

## Critical Success Factor of Noble Payment System: Multiple Case Studies

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In MIS field, the researches on payment services are focused on adoption factors of payment service using behavior theories such as TRA(Theory of Reasoned Action), TAM(Technology Acceptance Model), and TPB (Theory of Planned Behavior). The previous researches presented various adoption factors according to types of payment service, nations, culture and so on even though adoption factors of identical payment service were presented differently by researchers. The payment service industry relatively has strong path dependency to the existing payment methods so that the research results on the identical payment service are different due to payment culture of nation.

This paper aims to suggest a successful adoption factor of noble payment service regardless of nation's culture and characteristics of payment and prove it. In previous researches, common adoption factors of payment service are convenience, ease of use, security, convenience, speed etc. But real cases prove the fact that adoption factors that the previous researches present are not always critical to success to penetrate a market. For example, PayByPhone, NFC based parking payment service, successfully has penetrated to early market and grown. In contrast, Google Wallet service failed to be adopted to users despite NFC based payment method which provides convenience, security, ease of use.

As shown in upper case, there remains an unexplained aspect. Therefore, the present research question emerged from the question: "What is the more essential and fundamental factor that should takes precedence over factors such as provides convenience, security, ease of use for successful penetration to market".

With these cases, this paper analyzes four cases predicted on the following hypothesis and demonstrates it. "To successfully penetrate a market and sustainably grow, new payment service should find non-customer of the existing payment service and provide noble payment method so that they can use payment method".

We give plausible explanations for the hypothesis using multiple case studies. Diners club, Danal, PayPal, Square were selected as a typical and successful cases in each category of payment service. The discussion on cases is primarily non-customer analysis that noble payment service targets on to find the most crucial factor in the early market, we does not attempt to consider factors for business growth. We clarified three-tier non-customer of the payment method that new payment service targets on and elaborated how new payment service satisfy them.

In case of credit card, this payment service target first tier of non-customer who can't pay for because they don't have any cash temporarily but they have regular income. So credit card provides an opportunity which they can do economic activities by delaying the date of payment.

In a result of wireless phone payment's case study, this service targets on second of non-customer who can't use online payment because they concern about security or have to take a complex process and learn how to use online payment method. Therefore, wireless phone payment provides very convenient payment method. Especially, it made group of young pay for a little money without a credit card.

Case study result of PayPal, online payment service, shows that it targets on second tier of non-customer who reject

to use online payment service because of concern about sensitive information leaks such as passwords and credit card details. Accordingly, PayPal service allows users to pay online without a provision of sensitive information.

Final Square case result, Mobile POS -based payment service, also shows that it targets on second tier of non-customer who can't individually transact offline because of cash's shortness. Hence, Square provides dongle which function as POS by putting dongle in earphone terminal.

As a result, four cases made non-customer their customer so that they could penetrate early market and had been extended their market share.

Consequently, all cases supported the hypothesis and it is highly probable according to 'analytic generation' that case study methodology suggests.

We present for judging the quality of research designs the following. Construct validity, internal validity, external validity, reliability are common to all social science methods, these have been summarized in numerous textbooks(Yin, 2014). In case study methodology, these also have served as a framework for assessing a large group of case studies (Gibbert, Ruigrok & Wicki, 2008). Construct validity is to identify correct operational measures for the concepts being studied. To satisfy construct validity, we use multiple sources of evidence such as the academic journals, magazine and articles etc.

Internal validity is to seek to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships. To satisfy internal validity, we do explanation building through four cases analysis. External validity is to define the domain to which a study's findings can be generalized. To satisfy this, replication logic in multiple case studies is used.

Reliability is to demonstrate that the operations of a study - such as the data collection procedures- can be repeated, with the same results. To satisfy this, we use case study protocol.

In Korea, the competition among stakeholders over mobile payment industry is intensifying. Not only main three Telecom Companies but also Smartphone companies and service provider like KakaoTalk announced that they would enter into mobile payment industry. Mobile payment industry is getting competitive. But it doesn't still have momentum effect notwithstanding positive presumptions that will grow very fast.

Mobile payment services are categorized into various technology based payment service such as IC mobile card and Application payment service of cloud based, NFC, sound wave, BLE(Bluetooth Low Energy), Biometric recognition technology etc. Especially, mobile payment service is discontinuous innovations that users should change their behavior and noble infrastructure should be installed.

These require users to learn how to use it and cause infra- installation cost to shopkeepers. Additionally, payment industry has the strong path dependency. In spite of these obstacles, mobile payment service which should provide dramatically improved value as a products and service of discontinuous innovations is focusing on convenience and security, convenience and so on.

We suggest the following to success mobile payment service. First, non-customers of the existing payment service need to be identified. Second, needs of them should be taken. Then, noble payment service provides non-customer who can't pay by the previous payment method to payment method.

In conclusion, mobile payment service can create new market and will result in extension of payment market.

**Keyword :** Critical Success Factor; Payment Service; Business Model; Case Study; Literal Replication, Proposition Development, Proposition Testing; Non-Customer Analysis

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## 1. Introduction

As the penetration rate of Smartphone increases, mobile payments market is also rapidly evolving (eMarketer, 2013). Gartner forecasted that the number of mobile payment users would rise up to 266 million in 2013 globally. And Gartner reported that mobile payments in just one year increased to 44% at the end of 2013(Gartner, 2014).

Accordingly, competition is being much more heated among various business lines, including telecommunications service provider, banks, credit card companies, terminal manufacturers, distributors and so on, to preoccupy domestic mobile e-wallet service market. Likewise, overseas markets are also interested in the mobile payment market and various mobile payment services such as BLE (Bluetooth Low Energy) and Sound Wave, which combine with new technologies like PayPal Beacon and VeriFone's 'Way2ride' application, have been recently launched. However, the mobile payment service market accounts for only 0.02% of the total domestic payment market (Bank of Korea, 2013). It was surveyed that United States also had low rate of use of mobile wallet. The survey showed that 50% of U.S. Smartphone users were familiar with the concept of mobile wallet, but only 16% of them used mobile wallet and 22% would use it in future. The remaining 62% had no intention to use it (Baily, 2013).

In terms of the awareness of mobile payment service, PayPal was mentioned first and followed by Google Wallet (41%), MasterCard's

PayPass Wallet (13%) and the rest, Square wallet, Visa's 'V.me' and ISIS remained just in one-digit number. The actual rate of using mobile payment service showed Wallet (8%), MasterCard's 'PayPass Wallet' (3%) and Square wallet, Visa's 'V.me' and ISIS were all slightly over 1% (comScore, 2013). As known in the survey of consumer's awareness and actual use rate of mobile payment service market, the mobile payment service market is still in its beginning stage and there is no leader yet.

In academic circles, studies have been in progress since the early 21st century on mobile payment service. Particularly in the field of information systems, studies have been carried out on payment system from the perspectives of Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB). Among those 3 theories, Davis (1998)'s Technology Acceptance Model (TAM) has been acknowledged as a model simple and powerful to explain the acceptance and use behavior of information technology. The model has also been applied to the studies of adoption factors of mobile payment services. Researchers have emphasized found that most influences a lot of mobile payment services adoption factors, convenience (Amin, 2007), ease of use (Amin, 2007; Yang et al, 2012) and security (Shin, 2009) as the most influential adoption factors over mobile payment services. However, it has been shown in the market that the payment services with the same technology results in different outcome.

