Leave Your Wallet in Your Phone
A Consumer’s Choice

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Abstract

The importance of Smart Payment is becoming more and more significant with the non-cash society process and the development of FinTech. However, there is still a lack of adoption of Smart Payment service in Sweden compared with the emerging markets. This thesis presents a qualitative study on consumer’s adoption of Smart Payment in Sweden with an extended research model developed from diffusion of innovations (DOI) theory and technology acceptance model (TAM) and other findings from relating research areas. Six hypotheses were built to explain six factors of Smart Payment and the findings suggest that relative advantage, compatibility, ease of use and network externalities are the determining factors to affect the consumer’s adoption of Smart Payment in Sweden. This thesis also provides theoretical foundations for Smart Payment study and practical inspirations for the service suppliers.

Keywords: Smart Payment, Sweden, consumer, adoption, DOI

Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>DOI</td>
<td>Diffusion of innovations</td>
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<tr>
<td>FinTech</td>
<td>Financial technology</td>
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<td>MTAM</td>
<td>Mobile technology acceptance model</td>
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<td>NFC</td>
<td>Near-field communication</td>
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<td>PSD2</td>
<td>Revised Directive on Payment Services</td>
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<td>QR code</td>
<td>Quick response code</td>
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<td>RFID</td>
<td>Radio-frequency identification</td>
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<td>TAM</td>
<td>Technology acceptance model</td>
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1. **INTRODUCTION**

1.1 **Background**

Stockholm Banco issued the first paper banknotes in Europe in 1661 which improve the payment process greatly because merchants did not need the horse and cart to transfer metal coins for a big deal any more. However, Sweden, this very country which innovated banknotes is predicted to abandon cash by as early as March 24, 2023 (Arvidsson, 2014). This non-cash society prediction is well supported by the Swede’s payment preference that in the year 2016 only 15% consumers which is over halved than the year 2012 of 33% who choose cash to pay something according to the most recent report of ‘The payment behaviour of the Swedish population’ by Riksbank, the central bank of Sweden. (Riksbank, 2016) 80% of Swedes just have less than 500 Swedish Krona cash in their wallets and 11% of Swedes do not even have the access to the payment method of cash. Hence, average value of banknotes and coins in circulation in Sweden decreased by nearly 38% between 2012 and 2017 to 57 billion SEK which was only 1.24% of the Sweden’s GDP while in comparison, the average of Euro cash in circulation was 10.74% of the total GDP of the Eurozone. (European Central Bank) Non-cash society trend is developing rapidly and banknotes and coins are dying in Swede.

**Figure 1. How did you pay the last time you made a payment?**

![Figure 1](source)

**Source: The Riksbank**

The movements toward reducing cash are taking place in Sweden that banks, merchants and consumers are losing their interests on cash transactions. The usage of bank cards grew fast and card payment has become the dominating solution that more than 97% of Swedes have the access to debit card payments and are willing to pay with cards that 64% choose this approach and 89% feel that card payments are safe (Nyberg and Guibourg, 2003; Riksbank, 2016). Within one of most efficient payment markets in the world, the average Swedish person made 317 card payments in 2016 which is in a top position in the world. (The total number of card
payments was 3,173 million. Sveriges Riksbank (2017), Statistics Sweden calculated Sweden’s population at 9,995,153.) However, Swedish people seem to too favour card payment services that they are ignoring other solutions such as Smart Payment.

Smart Payment is the payment service provided by a third-party processor like Alipay, Apple Pay or Swish enabling you to conduct the payments with your smart devices by scanning a bar code or QR code (Quick Response Code), NFC (near-field communication), even the sonic wave from your device and etc. With the applications in the smart phone, the smart watch or other accessories, the transactions will be conducted digitally and instantly. This smart approach could replace not only the cash in the wallet but also the wallet itself. It is a type of individual or business activity involving an electronic device with connection to a mobile network enabling the successful completion of an economic transaction (Liébana-Cabanillas 2012). It is now considered by many experts as one of the applications with the greatest potential in the business sector related to mobile telephony (Slade et al. 2014). And Smart Payment is seen as the next stage of payment revolution instead of a card (Salmony, 2017).

Table 1. Major Smart Payment solutions

<table>
<thead>
<tr>
<th>Major Smart Payment solutions in the market</th>
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<tbody>
<tr>
<td>Swish</td>
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<tr>
<td>“Swish is a mobile payment system in Sweden. The service works through a smartphone application, through which the user's phone number is connected to their bank account, and which makes it possible to transfer money in real time.” (Getswish Website)</td>
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<td>Alipay</td>
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<td>“Alipay is used in smartphones with their Alipay Wallet app. QR code payment codes are used for local in-store payments. The Alipay app also provides features such as credit card bills payment, bank account managements, P2P transfer, prepay mobile phone top-up, bus and train ticket purchase, food order, ride hailing, insurance selection, digital identification document storage. Alipay also allows online check-out on most Chinese-based websites such as Taobao and Tmall.” (Ant Financial Website)</td>
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<td>---------------------------------------------</td>
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<td>Apple Pay</td>
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<td>“Apple Pay is a mobile payment and digital wallet service by Apple Inc. that lets users make payments using an iPhone, Apple Watch, iPad or Mac. Apple Pay does not require Apple Pay-specific contactless payment terminals and can work with existing contactless terminals.” (Turner, 2014)</td>
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In Sweden, Smart Payment business started in the beginning of the 21st century but was being hindered by the learning costs and there was no sophisticated Smart Payment platform providing interoperable services until Swish launched in December 2012. (Arvidsson, 2014; Apanasevic et al., 2016) Smart Payment keeps its strong growth momentum as a relatively new entrant in the payment market but still only occupy a small share of the market and the amount of the payments through Swish of Swish has been increasing rapidly to nearly 275 million in the year 2017 with an impressive growth of more than 60%. 85% of Swedes are using smartphones but 35% of Swedes have never tried their smart phones to make any payments. And to the respondents who have tried this new technology, 67% of them are low frequency users of less than four times a month including Smart Payment, SMS payment, mobile bank and other services on the mobile phone. According to a ‘Swedish Mobile Consumer Survey’ published by Deloitte, all age groups of Swedes are highly tech-savvy embedded with their smart phones. However, when it comes to the Smart Payment part, only 17% people have used Swish, the largest Smart Payment service provider in Sweden. (Deloitte, 2017) The statistics indicate that Swedish population still stay conservative in Smart Payment in spite of the general trend toward digitalization.

