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CURRENT STATE OF MOBILE PAYMENTS IN FINLAND

Drivers and obstacles in diffusion and adoption of mobile payments

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ABSTRACT

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The topic of this thesis originated from the working life, in spite of the fact that the topic was not commissioned by any company. The importance of digital services and the transition from computers to mobile devices have enabled new solutions in addition to the traditional payment methods. The landscape of payments has changed drastically over the past decade and not vast amount of up-to-date data is available on mobile payments. Mobile payments have been available in many forms in Finland over the past decade, yet many solutions have failed to exist.

The aim of this thesis is to provide insights on the current state of mobile payments in Finland. The focus is on the drivers and barriers in mobile payment diffusion among the consumers.

Theoretical framework is built on two theories and models previously used in examining similar phenomena, thus granting credibility on the framework. The innovation diffusion theory is in central and it is complemented by technology acceptance model and the revised chasm model in the technology adoption lifecycle. Quantitative methods were used in collecting the data. Response rate was 6 percent consisting of 88 respondents.

The main findings in this study indicate that majority of the respondents were familiar with the concept of mobile payments, yet mobile payments were adopted by 24 percent. Mobile payments were seen as a rather positive phenomenon but the security was the biggest concern in comparison to card payments. The perceived value and relative advantages were not evident among the respondents but the results support the previously proposed effects on the attitudes towards mobile payment adoption in other studies.

Further study on mobile payments is needed and standardization and the merchant adoption are in crucial role in reaching the critical mass and transitioning from the early market to mainstream market

Keywords: Mobile Payment, Diffusion of Innovations, Innovation-decision process, Technology adoption lifecycle, Innovator, Early adopter, Technology acceptance model

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1 INTRODUCTION

Topicality of mobile payment derives from factors such as changing payment habits and technology development. Previous University of Applied sciences level studies focus more on describing the concept without addressing the underlying factors in diffusion and adoption of mobile payments. Most comprehensive studies on mobile payment adoption available have been published in 2006 by authors such as Dahlberg & Öörni and Mallat – nearly a decade ago. Recent news articles discuss how Nordic countries are leading the shift towards cashless societies. From financial point of view one of the biggest benefits are lower costs and on consumer point of view convenience is one major driver, especially in younger generations (REUTERS 2015, cited 4.2.2015).

The growing number of smartphone users is having an impact on people's everyday lives on global scale. Smartphone ownership combined with latest technologies enable user-friendly internet access on mobile devices, hence boosting the importance of providing mobile-optimized online services (Google 2013, cited 4.2.2015). Global trends may vary between different countries. In target country Finland the trends have been similar in comparison to bigger picture. In 2014, 60 percent of Finnish population used smartphones and roughly over half of the population had accessed internet on mobile phone outside home or workplace in past 3 months (Official Statistics of Finland 2014, cited 4.2.2015). User statistics are showing radical growth in mobile data usage among young consumers. Data usage among in group of people between 18-24 has grown 89 percent in comparison to previous year. This age group also uses mobile data more than twice as much as people between age of 35 and 44 (Etelä-Suomen Sanomat, 2015). Looking back less than two decades, mobile phone technology has come a long way. First implementations of mobile payments emerged in 1997 when Sonera, a Finnish Mobile Network Operator introduced vending machine payments by calls (Kivioja, 11). Up to date there are several different types of mobile payment solutions and according to PWC study no standard infrastructure has yet emerged (PWC 2011, 6).

1.1 BACKGROUND AND SCOPE OF STUDY

Aim of the thesis is to provide public insight to current state of mobile payments in Finland by investigating the underlying theories in diffusion and adoption of mobile payments among young consumers. The thesis topic originates from the author's experience in working life where duties have included promoting a mobile payment solution, guiding consumers in using latest technologies and methods in banking and payments. Understanding the underlying theories can bring value to different stakeholders the field of mobile payments. There is no certain commissioner for this thesis, thus different types of mobile payments are taken to consideration. Broader approach may help in designing more universal research questionnaire and possibly resulting in understanding different types of consumer perceptions on various types of mobile payments. Consumer approach demarcates merchants' and financial institutions' drivers and obstacles in mobile payment adoption of out of the scope leaving room for further study. One of the typical challenges in business point of view is standardization, interoperability and managing device platform diversity (Cognizant, 3). Businesses most likely have conducted proprietary studies, which are not available for the public. One exception to this category would be MasterCard's Global Insights: The Mobile Payments Readiness Index.

1.2 RESEARCH OUTLINE

In investigating the phenomena of mobile payments and its underlying theories, the author is aiming in providing an empirical framework over current state of mobile payments and mobile payment adoption. After setting up empirical assumptions over theoretical framework the assumptions will be reflected on the research findings. The main research question is "What are the drivers of diffusion and adoption of mobile payment solutions among young consumers in Finland?" In addition two research questions were set to support the main problem.

- What are the obstacles in using mobile payments over cash or card payments?
- What is the perceived value in using mobile payments over traditional payment types?

Answering to the question why the research on changing payment methods is needed, Dahlberg & Öörni suggest that the research can be used for support in financial market in developing new means and methods of payment. In the study of changing payment methods it was suggested that multiple payment methods should be studied simultaneously as they are often interrelated. (2008, 16.) This thesis is utilizing the same theoretical foundation as previous studies. Dahlberg & Öörni criticize previous studies focusing on a specific payment method, but on the other hand focus on a specific method provides better control over the research as the innovation diffusion theory by Everett Rogers and technology acceptance model by Fred Davis are based on studying single technological innovation or service. The need for studying the changing payment methods is justified also by the fact that over the past decade several different payment methods emerged and to date many of them have failed to exist (ibid.).

In this thesis the research group was chosen to be students of Oulu University of Applied Sciences as previous studies and statistics have proven young adults being the most likely subject possessing a smartphone with internet connection capable of using mobile payment applications. It must be acknowledged that the results would vary if other demographical groups were studied. The resources and timeframe in conducting the research are very limited and therefore the research group of choice would provide the most valuable information.

Theoretical part of the thesis begins by defining and describing the key concepts of mobile payment in the second chapter. In chapter three, the definitions will be followed by investigating the innovation diffusion theory and technology acceptance model. Fourth chapter presents earlier proposed effects on attitudes towards mobile payment adoption. These findings are used later in chapter 5 as empirical assumptions, which are further reflected on the actual research findings of this thesis.

2 KEY CONCEPTS

This chapter is setting definitions on the key concepts. As this study investigates mobile payments from consumer point of view, not all aspects in payments are discussed in depth. However the key concepts shortly introduce wider perspective of payments and commerce providing a holistic view over the topic. In some studies mobile payments are considered as an extension to e-banking, whereas in some cases mobile payments are one segment of mobile commerce. Mobile wallets should not be confused with mobile payments; they should rather be considered as facilitators for mobile payments (European Payments Council 2014b, cited 7.2.2015).

Defining the currently non-standardized term mobile payment is challenging as different solutions have quite divergent approaches on the subject. More on divergent approaches will be discussed later in this chapter by taking a glance to previous studies and articles. Short definition on mobile payment on Investopedia: "Money rendered for a product or service through a portable electronic device such as a cell phone, smartphone or PDA. Mobile payment technology can also be used to send money to friends or family members" (Investopedia 2015, cited 5.2.2015). More specific definition can be found from Mobey Forum whitepaper "Mobile Financial Terms Explained":

Mobile Payments are payments for which the data and instruction are initiated, transmitted or confirmed via a mobile device. This can apply to online or offline purchases of services and digital or physical goods as well as P2P payments, including transfer of funds. Mobile payments are often divided into two main categories; proximity payments and remote payments. However, the two are converging as neither is tied to a specific technology. (Mobey Forum, 2014.)

2.1 DIVERGENT APPROACHES TO MOBILE PAYMENTS

Dahlberg & Öörni describe mobile payments as an exceptional case in electronic billing and paying. The exact definition is difficult as the development of new payment instruments have formed a whole new set of terms. There is no unified distinction between the physical and electronic and mobile payments. As an example if a parking ticket is paid by mobile phone and the amount is charged on the mobile network operator bill and the actual bill would be paid in a bank's branch, the transaction could still be considered as a mobile payment. (2006, 15). Electronic and mobile payment is defined: "The payer – in current study the consumer – executes the payment individually on the Data Terminal Equipment, smart card and card reader or by other means using ICT, without involvement of other individuals in the process excluding possible guidance from another person" (ibid.).

In the publication *Payment habits and trends in the changing e-landscape 2010+* by Leinonen, mobile payment is considered as a buzz word. Leinonen considers early versions of mobile payments as an extension of e-banking. The early versions were telephone banking and e-banking services offered via mobile SMS services such as displaying the account balance and making simple payments between accounts. According to Leinonen these solutions were inconvenient to use due to slowness and lack of user-friendly interfaces. Study considers mobile ticketing as highly beneficial, however point-of-sale transactions with mobile phone are less important. The study divides mobile payments into three categories: e-payment interfaces using mobile phones, digital cards stored on mobile phones and truly new generation mobile payments with integration synergies. (Leinonen 2008, 204-216.)

An article from McKinsey & Company suggests that the digital marketplace has been shaped by technology leaders, mobile carriers and equipment manufacturers. Established actors in mobile payments need to learn how to compete in expanded area and deepen the relationship with consumers. New approach on mobile payments was introduced by including overlapping areas of mobile banking and mobile marketing as seen on *FIGURE 1*. (McKinsey & Company 2011, 45 – 52.)

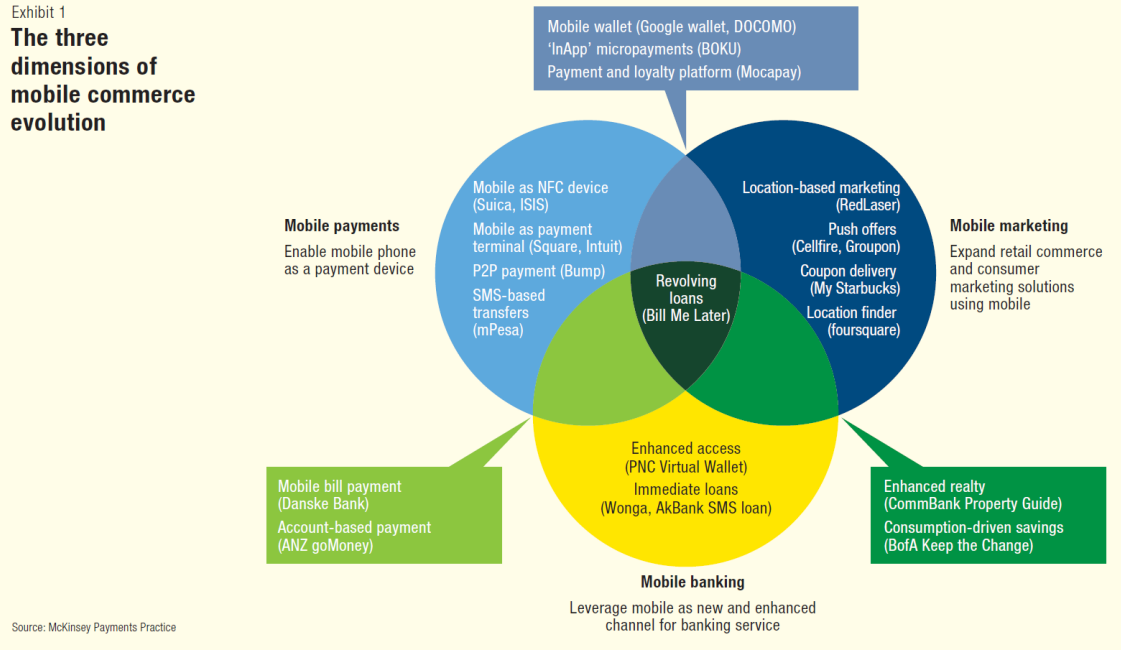


FIGURE 1. The three dimensions of mobile commerce evolution (McKinsey & Company, cited 5.2.2015)

The article also suggests that as payments become more automated and customer interaction declines, payments solutions can bring value to merchants and customers if mobile marketing becomes core to the business. The retail experience can be enhanced starting from pre-visit by generating demand with coupons and finding and comparing local merchants. The decision-making includes finding route or contacting the merchant and making decision on the purchase by comparing prices. The transaction phase is conducted with mobile payment and finally the post-visit includes business reviews and loyalty incentives such as coupons or other loyalty programs. (ibid.). The process is illustrated below in FIGURE 2.