In other words, it is thought that only the adoption factors that existing researchers have proposed are not sufficient in explaining the success factors of new payment services in the market. For example, an NFC-based mobile payment service makes it possible to make payment just by touching a NFC reader with Smartphone, without having to take out a physical wallet. Despite such convenience, Google's NFC-based Wallet service is not successful in the United States. On the other hand, 'PaybyPhone', which is NFC-based mobile parking payment service, allows users to pay parking fee through QR codes or NFC without a coin. The users are alarmed when their time amount paid has elapsed and can extend parking time with their phones. Therefore, PaybyPhone removes the inconvenience of existing coin payment system.

Showing low rate of its use, NFC-based Google Wallet service seems to have failed in the market in fact, whereas PaybyPhone gained about 20% to 30% of additional revenue more in San Francisco by implementing the payment service. This is the very example that the adoption factors suggested by previous studies are not critical success factors for new payment services.

In this respect, the present study began with the doubt that the adoption factors proposed by precedent researchers do not have critical impact on the success of a new payment service. Therefore, this study aims to find more fundamental and decisive success factors of new payment service from the perspective of creating a new payment market.

To do so, it analyzed the success cases of new payment services found during the evolving process of the payment service market. From the analysis of those actual cases, the present study maintains that a new payment service has to provide those who haven't used or been able to use existing payment service with new means of payment to go into the mainstream and to be universally adopted by the public. Therefore, the present study will demonstrate its hypotheses by analyzing non-customer segments of the existing payment services and finding out what non-customer segments successful services targeted and what services they provided them as payment means.

## **2. Theoretical Background**

### **2.1. Characteristics of Payment Services**

Lee et al. (2012) characterized the development processes of payment business model with 3 attributes. First, payment service has grown with the development of information and communication technology. For example, credit card faced innovative transition in its payment system as value-added network (VAN: Value Added Network) providers emerged. And the development of Internet technology bore Internet payment service and the wide distribution mobile phones created a new payment business model such as 'small sum payment' through mobile phone. In recent years, as Smartphone rapidly spread, a new type of mobile payment service has emerged such as 'mobile

credit card', which combines credit card and mobility.

The second attribute is path dependency. When selecting means of payment, users have strong tendency to stick to existing means of payment unless a new payment service provides apparent and drastic benefits different from the existing ones. As a result, every country and region has different practice of payment and settlement (Jang, 2012). Even a new payment service presents more convenient and better benefits to users, they wouldn't easily change existing means of payment (behavior path), which can be explained by the concept of path dependence (Lee, 2006; Park, 2014). For example, mobile wallet, which was provided by SKT and KT and in use now, enables users to make payment with payment information saved in their phones, without carrying physical wallet. Furthermore, the service provides them with convenient and beneficial services like coupons and mileage management. Therefore, when understood only from the viewpoint of convenience and benefits, mobile wallet is a more efficient means of payment than cash or credit card. However, the use of the new payment service accounts for only 0.05% of the total payment market, except young user segments, because it requires users to learn how to use the new mobile payment system.

Finally, payment service develops by consensus among various interested parties. Payment service is mainly led by financial institutions, mobile telecommunication service provider and payment and settlement provider. They are also in

partnership with several entities such as terminal manufactures, USIM (Universal Subscriber Identity Module) manufacturers and certification agencies. Sometimes, they form a competitive relationship in order to take an initiative.

## **2.2. Success Factors of Payment Services**

The researches in the field of management information system have been carried on payment services, mainly focusing on behavioral theories such as Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB). In particular, Davis (1998)'s Technology Acceptance Model (TAM) has been acknowledged as a model simple and powerful to explain the acceptance and use behavior of information technology. Recently, studies have been actively conducted on the adoption factors of mobile payment service, being based on TAM. This chapter reviews major precedent studies related to payment services with critical mind in order to identify the limitations of the theories proposed in the studies and find out success factors for a new payment system. The previous studies related to payment services mainly tried to find adoption factors on the basis of TAM and intention for continuous use.

The Bank of Japan (2002) pointed out transaction cost as an influencing factor over the users' adoption of a new means of payment and assumed that they are rational economic subjects that decide means of payment in accordance with total transaction cost. However, as Simon (1979)

argued, human beings begin to explore alternatives with a certain level of expectation. If they find an alternative that meet their expectation, they stop searching other options. Therefore, they are economic actors with limited rationality. This attribute involving in payment service has something to do with path dependency. In fact, most of people do not bother to choose other means of payment as long as existing means of payment provides them with services exceeding a certain level of their expectation.

Ahn et al. (2006) suggested convenience, security, cost efficiency, high penetration rate of mobile phones and payment immediacy as the success factors for small sum payment service through mobile phone. However, it is true that the cases of damage involving small sum payment by mobile phone more than doubled up every year from 2011 to 2014. Specifically, 43% of such damage cases are that consumers had to pay for the use of contents though they have never subscribed to the web site that provides the contents or used any of the contents. In fact, the more fundamental reason why small sum payment service by mobile phone has settled down as a major means of payment, creating a new payment market is that it provided a new payment way to those who were not able to use existing online payment system.

It was credit card that was being used most universally in July 2000 when small sum payment service by mobile phone was first introduced. However, payment system by credit card lacked security in a way they card holders' personal

information leaked illegally. Therefore, consumers had anxiety about using credit card. Furthermore, they had to go through complex credit card payment processes to pay for contents only worth of hundreds won. Besides, there was e-coin service, which was a form of pre-payment service, but it required a high fee of 30% to 40%. Therefore, online e-commerce companies hesitated to use the service. For general consumers, they had to purchase e-coins every time they used the service. It was inconvenient. Like these, the means of payment prior to small sum payment service by mobile phone had a factor to cause users of online contents to go through inconvenience and discomfort.

EM Game, which is an Internet contents provider, first introduced mobile phone-through small sum payment service. When it first introduced the service, the company gained a great deal of revenue by satisfying the needs of consumers who wanted to purchase items to decorate their own Avatars with and present others as gift. As this success case became known, online commerce businesses that hadn't been able to sell contents under the then-payment system adopted mobile phone-by-small sum payment service and succeeded in charging users for the contents. For users, those who hadn't been able to use the existing payment services such as credit card or online bank transfer also welcomed the new payment system. As a result, a new payment market (small sum payment by mobile phone) was created and has grown rapidly (Kim , 2010).

In the study of the success factors of

Mondex card, which is cash-charged payment system, Clemons et al. (1996) emphasized the importance of 'critical mass' and thus asserted that the success of Mondex card depended upon 'channel power (the number of franchisees secured)'. Mondex card has monetary value in itself, so that it doesn't not necessary to obtain remote approval for individual transaction. Instead, Mondex value, equivalent to cash, is embedded in the microchip of the card and a security program is installed in the chip, by which the value is processed or a Mondex card can be connected to other Mondex cards or to a terminal. Therefore, when a customer presents the card to POS terminal of a store, a certain amount is approved to be paid and automatically withdrawn from his or her Mondex chip. At the same time, the same amount is deposited into the chip of the store. Seen from the perspective of value offer to consumers, they do not need to carry cash as long as their Mondex cards have been charged with cash because they can pay out immediately at the point of presenting the card to POS terminal. Therefore, Mondex card offers the users with the similar level of payment convenience to cash or credit card.

For the case of card loss, Mondex card had also security system featuring a unique function to seal card value, using 4-digit personal identification number. The payment system launched a pilot business in the world including UK, U.S., Canada and Netherlands from 1995. It seemed successful in securing early markets at first. However, the business had to be folded in April 2005. This case evidences that the early successful adoption of a

new payment service does not guarantee success of business. In fact, many new payment services have failed in jumping over chasm in initial market and buried. Therefore, the present study intends to define the success of a new payment service as 'not only successful adoption in early market but also successful and continuous adoption in mainstream as payment service'.

