforts of preparation for the system, efforts of learning to use the system, and efforts required in the process of using the system.

2.3.2 Other influential factors

One important factor that influence merchants to adopt mobile payment is the cost. The investment costs are the major issue that every merchant need to consider if they want to adopt
mobile payments (Mallat and Tuunainen, 2008). For example, merchants need to invest in updating equipment and training employees. How much it costs to use mobile payment and how much return can be brought by using the payment are definitely crucial for the merchants’ determination of adoption.

Trust is very important in the initial stage of introducing a new technology. The lack of trust is one of the most frequently cited reasons for customers’ decisions not adopting a product or a service related to technology (Lee and Turban, 2001; Grabner-Krauter and Kaluscha, 2003). Trust involves uncertainty and dependency in many social interactions. It can function as one kind of control mechanism to encourage future interactions and facilitates the creation of long-term relationship (Grabner-Krauter and Kaluscha, 2003). Trust is associated with risk: “The need of trust only arises in a risky situation” (Mayer et al., 1995). If one circumstance is completely certain and there is no risk, then trust would not be necessary. The exercise of trust and the search for information are actions that mitigate the uncertainty (Wicks et al., 1999; Grabner-Krauter and Kaluscha, 2003). When there is less trust in a situation, the more information the person needs to make a decision. So in an early stage of technology adoption, it is important to provide essential information and reduce the uncertainties. One of the elements of perceived trust has been tested to be perceived reputation (Jin et al., 2007; Moi and Mohtashemi, 2002). There are other elements of perceived trust relate to mobile payment. As far as our concerns, merchants may be concerned about the potential risks related to the mobile payment system technologies and the safety of the transaction processes.

Perceived value is also an important factor. In general, value of a product or a service is about the meaning and usefulness of itself. Lepak et al. (2007) argue that the users are the focus of the value creation and their willingness to exchange a monetary amount for the value is called subjective value. Moreover, the value is described that it is not only created from a product or a service, but also from the connection between the product or service, users, and purpose of use (Zinck Stagano, 2012). Merchants not only use the mobile payment platform but can also get some benefits from this platform. Large retailers, such as chain stores, can have a chance to increase their revenues due to the high volume of transactions (Ondrus and Pigneur, 2007). Therefore, for mobile payment system providers, when competing with other payment methods, one of the key success factors is to deliver the added value services (Laukkanen and Kiviniemi, 2010).

3. Research Method
This section focuses on the research methodology that used in this thesis. There are five parts of this sections including research context, choice of method, data collection and sampling, data analysis, and ethical considerations and method limitations.

3.1 Research context
Mobile payment is widely used in China nowadays. There are two main mobile payment platforms, Alipay and WeChat Pay, which together hold 92% of market share in China (Aveni and
Alipay was established in February 2004 by Alibaba Group. It started by providing online payment services for numerous small and micro enterprises then it extended its payment services to many offline scenarios covering restaurants, supermarkets, convenient stores, taxis and public transports. Alipay launched its first version of mobile payment in 2008 (Aveni and Roest, 2017). It has more than 400 million active unique users and the users can pay with Alipay at more than 200,000 offline stores by the end of June 2015 (Alipay, 2018).

WeChat was developed by Tencent and it was first released in January 2011. It is a social media that supports voice message, video, picture and text and it has a wide range of functions. By the first quarter of 2017, WeChat’s monthly active user was around 900 million (Tencent, 2018). WeChat Pay is a function incorporated into WeChat, which allows users to transfer money and perform mobile payments. It was opened in March 2014 and soon became the main competitor of Alipay. Now in China, users can pay with Alipay and/or WeChat Pay at almost every store in the street.

Alipay and WeChat Pay are both third-party mobile payment platforms. When you use these payment solutions, first you create your own account in the application; then other users can transfer money from their account to yours. You can also link your bank accounts with your Alipay or WeChat Pay account; after this step, you can transfer money from your bank account to the platform’s account and vise versa. Finally, you can use the money in your account to pay anything you purchase in different stores equipped with Alipay and/or WeChat Pay.

3.2 Choice of method
Qualitative research is useful for discovering and exploring the explanations of a phenomenon. The thesis aims to explore how the mobile providers diffuse mobile payment solutions as well as merchants’ perspectives toward mobile payment adoption. This involves unclear variables in a new area that are remained to be explored. Thus, the nature of the study itself calls for qualitative research approaches (Keegan, 2009). Additionally, qualitative research is very valuable for gaining in-depth knowledge (Patton, 2002). The understanding of the key issues of mobile payment adoption and diffusion can only be learned from thorough investigation. It is necessary to dig and probe to learn the reasons of actions and personal perspectives from mobile providers and merchants. Therefore, qualitative research methods would be a perfect choice for answering the research question and providing meaningful insights for the thesis.

Semi-structured interviews are the most common type in qualitative research (Doody and Noonan, 2013). They are often used in the specific topic that requires researchers to delve deeply into a particular issue to find the answers (Harrel and Bradley, 2009). Semi-structured interviews were chosen as a preferable method for the thesis due to several reasons. Firstly, this would help the author discover the strategy of mobile payment providers in diffusing mobile payment’s solutions, and understand what kind of factors contribute to their success. Secondly, it would help to investigate the merchants’ perspectives towards mobile payment solutions, and to understand the influential factors of adopting mobile payment solutions. It includes the preformatting questions that would help the author to gain more details from the providers and merchants.
Furthermore, based on the situations, conducting the interview in a semi-structured way can let the author to ask the interview questions freely. In different circumstances, questions can be avoided and added according to the content that the interviewer desires to explore. Moreover, by using flexible open-ended questions, it would help the author to have opportunities to discuss the issues that may arise during the interview (Doody and Noonan, 2013). Hence, semi-structured interviews would enhance the interaction with mobile payment providers and merchants during the interview and thus be helpful for gaining understanding of their perspectives towards mobile payment diffusion as well as challenges and benefits of adopting mobile payments.

### 3.3 Data Collection and Sampling

Semi-structured interviews were conducted through skype video calls in data collection process. Overall, ten participants were interviewed for this thesis. In order to gain a wide view on the factors within mobile payment market in China, the interviewees are from different fields of business and organizations and they all have experiences with the mobile payment systems. Finding the potential participants started with some connections of the authors such as friends and former colleagues that the author has worked with. Other participants were found by Chinese social networks (such as WeChat, Weibo, and Renren) as well as other Internet resources. The participants include one lock shop’s owner, a small convenience store’s owner, a manager from Hualian Supermarket, cashiers from FamilyMart and Starbucks, two restaurant’s owner, a chain store’s (Bianmin grocery store) owner, a manager from Alipay and one staff from Lianfang bank. The interviewees’ information and duration of interviews are listed in Table 1. In order to get valid and accurate data, all of the respondents were interviewed in Chinese. In this way, it can make the interviewees express themselves comfortably and smoothly. The interviews were recorded; then they were transcribed and translated from Chinese into English.