Exhibit 3
Mobile innovations target each component of the retail experience

	Pre-visit			Decision-making		Transaction	Post-visit		
	Generate demand	Find local merchant	Compare local merchants	Contact/ arrive at store	Decide on purchase	Pay	Review business/ tell friends	Loyalty/ Decide to return	
Local search funnel									
How m-commerce can change behavior	Mobile can be highly effective for branding / advertising (location-based ads)	Mobile can be used to do timely, local searches	Use local review apps such as Yelp to find best merchant in vicinity	Mobile can be used to contact merchant and get point-to-point directions	Mobile can be used to compare prices, get peer advice and browse competitor offerings in store	Mobile payments	Instant mobile reviews while checking out Publish whereabouts to social network	Mobile can enable couponing and other out-of-the-box loyalty programs	
Examples	Cellfire Use Cellfire to sign up for specific deals and receive coupons based on triggers (e.g., location)	AroundMe Use AroundMe to find nearby stores with product and compare prices	yelp Read Yelp reviews to find the best merchant out of all local options	Google Use Google Local to get business information Use Google Maps to map route	RedLaser Use RedLaser to find cheapest price for product in vicinity	Tabbedout Use Tabbed-Out to pay restaurant bill without waiting for server	foursquare Publish location to foursquare Swipely Use Swipely to get feedback on purchases		

Source: McKinsey Payments Practice

FIGURE 2. Mobile innovations target each component of the retail experience (McKinsey & Company, cited 5.2.2015)

The complex characteristics of mobile payments are discussed in Communication & Strategies journal article by Pernet-Lubrano. Similar approach to mobile payments is discussed as in McKinsey & Company. Mobile payments are seen to be integrated in wider range of mobile marketing, mobile commerce, mobile banking and mobile authentication. Mobile payment is defined as “the act of paying for goods or services with a mobile device (currently mobile phones).” (Pernet-Lubrano, 64). This kind of definition omits peer-to-peer mobile payments where no obligation between the sending and receiving party is present. However it was acknowledged that the exact definition is sometimes open to interpretation.

It can be concluded that previous studies and articles have quite divergent approaches when it comes to mobile payments. This study will consider the definition of mobile payments including purchases, and transferring money between peers on a mobile device such as a smartphone or tablet device. This definition is leaving out mobile banking payments such as paying bills by using mobile bank.

2.2 MOBILE PAYMENT CATEGORIZATION

Due to the newness and innovative nature of mobile payments, it is rather hard to set different mobile payment solutions to concrete categories. As it transpired earlier in this chapter, mobile payment solutions are, and can be categorized. Two different approaches to classification and categorization will be presented. A table combining the aspects of these studies will be presented later in this chapter. Mobile payment innovations consist of product or process innovations. In general mobile payments can be categorized according to funding type, access channel type, by access technique or by payment scheme owner.

In a study of innovations in retail payments, the Bank for international settlements approaches mobile payment innovations categorization as in OECD Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data. Retail payment innovations are divided in product innovations and process innovations (Bank for international settlements, 9 – 13).

A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. (OECD 2005, 48.)

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. (OECD 2005, 49.)

Product innovations in retail payments focus on the consumer experience. One of the general approaches is based on the access device, which in this case is mobile phone. Second categorization is the access channel that can vary in mobile payment implementations from Point-Of-Sale transactions to transactions via internet or telecommunication networks. (Bank for international settlements, 12 – 13.)

Process innovations in retail payments include innovations that affect the overall payment process. The payment process is illustrated as four-party setting consisting of payer, the payer's payment service provider, the payee and payee's payment service provider. See FIGURE 3 below. New process innovations can break or complement the traditional payment process i.e. reducing the time lag between the payment initiation, clearing and settlement. (Bank for international settlements, 10 – 11.) The study of innovations in retail payments identifies three types of mobile payments: Mobile payments using traditional bank accounts, mobile payments using the mobile phone bill collection process and mobile payments using prepaid accounts (ibid., 14).

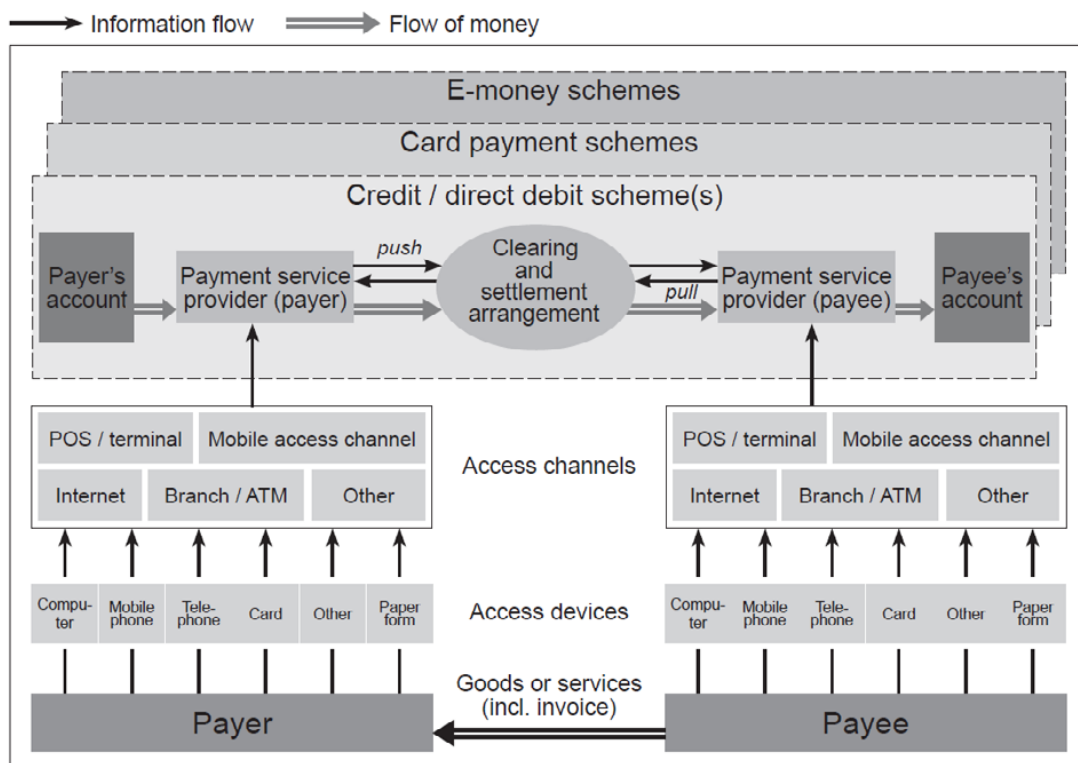


FIGURE 3. Payment process in retail payments (Bank for international settlements, cited 7.2.2015)

A recent publication, Overview on Mobile Payments Initiatives classifies mobile payments in two categories: proximity and remote payments. In **proximity payments** the payer and payee are in same location, communicating with each other by using contactless radio technology such as near field communication (NFC), bluetooth (BT), or infrared (IR) (European Payments Council 2014a, cited 7.2.2015).

In **Remote payments**, the payer and payee communicate with each other by using telecommunication networks such as GSM or Internet. The transaction can be conducted independently by the payer using his or her equipment regardless of the location (European Payments Council 2014a, cited 7.2.2015.)

Another aspect of mobile payments are mobile point of sale (mPOS) transactions. Mobile POS is not analyzed thoroughly in this study as it is commonly used by merchants as an alternative to traditional payment terminals. Currently mPOS offers benefits to small businesses as the fees often consist of a small commissions over the payment volumes. Definiton for Mobile POS:

A mobile point-of-sale (mPOS) refers to using a consumer mobile device (ie smartphones, tablets) to facilitate payments and enable acceptance of payment instruments such as credit cards, debit cards and/or cash. mPOS devices leverage both hardware and software components to allow a merchant or individual to accept payments. To support the various card reading modalities (magnetic stripe, Chip and NFC/Contactless) some form of add-on physical hardware such as a sleeve, dongle or card reader is typically required. (Mobey Forum 2014, cited 7.2.2015.)

Different categories in mobile payments, and variables to each category are presented in *TABLE 1* below. The table is combined from the report *Innovations in Retail Payments* by the Bank of International Settlements.

TABLE 1. Mobile payment categories. Original source (Bank for international settlements 2012, cited 7.2.2015)

Category	Variable
Funding type	prepaid, debit, credit, mobile payments invoiced in mobile phone bill
Access channel	POS, mPOS, internet, telecommunication network
Access technique	remote, proximity,
Main usage	P2P, P2B
Scheme owner	Financial institutions, Mobile Network Operators, other Payment Service Providers e.g. ICT companies
Cooperation	Banks only, banks and non-banks, non-banks only, no cooperation

2.3 M-PAYMENT STAKEHOLDERS

Mobile payment market is affected by various factors. As described in previous chapters, M-payment solutions are not standardized and different service providers compete each other with divergent solutions. The different solutions are affected by forces such as consumer power, merchant power, traditional payment services and new e-payment services as in Porter Five Forces analysis. In the long run it is crucial to address the changes in environmental factors such as social/cultural, commerce, technology, legal/regulatory environments. Major players in the market consist of Central Banks, European Payments Council, NETS Oy, Financial Institutions, Mobile Network Operators, merchants and consumers.

Central Banks oversee the regulatory and legal framework ultimately providing standardization in mobile payments. The European Central Bank has provided a draft of recommendations for the security of mobile payments in November 2013. The report has three categories of recommendations in which the first category is general control and security environment. This category addresses issues such as governance, risk identification and assessment, monitoring and reporting, risk control and mitigation issues and traceability. The second category is specific control and security measures for mobile payments. This category is covering the steps in payment processing from the payment initiation, monitoring and authorization, and the protection of sensitive data. Third category is customer awareness, education and communication. This category provides recommendations for customer protection e.g. how customers should act in an event where personal security credentials are asked, how to use mobile payments safely and securely, and how customers can check that the transaction has been initiated and executed. (European Central Bank 2013, 7.)

The European Payments Council is representative of the payment service providers and its task is to promote and support the European payments integration in the Single Euro Payments Area (SEPA). This non-profit organization has provided white papers on mobile payments defining outlines for the mobile wallet ecosystem and informing the stakeholders of new business opportunities. The white papers discuss the concept of mobile payments on non-technical level and they are aimed to payment service providers and other stakeholders interested in the field of mobile payments. (European Payments Council 2014b, cited 7.2.2015.)

Nets Oy, formerly known as Luottokunta is also playing an important role in the field of mobile payments in Finland. It is an official facilitating exchange of digital payments by providing the platform for card transactions and payments.

Mobile Payment Market and Research – Past, Present and Future by Dahlberg et al. introduced a framework for mobile payments illustrated in *FIGURE 4* below. The model incorporated factors from Porter’s five forces model adding four factors that are beyond the control of an individual player in the mobile payments market. The framework provides the reader with a bigger picture over various factors affecting the market. (Dahlberg et al. 2006, 3 – 4.)

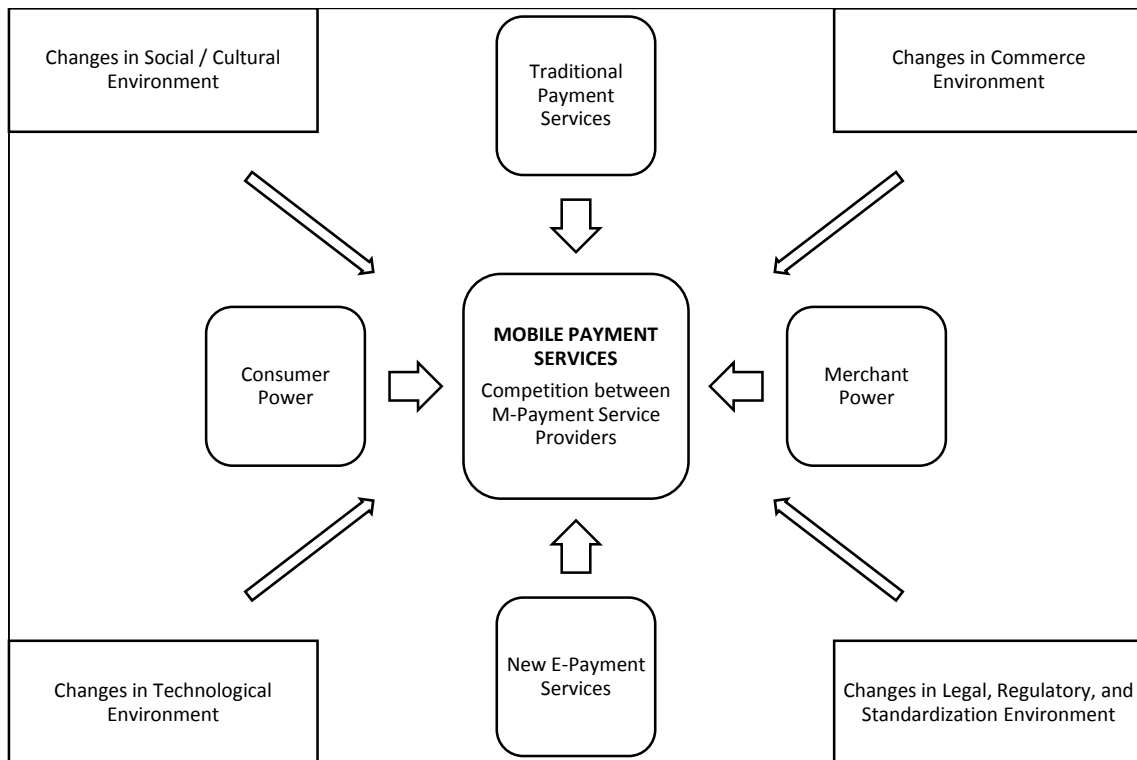


FIGURE 4. Framework of forces affecting the mobile payments market. (Revision from 2006 Dahlberg et al.)