Another example of eventual failure even after successful early adoption is Octopus, which was electronic currency.

Chau and Poon (2003) derived such success factors as ease of use and payment speed through the case study of Octopus service. Octopus, which was electronic money, was introduced in market in 1997. At that time, 580 million users possessed Visa cards and 3.8 million people were MasterCard holders. However, it got successful as much as 70% of Hong Kong residents used Octopus cards. They primarily used the cards for the payment of transportation fee. Since an Octopus card holder didn't need to take out a physical wallet to purchase a ticket but just placed the card to the card reader. Therefore, Octopus card was much more convenient than credit card or cash, which were then main means of payment for transportation fee. Especially, the card was more adopted due to its short time of payment at a crowded environment such as commuting time.

However, as general credit cards were integrated with a similar transportation fee payment function to that of Octopus, electronic currency services such as Octopus, K-Cash, Mybi,

A Cash, Visa Cash, Mondex and others suffer low rate of use (Jang, 2006). Mondex eventually failed in the mainstream market despite of success in early market. And Octopus also had a bad success though it was expected to successfully enter the mainstream market and keep growing. Mondex had to satisfy itself only with gaining a part of market share through substituting for existing means of payment, but eventually failed in securing a new payment market. Octopus, as well, had reached only to the success level of substituting cash and credit card with its electronic money card as means of payment for transportation fee.

Treiblmaier et al. (2008) suggested 'ease of use' and 'confirmation process after transaction' as the key success factors for Internet payment system. They maintained that a payment service provider had to provide customers additional benefits, protect privacy and endure security for its

new online payment service to be adopted by customers. As Treiblmaier et al. (2008) proposed, PayPal service, which is one of the major payment services in the United States, shows different market shares by nation, where it is in service, though it provides the same level of services in the world including the United States and Austria. The service hasn't been even adopted in Korea. Although PayPal service provides the markets with the same success factors as suggested by existing researchers (ease of use, convenience, security and confirmation process after transaction), it is not still adopted in Korean payment market because it has failed to provide the non-existing payment service with suitable services to meet their needs.

On the contrary, PayPal service gained a success in the United States because it met the above-mentioned success conditions. It is reasonable to think that PayPal service has failed in Korean

〈Table 1〉 Critical Success Factors of Payment Service

	Author	Factors
CSF of Phone bill	Ahn (2006)	Ease of use, Secureness, Financial benefit, high penetration rate of phone, Instancy of payment
CSF of Internet Payment	Shon & Swatman(1997)	Acceptability, Anonymity, Authentication, Duration of transaction process, Ease of use, convenience, Flexibility, Low transaction cost, Privacy, Profitability, Cost-effectiveness, Regulatory Framework, Reliability, Trustworthiness, Scalability, Security, Traceability, Universality
	Clemons(1996)	Critical Mass
	Poon and Chau(2001)	Standardisation, Critical Mass
	Treiblmaier & Pinterits (2008)	Ease of use, Speed, anonymity, confirmation
Adoption Factors of Mobile Payment	Heijden(2002)	- Customer acceptance: Cost relative to substitutes, Ease of use relative to substitutes, Perceived risk - Merchant acceptance: Cost relative to substitutes, Ease of use relative to substitutes, Perceived risk
	Amin(2007)	Reliability, knowledge of service, Ease of use, Usefulness of use
	Shin(2009)	Security, Reliability

market because Korean payment market has already been occupied by mobile phone-through small sum payment service, which satisfies the needs of non-customers of existing payment service. In other words, PayPal failed in winning the non-customer segments of existing payment service and as a result has a limitation to growth in Korean payment market.

The studies upon payment services have mainly been executed with behavioral theories. Since Technology Acceptance Model (TAM) aims to explain the acceptance of a new payment service, this model is limited to forecasting acceptance in an early market. However, the present study aims to derive the 'eventual' success factors of a new payment service. Therefore, TAM is not considered to be a suitable methodology to support this study.

In the next chapter, the author shows methodology for the case studies and explains the reason for the selection, the objective of the study and analysis unit. In addition, the author attempts to verify the hypotheses and discuss the suitability of the methodology applied for the case studies.

### **3. Analysis of Success Cases of Payment Service**

#### **3.1. Methodology for Case Studies**

The hypothesis for the success factors of payment service was set based on the cases of Google and PayByPhone, which were reviewed in

Introduction. It is "To succeed in payment market, a new payment service provider has to provide non-customers of existing payment service with means of payment that they can use". To test the hypotheses, the present study applied Non-Customer Analysis Method proposed in Kim and Mauborgne (2005)'s Blue Ocean Strategy. With the methodology, this study analyzed non-customer segments of existing payment services and their needs, examined how new payment services secured those segments and succeeded in the mainstream market. By doing so, the study decided whether to accept or reject the hypotheses.

##### **3.1.1. The Purpose of Case Studies**

The hypotheses 'A new payment service can succeed in a mainstream market if it can provide non-customers of existing payment services with means of payment' can be verified in the following processes. Success cases as a new payment service were selected. 3 non-customer segments of existing payment service that a new payment service targeted were analyzed. And confirmation was made on what needs each of the segments had and what successful benefits a new payment service provided to the segments. Eisenhardt et al (2007) suggested as the procedure of case study setting of research objective, selection of cases, selection of case tool and protocol, data collection and analysis, cross analysis of cases, derivation of theory and verification of theory and literatures. Based on his procedure, the present study carried out the case studies as Table 2.

〈Table 2〉 Case Study Procedure

Steps	Explain key contents to study
Objective	Present the objective of case study
Case Selection	Select cases suitable for the objective
Analysis Tool and Protocol	Propose tools and protocols necessary for case analysis
Case Analysis	Carry out case analysis (by case)
Hypothesis Test and Findings	Verify the hypotheses based on the results from the case analysis
Suggestion	Make suggestion for a new payment service based on proven hypotheses and findings

### 3.1.2. Case Selection and Analysis Tools

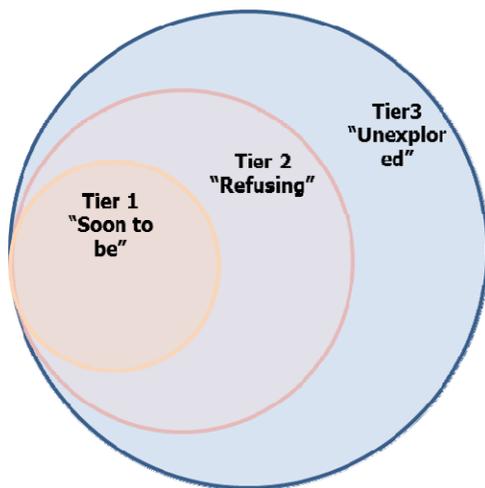
Before analyzing and finding out the success factors of a new payment service in the mid of existing dominant payment and settlement services, the most important step to take is to select the appropriate cases that serve the objective of the search the most. Of the selection methods of a case suggested by Seawright and Gerring (2008) in Table 3, the present study chose Diverse selection method and Typical selection method and combined them. Diverse selection method is to categorize research areas. Accordingly, payment services were

categorized by type as in Table 4 and the cases that can most represent each category were selected according to Typical selection method. As a result, the most representative payment services were selected from each category. They are 'Diners Card', which was the first credit card in the business, in credit card category, 'Danal' in the category of mobile phone-based small sum payment service, 'PayPal' in the category of email-based payment service, 'Square' in the category of mobile phone POS-based payment service.