<table>
<thead>
<tr>
<th>Respondent 1</th>
<th>Shop</th>
<th>Size</th>
<th>Job Role</th>
<th>Interview Duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>Lock shop</td>
<td>Small</td>
<td>Owner</td>
<td>60</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>Convenience store</td>
<td>Small</td>
<td>Owner</td>
<td>35</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>Restaurant A</td>
<td>Medium</td>
<td>Owner</td>
<td>40</td>
</tr>
<tr>
<td>Respondent 4</td>
<td>Hualian Supermarket</td>
<td>Big (chain store)</td>
<td>Manager</td>
<td>50</td>
</tr>
<tr>
<td>Respondent 5</td>
<td>Langfang Bank</td>
<td>Local</td>
<td>Staff</td>
<td>35</td>
</tr>
<tr>
<td>Respondent 6</td>
<td>Restaurant B</td>
<td>Big</td>
<td>Owner</td>
<td>80</td>
</tr>
<tr>
<td>Respondent</td>
<td>Shop</td>
<td>Type</td>
<td>Role</td>
<td>Duration</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------</td>
<td>-----------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>7</td>
<td>FamilyMart</td>
<td>Big (chain store)</td>
<td>Cashier</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>Bianmin grocery store</td>
<td>Big (chain store)</td>
<td>Owner</td>
<td>75</td>
</tr>
<tr>
<td>9</td>
<td>Starbucks</td>
<td>Big (chain store)</td>
<td>Cashier</td>
<td>65</td>
</tr>
<tr>
<td>10</td>
<td>Alipay</td>
<td>Big</td>
<td>Manager</td>
<td>80</td>
</tr>
</tbody>
</table>

Table 1: List of interviewees, shops, sizes of the shops, job roles, and interview durations

### 3.4 Data Analysis

Our data analysis was conducted based on the thematic analysis because it is flexible, simple and very effective for analyzing qualitative data. Additionally, it is very useful in finding themes or concepts in qualitative analysis (Braun and Clarke, 2006). Thematic analysis consists of six steps; and we followed these steps as described below:

According to Braun and Clarke (2006), the first step is to transcribe the data and get yourself familiar with the data. Hence, in this step, we looked through the translations of the transcripts of the interview answers. We further modified the translations to gain a mutual understanding of the data between ourselves; then we identified and marked the information that are meaningful.

The second step is to find out the initial codes (Braun and Clarke, 2006). In this step, we went back to review the data with the marked information and reflected by ourselves. After that, we wrote the initial codes of the marked information and communicated with each other to decide on the codes. We developed our ideas through a systematic analysis of the unstructured data and prepared for the third step which is related to the discovery of the themes.

The third step is to search the themes (Braun and Clarke, 2006). This step is about summarizing all the initial codes and putting them into potential themes (Braun and Clarke, 2006). We generated the themes based on a theory-drive approach because we have identified specific topics and themes that we would like to focus on from our literature study.

The fourth step is about ensuring the appropriateness of the themes by checking the relationship between these themes and the entire dataset (Braun, Clarke, 2006). In this step, we checked the themes and the codes to make sure the connections between them are correct. We exchanged our opinions regarding the relations of the codes and themes. In the end, we reached an agreement that some codes belong to not only one theme but rather two themes.

The fifth step is to give the name of themes and clarify the themes. If the theme is not clear or the relationship of theme and code is ambiguity, the definition and the name of theme need to be redefined and adjusted. We did not find the themes unclear so we kept the original names of the themes in this step. Finally, the last step is to produce the report. This step is about writing your findings based on a coherent report of your results (Braun and Clarke, 2006). We performed this task in the result part, which is section 4 of this report. An example of the steps we analyzed the data and how the materials are used is shown in Table 2.
### Table 2. An example of data item, marked information, code, sub-theme and theme.

<table>
<thead>
<tr>
<th>Data item</th>
<th>Marked information</th>
<th>Code</th>
<th>Sub theme</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alipay and Wechat Pay are good in security as they often give me a message after the transaction has completed. Furthermore, they are big companies so they can handle any problems regarding security. Although there might be some operational fault due to human factors, however, no bad situation happened to me. I would say that it is very safe for using mobile payment method. (R3)</td>
<td>Alipay and Wechat Pay good in security a message after the transaction big companies can handle any problems some operational fault no bad situation very safe</td>
<td>Security transaction notice reputation Ability operational error safety</td>
<td>Trust</td>
<td>Merchant’s adoption (Positive factors)</td>
</tr>
</tbody>
</table>

### 3.5 Ethical considerations and method limitations

Before the author started the interview, all participants had been asked about ethical concerns and whether they could give the author permission to record the interviews for research purpose. Furthermore, it is necessary for the author to hide all personal information that can be used to identify them. However, the interviewees allowed the author to mention about their roles in their business. The question guide was sent to the interviewees before the interview started to let the participants be more aware of the aim of this research. In addition, it gave the interviewees the chance to answer questions more clearly and to avoid some questions that relate to the contracts and privacy issues. The data collection process is the most challenging part of the thesis. Some of the merchants were not eager to expose the details about their cooperation with Alipay and WeChat Pay. It required plenty of efforts and interview skills to probe and get useful information from the respondents’ answers.

### 4. Empirical Results

In this section, the research results will be presented including mobile payment providers’ strategies and merchants’ adoption. Three parts are associated with mobile payment providers’ strategies: platform and multi-sided market, network effects and lock-in effect. And merchants’ adoption consists of TAM and other influential factors.
4.1. Mobile payment providers’ strategies

4.1.1 Platform and multi-sided market
In comparison to the traditional market where value moves from left (suppliers) to right (buyers) (Porter, 1985), costs and revenue can come from any directions in a multi-sided market. Hence, platform provider needs to consider their situation and choose the right strategy to decide which side to be money side and which side to subsidize. From the respondents’ answers, we can see that Alipay and WeChat Pay charged a low fee or even free for their services. The merchants from the small stores said they did not need to pay to print out a QR code that enabled them to use mobile payment service. And respondent eight mentioned that they pay 0.6 % of each “pay in person” (Customers go to the shop and use a red envelop that they get from Alipay to pay.) deal for Alipay because of the cooperative contract. In addition, according to respondent ten, Alipay’s strategy is offering a win-win solution by cooperating with merchants that would bring benefits for their customers as well as the merchants; as he mentioned:

“Our strategy is to give benefits to and cooperate with merchants. The illustrative example is customers can use Alipay to get a lower price in a mobile phone shop. Our company will give financial support for this shop. For example, if an iPhone price is 500 dollars in the market, we ask the shop to lower the price to 480 dollars and we are responsible for 20 dollars’ loss of each phone the merchant sells. The logic behind this way is to attract more customers to become our users, and the store can attract more customers by the lower price.” (Respondent 10)

According to respondent five, Alipay charged 0.05% of each transaction that is from the mobile payment platform’s account to a bank’s (e.g. Bank of China) account. However, it also cooperates with some financial institutions to enable mobile payment service transactions and attract more customers.