2.4 CURRENT SOLUTIONS IN FINLAND

This chapter shortly introduces past, current and upcoming mobile payment solutions in Finland. Early mobile payment solutions in Finland emerged in 1997, when Sonera introduced vending machine payments by a phone call. Later mobile payments by SMS started emerging and became a big business as one could buy e.g. mobile phone ringtones and games. (Kivioja 2007, 11.) In both methods – paying by a phone call or SMS – the access channel is telecommunication network and payments are later invoiced in mobile network operator's billing. In late 2002 new prepaid solutions started emerging when Osuuspankki introduced Digiraha, and Nordea and Sampo introduced Mobiiliraha in cooperation with Radiolinja. Both, Digiraha and Mobiiliraha used SMS and WAP technologies as access channels. (Tuominen 2003, 12.) These two concepts – among others – are examples from past that have failed to exist. OP Digiraha service was terminated in early 2011 due to lack of interest and changes in payment service legislation (TiVi 2011, cited 10.2.2015). In addition to mobile vending machine and ticketing payments, there are currently four major mobile payment applications available. Short introduction to these major mobile payment solutions will follow.

DNA Täpäkä

DNA Oy in cooperation with R. Raphael and Sons Oyj is currently offering a virtual prepaid VISA-card called DNA Täpäkä. One can top up the DNA Täpäkä account and use or send funds using a mobile phone. This prepaid account can be used within current balance of the account. To open a DNA Täpäkä account one has to be of age, residing in Finland, own valid Finnish mobile phone number, own valid e-mail address and have Finnish social security number. There is no requirement for having a bank account. DNA Täpäkä mobile app is available for Android, iPhone and Windows Phone. (DNA Oy 2015, cited 10.2.2015.) DNA offers also an option for a physical card to be connected with the account. This card enables payments in shops and withdrawing money from ATMs. In addition to payment card, there is an optional weekly allowance card to be issued to another person using one's DNA Täpäkä account. This card is aimed for children to be used as a weekly allowance. Weekly allowance card can be issued to a person who has Finnish social security number and a Finnish telephone number. The card can be used for online-payments and POS-transactions in shops, however ATM withdrawals are currently unavailable for security reasons. (ibid.)

Elisa Lompakko

Elisa Oyj offers a mobile wallet solution called Elisa Lompakko. It consists of two prepaid accounts: Lompakko-tili and Kolikkotasku. Lompakko-tili is used for online payments and sending money to peers. Users can apply for additional 300€ credit for the Lompakko-tili. Credit is issued by Elisa Rahoitus Oy. Kolikkotasku is used for proximity payments. In addition to mobile payments, one can use the app for mobile authentication. Elisa lompakko can be administrated by using mobile app, but owning a smartphone is not a requirement as the accounts and cards can be administrated using web-interface. Online payments are similar to DNA Töpäkkä as the payments are processed by using a virtual MasterCard. Proximity payments use NFC technology as access technique, although an additional NFC sticker or NFC SIM-card is required. Elisa Lompakko also enables additional features such as charging pre-paid Saunalahti SIM cards, reading HSL Travel Card balance, and linking student card in the mobile wallet. (Elisa Rahoitus Oy 2015, cited 10.2.2015.)

MobilePay by Danske Bank

MobilePay was launched in Finland by Danske Bank in late 2013. MobilePay is being marketed as a new easy way of sending, receiving, requesting and splitting payments among peers. In registration to the service, user links debit/credit card and bank account number to the app. Payments can be sent and received on mobile phone number basis. The payments are charged as card payments and transferred funds are at receiver's disposal immediately or on the next banking day. Money transfers have 250€ daily, and 15 000€ annual limitations. MobilePay usage has no fees to it, although the application uses mobile data which is billed according mobile network operators subscription. Anyone above the age of 15 can register as a user. Using MobilePay requires a smartphone, a Finnish mobile phone number, a Finnish bank account with credit/debit card which has web payments enabled and a valid e-mail address. The application is available for Android, iPhone and Windows Phone. According to Danske Bank 130 000 people have downloaded MobilePay. (Danske Bank 2015a, cited 10.2.2015.) MobilePay was earlier launched in Denmark and it proved to be a successful mobile payment solution as to date and there are more than 1.6 million active users in Denmark. In Danish version, one can use MobilePay also for shopping, which may explain its popularity among Danes. (Danske Bank 2015b, cited 10.2.2015.)

SEQR by Seamless

SEQR is a mobile wallet solution by Seamless, one of the biggest mobile payment service provider. SEQR users can purchase goods in shops and restaurants. It offers also parking and web-shop payments. In addition users of SEQR can make P2P money transfers, use benefit-programs, store digital receipts and receive coupons. In POS setting, SEQR takes advantage of QR-codes. Users pay by scanning a QR code at cashier and accepts the payment by personal PIN code. Seamless states that SEQR is the Europe's most used mobile payment solution and it is accepted by 4600 retailers. In Sweden SEQR is accepted by e.g. McDonald's. In Finland SEQR payments are accepted by Hesburger since mid-2014 and during fall 2014, Top-Sport and Laaturu started accepting SEQR payments. In 2013, SEQR won the Mobile Money Global Award for best mobile payment solution in Europe. (SEQR 2015, cited 10.2.2015.)

Future developments on global scale

Last year there have been several initiatives on mobile payments on global scale including big players such as MasterCard, VISA and Amazon. The European Payments Council lists two mPOS initiatives that may have an effect on Finnish payment habits in the near future. First initiative was reported on July 2014 where an Italian financial infrastructure company SIA agreed upon card payment processing with Swish Payments. The focus area of this initiative was in Africa and Europe where these companies have stated bringing more efficient forms of payments to these regions. Another initiative was reported in Finland. Finnish banking group OP-Pohjola signed a three-year contract with UK-based mPOS service provider Monitise. This service will be aimed for bank's small businesses and merchant customers. The three year deal was announced in January 2014 and it was first initiative among Finnish banks offering mPOS services. (European Payments Council 2014a, cited 7.2.2015.) However, Nordea announced cooperation with mPOS service provider iZettle in the Nordic countries in May 2014. (iZettle 2014, cited 10.2.2015.) This cooperation aimed towards SMEs like in OP-Pohjola – Monitise cooperation. As new solutions keep emerging and new service providers are entering the market it can only be speculated which players will thrive in the long run. Currently major smartphone operating systems have started integrating mobile payments in the smartphone operating systems. Apple has introduced Apple pay on their iOS and Android platform has integrated Google wallet in their latest operating systems since Android 4.4.4. Samsung announced recently in early 2015 that they will integrate new mobile payment solution

called Samsung Pay. This solution is based on LoopPay and current estimates claim that about 90% of the payment terminals are compatible with this solution, whereas Apple Pay is compatible with only few hundred thousand of 3.8 million merchants in the US retail payment terminals (BetaBoston 2015, cited 2.3.2015).

3 THEORETICAL FRAMEWORK

In order to understand the factors affecting the adoption of mobile payment solutions – or any other technological innovation, one of the most well-known theories is the innovation diffusion theory. This theory will bring the social aspect to the study of mobile payment adoption among consumers. This study will cover areas such as the main elements of innovations, the innovation-decision process, innovation attributes, adopter categories and the critical mass in diffusion of innovations.

3.1 DIFFUSION OF INNOVATIONS

Innovation diffusion theory has been compiled in the book by Everett M. Rogers. The latest fifth edition was published in 2005. The book defines diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 5). The communication includes messages about a new idea and the outcome of the process is to reach a mutual understanding. Diffusion can lead to social change when new ideas are invented, diffused and later adopted or rejected. There are four main elements of which diffusion of innovations consist: the innovation, communication channels, time and the social system. (ibid., 6,11.)

Four elements in diffusion of innovations

The first element is the innovation. According to Rogers, Innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption (Rogers, 12). Typical questions about innovation are “What is the innovation?” “How does it work?” and “What will its advantages and disadvantages be in my situation?” Not all innovations are equivalent units of analysis. There might be different rate of adoption to innovations, and not all diffusion of innovations are necessarily desirable. The characteristics of an innovation can help explaining e.g. the different rates of diffusion. There are 5 different perceived attributes of innovations: the relative advantage, compatibility, complexity, trialability and observability (ibid., 13 – 14.) The second element in diffusion of innovations is the communication channel. Communication was previously defined as creating or sharing information in order to reaching mutual understanding. The communication

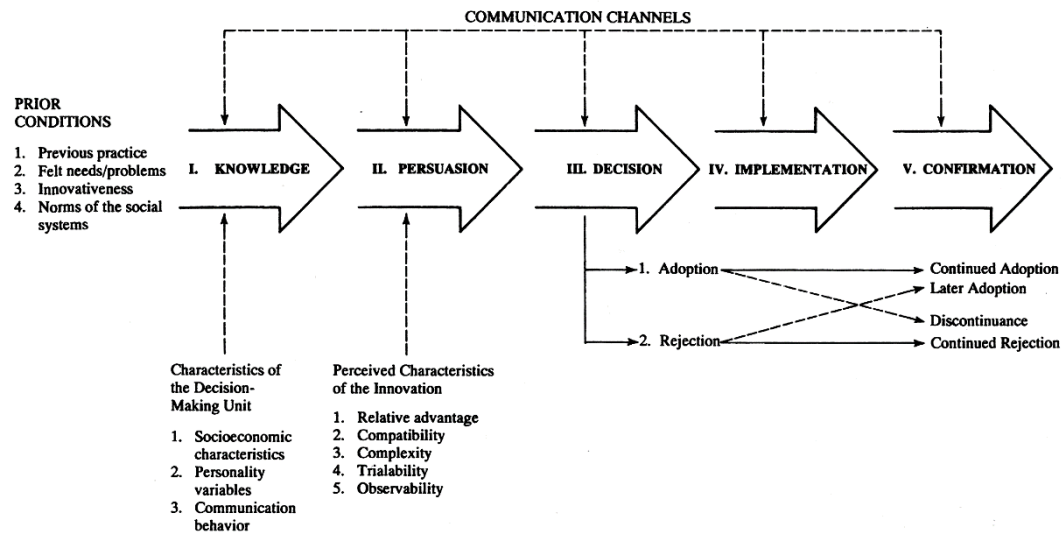
process involves an innovation, individual having knowledge or experience of the innovation, individual without knowledge or experience, and communication channel connecting these two individuals. A communication channel can be mass media, which is usually the most efficient in means informing audience about an innovation. However, interpersonal channels are usually more effective in persuading an individual accepting a new innovation. The diffusion process is a very social process that involves interpersonal communication relationships. (ibid., 18 – 19) Third element in the diffusion of innovations is the time. According to Rogers, including the time variable in diffusion research is one of its strengths. The time variable is present in the innovation-decision process, in specifying the innovativeness of an individual, and in the rate of adoption – the relative speed in adoption of an innovation. (2005, 20 – 21) Fourth element is the social system. Definition to social system is a “set of interrelated units that are engaged in joint problem solving to accomplish a common goal” (Rogers, 37). Diffusion occurs within a social system. Several factors affect to the diffusion within the boundaries of social system. Social systems have certain structures, which consist of certain patterned arrangement of the units in the system. One example of social structure is the norms, a set of established behaviour patterns among the units in social system. Certain actors can affect the innovation decision process. *Opinion leaders* can influence other individuals informally changing their attitudes or behaviour. A change agent is an individual attempting to influence the innovation decision in desirable direction. There are three types of innovation-decisions that can occur among social systems: *Optional innovation-decision*, an independent choice by an individual to adopt or reject innovation. *Collective innovation-decision* is the choice made in consensus among the group members. *Authority innovation-decision* is the choice made by a relatively few individuals possessing the power, status or expertise. Fourth type of innovation decision is *Contingent innovation-decision*, which are the choices made after a prior innovation-decision. (ibid., 23 – 24)

Innovation decision process

The current model of innovation-decision process is a process of five different steps. The process is illustrated in *FIGURE 5* below. First step is gaining *knowledge* of an innovation. It consists of individual being exposed to existence of an innovation and gaining understanding over the function of the innovation. The second step is *persuasion*. In this step an individual forms either favourable or unfavourable attitude on the innovation. In third step the individual makes the *decision* of adoption or rejection of the innovation. Decision is followed by the fourth step, which is

implementation. In this step the innovation is put in use. Last step is the *confirmation* where the individual is seeking reinforcement on the decision made. In this step the previous decision may alter if conflicting information about the innovation is being exposed to the individual. (Rogers, 1968 – 169)

Figure 5-1. A Model of Five Stages in the Innovation-Decision Process



The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.