〈Table 3〉 Case Selection Method

Method	Characteristics
Typical	Select the most representative cases
Diverse	Categorizing research interests, select one case out of each category and choose extreme and median cases
Extreme	A Good selection method in case that the number of cases is great. Choose the most extreme cases because there are dependent and independent variables.
Deviant	A Good selection method to apply to a research area, which is new so still unclear
Influential	A Method used to modify variables that are wrongly measured or omitted thought it might have a great impact on the overall case analysis
Most-Similar	Similar to Diverse selection method. Selecting 2 similar cases at least
Most-Different	Similar to Diverse selection method. Select 2 different cases at least

Non-customer analysis suggested by Kim and Mauborgne (2005) was employed as analysis tool for each case. [Figure 1] shows 3 tiers according to the distance from the market. The first tier is a group of non-customers who use existing goods and services at a minimum but are regarded as non-customers in terms of psychological attachment to them. The second tier is a group of non-customers who consider the goods and services provided by existing market as worthless so they do not use them or financially unable to consume them. The third tier is a group of non-customers whom no company or industry has targeted so far or considered as potential customers.



[Figure 1] Non - Customer Analysis (Kim and Mauborgne, 2005)

- Tier 1: "Soon-to-be" noncustomers who are on the hedge of your market waiting to jump ship.
- Tier 2: "Refusing" noncustomers who consciously choose against your market.
- Tier 3: "Unexplored" noncustomers who are in markets distant from yours.

## 3.2. Case Study

### 3.2.1. Credit Card: Diners Club Card

Credit card is one type of payment methods that a credit card company lends funds to a credit card subscriber on the basis of his or her credit status and the subscriber pays it back later. Credit cards are issued by credit card companies only approved by the Financial Supervisory Commission. Credit card is a sort of certificate with which a credit card holder can purchase goods or service at a credit card member (affiliate) store when presenting it (Kim Sang Bong & Lee Bo Woo, 2010). It is commonly known that a credit card made its first appearance in a department store in the United States right after the First World War. Although not like the current form, department stores issued credit cards to their best customers in a form of label. It evolved in 1924 in a way that credit card was used to purchase gas for Ford automobiles. In 1950, Francis X. McNamara who was running a small-sized private financial company called Diners Club in New York lent the cards of those who possessed multiple department cards to his acquaintances.

And he borrowed funds from a general Diners Club that asked to pay for the use and paid card payment. He gained profit out of the gap between the interest that his acquaintances paid to him and the interest he paid back to the financial company. Like this, he conceived an idea of financial function from the department cards and thus issued credit cards for restaurants. At first, the credit card made of paper board bore the name and

〈Table 5〉 Non-Customer Analysis of Cash Payment Service

Non-Customer Groups	Non-Customer Analysis
The First Tier	Having purchasing power but out of cash at the moment
The Second Tier	Temporarily out of purchasing power but can potentially recover economic power
The Third Tier	Without chance of having or recovering economic power.

bank account numbers of a card holder on its front side and 28 names of restaurants and night clubs where the card could be used on the back side. Annual membership fee was set 5\$. It is the origin of the current Diners Card. It was the first credit card much evolved from the conventional concept such as department card or gas card. Most of the present credit cards are what have evolved from Diners card.

〈Table 5〉 analyzed non-customer groups using cash which was the payment method before Diners Card and divided them into 3 tiers. The first layer is characterized with non-customers that use existing market least but psychological resist to be customers of it. They are non-customer group with lack of purchasing power until having the power since they do not possess enough cash in hands. The second tier is a customer segment temporarily out of purchasing power but can potentially recover economic power. The third layer is a group of customers with no potentiality of having economic power.

As a result, Diners Card provided a new payment means to the first tier [...Having purchasing power but out of cash at the moment...] of non-customers of cash payment service market. By doing so, Diners Card could create a new payment market called 'credit card'. Credit card

payment also provided existing customers of cash payment as well as non-customers with convenience of not carrying cash but being able to make payment. Furthermore, Credit card payment service became a new payment method to existing customers who needed to keep cash. They could extend payment terms with the credit card. Therefore, credit card became adopted by the public as a new payment method though there was a dominant means of payment, cash.

### 3.2.2. Mobile Phone-Based Small Sum Payment: Danal

Mobile phone-based small sum payment was the payment method based on the world's first one-time password (OTP), which was developed in early 2000s in South Korea. The payment service provided convenience to those who didn't have a credit card or felt inconvenient with entering card numbers, effective date and passwords though having it (Lee et al., 2012). Mobile phone-based small sum payment service didn't only develop domestically but also spread to international arena (Park, 2011) and played a role as complementary Infrastructure to form and promote contents industry (Whi, 2002).

〈Table 6〉 analyzed non-customers of online payment services. The first tier of online payment

market is a customer segment that can't be issued with a credit card, so they have to use bank transfer to make payment.

They cannot help but use bank transfer, taking inconvenience. Therefore, they can take other payment method than bank transfer as long as there is a more convenient way of payment. They belong to the first tier of non-customer group that uses existing online payment service to a minimum but is regarded as non-customers in terms of psychological attachment. The second tier includes the groups of non-customers that are suspicious about the safety and security of online payment service; thus intend not to use it consciously; need pre-education due to the complexity of online payment and thus refuse to learn it consciously; and minor group that can't issue with a credit card and has no means of payment for contents. The third tier is non-customers that do not use electronic commerce and thus don't need to use it.

Mobile phone-based small sum payment targeted consumer segments that couldn't be issued with a credit card due to lack of economic power

and did not possess a bank account, so they could not use existing means of payment for online contents. When mobile phone-based small sum payment service was first introduced in Korean payment market, online Avatar chatting was very popular and consumers tended to have high demand of various items worth of small money. To keep abreast with the social trend, contents providers adopted mobile phone-based small sum payment service in which a user needed to simply and only enter mobile phone numbers and residential registration numbers and receive authentication numbers, rather than credit card that required several payment processes even for purchase of small amount. Doing so, the contents provider could gain handsome amount of sales and profit.

These factors encouraged online commerce companies and general users to adopt mobile phone-based small sum payment service. As a result, mobile phone-based small sum payment service made its successful landing in Korean payment market as a new means of payment even among dominant tools of payment such as credit

〈Table 6〉 Non-Customer Analysis of Online Payment Services (South Korea)

Non-Customer Groups	Non-Customer Analysis
The First Tier	User segments that feels inconvenience with use of credit card or bank transfer
The Second Tier	<ul style="list-style-type: none"> <li>- Minor layers that can't be issued with a credit card and has no means of payment for the purchase of small contents</li> <li>- Customers that are suspicious about the safety and security of online payment service and thus intend not to use it consciously</li> <li>- User segments that need to learn about online payment due to the complexity of online payment and thus refuse to learn it consciously.</li> </ul>
The Third Tier	Customer groups that do not use electronic commerce and thus have no needs of it

card and bank transfer. It was only possible because mobile phone-based small sum payment service provided non-customers of existing payment services with a new means of payment. In addition, mobile phone-based small sum payment service cleared users of inconvenience of existing means of payment such as entering finance-related personal information such as credit card numbers, effective date, passwords and bank account numbers account. As a result, the new small sum payment service secured both customers and non-customers of existing payment services. It resulted in expanding existing online payment market.