Contrastively in another side on the earth, China, the market place of Smart Payment is quite more optimistic. Cash is quickly on the way out with the fact that Smart Payment transactions hit US$5.5 trillion in 2016, making it the largest Smart Payments market in the world. The People's Bank of China data shows that since 2012, China's non-cash payment growth rate has exceeded 20% and been keeping rising. It is estimated that China’s Smart Payment market will account for transactions worth 100 trillion CNY a year by 2019. Smart Payments in China took off with a decision made by Alipay to use QR, or Quick Response, codes to handle such transactions. Digital payments are processed by scanning QR codes at the point of sales which link to the customer’s bank account in China. The other largest Smart Payment in China is WeChat, which is both a social platform and also a Smart Payment tool this is by no means a coincidence (Ren & Xu, 2017). Both Alibaba Group Holdings, which owns Ant Financial, and Tencent Holdings, which owns payment platform WeChat Pay, hold a combined market share of 92% of such transactions in the market of 1.4 billion people (IPSOS research, 2017). Hundreds and thousands of small-scale shops including restaurants, grocery stores and tea houses, as well as wet markets, now accept them (Ren & Xu, 2017). With the penetration of Smart Payment in fields such as consumption, finance and personal applications, the full layout of online and offline scenarios has been realized. Based on the full coverage of payment functions, Smart Payment is better in user experience, greatly promoting the electrification of money.
When people are talking about digital lifestyle, the payment style they choose comes to mind. It is surprising that some Asian or African countries are far away ahead of European developed countries like Sweden. When we came to Sweden, a famous cashless country, from China, we felt a bit shocked that the payment behaviors in the Swedish market are not well advanced compared to the Chinese payment market. There is nothing your smartphone can do when you go shopping leaving your wallet at home or friends stand in a queue to pay a dinner by cards separately instead of the auto-calculated bills sent to the smartphone. Hence, we started wondering which factors hinder this business to occupy the market? What has to be changed to make Smart Payment more mainstream in Sweden as well?

**Figure 2. FinTech adoption rates across 20 markets**

![FinTech adoption rates across 20 markets](image)

*Notes: The figures show FinTech users as a percentage of the digitally active population. All figures are shown in percentages.*

*Brigton and Luxembourg
**Hong Kong (SAR) of China*

**Resource: EY FinTech Adoption Index 2017**
Advantage of backwardness contributes the leading position of Asian and African countries at the starting point. Some countries like Kenya or India who just developed their payment recent years. People live there have already accepted the digital Smart Payment style which makes their lives easier although the payment structures are still weak and simple. On the other hand, Swedes have already been used to cards payment structure for many years so Swedish people are very committed to the old systems and well-established structures (Skinner et al., 2018). And this inertia blocks them away to a new payment solution. Chris Skinner, the author of the Digital Bank, predicted that China or Sweden is going to become the first cashless country. But is it possible that Swedish payment structure could be digitalized as advanced as China? And what could be the incentive factors to push this Smart Payment trend revolution for Sweden?

The revised payments services directive (PSD2) administered by the European Commission offers a third-party payment processor the authority to initiate a payment request or call the client data directly from the banks. When we studied Swish as the most important solution in Sweden, we acknowledged that Swish is a cooperation between six of the largest banks in Sweden. Each bank is responsible for offers, terms and eventual charges for the service provided to their customers. (Getswish website) Therefore, the regulation problems and the barriers set by the major financial institutions are solved or partly solved. The widespread availability of the Internet and smart devices that 85% of Swedes owned a smartphone in 2016 offers good access to the Smart Payment service. And all ages of Swedes are becoming increasingly digital that 7 out of 10 of all Swedes over the age of 45 are smartphone users so the technical obstacle cannot be blamed on. (Google mobile report, 2016) However, there are still only 17% Swedes choose to use Swish with a much larger access percentage of 61%.

There are no technology barriers that most Swedes have the access to Smart Payment in Sweden. And both the authorities and financial institutions are open mind to this FinTech revolution. But Smart Payment is still far behind the emerging market which raises my concern. And then I focus on the consumers’ choice which is indispensable for the payment market. Is it possible that Smart Payment is slowly developed because it is not what consumers want yet? And what of Smart Payment can be fixed to pursue consumers to leave their wallet in their phones? Hence, we decided to research Smart Payment in Swedish market from the consumer’s perspective and to study the consumer’s payment methods choice and the determining factors to affect the consumer’s payment behaviour inertia. To solve the above research problems, a research question is proposed.
1.2 Research Question:

What are the determining factors to affect the consumer’s adoption of Smart Payment in Sweden?

The purpose of this research is to explore the consumer’s adoption of Smart Payment by detecting the effect of determining factors on the adoption intention. Smart Payment in Sweden is at its infancy stage compared with the emerging markets but with good potential for the digitalization FinTech trend and non-cash process in Sweden. It is a critical period for the development of Smart Payment requiring effective theoretical supports. The objective of this research is to provide the theory foundation explaining the relations and interactions between different constructs of Smart Payment and consumer’s adoption with a modified research model which is also designed for the further research on the adoption of other innovations.