“I have heard that some banks who cooperated with Alibaba do not charge fees for withdrawals from the customers who use Alipay. Due to a large number of users in its mobile payment system, the number of people who register and put their money into the bank also increase, leading to the benefit of its bank finance.” (Respondent 5)

4.1.2 Network effects
People often get affected by others. The success of others’ adoption can influence non-adopters to join a network. However, the same side effect was not found from the interview results. There are only signs of the cross side effect, which is merchants being affected by customers. Almost all respondents (except respondent one) pointed out that the requirements of their customers affect their decisions on adoption of mobile payment. The main reason for them to start using Alipay and WeChat Pay is customer demands; and the reason for not choosing Apple Pay or Android Pay is no requirements from customers according to respondent three. Respondent two, respondent
eight and respondent nine also expressed that without mobile payments, they would not have a relevant tool to satisfy customer's need, therefore, lost substantial potential customers.

“I think the main reason for us to adopt mobile payment is customer demands. Everyone is using the application. So if we want to increase our turnover, we need to have this payment method.” (Respondent 2)

“Now I will not choose Apple Pay or Android Pay because no one is using them. My choice depends on customers. If they all use the new methods, then I need to have these options. But if no one uses the new methods, there is no need to have the new options.” (Respondent 3)

“Now everyone is using Alipay platform. If everyone is using it, why I do not use it. It is a good opportunity for FamilyMart to attract more customers in our system. On the other hand, the company have already begun to use Alipay when I started to work here. I think it is because they foresee the good opportunity in Alipay.” (Respondent 7)

“Now the majority of customers are using mobile payment. They seldom carry cash with them. I think this is the main reason for us starting to use mobile payment. Customer loss happened before. The customers asked whether they can pay with Alipay and when they got the negative answer then they left.” (Respondent 8)

As can be seen from the answers, these respondents also emphasized their awareness of the number of people using WeChat Pay and Alipay has been growing in recent years. Scanning QR code has become a common paying method in urban areas. Regarding the high customer demands in China, respondent six had this to say:

“Whenever I ask my customers which way they prefer to use. For young people, they usually use QR code. For people who are between 40 and 50 years old, they usually use QR code as well once I told them whether they can use Alipay or WeChat pay. In fact, all of them seldom use cash. Almost everyone uses Alipay and WeChat Pay nowadays.” (Respondent 6)

4.2.3 Lock-in effect
Respondent one and respondent ten said that credit points is one of the loyalty programs that Alipay is offering. A merchant’s credit points accumulate according to the frequency, the amount of the transactions, the binding properties (such as the size of the store), and the registered capital.

“I can earn credit points and these points can be used to show customers that my shop is trust worthy. When I need to borrow money from Alipay, a considerable amount of credit points may mean that I can borrow more money and they would offer a better policy that involves more benefits.” (Respondent 1)
“We have a loan policy for all users not only merchants. However, for the merchants who have high credit points, we will provide a loan with no interest and the limit of the amount of money will be more than other usual users. The amount of loan money offered is depending on the size and development potential of a particular merchant.” (Respondent 10)

However, when asked about the loyalty programs Alipay offers, some respondents (respondent two, respondent three and respondent six) are not aware of the credit points and the loan policy. For example, responded three said, “I think they have some policy. I might get some credit score but I never check it.”

From the answers, we also learned that Alipay and WeChat Pay have developed cooperative loyalty programs for merchants. Hualian, FamilyMart, Bianmin and Starbucks have partnerships with Alipay and WeChat Pay. Also, they often get incentives from Alipay and WeChat Pay due to the cooperative contracts; as the respondent eight and respondent nine mentioned:

“Alipay and WeChat Pay have some activities that their users can take part in and earn red envelop and play lottery games in our shop. For example, if a customer uses Alipay in my shop, he can get a red envelop based on the amount of money he spends in my shop. Then, he can use that red envelop to have a discount the next time he shops.” (Respondent 8)

“At first our company has cooperation with WeChat Pay and we only provided Wechat Pay at that time. Then later on we also use Alipay. We got some benefits from them. For example, Alipay and WeChat Pay had some vouchers and discounts for Starbucks in some occasions. Moreover, in these days, there were more people came to Starbucks than other usual days.” (Respondent 9)

Interestingly, some respondents mentioned the competitions between mobile payment actors. According to interviewee ten, Alipay has focused on building the loyalty programs that would help them attract and maintain the connection with the potential merchants against their rival WeChat Pay. Respondent four stated that Walmart has signed a long-term cooperation contract with WeChat and canceled Alipay in their stores. The reason behind that is WeChat Pay have offered more benefits to Walmart than Alipay. Respondent five also explained that the bank has failed in attracting customers into using bank’s payment service due to their uncompetitive loyalty programs against WeChat Pay and Alipay.

Moreover, some respondents talked about other features that Alipay and WeChat provide. Respondent one said that he used one WeChat’s function “moments” - a social field of friends’ update - to advertise his business. Similarly, respondent six mentioned that she created a subscription account, which is a function implemented by WeChat that users can update and push contents for subscribed followers, to attract customers. She also explained that if some customer did not have cash, they could add her as a friend and then transfer the money to her later. In addition, respondent eight expressed that he had asked people from Alipay about the
recommendations and advertisements before; and from the person he learned that the features are in relation with the usage frequency. It seems that Alipay will randomly recommend shops that have most frequent transactions through their app. Regarding this aspect, respondent nine had this to said:

“Yes, there were recommendations for our shop. Whenever there was a sales activity, the information of our shop will be showed on the app.” (Respondent 9)

Finally, there is one interesting finding from the answers of respondent six and respondent eight. They both mentioned that Alipay had red envelop activities before. When customers spent the money in their shops, the customers could get a red envelop from Alipay; and they could also receive one correspondently. The amount of money is small but uncertain. However, there is no longer such activities and respondent six said that she could get nothing now.

4.2 Merchant adoption

4.2.1 TAM

PEU

A lot of expressions from the respondents are related to the ease of use. All of the participants discussed Alipay and WeChat Pay are very easy to use. Respondent nine argued that as a cashier, he needed training, but the operation was fairly easy to learn and conduct. Even elderly people who have little knowledge of the Internet found it is easy to learn how to use it, as respondent three said:

“It is easy for me to use Alipay and WeChat pay although I did not have any knowledge about the Internet and website. If some function is difficult, I will ask my son and my neighborhood to gain the basic understanding of using WeChat and Alipay. Fortunately, Alipay and WeChat Pay is not too hard to use.” (Respondent 3)

The respondent from Starbucks showed his favor of Alipay and WeChat Pay system over card payment and Apply Pay due to the ease of use.