FIGURE 5. Innovation-Decision Process (Rogers 2005, cited 9.2.2015)

Innovation attributes

Rogers has previously suggested that in adoption of innovations, most of the variance in the rate of adoption can be explained by five attributes of an innovation. However other variables such as the innovation-decision type, nature of communication channels in innovation decision-process, nature of the social system and the change agents' promotion efforts can explain the rate of adoption. (2005, 221.) The five different innovation attributes are explained below. **Relative advantage** is the degree to which an innovation is perceived as being better than the idea it supersedes (Rogers 2005, 229). Relative advantage can be expressed as e.g. economic profitability or social prestige. Relative advantage is considered being one of the strongest predictors of and innovation's rate of adoption (ibid., 233). In case of mobile payments the relative advantage could be that you don't necessarily need to carry cash or wallet in order to make

purchases. **Compatibility** is the degree to which an innovation is perceived as consistent with the existent values, past experiences, and needs of potential adopters (ibid., 240). Compatibility or incompatibility of an innovation can occur with sociocultural values and beliefs, previously introduced ideas, and individual's needs for the innovation. Compatibility with previously introduced ideas are considered as a main mental tools to assessing new ideas and giving them meaning. (ibid., 240, 243.) Dahlberg & Öörni argue that the perceived compatibility is one key factors among various payment methods towards increased intention of use (2006, 24). **Complexity** is the degree to which an innovation is perceived as relatively difficult to understand and use (Rogers 2005, 257). Complexity is not regarded as important as relative advantage or compatibility, although the complexity of a new idea can act as an important barrier to adoption. For instance, take an individual who has never used neither smartphone nor computer, adopting mobile payments as a payment method over more traditional alternatives – such cash or card payments – can be very slow or unlikely. **Trialability** is the degree to which an innovation may be experimented with on a limited basis (ibid., 258). Rogers suggests a generalization that trialability can positively affect the rate of innovation adoption. Innovations that are designed trialability in mind will have a more rapid rate of adoption. Trialability is argued being more important to earlier adopters than the later adopters. (ibid., 258.) Trialability in mobile payments could be achieved by implementing demo-user accounts being available for testing under payment solution providers' supervision. **Observability** is the degree to which the results of an innovation are visible to others (ibid., 258). Generalization of positive relation to adoption rate was presented in cases where the idea is easily observed and communicated to other people (ibid.).

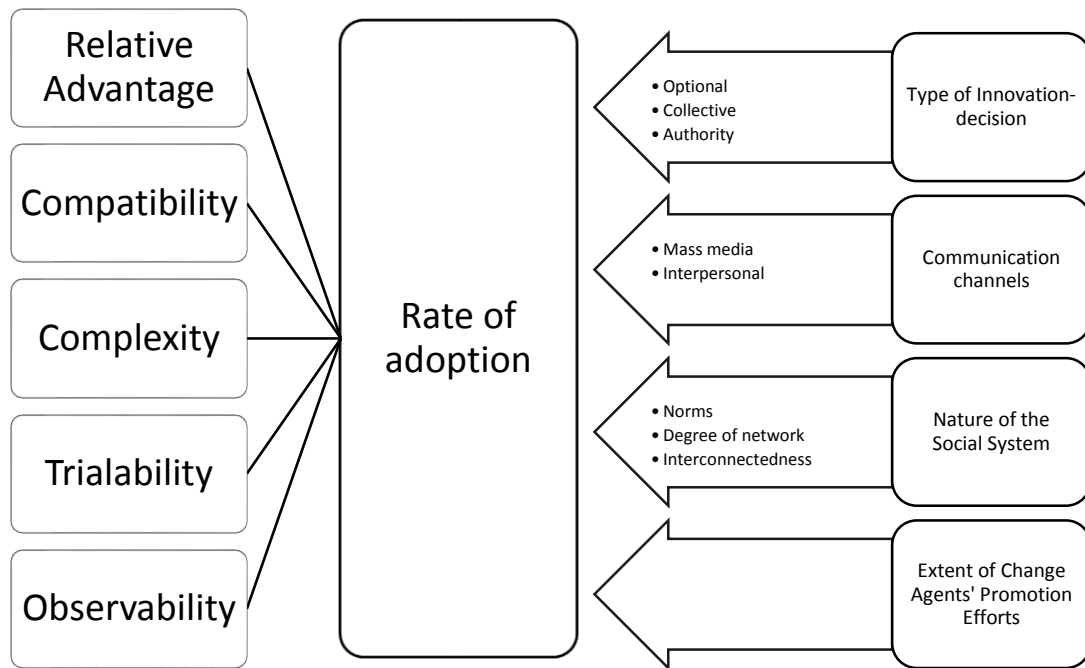


FIGURE 6. Attributes of Innovations Determining the rate of adoption as in Rogers, E. Diffusion of innovations (cited. 9.2.2015)

Technology adoption lifecycle & adopter categories

The most well-known model of technology adoption lifecycle was introduced by Everett Rogers in the first edition in 1962. In this model adopters are categorized by the level of innovativeness and to which level an individual is adopting innovation relatively earlier in comparison to other unit of adoption. The level of innovation adoption is measured by the time variable and is represented in a bell curve illustrated in FIGURE 7 below. There are five categories of innovation adopters: Innovators, Early Adopters, Early Majority and Late Majority, Laggards. Rogers suggests that the adopter categories can be divided in approximate standardized percentages. The S-shaped curve represents the cumulative number of adopters in cases of successful innovations. The diffusion takes off when interpersonal networks activate and innovations are diffused from peer to peer. After 10 to 20 percent of adoption it is often impossible to stop further diffusion of an innovation. (Rogers 2005, 272 – 282.)

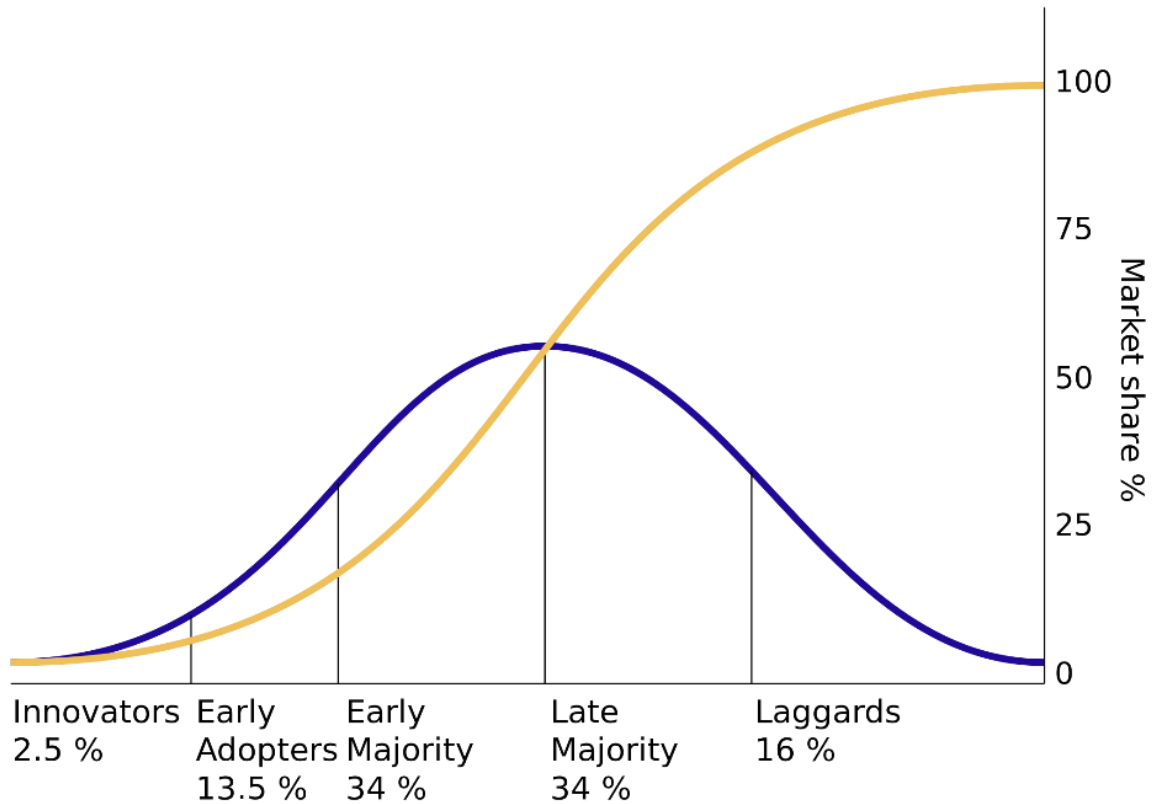


FIGURE 7. Technology adoption lifecycle by Rogers E., (Wikimedia Commons 2015, Cited 7.5.2015)

The innovators consist of roughly 2.5 percent of the individuals in the system. Next group is early adopters consisting of 13.5 percent of individuals. Early majority is 34 percent of individuals between the mean minus one standard deviation and mean of adoption. Late majority consists of 34 percent if individuals between the mean and mean plus one standard deviation. The last category is called laggards consisting of 16 percent of individuals. (Rogers 2003, 280) The group of innovators are considered being venturesome by character and they are able to cope with higher level of uncertainty. Despite the small share in social system, innovators play important role in the innovation process as they act as gatekeepers in adopting new ideas in to the system. Early adopters are considered as having a high degree of opinion leadership and they help triggering the critical mass in innovation adoption. By adopting new ideas, the early adopter can decrease the uncertainty of a certain innovation and peers in the network perceive this as a stamp of approval to a new idea. (ibid., 282,283)

Examining the phenomena of mobile payments it has been suggested that the people who have adopted the use of mobile payments are early adopters in the technology adoption lifecycle. MasterCard's global insight on the Mobile Payments Readiness Index indicated that the global average on mobile payment readiness is 33.2 percent as illustrated in *FIGURE 8* below. The mobile payments readiness index consists of six components, which are consumer readiness, environment, financial services, infrastructure, mobile commerce clusters and regulation (MasterCard 2012, cited 12.3.2015). Consumer readiness is considered being a critical success factor in the diffusion of mobile payments. The level of familiarity, willingness and usage are prerequisites for the diffusion process (ibid.,).

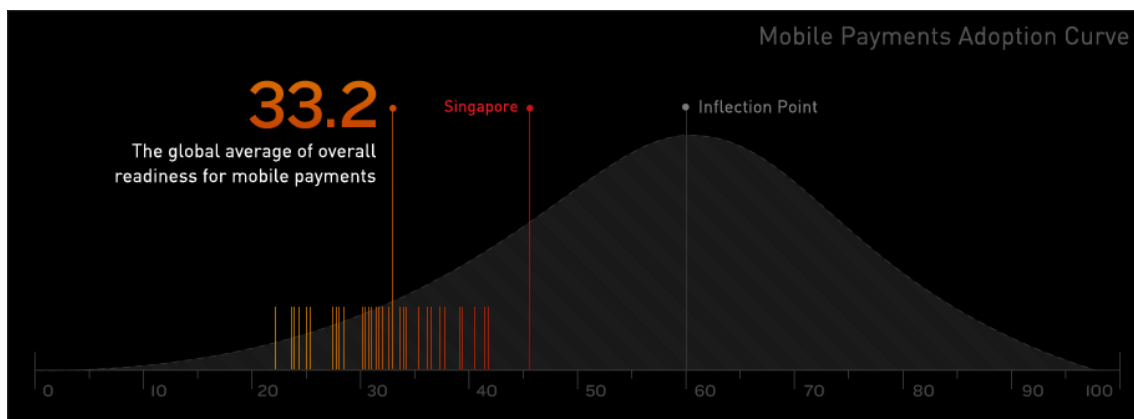


FIGURE 8. Global average of overall readiness for mobile payments: Mobile Payments Adoption Curve, Master Card MPRI (cited 12.3.2015)

Geoffrey A. Moore introduced a revised Technology Adoption Lifecycle in his book *Crossing the Chasm* in 1991. Moore suggests that there are two minor cracks and one “Chasm” in the bell curve. The Chasm is illustrated in *FIGURE 9*. The cracks can cause loss of momentum and missing the transition to the next segment in the lifecycle. The first crack appears between the innovators and early adopters and it occurs when an innovation cannot be translated into a major benefit. Other crack occurs between the mid-point of the lifecycle. At that point the market is well developed and innovation is adopted in the mainstream. However the crack represents the end-users’ will to become technologically competent. (Moore 1999, 18) This could play a role in mobile payment adoption as mentioned earlier in innovation attribute of complexity. For example the early majority may be more willing to become technologically competent, whereas the late majority is far less willing to become technologically competent for the sake of adopting mobile payments.

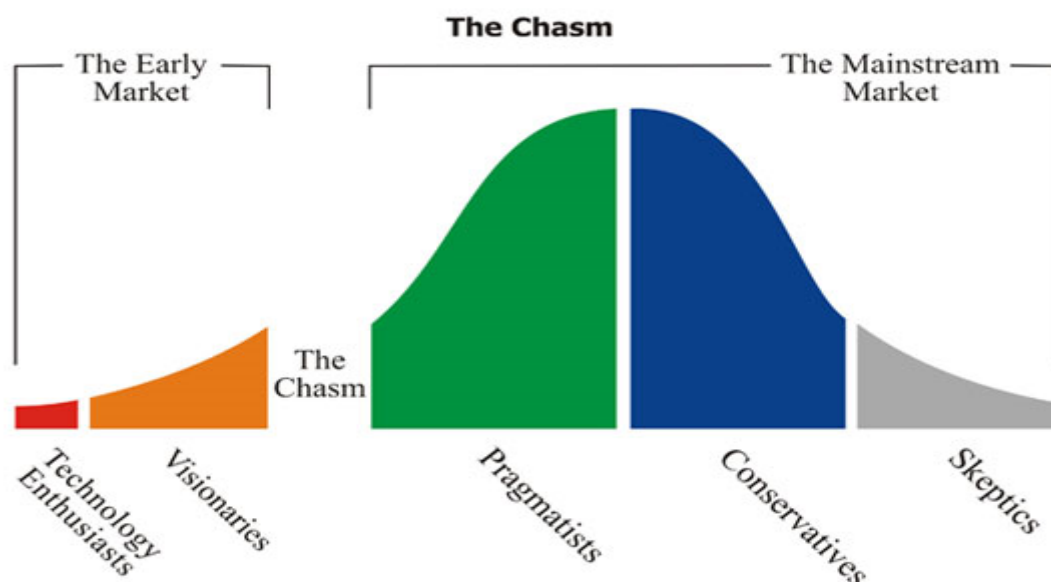


FIGURE 9. http://carlosmartinez.com/wp-content/uploads/2010/06/tbk-the_chasm-1.jpg (cited 13.3.2015)

Looking at the revised technology adoption lifecycle the cracks are however minimal when compared to the so called “Chasm”. The chasm occurs between the early and mainstream market – between early adopters and early majority. The early market includes the innovators (technology enthusiasts) and the early adopters (visionaries). This market has different approach to new innovations than the groups in the mainstream market. Innovators may adopt new ideas and technology just for the technology sake and they are the ones often to realize the potential of an innovation. However the visionaries often dominate the buying decision in the early market and

they are not looking for an improvement. They are rather looking for a breakthrough. (Moore 1999, 19 – 20). In the transition from the early market in to the mainstream market, the promoters need to acknowledge that the early majority is highly reference and support oriented and the early market does not provide valid references or support due to the differences between different segments (ibid., 23).