And this research is to identify the improvement direction for Smart Payment aiming the consumer’s adoption. What should be modified and what need to be enhanced of Smart Payment to convince consumers to leave their wallets in their phones? It is practical and valuable to study on the determining factors to affect the consumer’s adoption which offers the inspiration for both Smart Payment providers and traditional financial institutions. Smart Payment providers will acquire the information of consumer’s desirability to improve their service and products and it will also help traditional financial institutions to understand their challenges from the new payment impact with this study.
2. THEORY

2.1 Smart Payment

Smart Payment is a relatively new area of research comparing to the related research areas such as online payment, electronic commerce and mobile banking. And the studies of Smart Payment are mostly under explored in mobile payment area where research have been widely conducted. Some researchers concluded Smart Payment and mobile banking service as equivalent mobile payment solutions (Donner & Tellez, 2008) because mobile banking service provided by the banks can also realize the transactions directly through the apps in the smart phones. However, the transaction relations of mobile banking are directly between banks and consumers (Slade, Williams, & Dwivedi, 2013) instead of the Smart Payment service provided by a third-party processor besides banks and consumers. This study focus is exclusively on Smart Payment service with smart devices instead of the generalized mobile payment service including credit card, debit card, pre-paid card, etc. according to previous definitions and distinctions of mobile payment study specializing in Smart Payment. Ghezzi, Renga, Balocco, and Pescetto (2010) summarize the concept of mobile payment as “a process in which at least one phase of the transaction is conducted using a mobile device (such as smartphone, smart accessory, PDA, or any wireless enabled device) capable of securely processing a financial transaction over a mobile network, or via various wireless technologies (NFC, Bluetooth, RFID, etc.)”. And according to Dahlberg, Mallat, Ondrus, and Zmijewska (2008), mobile payment service was defined as “payment for goods, services, and bills with a mobile device such as mobile phone, smart-phone, or personal digital assistant by taking advantage of wireless and other communication technologies” which was developed to “other forms of economic exchange” by Liu, Kauffman, and Ma (2015).

And the academic studies of Smart Payment adoption are fragmented but still lack diversity (Dahlberg et al., 2015). Although the number of studies on Smart Payment has been increasing in recent years, some scholars still insist that the research of Smart Payment is still in its prime stage (Slade et al., 2013). Technology acceptance model (TAM), Diffusion of innovation (DOI) theory and other established adoption models are well extended to study the consumer adoption of Smart Payment (Dahlberg et al., 2015). Leong et al. (2013) and Tan et al. have both adopted the constructs from TAM which was built as a psychological science model to research the adoption intention of Smart Payment from the consumer’s perspective. An extended mobile technology acceptance model (MTAM) was developed by Ooi et al. (2016) to study the specific area of mobile payment. And Arvidsson (2014) combined diffusion of innovation theory with TAM as his theoretical foundation to test the consumer attitudes on Smart Payment services.
Trust and perceived risk were introduced by Slade et al. (2014) and more developed (Yang et al., 2015) as the important factors to explain the expectations of Smart Payment in retail. Moreover, network externalities were recently suggested by Apanasevic et al. (2016) to complete the research model of Smart Payment.

2.2 Adoption Models

The theoretical foundation of my study is formulated through remoulding and extending Diffusion of innovation (DOI) theory by importing the common element of technology acceptance model (TAM) and other researches of Smart Payment adoption.

Diffusion of innovation (DOI) theory was raised by Rogers in 1962 and extended by explaining the innovations, defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”, and the diffusion of innovation through a more accurate prediction on the consumer’s behaviour. The adoption of the innovations starts with a small group of adopters and then more people get affected gradually (Apanasevic, 2016) and the process of the diffusion is defined as “through certain channels over time among the members of a social system” according to Rogers (2003). DOI is a multidisciplinary theory widely used to examine the adoption of new information technology (Yi et al., 2006) suggesting innovation as an important element (Zhao & de Pablos, 2011). The constructs of DOI are also applied in the related research areas of mobile finance information technologies (Plouffe et al., 2001; Szmigin & Bourne, 1999), mobile commerce (Teo & Pok, 2003), and mobile banking (Lee et al., 2003). DOI is a more suitable option for the study of consumer adoption of Smart Payment because the subjects of DOI are consumers instead of the organizational users of technology acceptance model (TAM). Hence, diffusion of innovation theory contributes the major theoretical foundation for this study with other supplements. DOI theory consists five constructs:

1. Relative advantage: “the degree to which an innovation is perceived better than the old practice”.

2. Compatibility: “the degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters”.

3. Complexity: “the degree to which an innovation is perceived as difficult to use”.

4. Trialability: “the degree to which an innovation can be experimented on prior to adoption.”
5. Observability: “the degree to which the results of an innovation are visible to others”.

Of these five constructs, relative advantage, compatibility and complexity are the most consistent elements to explain the adoption of information technologies (Tornatzky and Klein, 1982) and mobile payments (Goeke and Pousttchi, 2010; Duane et al., 2014) and according to Balachandran and Tan (2015), trialability and observability are not effective to predict the adoption of a new IT service. Hence, three constructs, relative advantage, compatibility and complexity, from DOI theory are used for the research model.

Davis (1989) raised technology acceptance model, a psychological science model, to research and predict the individuals’ acceptance of information technology based on the theory of reasoned action (Fishbein & Ajzen, 1977). And the constructs of the technology acceptance model have been frequently applied to study the related areas of Smart Payment such as online payment adoption (He et al., 2007; Slade, 2015), the adoption of electronic commerce (Gefen, 2003; Pavlou, 2003) and mobile commerce (Liang et al., 2015), internet banking (Lee, 2009; Yousafzai and Yani-de-Soriano, 2012; Harrison et al., 2014), mobile banking (Luo et al., 2010; Püschel et al., 2010; Zhou et al., 2010) and mobile payment service (Bailey, 2017). TAM consists two constructs:

1. Perceived usefulness: “the degree to which a person believes that S would enhance his or her job performance.”

2. Perceived ease of use: “the degree to which a person believes that using a particular system would be free of effort.”