“Receive payment by card is a little complicated. Others are OK for us. It is very convenient to use Alipay and WeChat Pay. Meanwhile, Apple Pay is less convenient due to its repetitive failures of transactions. As a result, customers need to scan their iPhone several times until it is successful. Additionally, you need to place it in the right area and keep your phone to stay for a while properly. It can not be too long or too short. That makes me felt annoying as well as my customers. Some young people use Apple Pay, but when there were a lot of customers, other people needed to wait in a long queue. So, for the ease of use, I would give Alipay and WeChat Pay 5 score, cash 4 score, card 3 score and Apple Pay 2 score.” (Respondent 9)
Regarding the preparations for using mobile payment, it is easy for merchants to print out their QR code. However, there are some procedures needed for registration and application for using the merchants’ terminal to scan the customers’ code. According to respondent eight, he mentioned:

“We need to prepare our QR code to let the customer scan. And to apply for the ability of scanning customer’s code in our shop, we need to have some materials such as the business license. On the other hand, if we have card payment, we need to prepare POS machine from the bank. In my opinion, QR is quite easy and convenient and I give it 5 score. However, the application of scanning customer’s code is a bit complicated. They need to examine and verify everything.” (respondent 8)

When offered new options of mobile payment such as Apply Pay and Android Pay, some respondents take the ease of use into consideration. Respondent eight expressed that he needed to consider whether the mobile payment solution is convenient or not to apply for. If the application and registration is complicated, then he would not like to adopt it. Respondent six showed her openness to other new mobile payment solutions but expressed her thought of a universal solution that easy to use for all groups of people.

“I think more options can be a good thing for our restaurant. More options for payment methods mean more customers. But I don’t want the payment method to be complicated because elderly people do not know how to use such things that much.” (respondent 6)

However, there are some functions that are demanded by the merchants but are not provided by Alipay and WeChat Pay, which has a negative effect on the merchants’ perceived ease of use. Respondent eight suggested Alipay and WeChat Pay should have some improvements regarding its account function since now they just allow one account to be used in one phone. And respondent six considered the ease of use for elderly people.

“I would like Alipay and WeChat Pay to allow one account to be accessible in many phones. So, it would help my relatives access my account and look after the transaction progress when I am not in the shop.” (Respondent 8)

“I would like them to have something like voice control to complete the payment. You don’t need to type in the code and still it can recognize your voice when you are using your account and operating the payment procedures. It can be very convenient for elderly people.” (Respondent 6)

PU
The participants discussed the usefulness of mobile payment systems in many aspects. Some merchants think using QR codes is a suitable way to improve the speed of payments. The participants from FamilyMart (respondent seven) and Bianmin (respondent eight) also showed
their good impressions on mobile payment that it can help them deal with the rush hour and shorten the waiting time for their customers. The big restaurant owner (respondent six) also expressed that the adoption of mobile payments has the potential to optimize queues. Hualian Supermarket introduced POS machine system that can quickly recognize their customer QR code even though they did not have any Internet connections; hence, reduce the transaction delays due to the poor Internet connection.

“The influence of mobile payment is big as the customer no longer need to wait in a queue. They need to scan the QR code of the store and complete the transaction. If they use cash, it takes us some time to return the change to the customer and check whether the amount of money is correct or not. When using Alipay and WeChat Pay, we only need to scan the code.” (Respondent 7)

“It is very convenient to use Alipay and WeChat Pay. Especially when there are many customers in my restaurant. You know, receiving payment in that circumstance can be very complicated when they were sitting at many different tables and called for payment at the same time. If they use cash, we need to give the changes back to customers; and it would take us much time. Hence, using Alipay and WeChat Pay is more convenient than using cash.” (respondent 6)

“It is faster when using Alipay and WeChat Pay comparing to traditional payment methods. With POS machine system, we can scan our customer’s code on their phones and it would automatically finish the transaction without their actions. Additionally, we can help the customers who did not have the Internet connection, they just show their QR code in their photo gallery and the deal can be done. During the rush hours, it also can decrease the number of people in a queue.” (respondent 4)

Many respondents have stated that Alipay and WeChat Pay gave them the opportunity to decrease cash management, which in turn would improve the speed the processes and enhance their customer service. Respondent one stated that Alipay and WeChat Pay help him reduce the risk of cash management that includes mistakes in calculating money and in detecting whether the banknote is real or fake. Decreasing cash management also help respondent two optimize the administration process in the store and lower the risk of robbery. In addition, removing cash payments let respondent nine work more efficiently because the employees no longer have to work overtime to count the banknotes. Furthermore, respondent eight also pointed out how convenient Alipay and WeChat pay are.

“It is faster to use Alipay and WeChat Pay to complete the payment transaction. It decreases the storage of cash in our shop. We do not need to spend extra time to count the amount of money” (Respondent 9)
“The frequency of using cash has been decreased, which lowered the risks of losses due to counterfeit banknotes. And it is more convenient for us because we do not need to put money in or withdraw money from banks.” (Respondent 8)

4.2.2 Other influential factors

Cost

Many interviewees stated that there is no transaction cost when using Alipay and WeChat Pay. However, respondent six mentioned that when using Wechat Pay, there is an amount limitation to withdraw money. If it is more than 500 yuan, fees need to be paid to withdraw the money. But if it is less than 500 yuan, it is free of charge. In addition, respondent eight mentioned that they need to pay 0.6% of each deal for Alipay in “pay in person” activity. Moreover, the merchants from small shops said that there is no cost for the preparation of using mobile payment services. They just printed out the QR code and put it in front of the counter for customers to scan it. For the merchants from larger shops, they need to have the POS machine for reading the QR code; respondent four had this to say:

“In Hualian Supermarket system, we did not pay any fees of using Alipay and WeChat Pay. We spend on the investment of POS machine system and upgrade it through time.” (Respondent 4)

Respondent six pointed out that Alipay system provider also actively finds the potential merchants to offer their services and the mobile payment services are fairly cheap.