Critical mass

Rogers suggests that crucial part in understanding the social nature of innovation diffusion process is the concept of critical mass. Critical mass is defined as the point where diffusion of innovation becomes self-sustaining. In the diffusion process of non-interactive innovations earlier adopters have interdependence on later adopters. The bigger the amount of individuals that have adopted the innovation, more future adopters are encouraged to adopt the innovation. In interactive innovations later adopters also benefit the earlier adopters. Rogers describes diffusion of internet and e-mails as an interactive innovation: with each additional adopter of internet, e-mails became more valuable as more people could be reached by e-mail. Same effect might go with adoption of smartphones and mobile payments as additional users of smartphones can be reached by mobile payments. (Rogers 2003, 343 – 344)

3.2 TECHNOLOGY ACCEPTANCE MODEL

In addition to innovation diffusion theory, technology acceptance model by Fred Davis has been widely established tool studying the factors affecting the adoption of an innovation. Davis introduced two fundamental variables affecting the user acceptance. First variable is perceived usefulness and second variable is perceived ease of use. Davis defines perceived usefulness as “the degree to which a person believes that using a particular system would enhance his or her job performance.” Perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of effort.” (Davis F. 1989, 319 – 320.) The technology acceptance model (TAM) has been used in recent study measuring consumer attitudes on mobile payment services by Arvidsson 2014.

4 MOBILE PAYMENT ADOPTION FACTORS

This chapter shortly sums up hypotheses on most important adoption factors from previous studies. Most of the factors are already discussed earlier in this paper in the chapter of theoretical framework. Recent article by Arvidsson proposes that the most important factor in mobile payment adoption is ease of use. Additionally, factors such as relative advantage, high trust, low perceived security risk, higher age and lower income had a positive association in adopting mobile payment services. Arvidsson has proposed a list of effects on attitudes towards adoption as in *FIGURE 10* below. The article also implicates that in order to gaining full understanding to changes in payment processes, in addition to innovation diffusion theory and technology acceptance model theories on learning, network economies and value creation shall be taken into consideration. (Arvidsson 2014, 150)

	Adoption factor	Proposed effect on attitudes towards adoption
Table I. Summary of the hypotheses and the expected effect on attitudes toward adoption	Relative advantage	+
	Costs	-
	Compatibility	+
	Ease of use	+
	Network externalities	+
	Trust in actors	+
	Security risks	-
	Age	-
	Income	+
	Use of card payments	+

FIGURE 10. Adoption factor effects: Arvidsson, N. (2014). Consumer attitudes on mobile payment services – results from a proof of concept. International Journal of Bank Marketing, Vol. 32(Iss 2), pp. 150 - 170.

Similar findings to mobile payment adoption factors were proposed by Niina Mallat. The main adoption determinants in the qualitative study were relative advantage, compatibility, complexity, costs, network externalities, trust and perceived security risks (Mallat 2007, 11). These previously proposed will be used as the foundation in the questionnaire and the results can be later used to confirm whether there are similar findings in this study or not.

5 RESEARCH METHODS

Aim of this thesis work was providing up to date information from the field of retail payments, more precisely mobile payments. This chapter introduces the research method used in this study. The execution of this research is aiming to answer the main research questions as defined in chapter 1.2. The main research question is:

What are the drivers of diffusion and adoption of mobile payment solutions among young consumers in Finland?"

This paper also aims to answer two additional questions:

What are the obstacles in using mobile payments over cash or card payments?

What is the perceived value in using mobile payments over traditional payment types?

This research uses quantitative research methods. Outcome of the research will be reflected on the main findings of the diffusion innovation theory. Blaxter, Hughes & Tight (2006, 64) referring to Punch, Quantitative research is empirical research where the data is in the form of numbers. Qualitative research is empirical research where data is not in numeric form. In social sciences there has been debate on the merits of both of these research approaches. Quantitative research method tends to involve data on larger scale whereas qualitative research focuses exploring instances more in-depth and in smaller numbers. (ibid., 64) Despite the newness of mobile payments, this study is not trying to create new theories to diffusion of mobile payments or similar phenomena. Research approach of choice will be survey. Blaxter et al. (2006, 76) referring to Aldridge and Levine surveys in terms of strategy means collecting the same information about all the cases in a sample. Advantages of a survey are that with a good response rate, a lot of data can be yielded relatively quickly (ibid., 79).

5.1 DATA COLLECTION & RESEARCH SAMPLE

The research was conducted by questionnaire containing few open-ended questions, ultimately providing more detailed information on the possible drivers and barriers to mobile payment adoption and the perceived value in using mobile payments. Designing the questionnaire forms was time consuming and the form was revised for multiple times. The final revision was well executed with few remarks on the questions, especially the Question 22, which directs the respondents towards certain answers according to the given examples (Niva, 2015). The questionnaire was implemented in English only, which was expected to slightly lowering the response rate. Questionnaire was designed using Webropol, Due to limited timeframe and resources to this research, cluster sampling was used in this research. The selected research sample is Oulu University of Applied Sciences, School of Business and Information Management students. The questionnaire was sent to students by group e-mails and the link to questionnaire was publishes in Oulu UAS School of Business and Information Management student intranet quick topics. The link was published 8.4.2015 and it was visible until 15.4.2015. A response rate between 10 to 30 percent was expected and the respondents were encouraged to answer with two Finnkino movie tickets or alternatively 15€ worth mobile payment as a prize. In order to gain more visibility for the questionnaire, the. The data collected is analysed by reports built directly from Webropol.

5.2 VALIDITY & RELIABILITY

Certain limitations will apply to the collected data. It is important to note that the demographics of the research sample does not represent the whole age spectrum which might skew the results to some extent. As the sample was Oulu UAS students, the sample is quite narrow in geographical terms and the results may not be generalized on national level. An average young consumer in Finland can be in working life, studying or unemployed. These variables form a wide spectrum of different possibilities, thus the sample of Oulu UAS students in the School of Business and Information Management cannot be generalized as the average young consumer in Finland (Niva, 2015.)

6 RESULTS

This chapter examines the results of the questionnaire first by analyzing the response rate in the survey. The research findings are divided in four sub-chapters. First sub-chapter profiles the respondents by factors such as age, gender and smartphone penetration and behavior. The second sub-chapter presents current attitudes towards mobile payments and defines the level of mobile payment awareness among the respondents. Third sub-chapter describes mobile payment adoption factors and drivers and obstacles in using mobile payments. Last sub-chapter presents additional findings in the results such as the perceived value of mobile payments and preferred billing method. The data is presented in written form and illustrated by tables and figures.

During the data gathering period between 8.4.2015 and 15.4.2015 the quick topic published in student intranet Oiva (*Appendix 2*) was viewed on for 125 times. In addition to publishing the questionnaire link in Oiva, it was sent to Oulu University of Applied Sciences School of Business and Information Management 1-3rd year students by group e-mail. Total population according to January 2015 was 1554 students excluding Master's Degrees. Most of the responses were received during the first two days and after an additional reminder was sent by e-mail to the students. During the timeframe the questionnaire was opened 186 times and 88 responses were successfully submitted. The questionnaire reached roughly 12 percent of the students but the effective response rate was 6 percent, which is relatively low. Better response rate could have been possibly reached by extending the time of data collection and the fact that the questionnaire was in English only, could have had an effect on the final response rate. Results are not presented in the same order as in the questionnaire. In the beginning background of the respondents such as demographics and smartphone behaviour will be introduced, followed by actual results regarding mobile payments.

6.1 RESPONDENT PROFILING

The age distribution of the respondents clearly illustrates the young demographics in this study. From all respondents 47 percent of the population were between 21 to 23 years old. Second biggest age group is representing people between 24 to 26 years old with 19 percent of the respondents. The age group from 30 to older represents 17 percent of the population in this study. Age groups 27-29 and 18-20 yielded the least amount of responses with 9 percent and 8 percent of the respondents. Distribution between age groups and the number of respondents in each age group is presented below in *FIGURE 11*. Responses between male and female were distributed relatively equally enabling comparison on the attitudes towards mobile payments by gender. There were total 40 male respondents and 48 female respondents resulting in weighted percentages of 45 and 55.

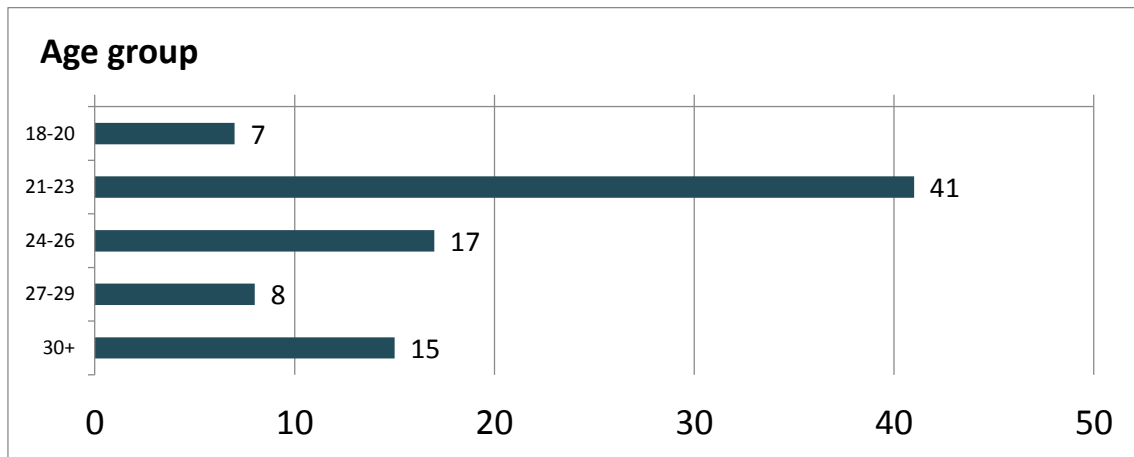


FIGURE 11. Number of respondents by age groups, n=88

Smartphone penetration was as high as 94 percent among the respondents. Only 5 people out of 88 did not own a smartphone. Most of the smartphone users had mobile data subscription and only two respondents reported not having internet access on their smartphone. 89 percent had a 3G or 4G mobile data subscription and 9 percent use WiFi-access to internet instead of mobile data. A total of 70 people access internet several times a day on their smartphone resulting in 85 percent of the population and 10 reported accessing internet on daily basis which is 12 percent of the respondents.

Smartphones were used to support shopping by majority of the respondents. 76 percent reported using their smartphone for price comparison, searching for product information and searching for merchants. Mobile banking was used by 63 percent of the respondents. Before going in mobile payments, purchasing of mobile content was examined in three categories: Ringtones or logos, Mobile apps and Music or eBooks. The purchase behavior was reported by a total of 88 respondents. 27 percent of all respondents reported having purchased ringtones or logos on their mobile phones, whereas 39 percent of respondents had purchased mobile apps e.g. in Google Play or Apple Store. Music or eBooks was the least popular category in which 77 people had not purchased paid content on their mobile phones. Biggest difference in purchasing paid content occurred in purchasing mobile apps between male and female respondents. 53 percent of male respondents reported having purchased mobile apps, whereas the corresponding percentage among female respondents was 27 percent.

6.2 ATTITUDES AND AWARENESS TOWARDS MOBILE PAYMENTS

General attitude towards mobile payments towards mobile payments was slightly on the positive side among the respondents. The percentages and amount of respondents are illustrated in *TABLE 2 below*. An average of all respondents was 3,57 on a scale of 1-5. 17 percent of the respondents consider their general attitude towards mobile payments. An attitude between positive and neutral was reported by 44 percent of total respondents. Neutrally oriented respondents represent 19 percent of the total respondents. Another 17 percent perceived their attitude towards mobile payments between neutral and negative. A total of 10 positive responses were from male respondents representing 25 percent of the male respondents and a total of 17 male respondents rated general attitude as 4 resulting in 43 percent of the male respondents. Respectively 5 female respondents reported a positive attitude towards mobile payments representing 10 percent of the female respondents. 22 female respondents rated their attitude between neutral and positive totaling 46 percent of female respondents. When examining the results by the usage of mobile payments 14 of mobile banking users reported positive attitude towards mobile payments resulting in 27 percent of mobile payment users. An attitude between neutral and positive was reported by 26 respondents totaling 50 percent of mobile banking users. Respectively none of the respondents not using mobile banking reported having positive attitude towards mobile payments. 10 respondents not using mobile banking reported having attitude between positive and neutral totaling in 30 percent of respondents not using mobile banking. An attitude between negative and neutral was reported 12 times by respondents not using mobile banking totaling 39 percent of respondents not using mobile banking.