### 3.2.3. Online Payment Service: PayPal

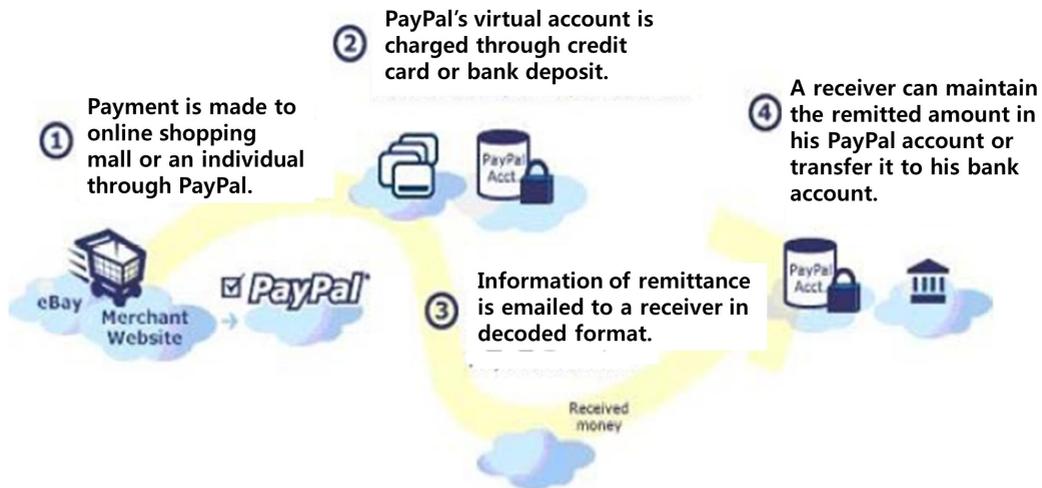
PayPal, which is an Internet-based service provider of P2P payment service provider, was established in 1998. It grew on the ground of the increase in small online sellers and person-to-person online auction sites. It was merged to eBay in 2002. Since then, it has rapidly grown along with eBay and become the online payment service provider with the largest online accounts. To order to use PayPal, users has to enter some information such as name, address, telephone number, email address and others and select an account most fit to his or her purpose among 3 types of accounts: Personal, Business, Premier. Then consumers connect their own PayPal accounts to their credit cards, debit cards or/and bank accounts and pay sellers for goods and service they purchase. Establishing itself as a trustworthy intermediary in

e-Commerce market, PayPal can raise revenue by imposing some fee on all the transactions for which it provides a payment service (Jeong et al., 2008).

[Figure 2] shows the online payment process of PayPal. The online payment process of PayPal is based on virtual accounts. To make the online payment or make a person-to-person transfer, a user has to have balance in his virtual account. If balance is not sufficient, he has to charge it through credit card payment or cash deposit. The contents and information of remittance are sent to a receiver by decoded e-mail. Remitted amount is deposited in PayPal's virtual account and the receiver retains the virtual account to transfer to his bank or cash out.

Jeong et al. (2008) viewed the success factors of PayPal in U.S. market as follows. Americans are psychologically reluctant to disclose the information of their financial transactions to sellers. That is why they do not open their financial information such as credit card numbers on online transaction. Instead, they like such service as PayPal because the service enables a remitter to transfer money to a receiver if the former doesn't know the latter's real bank account numbers. In addition, the receiver can't also know the remitter's bank account information. So the service minimizes the disclosure of personal information.

Non-customers of U.S. online payment service are shown in <Table 7>. The first non-customers of online payment service is the group that use online payment service but are



[Figure 2] PayPal Payment Process (Source: PayPal)

reluctant to open personal finance information and feel uncomfortable with online payment. The second tier is a group of non-customers that are concerned about the complexity and security of online payment service and thus feel resistant to its use consciously. The third tier is the group of consumers who are excluded from financial activities.

At the time when PayPal was founded, the United States had poor check payment method and online payment service was premature. As eBay, a person-to-person auction site of used goods,

replaced traditional payment method with PayPal, which is an online payment service, PayPal grew rapidly. Installation cost of online payment system was very high barrier for small-sized online commerce traders. PayPal removed such barrier on behalf of them and allowed them to do business on online by paying just a certain amount of fee. Eventually, Paypal succeeded in meeting the needs of the second tier of non-customers who used to refuse online payment service due to its poor condition and could create a new payment market. Just like mobile phone-based small sum payment

<Table 7> Analysis of Non-Customer Groups of U.S. Online Payment Service (From payer's aspect)

Non-Customer Groups	Non-Customer Analysis
The First Tier	The customer groups that use online payment service but are reluctant to open personal finance information and feel uncomfortable with online payment
The Second Tier	The user segments that are concerned about the complexity and security of online payment service and thus feel resistant to its use consciously
The Third Tier	The group of consumers who are excluded from financial activities

service, PayPal attracted even the first tier and thus could grow rapidly, expanding U.S. payment market.

3.2.4. Mobile POS-Based Payment Service: Square

On May 2010, Square launched a mobile POS-based payment service that can establish payment environment once a small card reader is installed in Smartphone. Since it didn't require installation cost and fee was low (2.75%), the number of Square member stores grew very rapidly from 1 million in 2011 to 3 million in early 2013. Square allowed small-sized merchants to equip themselves with payment infrastructure just by installing card reader, Smartphone and seller's application (Square Register) for free except card reader. Square Register analyzes not only payment history but also enables Smartphone to work like POS such as issuing receipts. As Square introduced 'Square Wallet' for consumers, which is an application payment method, in May 2012, they searched stores nearby and checked in, and could make a payment just with one's name open, without presenting cash or credit card.

Launched in May 2013, iPad-based POS 'Square Stand' is interlinked with a receipt printer

and ATM and provides the service of sales data analysis. Recently (June, 2013) Square launched 'Square Market', which is online commerce platform, and provides a platform for small-sized merchants and stores to establish online sales channel for free. It imposes only 2.75% of sales as transaction fee. The very reason why Square has successfully evolved from 2010 up to now is that it provided the non-customers of existing payment systems with a new payment tool and took them as its customers. (Sung, 2013). To examine the success factors of Square more precisely, it is necessary to understand American cultures.

Garage sales are popular in the United States. It is an individual trading for used house goods, which sellers usually place in their warehouse or in front of garages. This trade usually requires cash. Square provides a payment method by which a user can use credit card for a person-to-person transaction when he doesn't hold cash at early use of the service. It got much favored. <Table 8> shows how Square provided payment method to non-customers of cash payment service from buyer's point of view. The first tier of non-customers of cash payment is the groups of customers who feel restricted from transaction due to the lack of cash. The second tier is the

<Table 8> Analysis of Non-Customers of Cash Payment Service (From payer's aspect)

Non-Customer Groups	Non-Customer Analysis
The First Tier	The groups of customers who feel restricted from transaction due to the lack of cash
The Second Tier	The consumer segments that are economically capable but temporarily out of cash at the moment, so that they can't do a person-to-person transaction
The Third Tier	The groups of customers that are not economically able and have no chance of holding cash

〈Table 9〉 Analysis of Non-Customers of Credit Card Payment Service (From small retailers' aspect)

Non-Customer Groups	Non-Customer Analysis
The First Tier	Credit card member stores that feel heavy on fee and cost of installing payment infrastructure
The Second Tier	Small businesses that can't introduce credit card payment system due to the high fee and cost of installing the payment infrastructure
The Third Tier	Businesses that are not related to both online and offline commercial transactions

consumer segments that are economically capable but temporarily out of cash at the moment, so that they can't do a person-to-person transaction. The third tier is the groups of customers that are not economically able and have no chance of being able so. Square provided a new payment method to the second tier and created a new payment market.