“Some people from Alipay came to my shop and recommend me to use their application. And they gave me the QR code for free and instructed me how to prepare the material that I need to give to the administrators. On the other hand, I bought the code through the Internet for WeChat Pay. It costs me around me 30 yuan and they mailed me later.” (Respondent 6)

Trust

Most of the merchants (respondent three, respondent six, respondent seven, respondent eight and respondent nine) expressed that they are comfortable with Alipay and WeChat Pay security systems and gave a high score of the payment solutions’ safety. Many of them (respondent two, respondent three, respondent seven and respondent nine) said that there were no concerns or worries when starting to use Alipay and WeChat Pay. According to respondent three, the reputation of WeChat Pay and Alipay are high since they are the key players in Chinese market. Furthermore, Alipay and WeChat Pay have been regarded as a reliable payment service according to respondent eight. Respondent six was skeptical about Alipay and WeChat Pay in the beginning. After using them, she became satisfied with the systems since they did not have any problems such as hacking and malfunctions.
“Because I use Alipay and WeChat Pay myself to buy something and noting bad happened. So I trust them when starting to use the solution in my shop. [...] There were no concerns when I started to use these payments because they have good reputation. [...] Nothing happened regarding the system so far. They are big companies; so they can handle such problems.” (Respondent 3)

Respondent three and respondent eight explained they were satisfied with the safety of the systems because the systems give a short message after each transaction. The message can be a voice notice and provide information of how much money is received; thus it can not be mistaken.

“Alipay and WeChat Pay are good in security as they give me a message after the transaction has completed. Furthermore, they are big companies so they can handle any problems regarding security. Although there might be some operational fault due to human factors, however, no bad situation happened to me. I would say that it is very safe for using mobile payment method.” (Respondent 3)

“It has a voice report and we can check the payment list. So basically, I trust them. After a payment has been completed, I hear the voice. The voice report can tell you the amount of the money you have received. So when I hear the voice, it means that the payment must has been completed with a certain amount and I have noting to worry about.” (Respondent 8)

There are some concerns mentioned by some participants which related to the Internet connection and frauds. The Internet connection is still an issue for some of the merchants; as respondent six pointed out:

“In the beginning, I was afraid of losing deals. There might be some delay in transactions because of the malfunction of the Internet. Sometimes, after the customers completed their payment on their phone, I cannot get the information immediately. I need to wait for 2-3 minutes to get the message of completing the transaction deal.” (Respondent 6)

Respondent one also showed his concern about the Internet connection that may slow down the transaction process. Furthermore, he was afraid of frauds based on the rumors that he heard from other people; similarly, respondent eight expressed his worries of frauds.

“Although my shop had not faced any fraud before, I have heard a rumor about some shops in Langfang that faced some frauds. It seems that the thieves changed the QR code number when the staff did not notice. Hence, the money that their customers gave to them would go to these thieves account. I am afraid that someday this situation will happen in my shop” (Respondent 1)

“Yes, some frauds might occur. Maybe a customer did not pay but told the cashier that he had completed the payment. It is hard for me and my staffs to check whether
the payment has been completed or not when there is a delay caused by poor Internet connection. A fraud customer may use a fake picture as the payment proof to cheat us.” (Respondent 8)

Perceived value
Some of the merchants mentioned the benefits they can gain from WeChat Pay are red envelopes and more customers during special sales-activities days. Respondent three mentioned about small shops received the red envelopes from WeChat Pay. In some big occasions such as Chinese New Year and Women’s day, they would receive some red envelopes with money from WeChat Pay as a gift. Besides, they also received some discount coupons that they can use in restaurants, supermarkets and shops that cooperate with WeChat Pay. Large shops, on the contrary, usually sign a cooperative contract with Alipay and/or WeChat Pay as we explained in the former part of the thesis. The merchants from these large shops then benefit from the cooperative loyalty programs and attract more customers, as respondent ten expressed:

“We have a variety of cooperation methods, such as signing contract (one year) for the new potential merchant. During the time of the contract, we will give them the amount of money for them to organize discounts for their products to attract more customers to join Alipay. The amount of money depends on different stores. For example, at a cosmetics store, we give them 1000 copies of vouchers with values ranging from 1 to 100 yuan on the Women’s Day. Furthermore, we also create some special activities for the merchants such as discount prices up to 40 % off in these events.” (Respondent 10)

Alipay and WeChat Pay utilize direct transfer, which adds value to merchants since they can receive money instantly and they can use the money to do their business in time such as purchasing. If offered another option of mobile payment system that the money cannot be transferred immediately and instantly, the merchant (respondent eight) will definitely not choose it.

“I will consider whether it is convenient or not to apply for and whether the money is received by us or by them. I cannot accept the money is received by them first and then transferred to me. I need to use the money directly because I need to purchase goods for my shop and everything so I need to receive the money myself. Like Alipay and WeChat Pay, I can use the money in my account directly when I do purchasing.” (Respondent 8)

4.3 Summary of the coded results
The results of the coded material were summarized in a table in Appendix A. It includes the types of mobile payment that merchants have offered, the mobile payment providers, network effect (cross-side network effect), lock-in effect as well as negative factors and positive factors.
5. Discussion

In this section, we will discuss and reflect upon the results of interviews which have been conducted in this thesis and gain an understanding of the research question: *How can platform providers diffuse mobile payment solutions and why do so many Chinese merchants adopt it?* The reflections are based on the related research in chapter two and our own considerations as well as some extensive related materials. The structure of this section includes two main parts: platform providers’ diffusion strategy and merchant adoption.

5.1 Platform providers’ diffusion strategy

In traditional industry, value moves from the left side which are suppliers to the right side which are buyers (Porter, 1985). But in a multi-sided market industry, cost and revenue can be from any directions (Yoon, 2014). Alipay and WeChat Pay function as multi-sided platforms and thus they can decide which side to earn money (the money side) and which side to subsidize. The results of this study show that Alipay and WeChat Pay providers seem not to choose the merchants as the money side. They charged the merchants a low fee or even free for using their services. It also indicates that they did not choose banks as their money side. Merchants and banks are cooperative partners who act as mediates to connect customers. By forming this kind of collaboration, the platform providers, merchants and banks can attract more customers for each of themselves. Thus, the individual customers are the main source to earn money for the platform providers. There is a large population in China and more individual customers means more platform accounts that stores enormous amount of money. Therefore, the platform providers can gain significant financial benefit from fund operations.

Along with this multi-sided market strategy, Alipay and WeChat Pay providers make full use of network effects. The cross side network effects can be seen from the results that the demands of the customers have significant effect on merchants’ decision of adoption. When the number of the customers has reached a massive amount, merchants are willingly to adopt the mobile payment platform. If the customer’s adoption is low, however, merchants would think the market is not mature enough and they are uncertain about the necessity of using the mobile payment system. The more customers using mobile payment, the bigger possibility for merchants to adopt it. And when more merchants join the cooperative market, more customers will be attracted by the cooperative loyalty programs. In this way, a positive feedback loop is formed and the value of the platforms continues to increase (Yoon, 2014). Furthermore, the start point of the positive loop begins with customers due to the way how Alipay and WeChat Pay are developed. Alipay already have had its numerous online customers and WeChat also has become a big social platform for millions of users before the introduction of mobile payment systems, which is a big advantage for the diffusion strategy.