Perceived ease of use shares the same content with complexity of DOI theory but from opposite directions and these two constructs can be combined to examine the ease of Smart Payment in the learning and using process from a consumer’s perspective. Hence, the construct of ease of use is used for the research model.

Addition constructs of network externalities (Van Hove, 1999; Plouffe et al., 2001; Mallat, 2007), perceived trust (Jarvenpaa et al., 2000; Gefen et al., 2003) and perceived image (Tornatzky & Klein, 1982; Rogers, 1983) are also introduced to complete the research model according to the previous researches related to Smart Payment.
2.3 Hypotheses

Relative advantage

Relative advantage is defined by Rogers (2003) as “the degree to which an innovation is perceived as being better than the old practice”. The increased effectiveness, economic benefits, time savings and enhanced status (Rogers, 1995) can be seen as the relative advantage of the innovations which encourage the consumer’s adoption (Moore & Benbasat, 1991). Different adopters perceive relative advantage differently and relative advantage is perceived variably due to the variation of using conditions. In the Smart Payment using condition, one of the key attributes of relative advantage is the substitution effect of the traditional payment solutions (Jarvenpaa and Lang, 2005) and the possibility to realize the exclusive functions compared with traditional payment instruments. The hypothesis 1 is developed based on these findings:

H1: Relative advantage (RA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).

Compatibility

Compatibility is defined by Rogers (2003) as “the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters”. Some scholars found that compatibility can be seen as an important element to explain how consumers adopt a new mobile technology and service (Teo and Pok, 2003; Wu and Wang, 2005) and compatibility positively influence the consumer adoption according to the previous researches (Chen & Adams, 2001) as a determining factor affecting consumers intentions toward a Smart Payment service (Chen & Adams, 2001). According to Ilie et al. (2005), the innovations are more acceptable with a greater compatibility between individual needs and the new technology of a more familiar operation procedure in the interaction. The adopters of Smart Payment service are just required to understand how to operate the Smart Payment apps with their Smart Phone and the Internet condition is required to meet their connection request to conduct a payment. The hypothesis 2 is developed based on these findings:

H2: Compatibility (CO) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).
Ease of Use

Complexity was defined as “the degree to which an innovation is perceived as difficult to use” in the DOI theory (Rogers, 2003) and Davis (1989) concluded perceived ease of use as “the degree to which a person believes that using a particular system would be free of effort.” In his technology acceptance model. These two constructs from different direction both explained the complexity and ease effect on the adoption of the innovations that complexity and the usage problems result the low intention to adopt Smart Payment (Laukkanen and Lauronen, 2005; Kim et al., 2010a) and ease of use and the convenience of Smart Payment contributes the adoption intention (Constantiou et al., 2006; Dutot, 2015). I choose ease of use which is predicted as a positive effect on consumer’s adoption intention in the way of reducing the payment complexity with Smart Payment. And in the mobile payment relating areas, ease of use was an absolutely necessary construct for the adoption studies because ease of use not only improve the overall consumer satisfaction on the innovations (Constantiou et al., 2006) but also affect consumer’s decisions on whether to accept and use the innovations to replace the old solutions (Arvidsson, 2014). The barriers of learning and starting to use a new service (Ram and Sheth, 1989) would cause negatively effect on the adoption intention (Laukkanen and Kiviniemi, 2010) and it is explained by Dutot (2015) that the success possibility of learning a new technology determines the user’s adoption intention directly so the Smart Payment service is expected to be easy to learn and use. And Smart Payment is expected to improve the payment process on the speed due to the cash and coins not involved at the cashier and the convivence due to the availability of paying without a wallet (Mallat et al., 2004). The hypothesis 3 is developed based on these findings:

H3: Ease of use (EA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).

Network externalities

The product or service value of a single user increases when the total sales and use of a product or service increases and network externalities exists (Economides, 1996). The Smart Payment business is characterized by network externalities because the technology of Smart Payment has the indirect network externalities (Van Hove, 1999) and network externalities has been studied as a crucial construct in the relating research areas like smart cards (Plouffe et al., 2000), payment markets (Van Hove, 1999) and mobile payment service (Au & Kauffman, 2008; Mallat & Tuunainen, 2008). The consumer’s adoption intention is strongly under the influence
of the number of the overall users which affect the chance to use and popularize the new payment service (Mallat, 2007). And adopters of Smart Payment can only benefit if it is frequently supported by the merchants (Karnouskos & Fokus, 2004). The user as a payer can be also seen as a payee then the payers want as many merchants as possible accept the payment service they choose and the payees also wish as many consumers as possible to choose the same kind of payment (Goeke & Pousttchi, 2010). And according to López-Nicolás et al. (2008), the suggestions from people around you influence the consumer’s adoption intention due to the social attributes of network externalities. The hypothesis 4 is developed based on these findings:

**H4**: *Network externalities (NE) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).*

**Perceived trust**

Since the value of money and the payment itself are based on trust, the importance of trust for the research of Smart Payment services is very assignable. Many scholars pointed that the importance of trusts to electronic and mobile commerce services is very high because payers and merchants are separated in time and space when buyers are asked to provide subtle personal information (such as phone numbers or bank card information) (Grabner-Kräuter and Kaluscha, 2003). Perceived trust is considered to be an important factor of customers’ intention for e-commerce business (Jarvenpaa et al., 2000). Previous researches also show that perceived trust in payment suppliers and the system is an important determinant for the adoption of mobile services (Siau et al., 2004; Xu and Gutiérrez, 2006). Adopters concern about the privacy and the security of user data access are often related to identity and confidentiality issues, as well as unauthorized payments (Dewan and Chen, 2005). Sztompka (1999) stated that the trust depends on the security performance and safety reputation of the technology. Tamimi and Sebastianelli (2015) remarked that data seals, third-party ensures and security strategies are the incentives for adoption intention and Mallat's qualitative study (2007) demonstrates that perceived trust from solid suppliers can reassured adopter’s concern. According to Yang et al. (2015), the popularize of online payments is based on the trust being perceived in China. According to Teorell et al. (2015), consumer would only adopt the new transaction method when they perceive there is no data leaking or money fraud problem for the technology. The hypothesis 5 is developed based on these findings:

**H5**: *Perceived trust (PT) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).*
Perceived image

One further construct was identified beyond DOI and TAM classification which were thought important in the decision to adopt an innovation. Image, defined as "the degree to which use of an innovation is perceived to enhance one's image or status in one's social system" (Tornatzky & Klein, 1982). Some researchers, including Rogers, included image as an aspect of Relative Advantage. Nevertheless, Rogers also argued that "undoubtedly one of the most important motivations for almost any individual to adopt an innovation is the desire to gain social status" (Rogers, 1983). However, as is discussed by Tornatzky and Klein (1982), it was found that the effect of Image is different enough from Relative Advantage, which should be considered as a separate factor (Moore & Benbasat, 1991). Karnouskos and Fokus’s study (2004) explained the significant improvement on the consumer’s adoption intention with a user-friendly interface and which is also clear to find the functions of the service as required. The hypothesis 6 is developed based on these findings:

H6: Perceived image (PI) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).

2.4 Research Model and Hypotheses Summary

This study extends diffusion of innovations theory (relative advantage, complexity and compatibility) inspired by the construct of perceived ease of use from technology acceptance model and three additional factors (network externalities, perceived trust and perceived image) based on the previous Smart Payment related research areas. The research model is proposed to explore the different perceptions and effects of the factors on Swedish consumers’ attitude toward adoption of Smart Payments. The research model and hypotheses are summarized in Table 2 and Figure 3.

Table 2. Hypotheses Summary

<table>
<thead>
<tr>
<th>Hypotheses</th>
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<tr>
<td>H1 Relative advantage (RA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
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<tr>
<td>H2 Compatibility (CO) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
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<tr>
<td>H3 Ease of use (EA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
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</tbody>
</table>
H4 | Network externalities (NE) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).
---|---
H5 | Perceived trust (PT) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).
H6 | Perceived image (PI) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).

Figure 3. The research model
3. Method

3.1 Research Design

The study is done with a quantitative strategy, where the theoretical frameworks are elaborated first before collecting data. Quantitative research is a research strategy that focuses on quantification in the data collection and analysis process and emphasizes on testing of theories (Bryman & Bell, 2015). Doing a questionnaire is an efficient quantitative method to collect large sample data than other methods (Saunders et al., 2012). While questionnaires cannot prompt or probe due to the lack of interaction. (Bryman & Bell, 2015) It is possible that the respondents misunderstand the questions. And interview is an effective approach to gather in-depth insights on participant attitudes, thoughts, and actions based on the interpersonal context. (Fontana & Frey, 2000) Hence I decided to combine structured questionnaires and qualitative interview by asking respondents the questions on the questionnaires and to complete them in a semi-structured interview instead of distributing and collecting self-administrated questionnaires. The purpose of this combined method is to ensure our data’s reliability and validity that everyone understand the questions and is willing to answer them honestly and to avoid respondents palter with these questions. After the collection and analysis of data, the real determinants behind consumer’s attitude towards Smart Payment can be shown and these hypotheses can either be accepted or rejected.

3.2 Sampling

For the quantitative study, the samples were chosen by convenience sampling. Convenience sampling refers to the selection of subjects who are easily accessible (Castillo, 2009). The questionnaire-interview will be held in Uppsala and Stockholm. To reach our target group, banks, train stations and shopping malls are the places to conduct the questionnaires because of the randomness and diversity of the group and these places are also related to the payment service. And the rationale behind this choice was the limited time, which the researcher had to minimize costs.
3.3 Measurement

Secondary data is not suitable for this research requirement therefore the primary data was collected through a survey aiming to generate the target respondents representing the total population of Sweden. The survey should be completely tried before it can be executed. The structured questionnaire is separated into two sections of classification and attributes. The information required for this study is not available in the form of secondary data, so we collected primary data through a survey, aiming to generate a sample that is representative of the total population. The questionnaire was subjected to comprehensive pretesting prior to implementation. The structured questionnaire was divided into two sections. A seven-point Likert scale was used in designing the questions. (Saunders et al., 2012; Lin, 2011; Arvidsson, 2014). Section A of the questionnaire contains closed ended questions about the demographic characteristics of the respondents. The demographic information includes gender, age, whether have experienced Smart Payment and what type of smart device is being used. Section B collects response of the above constructs (relative advantage, complexity and compatibility, network externalities, perceived trust and perceived image) effect on the Swedish consumer’s adoption intention on Smart Payments. Non openended question was designed for the questionnaire.