Since Square was recognized as a service by which personal transaction can be done by credit card in initial service, it was adopted by small-sized merchants and companies in a rapid rate. Particularly, Square targeted such small-scaled businesses that were not able to credit card infrastructure for themselves due to burdensome cost of installation and it was right on it. [Table 9] shows the analysis of non-customers of credit card payment service from the perspective of small retailers. Square won the second tier of non-customers who couldn't introduce credit card payment system due to the cost burden of installing the payment infrastructure. The second tier consisted of 27 millions of U.S. small retailers of whose two third were not able to install credit card payment system due to high fee. Square provided them with free credit card payment

environment (except card reader) and low rate fee of 2.75% (Sung, 2012). As a result, Square could succeed in creating a new mobile POS-based payment market.

### 3.2.5. Case Study Results

The analysis of the success cases found that all of the successful services (credit card payment, mobile phone-based small sum payment, PayPal and Square) succeeded in providing a new means of payment to non-customer groups of existing payment services. The successful credit card payment service offered a new way of payment to the first tier of the non-customers of cash payment services while mobile phone-based small sum payment service did so to the second tier of the non-customers of online payment services.

PayPal presented email-based payment service to the second tier of the non-customers of U.S. online payment services while Square provided mobile POS-based payment service to the second tier of the non-customers of cash payment services (from user's perspective) and the second tier of the non-customers of credit card payment services (small business runner's point of view). The common of all these successes is that they

〈Table 10〉 Confirmation of Hypothesis

Hypothesis	Case	Conformation
To succeed in existing payment market, a new means of payment service has to be presented for the non-customers of existing payment services to use.	Credit card	Supported
	Mobile phone-based small sum payment	Supported
	PayPal	Supported
	Sqaure	Supported

provided a new payment method to non-customers of existing payment services and thus could settle down as a key payment tool, which led to sustainable growth. Accordingly, the findings from all 4 case analyses support the hypothesis of this study as in [Table 10].

### 3.2.6. Validity and Reliability of Case Study

The validity and reliability of a case study, like other research methodologies, are divided into construct validity, internal validity, external validity and reliability. [Table 11] shows the criteria of research design at each step of research design, data collection phase, data analysis and reporting. Construct validity, internal validity, external validity and reliability are the universal research methods of social science and many researchers have suggested ways to verify them.

Yin (2011) proposed verification methods for case study as shown in the following table. Construct validity is a criterion of the accurate measurement of a concept to be studied. To secure construct validity, this study used a variety of data sources including documented information (the primary data) such as books, journals, newspapers and famous internet sites and records (the secondary data) to make a chain of evidences and ensure objectivity.

Internal validity is to examine if there is the causality between independent and dependent variables and whether there could be spurious relationship between them. To secure internal validity and explain the causality of the hypothesis, the present study chose the exploratory method of causality in which a series of processes such as evidence examination, modification of theoretical proposition and re-collection of data from different

〈Table 11〉 The Criteria of Validity and Reliability of a Case Study (Yin, 2011)

Verification	Case Study Strategy	Steps of Strategy Application
Construct Validity	- Use a variety of data sources (Triangulation) documented information (the primary data), records (the secondary data)	- Data collection
Internal Validity	- Explain causality	- Data analysis
External Validity	- Use the logic of repetitive research for multiple case study	- Research design
Reliability	- Make a case study protocol	- Data collection

angle are repeated. External validity is to know if the findings of a study can be generalized. Therefore, this study used the logic of repetitive research in which the proposed hypothesis is repetitively applied to each case. Last, reliability means the same results by the studies with the same procedure of data collection. To establish reliability, this study used a case study protocol that documents the objective of research, data collection method and research procedure. By doing so, error and prejudice can be minimized when other researchers take on the same research to mine.

#### **4. Evaluation on Mobile Payment Service**

The market for worldwide mobile payment in 2013 grew by 86% from the previous year to 223 billion dollars and the market for 2014 is estimated to grow to 393 billion dollars (Strabase, 2013). In 2013, the growth in mobile payment services in the form of m-POS is particularly notable through cases of PayPal, Square, and Intuit. Korea's mobile payment market grew by approximately 14% year on year in 2013 but small payments using mobile phones accounted for the most at 74.5%, followed by mobile credit cards at 7.3%, and e-currency at 14.3% (DMC Media, 2013). Financial institutions and telecom companies have launched their own mobile wallet service, heating up competition but only 13.7% is said to be using financial institutions' mobile wallet

service, indicating that the telecom companies have the upper hand in the market as of now (Strabase, 2013).

In the next chapter, we will evaluate whether various mobile payment services will succeed or not based on the theses that we have drawn.

##### **1) Short-distance P2P payment**

PayPal, which is one of the most representative P2P payment services, uses NFC technology to allow individuals to wire money. The sender and recipient install the PayPal app on their phones and bump their phones with each other, after which the wiring information is entered. This service appears to be practical when one does not have cash or a credit card at hand but this would be the rare case. Most people carry cash or credit cards and therefore they will not necessarily opt for this payment method. They could also use the Venmo method, which we will look at shortly. In conclusion, there is a small necessity for this service and therefore not much value to users.

##### **2) NFC Card Emulation Payment Service**

Google offers Google wallet that doesn't require NFC technology. This can be seen as the definitive ruling that NFC's card emulation method does not have much efficiency in the payment service industry. American telecom companies AT&T, T-mobile and Verizon have been preparing since 2010 a mobile payment service called 'Isis' and launched in 2013 an NFC based payment service but it is too early to tell whether it will

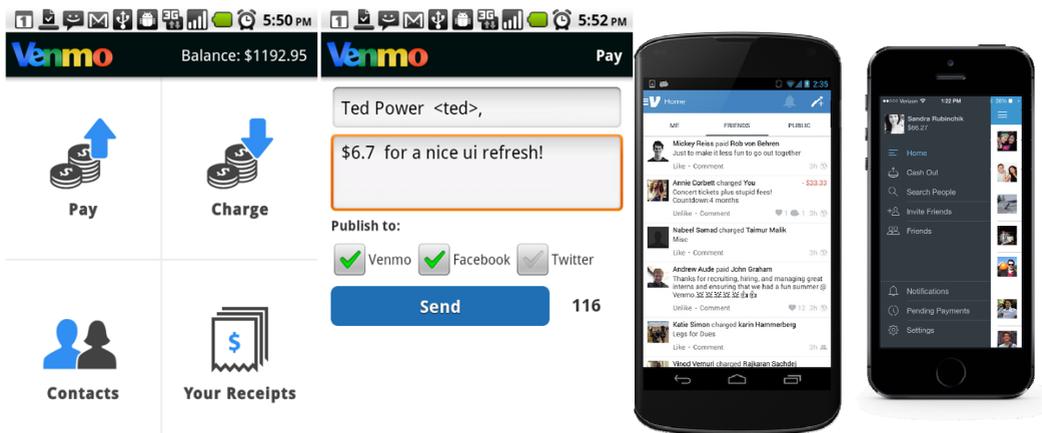
succeed. Given the fate of Google wallet, the future is not that bright. President Reiter expressed a negative stance on Isis given that customers do not have a reason to use Isis instead of the existing services such as Google Wallet, PayPal or Square (Strabase, 2013), and this researcher, too, analyzes the failure of Google wallet as follows. The sellers and buyers can transact with each other without using this service. That is, it failed in creating a new market. Isis service requires a SIM card with a secure element to store confidential data such as information on credit cards or bank accounts and this SIM card can be ordered online or received for free in exchange of an existing SIM card at a mobile telecom outlet. The future of Isis service needs to be seen but the likelihood of success is very low given that it failed in creating a new market. The fact that a secure SIM card needs to be issued and the smaller number of stores where the service can be used are also obstacles. But the biggest reason is that sellers and buyers can use

alternatives such as cash or credit cards without resorting to this service.