From the results, we can see that Alipay and WeChat Pay utilize loyalty programs to facilitate the adoption of mobile payment platform and to create positive lock-in. Alipay has a loan policy, which is a benefit for the merchants if they wish to expand their business. With this loan policy, the merchant can have an amount of money depending on their contract with Alipay as well as
the credit points they have had through many years of cooperation. Alipay offers the function credit points to not only merchants but also customers. All users of Alipay can use their credit points when they are needed. Even though there are benefits for merchants provided by the credit points, the merchants are not locked-in only because of this. Instead, the cooperative loyalty programs that Alipay and WeChat Pay providers created and collaborated with the merchants are the main lock-in sources. Through the use of the marketing products such as discount’s policy, vouchers, red envelops and many others activities, the customers are locked-in to the merchants and the platforms. In addition, the cooperative loyalty programs are usually created with large shops. According to respondent one, people from Alipay examine the shops’ qualifications such as returns and customer amounts to find potential partners. There are many famous brands that have cooperation with Alipay and/or WeChat Pay in China which include Walmart, McDonald’s and HandM. McDonald’s has signed a cooperative contract with Alipay in 2015 and Alipay is available in more than 2100 McDonald’s store in China. Alipay provides help in big data for McDonald’s facilitating the choice of place for new stores and more knowledge about the customers (Techsina, 2015). Moreover, from the results, other features that the platforms provide that enables the merchants’ businesses (e.g. recommendation and advertisement) also contribute to positive lock-in effect. Finally, the interview results indicate Alipay deployed a two phases of lock-in strategy that is in line with Klemperer’s (1987) finding. There was a phase for Alipay to provide service with a lower price (provide red envelop activities) and then later the price was increased (no red envelop activities).

When considering the diffusion strategies one thing that need to be noticed is the characteristics of Chinese market. According to Lu et al. (2011), there are three types of mobile payment models: (1) mobile network operator (MNO) centric; (2) financial institution centric; and (3) third-party operator centric. And it was argued that the success of mobile payment services depends on effective collaboration between financial institutions and mobile network operators (Lu et al., 2011). However, this is not the case in China. China’s main financial institutions and MNOs do not build cooperative mechanism and do not form alliances. Moreover, MNOs in China do not develop and provide mobile payment services. And it seems that China’s financial institutions do not provide a full mobile payment solution since they have strict security policy and only offer online payment scenarios. In addition, the financial institutions focus on macro-payments such as university’s tuition, house contract, and large deals. The mobile payment providers, Alibaba and Tencent, are belonged to the third-party operator centric mobile payment model. Unlike other mobile payment models that may have limitations and restrictions, they provide broader payment services by offering efficient solution of conducting mobile payment service transaction.

The results show that Alibaba’s and Tencent’s mobile payment diffusion strategies mainly involve cooperation with merchants and attracting more customers. The fundamental factor of the strategies is a massive customer base. Alibaba developed online business before the mobile payment service. Its customers were familiar with e-commerce and the number of the users has reached a considerable amount before the implementation of mobile payment services. Similarly,
at the beginning, Tencent developed WeChat as a social media where people can send and share texts, images and videos. The amount of users grewed significantly and then Tencent introduced WeChat Pay as a function of WeChat. These two successful mobile payment providers are not MNOs or financial institutions but rather business that is related to the Internet. Therefore, we can assume that MNOs and financial institutions have their limitations and thus hard to develop and diffuse mobile payment method; the Internet related business, however, can provide a widely used mobile payment method with high possibilities. For example, according to our result, we think that Facebook and Amazon are more likely to successfully create and spread mobile payment methods than Telia and SEB due to the factors discussed above.

5.2 Merchant adoption

The investment costs are the major issue that every merchant need to consider if they want to adopt mobile payments (Mallat and Tuunainen, 2008). One important reason that so many merchants in China have adopted mobile payment is low cost or even no cost. Merchants can choose to only print out the QR code on a paper and by this way, they do not even need to buy the necessary equipment to support this payment method. Moreover, since the QR code is free of charge, the merchants (respondent one and respondent six) thought that it can be good to have more options for customers. Small shops usually choose this method and do not have a cooperative contract with Alipay or WeChat Pay. As can be seen from our results, the lock shop, the small convenience store and the two restaurants are all relatively small shops and they are only equipped with print-out QR code. Other shops in our sample are all chain stores; and besides the print-out QR code for customers’ to scan, they are also able to scan the customers code with their payment terminals. Furthermore, such shops are more likely to have a cooperative contract with Alipay and WeChat Pay, which leads to another difference between small shops’ and large shops’ adoption decisions; small shops are strongly affected by the customer demands while the reasons that large shops starting to use mobile pay include both platform recommendation and customer demands.

The results show that most merchants have been asked by their customers about the availability of Alipay and WeChat Pay since most of them did not have cash. In order to maintain customers, both small shops and large shops need to offer the mobile payment solutions and satisfy customer needs. Another influential factor of big shops’ adoption of mobile payment is platform recommendation, which is also found in the results as cooperative contracts. According to the results, Alipay, WeChat Pay and banks are competing with each other to attract and maintain customers. One method to achieve the competitiveness is by offering a better cooperative loyalty programs to merchants. The more benefits the platform provide, the more likely the merchants of big shops will join into its network and use its services. There are also benefit programs provided by Alipay and WeChat Pay that attract small shops’ merchants. However, these benefits are small and happen occasionally (only on important holidays). As can be seen from the results, they do not have direct influence on the decision of the merchants of the small shops. The benefits are small incentives that only play as additional factors that is
interesting for small retailers. We can say that the merchants of small shops are glad that they have these benefits but will still consider to adopt the mobile payment if no such small benefits are offered. Nonetheless, withdraw these small incentives from the merchants of small store may cause their disappointment, which was something we could tell from the respondents’ facial expressions during the interviews.

Besides these benefits that provided by the platforms, other values are also very important in the eye of merchants. The empirical results show that the merchants found the mobile payment has helped them to reduce the use of cash in the stores. Removing cash management can reduce the employees’ working time, which leads to cost savings for merchants. Furthermore, decreasing cash management also optimizes the administration process in stores and reduces the probability of robbery. The merchants may have awareness of these advantages before their adoption or may not. It is possible that they only found out these advantages after their adoption and through their daily uses. Otherwise, they may have noticed beforehand or be influenced by other merchants who benefited from these advantages. However, from the result, it can not be seen that people determined the adoption directly because of these advantages. Therefore, these factors are uncertain ones that influence the merchants’ adoption decision. However, there is one certain factor regarding perceived value mentioned by respondent eight - the value of money flow. Since Alipay and WeChat Pay utilize direct transfer, it allows merchants to get money instantly and they can use the money to deal with their business (e.g. purchasing) in time. If offered another option of mobile payment system that the money cannot be transferred immediately and instantly, the merchant (respondent 8) expressed that he would definitely not choose it.