TABLE 2. General attitude towards mobile payments, n=88

	Negative	1	2	3	4	5	Positive	Total	Avg.
General attitude towards mobile payments		2	15	17	39	15		88	N
		2	17	19,5	44,5	17		100	%

The awareness of mobile payments was divided in four categories: People who are familiar with the concept and are using mobile payments, people who are familiar with the concept but not using mobile payments, people who are not familiar with the concept but have heard of mobile payments and people who have not heard of mobile payments. 21 people reported using mobile payments and 44 people reported being familiar with the concept but not using mobile payments. 15 had heard of mobile payments and 8 people reported having not heard of mobile payments. Percentages of respondents in each category illustrated in *FIGURE 12 below*. Examining the differences in mobile payments awareness by gender results show that 13 of male respondents use mobile payments whereas 8 of female respondents reported using mobile payments. Respondents that were familiar with the concept but didn't use mobile payments themselves consisted of 21 male and 23 female respondents. In category not familiar but heard of mobile payments included 4 male respondents and 11 female respondents. Only two male respondents reported not having heard of mobile payments and corresponding response of females was 6. When comparing mobile payment awareness between users and non-users of mobile banking, 19 respondents of total 52 mobile banking users reported being familiar with the concept and using mobile payments themselves, whereas only two people not using mobile banking reported similar results. The category of familiar with the concept, not using mobile payments, 25 of mobile banking users and 16 out of 31 non-users were reported.

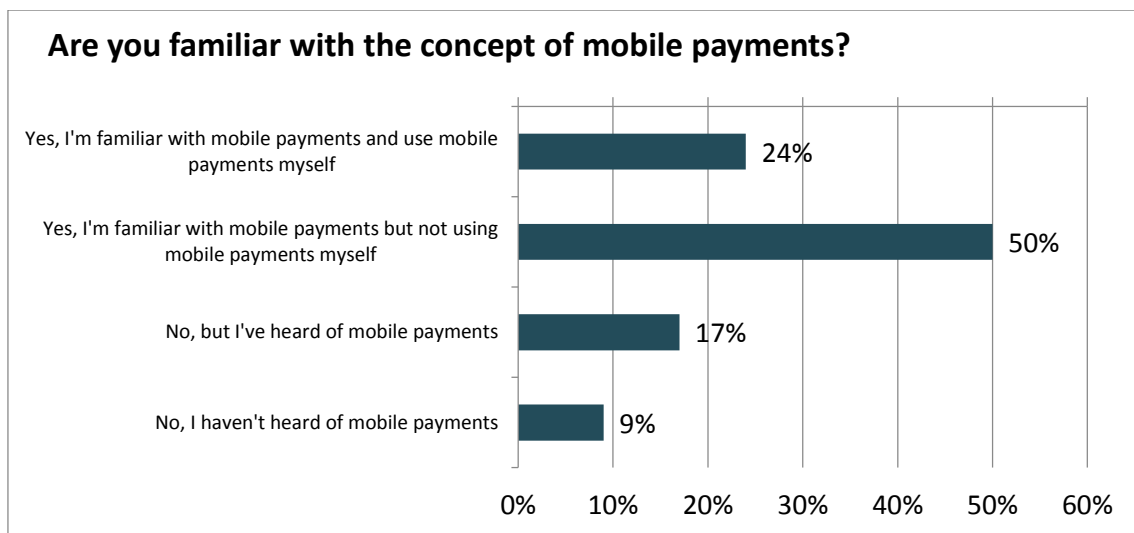


FIGURE 12. Level of mobile payment awareness, n=88

The most popular communication channel in hearing of mobile payments was the internet with total of 36 respondents. Mass media and word of mouth were the two other major communication channels for mobile payments with 18 responses on mass media and 17 on word of mouth. Two persons reported hearing about mobile payments on social media. Other communication channels included open-ended answers such as: specialist, friends, from work, on-site and internet, word of mouth and social media. The open-ended answers could have probably fitted in the predefined categories to some extent. Distribution between different categories is illustrated in *FIGURE 13 below*.

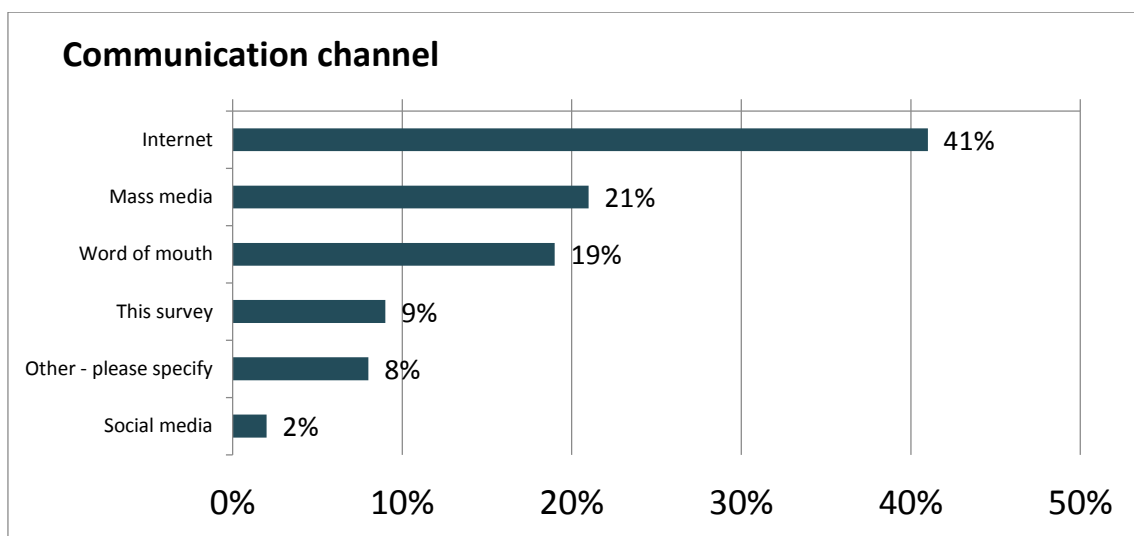


FIGURE 13. Communication channel in hearing of mobile payments? n=88

The awareness of current mobile payment solutions included 4 of currently available smartphone applications and two upcoming solutions by major smartphone manufacturers. Optionally respondents could report other solutions they had used or heard of. The percentages on different levels of awareness on current solutions is illustrated in *FIGURE 14 below*. The results show that the most known solution was MobilePay by Danske bank with 11 users, 39 having heard of it and 38 having not heard of the application. Google wallet was the second most popular mobile payment solution among the respondents with 6 respondents having used it, 39 having heard of and 43 not having heard of it. Elisa Lompakko had 2 users, 38 of the respondents having heard of and 48 not having heard of it. Apple Pay was reported being used by one of the respondents and 37 had heard of the solution. DNA Töpökkä and SEQR were the least known solutions with 77 out of 88 not familiar with DNA Töpökkä and 82 out of 88 not familiar with SEQR by Seamless. Other reported solutions included applications such as PayPal, Western Union, M-Pesa, Alibaba mobile payment and Ideal. 23 respondents - 26 percent - reported having a mobile payment application currently installed on their smartphone. 7 respondents reported MobilePay being the most commonly used application. Google Wallet was reported 3 cases. Responses contained mobile banking apps in 8 cases and Pivo was also reported in one case. As these apps are not considered as mobile payments apps in this study, the effective percentage is 16 percent. The rates of mobile payment applications by usage type among 88 respondents showed that 20 percent of the respondents had used mobile payment application for paying for goods or services. Mobile payment applications were used for transferring money by 28 percent.

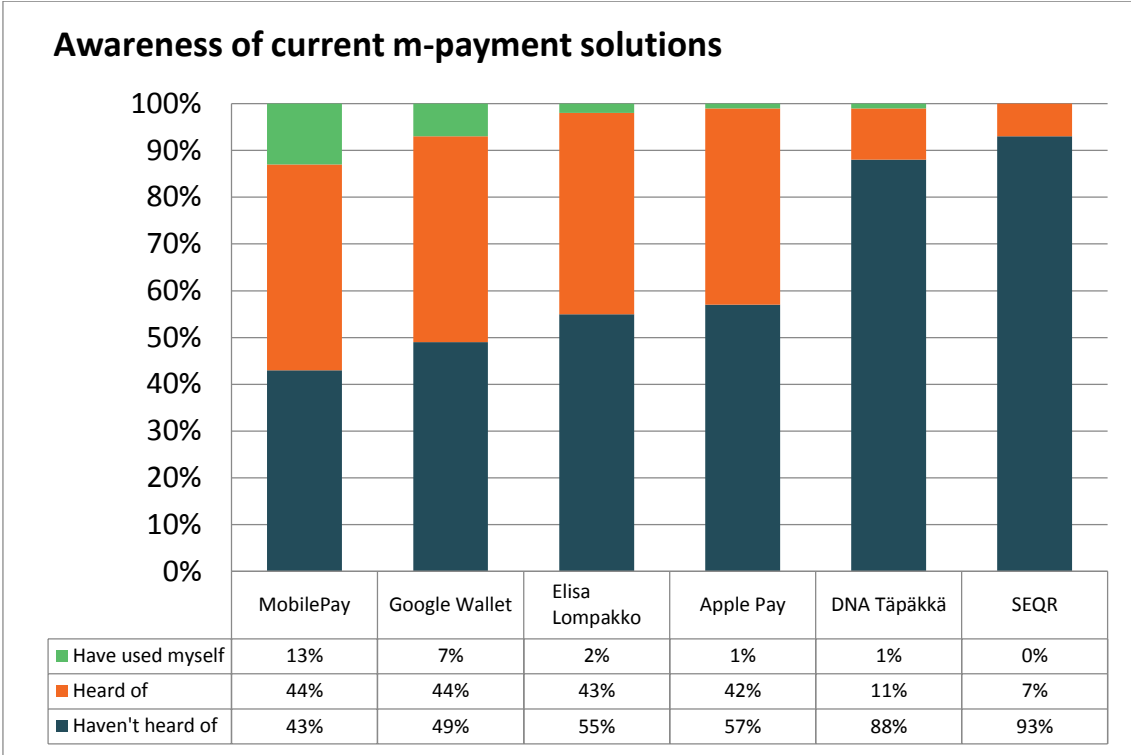


FIGURE 14. Awareness of current mobile payment solutions, n=88

Willingness to recommend mobile payments showed that 29 out of 38 respondents were willing to recommend mobile payments to others. Ease of use or convenience was reported as the most common reasons to recommend mobile payments by a total of 17 respondents. Reasons for not willing to recommend mobile payments were: too small display, less secured, prefer cash, privacy and security concerns, not using myself and easy to spend too much. Hearing user experiences from acquaintances prior to own usage of mobile payments was perceived relatively important. The percentages and amount of respondents are illustrated in *TABLE 3 below*. An average of all respondents was 3,66 on a scale of 1-5. 14 percent of the respondents considered it important to hear user experiences from acquaintances prior to own usage. An attitude between important and neutral was reported by 58 percent of total respondents. Neutrally oriented respondents represent 10 percent of the total respondents. Another 17 percent perceived hearing user experiences before own use between neutral and unimportant

TABLE 3. Importance of hearing user experiences prior to own use, n=88

	Less important	1	2	3	4	5	More important	Total	Avg.
Importance of hearing user experiences prior to own use		1	15	9	51	12		88	N
		1	17	10	58	14		100	%

6.3 ADOPTION FACTORS

The results in choosing two of the most important factors in mobile payments *Security* and *Ease of Use* were the most popular categories. The question asked for two most important factors according to respondent's opinion. The results show that Security was chosen by 33 percent of instances and Ease of Use in 29 percent of the instances. Reliability, Speed of the payment process, Wide acceptance and Pricing were not seen as important in many instances. When comparing differences in responses by gender it appears that male respondents regarded security as one of two most important factors in 35 percent of the responses. Reliability was chosen in 21 percent of the instances and Ease of Use followed with 20 percent. In comparison, female respondents regarded Ease of Use as one of two most important factors in 36 percent of the responses. Security was chosen in 31 percent of the instances and speed of the payment process was present in 16 percent of the instances. The least popular category pricing was chosen only by 3 respondents all of them being male respondents. The results are reported in *TABLE 4* below.