3.3.1 Section A: Classification of Demographic characteristics

To explore consumer characteristics and keep the diversity of the survey, respondents were interviewed with the questions about gender, age, whether have experienced Smart Payment and what type of smart device is being used. As is shown in table 1, gender is classified into male and female and the actual survey is in accordance with the Shin’s study (2009) that the amount of female respondents is marginally higher than the male. The alternative questions of Smart Payment experience are categorized into “I have tried Smart Payment” or “I have never used Smart Payment” to identify the attitudes toward Smart Payment of the actual users and potential adopters. Age is categorized into six groups: a minor group of below 18 years old, a young group of 18-27 years old, a middle-age group of 28-37 years old, a mature group of 38-47 years old and an elder group of above 57 years old. In spite of the study implying that younger generations are the mainly target group for the Smart Payment business according to Laukkanen & Pasanen (2008), the adoption intention of the elder consumers should not be ignored. However, the actual survey has mostly collected data only from 18 years old to 57 years old. The minor group’s and the elder group’s adoption intention is missing due to the sample size of only one for the minor group and three for elder’s group. And smart devices are classified into four types: iOS phone, Android phone, others smart phone and others smart devices. But no respondent is using a smart device besides the smart phones. To invest the
device type being used by the respondents is to assure the diversity of the study instead of only focusing on one specific phone brand users and it is also a solution to make sure the data is coming from the smart device users which are the potential adopters for Smart Payment.

Table 3. Classification of Different Demographic Characteristics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>I have tried Smart Payment</td>
<td>I have never used Smart Payment</td>
</tr>
<tr>
<td>Age</td>
<td>Below 18</td>
<td>18-27</td>
</tr>
<tr>
<td>Smart Device</td>
<td>iOS Phone</td>
<td>Android Phone</td>
</tr>
<tr>
<td>Type Used</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.3.2 Section B: Attributes of the innovations with items and responses

A current search of existing items may be adapted for this study, and complete details of the items will be presented at the table 2. In order to test the six constructs effect on the consumer’s adoption intention, two questions for each construct were developed according to the previous studies with the same seven-scale response system from strongest disagree (1) to strongest agree (1). The questions were tested with a small group and some slight changes were medicated to enhance the clarity and avoid the misunderstanding of a few question statements before the beginning of the survey.

*Relative advantage* was developed from the studies of Jarvenpaa & Lang (2005) and Yang et al. (2012) measuring relative advantage with substitution effect of Smart Payment and the possibility to realize the exclusive functions compared with traditional payment solutions.

<table>
<thead>
<tr>
<th>Relative advantage</th>
<th>RA1: Smart device is a good substitute for traditional payment solutions such as credit card, debit card, cash, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA2: Smart Payment</td>
<td>Can realize exclusive functions such as person to person transfer, QR (Quick Response) code scanning, etc.</td>
</tr>
</tbody>
</table>
Compatibility was assessed with the questions measuring the operational feasibility of Smart Payment apps (Ilie et al., 2005) and the access to the service when it is required (Schierz et al., 2010).

Compatibility

- CO1: Smart Payment apps can be installed into my phone or other devices and well operated.
- CO2: I have the smart phone or other devices and mobile network access to accomplish Smart Payment.

Ease of use adapted two extended questions about the perceived ease of use during the learning and using process (Dutot, 2015) and the convivence due to the availability of paying without a wallet (Mallat et al., 2004).

Ease of use

- EU1: Smart Payment is easy to learn and to use.
- EU2: It is convenient and fast to pay with Smart Payment service.

Network externalities was extended from the perspectives of adopters and merchants that consumer’s adoption intention is strongly under the influence of the number of the overall Smart Payment users (Mallat, 2007; Goeke & Pousttchi, 2010)

Network externalities

- NE1: I know a lot of people are going to adopt Smart Payment.
- NE2: There are a lot of merchants accepting and supporting Smart Payment.

Perceived trust was assessed with two questions regarding to the perceived security of the Smart Payment process (Teo et al., 2015) and the protection of privacy and data (Tamimi & Sebastianelli, 2015).
**Perceived trust**

PT1: It is safe to deposit money in the Smart Payment apps and pay with the Smart Payment apps.

PT2: My data and privacy can be well protected by Smart Payment.

---

**Perceived image**

adapted two items of the Smart Payment user interface attributes (friendly user interface and the clarity for the required functions) according to the Karnouskos and Fokus’s study (2004) on the user interface influence on the consumer adoption intention.

PI1: Smart Payment apps have good and friendly user interface.

PI2: It is clear to find out the functions I need on the Smart Payment user interface.

---

**Adoption intention**

as the dependent variable of the research model was only evaluated by one question of the Smart Payment experience or Smart Payment using intention (Tan et al., 2014).

AI: I have good experience of using Smart Payment or I have strong intention to adopt it.


Table 4. The symbol of the questionnaire

*Smart Payment Survey*

This is a survey on consumers’ adoption of Smart Payment. Smart Payment is the payment service provided by a third-party processor like Swish, Apple Pay or Alipay enabling you to conduct the payments with your smart devices such as a smart phone or a smart watch. I hope you could answer the following questions based on your experience if you have already tried Smart payment or your expectation on Smart Payment if you never used it. **The scale is from 1 to 7 that 1 represents the strongest Disagree and 7 represents the strongest Agree.** Thanks for your time.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>I have tried Smart Payment</td>
<td>I have never used Smart Payment</td>
</tr>
<tr>
<td>Age</td>
<td>Below 18</td>
<td>18-27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28-37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>38-47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>48-57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 67</td>
</tr>
<tr>
<td>Smart Device</td>
<td>iOS Phone</td>
<td>Android Phone</td>
</tr>
<tr>
<td>Type Used</td>
<td></td>
<td>Others Smart Phone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others (e.g. Smart Watch, Smart Ring)</td>
</tr>
</tbody>
</table>

The scale is from 1 to 7 that 1 represents the strongest **Disagree** and 7 represents the strongest **Agree**. Please fill the number on the right of the questions.