An essential reason for the popularity of a technology is easy to use. And this is also the case with mobile payment. All interviewees mentioned the ease of use of Alipay and WeChat Pay as it is a simple and fast way to conduct a transaction. They all gave a high score on the ease of use of Alipay and WeChat Pay. Apple Pay, on the contrary, required too much effort to use and was deemed as hard to use according to respondent nine. Even though some young people in China are willing to try new solutions, however, difficulties of transactions process act as a barrier that hinder the popularity of such solutions.

According to prior studies, customers have often shown distrust and privacy concerns regarding mobile payment (Teo et al., 2015; Linck et al, 2006). However, most Chinese merchants showed their trust in Alipay and WeChat Pay security since they rarely had any malfunctions and frauds. Alipay and WeChat Pay are developed by big companies Alibaba and Tencent, which are famous and have good reputations. People tend to show their initial trust in such big companies because of the companies have the abilities to improve the services and to prevent bad situations from happening. When the trust is built, then the uncertainty will not hinder the decision of adoption. In addition, the results show that there are some worries of operational faults concerning the Internet connection and frauds. However, these sources of worries are not directly caused by Alipay and WeChat Pay. As a result, these factors did not have a big influence on the merchants’ adoptions.
To sum up, throughout our empirical results, there are similarities as well as differences between big retailers and small retailers in terms of intentions of adoption. Customer demands is one of the important factors that strongly influence the decision of merchants’ adoption for both big and small retailers. Additionally, initial trust, added value and ease of use also have significant effects on usage intention. Cost has been identified as one of the most important factors that contribute to the adoption of mobile payment for small retailers. No cost means no barrier for the adoption of any kind and size of businesses and the diffusion thus went smoothly around everywhere in China. In terms of big retailers, cooperative loyalty programs are the most powerful influential factors. Hence, in order to be successfully diffuse mobile payment solutions, it is important for mobile payment provider to reach a massive customer base and offer cheap, easy-to-use, valuable and reliable payment services to meet the needs of all kinds and sizes of businesses.

6. Implications and limitations

This study provides important contributions to the research on mobile payments and implications for practitioners developing mobile payment services. First of all, it explores an area that was neglected by previous studies concerning merchant adoption and the reasons of the mobile payment diffusion. We investigated this research domain by conducting a qualitative research and gained a deep understanding of the reasons behind the phenomenon. In addition, the study focused on Chinese mobile payment market which is a mature one and it aimed to learn the lessons from the successful mobile payment service providers – Alipay and WeChat Pay. Based on our knowledge, none of the previous studies provide insights of a mature market but rather one at an early stage. Therefore, our study is valuable regarding the reasons of success adoption. Moreover, our findings give suggestions to potential mobile payment service developers regarding the diffusion strategies and how to attract merchants as well as customers.

Finally, there are some limitations that need to be discussed. First is the lack of an interview with WeChat representatives. As the leading key players in Chinese mobile payment market are Alipay and WeChat Pay, thus, it is also necessary to learn from WeChat Pay’s perspectives and discover its strategy in diffusing mobile payment’s solution. Second, the process to find the respondents to participate in this thesis was difficult. The difficulty was that not many merchants were willing to give the details of their contracts with Alipay and WeChat Pay; hence, it was difficult to investigate the incentives that they had in these contract. Moreover, not all of them were the CEO or manager in their company. For example, the interviewees from Starbucks and FamilyMart were the cashiers; thus, they did not provide enough useful information that can fully explain the reasons why Starbucks and FamilyMart choose to adopt Alipay and WeChat Pay. Finally, the research sample is small in Chinese market which makes it hard to generalize the results to all the firms in China.
7. Conclusion and suggestions for future Research

The aim of this thesis was to discover the reasons behind the success of mobile payment solution in China. The research question in the thesis was: **How can platform providers diffuse mobile payment solutions and why do so many Chinese merchants adopt it?** To answer the research question, a qualitative research has been conducted with ten semi-structured interviews involving eight merchants, one banker, and one manager from Alipay. The solutions that provided by Alipay and WeChat Pay were based on the condition of Chinese market; and the way of how the mobile payment providers grew and developed in China allowed them to have some advantages such as a massive customer base. Also, Alipay and WeChat Pay relied on their loyalty programs to diffuse their mobile payment methods among merchants as part of their multi-sided market strategy which utilized cross side network effect. And from merchants’ perspective, we have discovered the reasons why many merchants in China were willing to adopt Alipay and WeChat Pay, which include customer demands, low cost, initial trust as well as the benefits that they would have if they adopt it. The findings add substantial information to our knowledge about how the mobile payment method was popular in China market.

The purpose of this thesis was to examine the strategies that mobile payment providers have used to diffuse mobile payment and merchants’ intentions of adoption. It paves the way for further research that can dig more in-depth of the diffusion strategies and merchant adoption. Other platform strategies and more influential factors are interesting topics for researchers to explore. They can also investigate the possibility of using the same strategies of China’s mobile payment providers in other countries such as Sweden, Norway and so on. Policies and culture differences are some variables that need to be investigated when comparing different countries.

8. Acknowledgment

We would like to thank our supervisor Johan Sandberg for his instructions, guidance, and the valuable time he spent with us to solve the issues and challenges that we have encountered during our thesis. In addition, we are very thankful for the merchants, organizations, and individuals that participated in our study and provided us with valuable information for and insights on the topics of the thesis. Moreover, we would like to express our appreciation especially for Li Lei and Jiapeng Liu who provided substantial help contacting with merchants and organizations. Finally, we are also thankful for our friends from IT Management program for the theoretical and useful information regarding topics during the time in class.
References


Aveni, T., and Roest, J. (2017). China’s Alipay and WeChat Pay: Reaching Rural Users. CGAP, Washington, DC, USA