TABLE 4. Most important factors in mobile payments, n=88

Factor	Male (n=80)	%	Female (n=94)	%	Total (n=174)	%
Security	28	35	29	31	57	33
Ease of use	16	20	34	36	50	29
Reliability	17	21	11	12	28	16
Speed of the payment process	7	9	15	16	22	13
Wide acceptance	9	11	5	5	14	8
Pricing	3	4	0	0	3	2

Mobile payments were considered less secure when compared to card payments. The perceived security resulted in an average of 2,2 on a scale of 1 to 5, 1 meaning less secure than card payments and 5 meaning more secure than card payments. *TABLE 5* indicates the distribution of all respondents on the scale. Biggest security concerns were categorized in four groups: Unauthorized use, Lack of privacy, Transaction errors and other concerns. Unauthorized use was the biggest concern among the respondents resulting in 42 percent of all respondents. Lack of privacy represented the second biggest security concern with 35 percent of the respondents and transaction errors was the third biggest concern with 18 percent of the respondents. The rest 5 percent of the respondents reported other security concerns including specifications such as *data capture, not accepted everywhere, privacy, security, app errors, unauthorized use and lack of privacy* combined. When comparing biggest concerns by gender it shows that 53 percent of male respondents consider unauthorized use as the biggest concern, whereas the respective percentage is 33 among female respondents. Lack of privacy was the reported as the biggest concern by 40 percent of female respondents, whereas the respective percentage was 30 among male respondents. The concern of transaction errors was higher among women resulting in 27 percent of female respondents. Given three options – *current bank, current mobile operator, and current card company* - in most trusted mobile payment service provider, current bank was reported being most trusted in 78 out of 88 responses.

TABLE 5. Perceived security in comparison to card payments, n=88

	Less secure	1	2	3	4	5	More secure	Total	Avg.
Security of mobile payments in comparison to card payments		22	38	18	8	2		88	N
		25	43	21	9	2		100	%

Consumers' intentions towards usage of mobile payments was examined with 18 statements, which were rated on Likert scale from 1 to 5: Disagree, Somewhat disagree, Neutral, Somewhat agree and Agree. Both, the increased and decreased intention towards adopting mobile payments contained statements that could be categorized under 6 factors presented earlier in TABLE 4. In question 15 containing the statements of increased intention towards mobile payment adoption, the average of all statements was 3,97. Factors that were most agreed upon consisted of *Reliability*, *Speed of payment processing* and *Pricing*. Factors that received average rating or below average consisted of *Ease of use* and *Wide acceptance of payment method*. TABLE 6 below illustrates the distribution of responses in each statement.

TABLE 6. Increased intention towards adopting mobile payments, n=88

	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Total	Avg.
Flawlessly functioning app	5	0	11	22	50	88	4,27
Errorless payment process	4	2	9	24	49	88	4,27
Queue avoidance - faster alternative	2	2	17	29	38	88	4,13
Initial investment not required	5	4	11	25	43	88	4,1
Discount on purchases	2	5	20	27	34	88	3,98
Easy registration	5	5	13	30	35	88	3,97
Learning to use effortless	5	1	22	29	31	88	3,91
All-in-one app/one credentials	6	2	27	22	31	88	3,8
Close acquaintances using	9	13	26	23	17	88	3,3
Total	43	34	156	231	328	792	3,97

In question 16 containing statements with decreased intention towards mobile payments, the total average was 4,17. Statements above the average include factors *Security, Pricing* and *Reliability*. Statements in decreased intention towards mobile payment adoption is illustrated in *TABLE 7* below. These results show that factors such as reliability and pricing have an impact on the intention towards mobile payment adoption, even though these factors were not seen as the two most important factors in mobile payments. The security aspect was measured in one statement only and it seems to be most unanimously agreed upon as a factor decreasing the intention of mobile payment adoption. Ease of use, the second most important factor in mobile payments in this study seem to have less impact on the intention of adopting mobile payments, albeit it was not highly disagreed having an impact on the intention towards mobile payment adoption.

TABLE 7. Decreased intention towards adopting mobile payments, n=88

	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Total	Avg.
Risk of compromising payment details	4	0	9	11	64	88	4,49
Usage fee	3	3	7	15	60	88	4,43
Risk of unexpected behaviour within app	2	2	8	24	52	88	4,39
Unclear user-interface	2	4	10	37	35	88	4,13
Management of multiple apps/credentials	3	5	11	31	38	88	4,09
Lack of wide acceptance	2	6	13	36	31	88	4,00
Lack of verification/receipt	4	7	12	32	33	88	3,94
Hearing negative feedback	4	6	12	39	27	88	3,90
Total	24	33	82	225	340	704	4,17

6.4 OTHER FINDINGS

The perceived value of mobile payments was included as an optional open ended question in the end of the questionnaire, thus remaining unclear to some extent. The question included examples in order to encourage respondents to giving comments on the perceived value. Examples were “save time, no need for physical wallet, better control on my finances, discounts, social prestige - trendy etc.” There were a total of 57 responses to the question. The comments can be found in *APPENDIX 3*. Text-mining results show that the answers are slightly biased and skewed according to the given examples. The word *time* is mentioned in 28 cases and the word *save* is mentioned in 17 cases.

In addition to main findings the questionnaire included a question on preferred billing method in mobile payments and as the result, one billing method clearly stands out. The question had five predefined billing methods as in *FIGURE 15: Debit, Credit, Included in billing (e.g. Mobile phone bill), Prepaid and Invoice*. Debit was the most preferred billing method and it was followed by Credit billing. Other methods than billing received less than debit was chosen as the most preferred payment method by less than 10 respondents. No significant differences could be found when examining the results by gender.

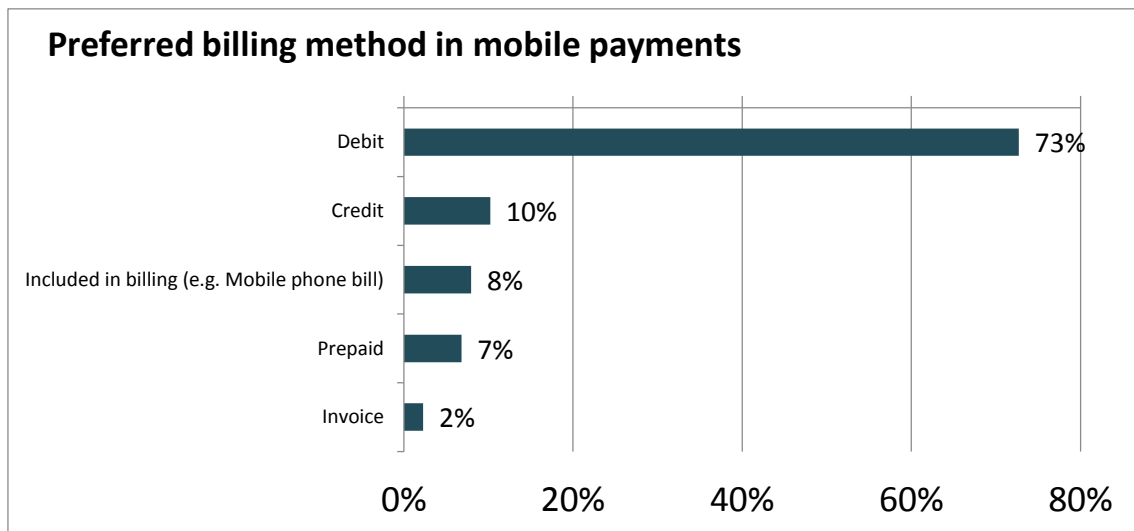


FIGURE 15. Preferred billing method in mobile payments, n=88

7 CONCLUSIONS

In concluding the research results covered in previous chapter, this chapter aims to present the outcomes of the study such as the current state of mobile payments among this particular sample used in the study. It is important to note that the rather homogenous and relatively small sample does not allow to make generalizations from the results, especially due to the broad nature of the research questions used in this study.

Reflecting the results of survey on the theoretical framework, it seems that many respondents in the sample have gone through the first stage in the *Innovation-Decision Process*. A majority of the respondents had gained knowledge on mobile payments, however many people had not used mobile payments. In some cases mobile banking might have been confused as mobile payments. Internet and mass media were most important communication channels in gaining knowledge on mobile payments. In three of the most well-known mobile payment solutions MobilePay and Elisa Lompakko have probably had the most media coverage and nearly half of the respondents had heard of these solution. An interesting fact that Google Wallet and Apple Pay are currently not available for point of sale transactions in Finland, nearly half of the respondents had heard of these solutions. As suggested by Rogers, the mass media is the most efficient in terms of informing certain audience but it has less power in the persuasion stage. This might be the underlying factor that many respondents have currently not perceived mobile payments providing advantages over traditional payment methods. On general level the attitudes were rather positive and the importance of interpersonal communication channels became evident as more than half of the respondents perceived it rather important to hear user experiences in mobile payments prior to own usage. The results show that people who were willing to recommend mobile payments to their peers often mentioned ease of use or convenience as a ground for recommendation. Willingness to recommend mobile payments can act as a strong driver in the diffusion of mobile payments by having a positive impact on the persuasion stage in the decision process.

The perceived value and relative advantages in mobile payments remain unexplained to some extent in the results of this study. The results of the perceived value might have been biased towards the examples given in the open-ended question. Time saving, ease of use, no need for physical wallet and better control over one's finances were popular answers, however some answers contain conditional clauses and in some cases uncertainty was expressed in words such as I guess and maybe. In this study, the compatibility of mobile payments on the consumer perspective seem rather high when measuring the consumer readiness by smartphone penetration and usage of smartphones in shopping and banking. However mobile payments need to overcome some barriers such as the perceived security risks in comparison to the traditional payment methods. Another current issue in compatibility is the lack of standardization and lack of merchant adoption.

Security and ease of use were clearly perceived as the most important factors in mobile payments and the results show that these factors also had an impact on the intention towards use. The other factors included in this study shall not be neglected as they seem to have an impact towards the intention of use even if they were not considered as two of the most important factors in mobile payments. Some differences were found when examining the most important factors by gender. Male respondents seem to regard security as one of the most important factors. Ease of use and reliability were regarded as important factors as well sharing almost the same amount of responses. When examining the most important factors among female respondents, the ease of use was regarded as one of the most important factors then followed by security. This result is an interesting point, however generalizations cannot be made due to the size and demographics of the sample. In this particular sample, mobile payments are unlikely perceived as too complex payment solutions as people were experienced smartphone users. More than half of the people have been using mobile banking and one out of five reported having used a mobile app for paying for goods or services.

The results showed that around 16 percent had mobile payment application of some sort installed when mobile banking apps were excluded. Roughly 24 percent had used apps listed in *FIGURE 14*. The level of mobile payment adoption seems to fit in the *early market* in the technology adoption lifecycle including the *Innovators* and *Early adopters*. Reflecting the results on the suggestions in *Crossing the Chasm* by Moore, it seems as the diffusion process has not lost momentum despite the fact that perceived usefulness remains unexplained to some extent and the perceived usefulness may not be evident to the consumers. The chasm may still be hindering the transition from early market in to mainstream market, however as Rogers suggested the diffusion curve from 10 to 20 percent is the heart of the process and after exceeding the point it may be impossible to stop further diffusion.

8 DISCUSSION

The Bachelor's Thesis process started in the autumn 2014 when the author was appointed as a promoter of a certain mobile payment solution in his current job. The daily tasks in the working life revolved around guiding customers in using digital services offered by the organization. Among other services, promoting mobile services seemed slightly more challenging in comparison to other services as there was no demo-version of the mobile payment application. Convincing the customers on the potential benefits did not always work as intended and the process of adopting the application faced some barriers on the spot. Downloading and installing the app did not always work as the customer did not have the app store configured properly and the registration required banking details such as bank account number and bank card number. After consulting an employee from business development branch the topic for this study became concrete. The actual commission from the employer seemed rather complicated due to certain limitations in utilizing data from the organization. The final topic studies mobile payments on a general level in Finland and there were only few studies conducted in the same field.

The topic was approved by the head of degree programme in international business during December 2014. The initial plan did not face major changes during the process. The base for theoretical framework derived from reviewing previous studies from the past decade. *The innovation diffusion theory* was mainly applied in designing the research as the aspects in *Technology acceptance model* proved to be found in the innovation diffusion theory as well. The perceived characteristics of innovation offered slightly higher descriptive richness giving the ability to reflect results of the research on the theory. The opening seminar was held in 19th of January 2015 and the process continued with defining the key concepts in and presenting the theoretical framework during February. The most challenging part in defining the concept of mobile payments was the fact that there were many kind of approaches on the phenomena due to the lack of standardization. The biggest concern until the opening seminar was whether there was enough literature on the topic due to its newness. The concern proved to be quite the opposite and in the end few studies and sources proved being worth including in the thesis. During studying the theoretical framework, both the innovation diffusion theory and technology acceptance model seemed to have various revisions on the original models and the "Chasm", introduced by Moore was included in this study to the technology adoption lifecycle.