1-7

- Smart device is a good substitute for traditional payment solutions such as credit card, debit card, cash, etc.
- Smart Payment can realize exclusive functions such as person to person transfer, QR (Quick Response) code scanning, etc.
- Smart Payment apps can be installed into my phone or other devices and well operated.
- I have the smart phone or other devices and mobile network access to accomplish Smart Payment.
- Smart Payment is easy to learn and to use.
- It is convenient and fast to pay with Smart Payment service.
- I know a lot of people are going to adopt Smart Payment.
- There are a lot of merchants accepting and supporting Smart Payment.
- It is safe to deposit money in the Smart Payment apps and pay with the Smart Payment apps.
- My data and privacy can be well protected by Smart Payment.
- Smart Payment apps have good and friendly user interface.
- It is clear to find out the functions I need on the Smart Payment user interface.
- I have good experience of using Smart Payment or I have strong intention to adopt it.
4. DATA ANALYSIS AND RESULTS

4.1 Profile of Respondents

Totally 100 questionnaires responses were collected through the survey which gives the statistical data of gender, age, Smart Payment experience and the smart device type used. The survey reached 60 female respondents and 40 males showing that the number of female respondents is slightly higher which is in the line with the Shin’s study (2009). The majority are younger generation with the fact that 76% of the respondents are under the age of 28 years old and almost half of the respondents are from young group of 18-27 years old. Only 14% of the respondents are above the age of 47. Given the nature of Smart Payments, this off-balance percentage is reasonable because most Smart Payment users are relatively young according to the “Global Mobile Consumer Survey” published by Deloitte (2016). 66% of the respondents have already tried Smart Payment and 34 of the respondents have the knowledge of Smart Payment in spite of the fact that they have not used it yet. The percentages of iOS phone users and Android phones users are close and only one respondent is using a Blackberry smart phone which is not applicable for Smart Payment service.

Table 5. Demographic profile of respondents

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>28-37</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>38-47</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>48-57</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Above 57</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Whether has experienced Smart Payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>No</td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td>Smart device type used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iOS Phone</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Android Phone</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Smart Phone</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
4.2 Validity and Reliability

Validity as the standard to evaluate whether the constructs measure the concept is indispensable for a quantitative research (Bryman & Bell, 2015). The majority of the respondents are young generation living in the big cities of Uppsala and Stockholm in Sweden which are viewed as the early adopters of Smart Payment not representing the whole population of Sweden. The demographical and geographical bias possibly harm the validity of the study (Niva, 2015). While the remediation of validity can be contributed by the research model with six constructs of DOI theory, TAM and other researches extended by two developed questions according to the previous studies.

The Kaiser–Meyer–Olkin’s (KMO) sampling adequacy and Barlett’s sphericity test were adopted to test the reliability, whether the results of the research are applicable to be repeatable (Bryman & Bell, 2015), of my study. The KMO value is 0.765>0.5 which is close to the recommended value of 0.8 implying the data collected is good to run a factor analysis (Pallant, 2011) and the significance of Barlett’s sphericity test verifies it.

Table 6. KMO and Bartlett’s Test result

<table>
<thead>
<tr>
<th>KMO and Bartlett's Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of</td>
</tr>
<tr>
<td>Adequacy.</td>
</tr>
<tr>
<td>Bartlett's Test of Approx. Chi-</td>
</tr>
<tr>
<td>Sphericity df</td>
</tr>
<tr>
<td>Sig.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The factor analysis also reflects a good result that the factor loading value of every item is above 0.6 implying that there is no need to eliminate any item from the survey which is the guarantee for the validity and reliability as well (Hair et al., 1992; Pallant, 2011). To simplify the data analysis process, the value for each factor comes from the average of the two questions developed for the constructs in the correlation analysis process.
Table 7. Factor Analysis Results

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>RA2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>CO1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>CO2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>EU1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>EU2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>NE1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>NE2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>PT1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>PT2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>PI1</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>PI2</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>AI</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Extraction Method:
Principal Component Analysis.

4.3 Correlation Analysis

Neither the enter linear regression nor the stepwise linear regression produced the satisfactory results with significance due to the existence of the multicollinearity. The bivariate correlations analysis was adopted to test the different construct’s effect on the dependent variable of consumer’s adoption intention of Smart Payment.

Table 8. Correlation Analysis Results
The correlations analysis result shows that four out of six factors have the significant correlations with the adoption intention which are relative advantage, compatibility, ease of use and network externalities. H1, H2, H3 and H4 are all supported for the positive correlation coefficients from the correlations analysis.

The two factors of perceived trust and perceived image with higher P-values than 0.1 do not show the significant correlations. What’s more, these two factors are also tested with negative correlation coefficients which is conflicted with the previous studies. The correlation analysis cannot explain the relations between perceived trust and perceived image with the adoption intention based on the current research model and current collected data. Thus, H5 and H6 did not get supported.

The hypotheses verification summary is graphed with Table 9.

**Table 9. Hypotheses Verification Summary**

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1  Relative advantage (RA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Supported</td>
</tr>
<tr>
<td>H2  Compatibility (CO) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Supported</td>
</tr>
<tr>
<td>H3  Ease of use (EA) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Supported</td>
</tr>
<tr>
<td>H4  Network externalities (NE) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Supported</td>
</tr>
<tr>
<td>H5  Perceived trust (PT) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Nonsupported</td>
</tr>
<tr>
<td>H6  Perceived image (PI) of Smart Payment positively influences Swedish consumers’ adoption intention (AI).</td>
<td>Nonsupported</td>
</tr>
</tbody>
</table>
5. CONCLUSION

5.1 Factors conclusion

The respondents, younger generation who live in the big cities of Sweden, through the survey can be identified as early adopters which infer that we can expect that their intentions on Smart Payment are fairly more positive than what can be normal from an irregular example of respondents from a bigger populace. Demographic and geographical bias require me to be more cautious about summing up the outcomes from the data analysis to a greater concept test of consumer’s adoption intention of Smart Payment in Sweden. Thus I conclude following conclusion based on the verifying of the hypotheses.