# Appendix A: Summary of coded results

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Type of mobile payment offered</th>
<th>Mobile payment provider</th>
<th>Network effect (cross side effect)</th>
<th>Lock-in effect</th>
<th>Negative factors</th>
<th>Value/ factors</th>
<th>Positive factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>QR code</td>
<td>WeChat Pay, Alipay</td>
<td>None</td>
<td>Credit points Other Features (“Moments” and advertisement)</td>
<td>Internet connection Fraud</td>
<td>No cost</td>
<td>Easy to use, Convenience, Flexibility, Cash management improvement, Reduce the cost of staff’s training</td>
</tr>
<tr>
<td>R2</td>
<td>QR code</td>
<td>WeChat Pay, Alipay</td>
<td>Customer effect</td>
<td>None Less awareness of loan policy</td>
<td>Withdrawal’s fee Internet connection</td>
<td>No cost</td>
<td>Simple, Fast, Convenience, Easy to use, Cash management, Low risk of robbery</td>
</tr>
<tr>
<td>R3</td>
<td>QR code</td>
<td>WeChat Pay</td>
<td>Customer effect</td>
<td>Less awareness of loan policy</td>
<td>Operational errors.</td>
<td>No cost</td>
<td>Easy to use</td>
</tr>
<tr>
<td></td>
<td>Alipay</td>
<td>Other Features (Subscriptions and advertisement)</td>
<td>Trust</td>
<td>Safe</td>
<td>Convenience</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>R4</strong></td>
<td>QR code</td>
<td>WeChat</td>
<td>Customer effect</td>
<td>Cooperative Loyalty program</td>
<td>Low Internet connection</td>
<td>Low fee</td>
<td>Easy to use</td>
</tr>
<tr>
<td>POS machine</td>
<td>Pay</td>
<td>Alipay</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>R5</strong></td>
<td>Bank cards</td>
<td>-</td>
<td>Not effective loyalty program</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R6</strong></td>
<td>QR code</td>
<td>WeChat</td>
<td>Customer effect</td>
<td>Other Features (subscription and social media)</td>
<td>Internet delay</td>
<td>Cheap</td>
<td>Easy to use</td>
</tr>
<tr>
<td>POS machine</td>
<td>Pay</td>
<td>Alipay</td>
<td>-</td>
<td>Fade phase lock-in</td>
<td>Slow response system (before)</td>
<td>Not that easy for the elderly</td>
<td>-</td>
</tr>
<tr>
<td>#</td>
<td>Method</td>
<td>Payment</td>
<td>Customer Effect</td>
<td>Cooperative Loyalty Programs</td>
<td>Operational Errors</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>R7</td>
<td>QR code POS machine</td>
<td>WeChat Pay Alipay</td>
<td>Customer effect</td>
<td>Cooperative loyalty programs</td>
<td>Low fee Easy to use Safe Convenience Reduce queue line Reduce cash management</td>
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</tr>
<tr>
<td>R8</td>
<td>QR code Payment terminal</td>
<td>WeChat Pay Alipay</td>
<td>Customer effect</td>
<td>Cooperative Loyalty programs</td>
<td>Internet connection Operational errors Limited account Fraud Easy to use Relatively hard to prepare Fast Convenience Safe Clear message Decrease cash management Financial benefit (Money flow and usage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R9</td>
<td>QR code POS machine</td>
<td>WeChat Pay Alipay Apple Pay</td>
<td>Customer effect</td>
<td>Cooperative Loyalty programs</td>
<td>None Easy to use Convenience Fast Trust Reduce cash</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samsung Pay</td>
<td>Cloud Pay</td>
<td>Safe</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R10</strong></td>
<td>-</td>
<td>-</td>
<td>Loan policy</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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Appendix B: Interview question guide

a. Questions for merchants

1. What are the payment options in your store?
2. When did you start using mobile payment (Alipay and WeChat Pay) for the store’s transaction?
3. What are the reasons for starting to use mobile payment in your store? (customer demands, other stores are all using it, platform recommendation, the store’s own strategy)
4. Have you contacted with the platforms (Alipay and WeChat) for any kind of cooperation? Please explain the details.
5. Did you have any concerns when starting to use Alipay and WeChat pay?
6. When starting to use Alipay and WeChat Pay, did you trust this payment method? Why? (the system is safe, the platform’s reputation, the platform’s safety strategy)
7. What are the influences for your shop if any after using mobile payment?
8. Was there any customer lose because of the availability of mobile payment?
9. What do you need to prepare before using mobile payment for your store’s transaction? What do you need to prepare before using other payment methods? Do you think these preparations are convenient or not? Please rate (0-5 score) and explain.
10. What is your attitude of using mobile payment in your store (strongly recommend, do not care, do not recommend)? why?
11. Please recall and explain all the transaction steps of using different payment methods respectively. Do you think these payment procedures convenient or not? Please rate (0-5 score) and explain.
12. Are there any costs for using Alipay and WeChat Pay as your store’s payment methods? How much is needed?
13. Do you offer any benefits (e.g. discounts) for customers using Alipay and WeChat Pay? Did these benefits influence the amount of customers?
14. Do you get any incentives when using Alipay and WeChat Pay? (Red envelop, cash return, credit score, interest rate)
15. Did Alipay and WeChat in any ways recommend your store to customers (rate, discount)? What are the prices for the recommendation?
16. Do you use other functions provided by Alipay and WeChat besides payment method? What are they? (e.g. loan, advertisement)
17. Have you faced any difficulties when using Alipay and WeChat Pay as your store’s transaction method?

18. Please rate (0-5 score) for the safety of all the payment methods in your store and explain your reasons.

19. Do you worry of any frauds that might happen when using mobile payment? Why?

20. Do you worry of any loses due to system errors? Why?

21. Do you worry of any loses due to operational fault? Why?

22. Do Alibaba and Tencent have any guarantee policy for your store if something happens?

23. Please conclude and explain your opinion of the advantages and disadvantages of using Alipay and WeChat Pay as your store’s payment methods. Do you have any other expectations?

24. If there are other new payment options such as Apple Pay, Android Pay, will you choose and accept these payment methods? What are the main factors that influence your decision? Why?

25. Do you want to change or add anything for your answers?

b. Questions for providers

1. How do your company attract merchants?

2. What are the advantages of your platform? (Wechat pay, Alipay)

3. What is the difficulty things when your company want to attract merchants?

4. Do your company often updated, introduce new features for Wechat Pay and Alipay ?

5. Did you often faced any complaints about your platform from merchants (hard to use, hacking or something)?

6. Do you need to inform merchants how to use platform? (send staffs to educate merchants)

7. Do merchants know about their customer’s information in your platform?

8. Do you often give some discounts, benefits to merchants (Red envelop or gifts)?

9. Do you have any loyalty programs for merchants?

10. Do you conduct surveys about merchant’s perspectives? How is it?
11. What is the platform plan in the future?

c. Questions for banks

1. What is the platform plan in the future?

2. What is your bank infrastructure that supports for credit card and debit card?

3. What policies that you provide for merchants?

4. What steps are needed for the application of your bank’s payment solutions?

5. What do you think of the number of people using credit card, debit card comparing to mobile payment?

6. What do you think about Wechat Pay and Alipay in China and its effect to your bank?

7. Does your bank co-operate with Wechat Pay and Alipay?

8. Are there any incentives that your bank has in term of cooperation with Tencent and Alibaba?

9. Can you describe about your loan policy? Is it easier to offer a loan to VIP business?

10. How many steps do some people need to take if they want to have a loan?