By the directions seminar, which was held in 17th of March, the concepts and theoretical framework had gained their final form and the preliminary research plan was drawn with an outline to the questionnaire. After the seminar minor improvements were suggested regarding the structure of the topic and the questionnaire outline had some changes in the order of the questions. Biggest concern was the response rate in the questionnaire and publishing a copy of the questionnaire in Finnish was considered. Due to the tight schedule the questionnaire was finally published in English only. Originally planned date for opening the questionnaire was during week 13 or 14, but due to the fact that the questionnaire had not been properly tested this deadline was not met. Also in order to publishing the questionnaire link in the student intranet and sending group e-mails the author had to apply for research permit from the director of the unit. Research permit application was sent in 2nd of April and it was accepted on the next working day on 7th of April. Questionnaire was published on 8th of April and data was gathered for one week. A higher response rate was expected for the questionnaire, but it turned out quite decent regarding the short time-window and the fact that the questionnaire was in English only. A better response rate would have given the possibility to better cross tabulation and comparison between different groups of respondents. In couple of the cases respondents reported having some bugs in the questionnaire, especially in the questions 13, 19 and 20 with the 5 point semantic differentials a graphical slider implementation. Probably the biggest downside to the research was the homogenous sample from which generalizations could not be made. The results would most likely look totally different if the questionnaire was conducted using wider sample with different demographics.

During the analysis of the results in this study couple of problems occurred related to the reliability and validity. Some of the questions might have been confusing for the respondents as mobile banking might have been confused with mobile payments. These problems could have been avoided with clearer and unambiguous question design. There were only two possible comparisons between different groups with a minimum of 30 responses per group were comparison between gender and comparison between usage of mobile banking. In addition to these comparisons it was intended to compare groups by different smartphone usage behaviours and by different age groups. The most interesting fact was that men seemed to regard security higher than women and women seemed to regard ease of use as the most important factor in mobile payments. The analysis of the results proved being more time consuming than assumed. Webropol reports alone were not providing the results in their desired form so excel was also used in creating desired tables and figures. Webropol professional statistics and Webropol text-mining were also interesting tools

in the analysis but in the final results only the text-mining tool was used to analyse one open-ended question.

The thesis process in general was interesting and challenging at times. As personal developments, the thesis has provided better understanding on the factors which play an important role in the diffusion process. As for myself, the importance of interpersonal communication in adoption of new innovations in some adopter categories was not self-evident. On the technical aspect in conducting research the importance of proper planning, putting time and effort cannot be emphasized enough.

For further development study on the mobile payment adoption drivers and obstacles is crucial in order to understand the current state on national or even international levels. The fact that the environment of mobile payments will undergo big changes and development in the future proves not only the topicality, but the consumer attitudes may change radically when mobile payments become more standardized and gain bigger share in the accepted payment methods. It remains to be seen what happens when big platforms such as android and apple bring their integrated mobile payment solutions to the Finnish markets. During this thesis process mobile payments have been in the topics and the concepts used in this thesis may not be applicable in the future.

Another interesting aspect on this topic would be the merchant perspective as currently mobile payments are not widely accepted by merchants, but according to the news in past 6 months it seems that some of the current payment terminals could support NFC-enabled mobile payments. When looking on the consumer perspective, it seems as the consumers possess the required technology and competence but the current state could be metaphorically compared to the chicken-egg conundrum. When more merchants are accepting mobile payments, the relative advantages and perceived value could be clarified to the customers and it could speed up the diffusion process. One good example in mobile payments adoption is Denmark and case MobilePay.

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10 APPENDICES

APPENDIX 1: Questionnaire



OULU UNIVERSITY OF APPLIED SCIENCES

Mobile payments consumer survey

This survey is a part of bachelor's thesis on mobile payments. Answering to the questions you will help building an image of current state of mobile payments among young consumers in Finland.

Answering to this survey will take from 5 to 15 minutes.

Should there be any questions, please contact the author by e-mail: k1kahe01@students.oamk.fi

Thank you for your time and effort!

Mobile device ownership

1. Do you own a smartphone? *

- Yes
- No - go to next page

2. Do you have mobile data subscription?

Does your Mobile Network billing include mobile internet access e.g. 3G, 4G

- Yes
- No
- No, but I use WiFi internet access

3. How often do you access internet on your smartphone?

- Several times a day
- On daily basis
- One or more times per week
- Less frequently
- I don't access internet on my smartphone

4. Do you use your smartphone to support shopping?

For example price comparison, searching for product information, searching for merchants

- Yes, I use my smartphone to support shopping
- No, I don't use smartphone to support shopping

5. Do you use smartphone for mobile banking

E.g. checking account balance, paying bills

- Yes
- No

Mobile payment awareness

6. Are you familiar with the concept of mobile payments? *

- Yes, I'm familiar with mobile payments and use mobile payments myself
- Yes, I'm familiar with mobile payments but not using mobile payments myself
- No, but I've heard of mobile payments
- No, I haven't heard of mobile payments

*** If not familiar with mobile payments, please have a look at the infographic below ***

The Future of Money and Mobile Payments by SapientNitro:

<https://www.youtube.com/watch?v=0z46KzHOgmM>

7. Where did you hear about mobile payments? *

- Internet
- Word of mouth
- Mass media
- Social media
- Other - please specify

- This survey is the first time I hear about mobile payments

8. Which of the following mobile payment solutions have you used or heard of?

Here are few examples of current mobile payment applications listed. If you have heard or used other apps please select the last option aswell

	Haven't heard of	Heard of	Have used myself
MobilePay (By Danske Bank) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elisa Lompakko *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DNA Täpäkki *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SEQR (By Seamless) *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google Wallet *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apple Pay *	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other- Please specify _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Have you purchased paid content on your mobile phone? *

	Yes	No
Ringtones or logos	<input type="radio"/>	<input type="radio"/>
Mobile apps (e.g in Google Play or Apple Store)	<input type="radio"/>	<input type="radio"/>
Music or eBooks (e.g in Google Play or Apple Store)	<input type="radio"/>	<input type="radio"/>

10. Have you used a mobile payment application *

By mobile payment application we mean apps similar to the ones mentioned in Q 8.(excluding mobile bank applications)

	Yes	No
For paying for goods/services	<input type="radio"/>	<input type="radio"/>
For transferring money	<input type="radio"/>	<input type="radio"/>

11. Do you currently have a mobile payment application installed on your mobile device *

E.g. application listed in Q 8.

Yes - Please name the most commonly used application

No - Go to next page

12. Would you recommend mobile payments to other people?

Yes - Please specify why?

No - Please specify why?

Attitude towards mobile payments

13. What is your attitude towards mobile payments in general? *

Move the slider to desired position

Negative ○ ○ ○ ○ ○ Positive

14. Choose two (2) of the most important factors in mobile payments *

In your opinion, what are the most important aspects when using mobile payments over traditional payment types such as cash or card payments?

- Pricing
- Security
- Reliability
- Ease of Use
- Wide acceptance of the payment method
- Speed of the payment process

15. I'm more likely to use mobile payments over regular payment methods if... *

	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree
I get discount on purchases	○	○	○	○	○
my friends and family are using mobile payments aswell	○	○	○	○	○
the application functions flawlessly	○	○	○	○	○
I can register easily	○	○	○	○	○
I can avoid queuing - faster alternative	○	○	○	○	○
I can access all payment methods in one app (or with one credentials)	○	○	○	○	○
it doesn't require much effort to learn using it	○	○	○	○	○
the payments are processed error-freely	○	○	○	○	○
I don't have to make initial investments to start using mobile payments	○	○	○	○	○

16. I'm less likely to use mobile payments if... *

	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree
If the interface of the application is unclear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't get instant verification/receipt on the payment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there's a fee in making payments - I have to pay for using mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to manage multiple apps/accounts when using mobile payments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there's a risk of compromising my payment details to 3rd parties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there's a risk of unexpected behavior in the application	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the payment method is not widely accepted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I hear negative feedback on mobile payments in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. In your opinion, which of the following is the most trusted mobile payment provider? *

- My bank
- My mobile operator
- My card company

18. Choose your preferred billing method in mobile payments *

- Debit
- Credit
- Invoice
- Prepaid
- Included in billing (e.g. Mobile phone bill)

19. How important is/was it to hear user experiences from people you know in mobile payments prior to own usage? *

Less important More important

20. In your opinion, are mobile payments more or less secure than card payments? *

Less secure More secure

21. In your opinion, what is the biggest security concern in mobile payments? *

- Unauthorized use
- Lack of privacy
- Transaction errors
- Other - please specify:

22. What value can mobile payments bring to you? Comment shortly.

For example: save time, no need for physical wallet, better control on my finances, discounts, social prestige - trendy etc.

23. Your age *

- 18-20
- 21-23
- 24-26
- 27-29
- 30+

24. Gender *

- Female
- Male

After submitting your answers you will be redirected to new page approximately after 3 seconds for filling your contact information.

By filling in your contact information you have a chance to win two movie tickets or 15€ via MobilePay. The prize is provided by the author of this study.

0% completed

APPENDIX 2

Current Topics: Quick Topics

[◀ Mark as read and go back](#) [◀ Go back](#)

MOBILE PAYMENTS CONSUMER SURVEY

Dear participant,

I invite you to participate in a bachelor's thesis on *Current state of mobile payments in Finland*. The thesis aims to provide an up-to-date insight on consumer attitudes on mobile payments and finding possible drivers and obstacles affecting the diffusion process of mobile payments among young consumers. The author of the thesis is finalizing studies in the degree programme in international business and every response to the questionnaire will be highly regarded. As you are given the chance to contribute, you can provide valuable information on the consumer aspect of mobile payments whether you are already experienced in mobile payments or not.

You are kindly requested to answer the questionnaire by the 15th of April. The following questionnaire will require approximately 5 to 15 minutes of your time. For compensation, the author will draw one winner of 2 Finnkino movie tickets or alternatively 15€ via MobilePay. Every respondent who fills in their contact information after completing the questionnaire will have the chance to win the tickets or money prize. The prize will be provided by the author of this study and the winner will be contacted by e-mail or telephone by the end of April.

Answering the questionnaire no personal information will be published or used. Participation is strictly voluntary and you may refuse to participate at any time.

Research license to this survey was granted 7.4.2015 by the Oulu UAS Director of School of Business and Information Management.

The questionnaire:

https://www.webpolsurveys.com/S/A8E57D0DA028CCD2_par

Best regards,

Henri Karsikko, DIB1SN

k1kahe01@students.oamk.fi

Announcement added: 08.04.15 | Visible: 08.04.15 - 15.04.15 | [Leila Karjalainen](#) | [0 kommenttia](#) | 125

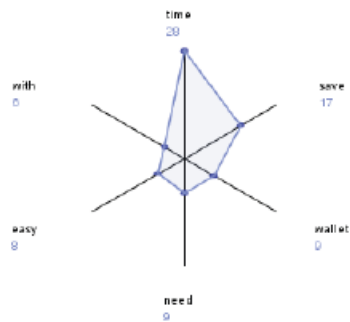
APPENDIX 3

What value can mobile payments bring to you? Comment shortly.

Word cloud

account also amount apps bank benefits better between billing business buying card cards carry carrying cash control convenient credit debit discounts doing ease easier easiness **easy** efficiency efficient electrical enables everywhere exact example fast faster finances financial forget friends general goes goods guess have having line lots make many methods money more **need** nothing on-site other overview paying payment persons physical possibility process purchases purse quickness relatives restores **save** saves saving second-hand seller several should skip smartphone sometimes station than then there therefore think tickets **time** tool train transferring trendy waiting **wallet** well when widely will with without work would

Words



Word map



All comments

- At times enables my to work without wallet.
- Be efficient, save time
- Better control on my finances
- Better control on my finances
- Better control on my finances
- Ease of payment!
- Ease of use
- Ease of use
- Easier and quicker payment
- Easy to transfer money between friends and relatives.
- Efficiency
- Exact sum of money in my debit/credit account. Paying with card can have 1-3 day gap.
- Fast, convenient, reliable.
- For example I can buy train tickets on the way to the station.
- I think it should be easy and can pay everywhere
- If it is absolutely safe and secure regard to personal information, bank account then of course, it will save time, convenient.
- Instant
- It might be faster and therefore save time.
- It saves lots of time, it's trendy and widely accepted as time goes by. Plus not as expensive as other methods when buying/paying for goods or transferring funds.
- It saves time and is effortless
- It saves time, may give access to discounts, restores an electrical receipt. It's easy.
- It's faster, saves everyones time and waiting in line. Easy if the apps work well. If there are discounts aswell, then also financial benefits.
- Make payments easier
- Maybe it will be faster...
- More ways to pay
- My life is easier
- No need for physical wallet and saving time.
- No need for physical wallet would be nice sometimes.
- No need for physical wallet, save time
- No need for several cards on wallet, no need to have coins, possibility to pay later (credit purchases, billing purchases), possibility to pay on-site when doing business with private persons (e.g. When buying second-hand products) without a need to carry a correct amount of cash for the seller.
- No need of carrying many cards in wallet
- No need to carry many different cards with you
- Not relying on cash, saving time by not having to go to the atm, trendy and interesting new tool, better overview than with debit or credit card.
- Nothing atm.
- Pay to skip waiting in line. I guess it would be trendy to use it.
- Save time
- Save time
- Save time
- Save time
- Save time
- Save time
- Save time
- Save time
- Save time
- Save time and no need for wallet
- Save time and no need to carry my purse with me everywhere
- Save time, easy process
- Save time, no need for physical wallet
- Saves time, easy to use
- Saving time
- Saving time.
- Simple way to pay small purchases
- The Quickness of use
- Time is money, it helps me save my time
- Time saving, discounts, general easiness
- Time saving, easy to carry with, easiness
- Travelling
- Using is easy and fast
- You forget smartphone at home more rarely than wallet.