Relative advantage’s position is considered as a key factor in receiving Smart Payment. This is not shocking, in light of the fact that the buyer will undoubtedly convey new payment solutions to existing technologies currently. The aftereffects of this examination are steady with the findings of Mallat (2007) Dahlberg et al. (2008) that the consumer’s adoption intention of Smart Payment must be viewed as an impact to the traditional payment solutions. The new incomer to the payment market has to be better in some aspects as the incentive for the potential adopters. The Smart Payment suppliers are required to provide the exclusive features with the advantage of FinTech which cannot be offered by bank cards or cash for the substitution effect.

Compatibility’s effect on Smart Payment can be explained that consumers have greater adoption intention if they see Smart Payment is well coordinated with their current life and payment style. My study verifies the previous empirical research conducted by Teo and Pok (2003) on the adoption of new mobile technology and Chen and Adams’ work on mobile payment service. The findings also corroborate the study by Ilie et al. (2005) that innovations are more acceptable with a greater compatibility between individual needs and the new technology of a more familiar operation procedure in the interaction. There are no barriers for most potential adopters to operate the apps with a smart phone to conduct the payments because a large percentage of Swedes have the experience of smart phones and electronic commerce (Deloitte, 2016; Wong et al., 2015). However, the applications of Smart Payment should be designed for cooperating with adopter’s operating habits. And the technical support is necessary to guarantee the payment success in case of the disconnection due to the technical problems.

In agreement with a lot of studies on the adoption of Smart Payment related areas, ease of use was also identified as determining factor with the vital of importance (Ram & Sheth, 1989; Laukkanen & Lauronen, 2005; Constantiou et al., 2006; Laukkanen & Kiviniemi, 2010; Duane
et al., 2014; Dutot, 2015). The Swedish consumers have a long history and strong habit of using bank card in the well-developed non-cash society which creates considerable learning challenges to change to adopt a new payment solution. Therefore Smart Payment is mandatory to be easy of learn and use to overcome the consumer’s inertance. And the convenience is viewed as an incentive element to attract the potential adopters such as no need for carrying a wallet any more. It is valuable to think how to make the payment process faster with competition of NFC feature applied to the bank cards and how to avoid the inconvenience due to the payment failure which can inspired from the relative advantage and compatibility constructs.

The significant effect of network externalities on consumer’s adoption intention of Smart Payment was examined in line with that the product or service value of a single user increases when the total sales and use of a product or service increases and network externalities exists (Economides, 1996) in many relating research areas like smart cards (Plouffe et al., 2000), payment markets (Van Hove, 1999) and mobile payment service (Au & Kauffman, 2008; Mallat & Tuunainen, 2008). Especially for the Smart Payment service where the user is not only the payer but also the payee which results that users need many enough adopters for the interaction and many enough merchants to conduct the transactions and the populazition of Smart Payment will also become easier and faster after the amount of adopters foundation has been built.

As for perceived trust, respondents may believe that the effects from perceived trust are not clear enough in my survey since the Smart Payment was tested as a special single payment solution as such instead of within a larger group of other financial or payment services. Swedes tend to trust traditional financial institutions like banks instead of the internet companies to offer payment service which is uncertain to be acknowledge. And the perceived image was not known as an effective factor because of the lack of Smart Payment experience and there are not enough competitors in the market yet.

Hence the research question is answered that relative advantage, compatibility, ease of use and network externalities are the determining factors to affect the consumer’s adoption of Smart Payment in Sweden. The future study of the interactions and influence mechanism between these factors and the consumer’s adoption is expected to be extended. And it is practical to develop relating features of Smart Payment for the suppliers.
5.2 Theoretical Implications

This thesis focuses on relations and interactions between the constructs of Smart Payment and individual consumer’s requirement to explore the determining factors to affect the consumer’s adoption of Smart Payment in Sweden based on an extended diffusion of innovation theory model. The previous theoretical frameworks more or less tended to focus on the technical level’s effect on consumer’s acceptance of a new technology but ignored the individual consumer’s demand of service (Kim et al., 2010; Schierz et al., 2010; Yang et al., 2012; Chong, 2013 Duane et al., 2014). This study provides a new but useful perspective to explain the consumer’s adoption intention when the technology is well advanced because the potential adopters of Smart Payment are actual consumers instead of simply technology users. The diffusion of innovation theory and technology acceptance model are modified and extended with supplements and abridgements to reach the above purpose.

Another implication is that a quantitative study with representative samples is necessary and effective to address the direction for Smart Payment development and consumer’s adoption. Such studies are still needed to collect empirical data to research the practical application of Smart Payment.

5.3 Practical Implications

This thesis offers a strategic conduct for the third-party processors and FinTech companies which have the ambition to develop Smart Payment business. To integrate the determining factors of relative advantage, compatibility and ease of use by optimize using procedures, guarantee the technical support and highlight the relative advantage of Smart Payment to increase the consumer’s adoption intention. And the importance of network externalities cannot be ignored that promoting campaign such as coupons, cashback and loyalty program is one of the approaches to convert and develop clients for Smart Payment suppliers.
6. LIMITATIONS AND FUTURE DIRECTIONS

This thesis has several limitations and weakness which should be avoid for the future studies. One of them is that the majority of are the younger generation who live in the big cities of Sweden, through the survey can be identified as early adopters which infer that we can expect that their intentions on Smart Payment are fairly more positive than what can be normal from random samples from the whole population. The future studies should explore both urban and rural areas to examine the feasibility of Smart Payment in different conditions. And try to reach more elder respondents to complete the potential adopter’s attitudes toward Smart Payment. What’s more, my research model failed to explain the effect of perceived trust and perceived image due to the sample size and multicollinearity. Future studies can collect more responses and solve the influence of multicollinearity.
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Riksbank 2016, *The payment behaviour of the Swedish population*