### 3) Mobile Money Transfers

This is a method of wiring money using mobile to someone who is at a remote distance. PayPal was one of the leading services that were online and the app Venmo is the leader in money transfers through a mobile payment app. Launched in March, 2012 the ‘Venmo’ app is a P2P payment service under PayPal and as can be seen in [figure 5.3], has added a social platform trait. Users enter their bank account or associated debit card or credit card numbers, select acquaintances using their ID, phone number or email, then input the amount to be wired along with a message. The click on the ‘Pay’ button completes the wiring.

It also allows wiring to those without a ‘Venmo’ account, who can later sign up to receive the money. There is also a feature that reminds



[Figure 3] Social Feed Service and Interface of Venmo

someone to pay what they owe through a 'wiring request'. Through the sharing option you can make the wiring private but it is also possible to link it to the social newsfeed on Venmo's own platform or on Facebook or Twitter. Wiring through a debit card or bank account are free while if a credit card is used there is a 3% fee as seen in [Table 3]. One of the biggest reasons for 'Venmo's popularity in the USA is because you can exchange money without using cash or checks. Personal transaction between individuals in the US are more frequent compared to in Korea. This is due to the 'dutch treat' culture where costs are equally shared. But still many people use personal checks or cash and if you don't have cash you have to find an ATM. Transactions between individuals without using cash requires that online-based PayPal service or m-pos based mobile payment Square needs to be used. In contrast with these two, Venmo allows users to exchange money on the spot without any additional device. Because Venmo can substitute for existing payment methods, there is a high likelihood for its success in the future.

Email-based P2P payment services such as Google wallet and Square Cash have the advantage of allowing wiring to acquaintances but has less competitiveness than Venmo where you can wire using email, phone number or name. Square Cash meanwhile, does not offer wiring through credit cards and therefore even existing users would turn to Venmo.

#### **4) Digital Wallet based on Smartphone**

Digital wallet service is being launched in the US as a new payment method. Square, PayPal, and Lemon are some of the companies that offer this service. Square Wallet users register using their bank card and photo and when they make a payment at a store, the seller verifies by cross-checking with the photo that shows up on the store device. PayPal, too, offers a similar photo-based verification system but unlike Square that uses NFC technology, uses a Wi-Fi method. Lemon is a digital wallet service that stores not only transactions but the user's entire personal information in a cloud. All information stored in a physical wallet, such as ID card, medical insurance card, payment card, receipts and coupons are included. But in May, 2014, its mobile app, Square wallet, was pulled from the app stores of Apple and Google. In conclusion, Square wallet has been assessed as a failure and instead, a new 'Square order' service was launched where products can be ordered before visiting a store. The failure of Square wallet is also attributed to the fact that there are many alternative payment methods such as cash and credit cards. Meanwhile, the m-POS based payment service of Square has been a success in the market and this is because it has provided a payment method to the buyer and seller in cases where they would not have been able to transact previously. The same can be said about services launched by Korean financial institutions and telecoms. App-based QR Code method, bar code payment and small payment using mobile

phones, such as BarTong and INIpay requires the customer to launch the app on their phone in the offline store, scan the QR code, enter their password after which a payment can be made. Although it can be expected that this service would be convenient at times when you do not have cash or a credit card on hand, the fact that it is difficult to scan the code correctly and that it takes time causes inconvenience at peak store hours. Consumers also prefer existing payment methods unless they have no alternative to this service and therefore this service is not expected to see big growth. Many telecom companies and financial institutions have been in a competition to launch such services by luring customers with various benefits, coupons and gift certificates but success has not been evident. The reason is that customers experience no inconvenience with existing payment methods of cash or credit card. Although discounts or membership benefits are touted as a benefit, those besides teens or tweens who do not have big purchasing power anyway are not turning to this service. Therefore, it is expected to become a niche product rather than a mass market product.

In conclusion, the business models that are expected to reap success in the mobile payment market are Venmo and m-pos based payment services. These services all have the common trait that customers have no alternative. For Venmo, if you have a person's email or phone number, that is enough to send money to them when you don't have cash or credit card at hand. Even with a credit card, only a small fee is charged. M-pos

based Square and PayPal here service, too, ease the burden of credit card fees or infrastructure installment costs for small business owners. Because these services allow sellers and buyers who were not able to use existing payment methods previously, the value they offer is high and they are expected to show continued growth in the market. The rest of the app-based payment services failed to replace existing payment methods and will only be able to secure specific customer groups. As for NFC based card emulation payment service, too, there is no added benefit compared to existing payment methods and therefore will see limited growth.

## **5. Conclusions and Discussion**

The existing studies on payment services have focused on the adoption factors or the factors that have impact on the sustainable use of payment service mainly from behavioral theories. These factors have been turned out to be various and different depending on the type of payment service and areas to be researched. Above all, those studies aimed to find ways to help payment service to be adopted in initial market or to increase market share in established market. Unlike the previous studies, the present study examined the cases that were successfully adopted by users in early market but eventually failed and intended to derive the success factors of a new payment service that can help the new service both secure initial market and sustain in mainstream market.

Accordingly, the present study began with a question of what general factors a new payment service needs to be successful regardless of nation, culture and type of payment. Hypothesis was derived from the two opposite results of Goggle's Wallet and PayByPhone. The two payment services are both NFC-based and satisfied all of three success factors (ease of use, convenience and security) that existing researchers have all suggested as the most important. However, the fates of the two services are clearly different. Based on these findings, the author set this hypothesis -"To succeed in existing payment market, a new means of payment service has to be presented for the non-customers who can't use existing payment services to use." After all, this study aims to find the discrepancy between theory and reality, suggests as hypothesis the fundamental and critical factors for the success of a new payment service and demonstrate the hypothesis with case analyses.

To this end, the present study selected the successful cases of payment service of credit card, mobile small sum payment, PayPal and Square. And it divided the non-customers of existing payment services into 3 groups and carried out non-customer analyses. Then it was described what non-customer groups each of the success cases a new payment service targeted and what payment methods were provided to them. The results of case analyses demonstrated that they all support the hypothesis of this study. Accordingly, we know that all of the new payment services offered non-customers who couldn't use existing payment

services with a new payment method that they could benefit from, so that they could be successful both in early market and in mainstream market, settling down as key payment method.

Recently, Kakao Talk, Facebook and Chinese IT companies such as Alibaba declared their plan to enter into mobile-based remittance service, so it is expected that competition in mobile payment service market will be heavier than before. However, the market doesn't still have apparent momentum despite numerous positive forecasts. In other words, it can be said that consumers do not recognize sufficient value out of mobile payment service yet. Mobile payment services can be classified into several methods but they can be divided into new technology-based payment services such as NFC, BLE and sound as well as bar code and QR code depending on technology on which payment service is based. In addition, mobile wallet service receives high expectation of success since it allows users to save credit card information into their Smartphones and make payment without physical wallet. Besides it, it provides supplementary functions such as coupon offer, mileage management and ID saving.

Viewing these services from the perspective of this study, it seems that they have limitation to creating a new payment because they do not offer the non-customers of existing payment services with a new means of payment that they can benefit from use. Namely, it is necessary to make service plan for a new payment service to settle down with as a successful new payment method. However, it seems that consideration hasn't been

sufficiently placed to a payment service that attracts non-customers of existing payment services. Especially when mobile payment service is compared with other payment methods, the former is based on discontinuous innovation that requires users to change their behavioral patterns and change in infrastructure. Therefore, users have strong path dependence. Therefore, mobile payment service has to provide benefits and values great enough to set off the barrier called 'path dependence' to become adopted as a major means of payment. Having learned that the success factor of mobile payment service is to identify non-customer groups of existing payment services and offer them with a new means of payment that they can use, as the case analyses found, the author attempts to propose an approach to a new means of payment.

Studies on mobile payment service have been carried out mainly focusing on adoption factors. As a matter of fact, users do not use mobile payment service for several other reasons such as lack of trust, conflict with partners for cooperation, insufficiency of user-friendly infrastructure (Teo et al, 2005). However, a few studies have been conducted on these barriers. Therefore, it is necessary that more researches should be followed on the barriers to mobile payment services and repetitive studies including competing hypothesis should come after to reinforce the hypothesis of the present study.

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## 국문요약

## 새로운 결제서비스의 성공요인: 다중사례연구

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결제서비스에 대한 기존의 연구는 결제서비스의 채택요인 또는 지속적인 사용에 영향을 미치는 요인 등 행동이론을 중심으로 진행되어 왔다. 이러한 요인들이 미치는 영향에 대한 결과는 결제서비스의 종류에 따라 또는 연구 지역에 따라 상이하게 나타나고 있다. 본 연구는 결제 서비스의 종류나 문화 등의 변수에 관계없이 새로운 결제 서비스가 성공할 수 있는 일반적인 요인이 무엇인지에 대한 의문에서 시작하게 되었다. 기존 연구에서 중요한 영향을 미친다고 제시한 채택요인들은 실제 결제사례의 결과에 비추어 보면 기존 연구에서 주장한 바와 일치하지 않는 경우를 볼 수 있다. 이러한 이론과 현실 사이의 괴리를 발견하고 새로운 결제서비스가 성공하기 위한 근본적이고 결정적인 요인이 무엇인지에 대해 제시하고 사례연구를 통해 가설을 입증하고자 하는 것이 본 연구의 목적이다. 따라서 본 연구는 새로운 결제서비스가 성공하기 위해서는 기존 결제서비스의 비교객에게 이들이 결제할 수 있는 수단을 제공함으로써 새로운 결제 시장을 창출해야 함을 주장한다. 이를 위해 성공한 결제사례인 신용카드, 휴대폰 소액결제, PayPal, Square을 채택하였으며, 기존 결제서비스의 비교객을 3개의 계층으로 분류하여 분석하였다. 그리고 새로운 결제서비스가 어떠한 계층을 타겟으로 하였으며 이들에게 어떠한 결제수단을 제공하여 새로운 시장을 창출하였는지 제시한다. 사례 분석 결과, 성공 사례 모두 본 연구의 가설을 지지하는 것으로 나타났다. 따라서 새로운 결제서비스는 결국 기존의 결제수단으로 거래할 수 없었던 이들이 결제를 할 수 있도록 함으로써 성공할 수 있다는 가설을 입증하였다. 모바일 결제 서비스가 아직 대중화되지 못한 원인을 본 가설에 비추어 분석해 보면 보면, 기존의 결제 인프라를 이용할 수 있는 바코드, QR코드 기반의 모바일 결제 서비스뿐만 아니라 NFC, BLE, 음파 등의 새로운 기술이 적용된 모바일 결제 서비스가 출시되는 등 새로운 시도가 계속되고 있다. 또한 모바일 월렛은 사용자들이 소지하고 있는 카드정보를 스마트폰에 저장하여 지갑 없이도 결제가 가능하며, 쿠폰 제공, 적립카드 관리, 신분증을 저장하는 등의 다양한 부가적인 기능을 제공하고 있어 성공할 것이라는 전망이 대두되고 있다. 하지만 이러한 서비스들은 본 연구 관점에서 보자면 기존 결제서비스의 비교객이

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(기존 결제수단을 이용할 수 없었던 사용자) 거래할 수 있는 새로운 결제 수단을 제공해 주지 못하고 있기 때문에 결국 초기사용자에게만 채택될 뿐 대중화되는데 한계가 있을 것으로 예상된다. 반면, 새로운 모바일 결제서비스의 성공사례 중 하나인 PaybyPhone은 기존 코인주차 결제서비스의 비고객인 현금 미소지 고객에게 스마트폰을 이용한 새로운 결제수단을 제공함으로써 새로운 주차 결제 시장을 창출하였으며 현재 미국뿐만 아니라 유럽시장까지 진출하는 등 급성장하고 있다.

결론적으로, 많은 이해관계자들이 모바일 결제시장을 선점하기 위해 다양한 형태의 모바일 결제 서비스를 출시하고 있지만 캐즘을 뛰어넘어 주류 시장에 성공적으로 정착할 수 있느냐는 결국 기존 결제서비스의 비고객군에게 그들이 필요로 하는 새로운 결제수단을 제공하는지의 여부에 달려있다고 볼 수 있다. 따라서 모바일 결제 서비스의 기획자나 매니저들은 서비스 기획 시 기존 결제서비스의 비고객군은 누구인가? 그들은 어떠한 결제수단을 원하는가?를 먼저 고려해야 한다.

본 연구는 새로운 결제서비스가 성공하는데 미치는 요인에 대한 가설을 검증하기 위해 4개의 성공 사례를 선택하였으며 각 사례에 동일한 가설을 검증하는 ‘반복연구논리’를 적용하였다. 본 가설을 더욱 공고히 하기 위해 사례연구방법론에서 제시하고 있는 경쟁가설을 포함한 후속 사례연구가 진행되어야 할 것이다.

**주제어** : 성공요인; 결제서비스; 비즈니스 모델; 사례연구; 반복연구; 명제개발; 명제검증; 비고객분석

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## 저 자 소개



### 박아름

경희대학교에서 주거환경학(학사)과 경영학(학사)을 복수전공하고, 현재 경희대학교 경영학과 박사과정에 재학 중이다. 주 관심 연구 분야는 비즈니스 모델 개발 및 평가방법론, 사례연구 방법론이며, 특히 플랫폼 비즈니스 모델과 SNS에 기반한 비즈니스 커뮤니케이션에 관심을 두고 있다.



### 이경전

KAIST 경영과학 학사(1990), 석사(1992), 박사(1995) 학위를 취득하였으며, 현재 경희대학교 경영대학 교수로 재직 중이다. 1995년과 1997년 2회에 걸쳐 미국인공지능학회(AAAI)가 수여하는 혁신적 인공지능 응용상(Innovative Applications of Artificial Intelligence)을 수상하였다. 1996년과 1997년에는 Carnegie Mellon University 초빙과학자, 2009년과 2010년에는 MIT와 UC Berkeley의 Fulbright 초빙교수로 연구하였다. AI Magazine, Expert Systems with Applications, European Journal on Operational Researches, Connections, Organizational Computing and Electronic Commerce, Decision Support Systems 등에 학술 논문을 게재하였다.