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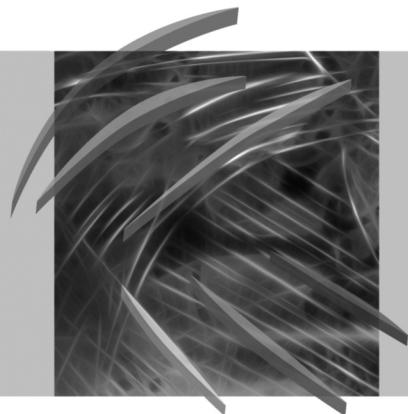
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USAGE OF MOBILE PAYMENTS IN POINT-OF-SALE TRANSACTIONS

Abstract: In the paper the analysis of prospects of Near Field Communication (NFC) mobile payments in Point-Of-Sale transactions has been carried out. According to empirical study, NFC is one of the quickest and the most convenient method of payment for the Points-Of-Sale. Furthermore, it opens opportunities to integrate payments with other services and functions available on a mobile phone. Main obstacles are the low level of acceptance among merchants and limited number of mobile devices equipped with NFC technology. As a result, NFC payments have not been commercially deployed on a large scale except Japan and South Korea. However, NFC payments and contactless cards use the same contactless POS terminals network, what generates the synergic effect. Therefore, NFC mobile payments may surprise the market and develop more rapidly than expected.

Keywords: mobile payments, NFC, proximity & remote payments, POS transactions.

1. Introduction

Payments at physical Points-Of-Sale are a daily activity of all consumers and may be executed with different types of payment instruments such as cash, cheques, cards or currently even mobile devices. Due to the fact that such payments constitute the vast majority of all transactions, the development of payment methods used at POS has an important impact on the economy. However, at the same time until recently the number of available payment instruments which could be used at POS was very limited, much smaller than in the case of bill payments and e-commerce [Heng 2007; Chande 2008]. The reason for that are high costs of development of the physical payment infrastructure in case of POS, therefore, the barriers to entry into this market are high [Levitin 2007].

The solutions used in payments today result from several dozen years of the evolution of payment instruments. Figure 1 shows the evolution of electronic payment instruments used in proximity transactions, i.e. when the payer is in close proximity of the payment terminal.

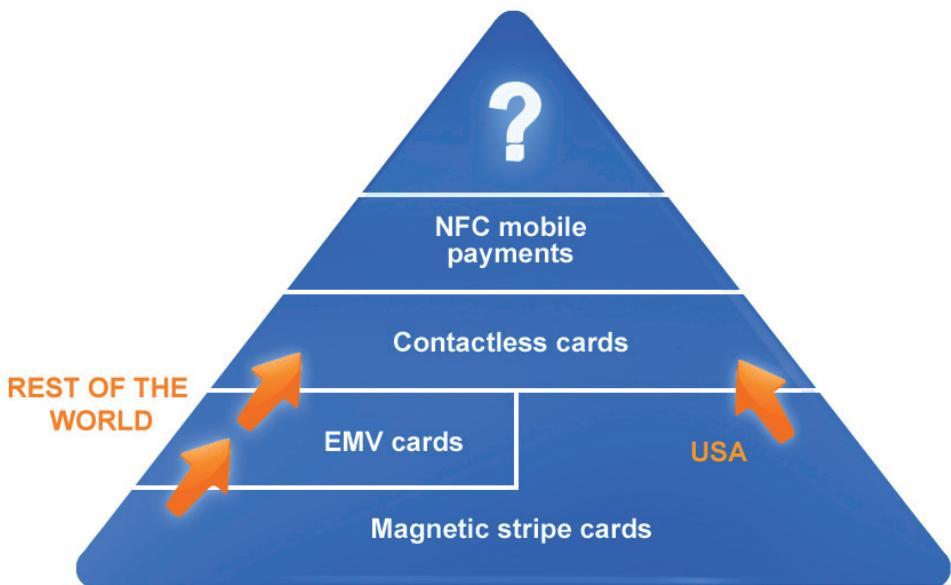


Figure 1. The evolution of payment instruments used in proximity transactions

Source: [Polasik et al. 2011b].

The first phase of the evolution of payment cards was the launch of payment cards with the magnetic stripe. Another phase (Figure 1) was the development of microprocessor cards in the EMV standard. Microprocessor cards have many advantages over those with the magnetic stripe, such as a higher security level and a longer usage time; however, they are much more expensive to produce. The main incentive to migrate to the microchip technology is to increase security and limit fraudulent transactions. Nevertheless, banks in the United States of America, the largest payment card market in the world, have not decided to migrate to the EMV technology.

Another crucial development in electronic payments (besides migrating to the EMV standard) is cash replacement in low-value transactions. The new opportunity to considerably limit cash turnover appeared together with the dynamically developing contactless technology, enabling remote reading of integrated circuits via radio waves [Hancke 2008]. The idea to use the RFID technology (Radio Frequency Identification) in payments resulted in the development of a new type of payment instruments (see Section 2) and speeded up an innovation process.

Studying the evolution of electronic payment instruments, one needs to remember that the former technology (i.e. the magnetic stripe) has not been eliminated from cards and terminals at POS and that the new cards with contactless interface are in most cases equipped with three payment technologies (the magnetic stripe as well as the contact and the contactless microchip interface) or with two technologies in the

USA (excluding EMV contact chip). The exceptions are contactless cards installed in alternative devices (e.g. key fobs, watches, mobile phones) and in several local contactless payment systems, mainly in Asian countries [Polasik et al. 2011b].

Real revolution in the development of payment instruments is expected with the popularisation of NFC mobile payments (Figure 1), which are the main focus of this work. The NFC technology (Near Field Communication; see Section 2) does not only give up the traditional form of payment card but it also opens a range of opportunities to integrate the payment system with other services and functions available on a mobile phone. The aim of the paper is to assess usefulness and prospects of NFC mobile payment usage in Point-Of-Sale transactions.

2. Classification of electronic payment instruments available at POS

While analysing mobile payments as an element of the broader subject of electronic cashless payments, one shall notice that nowadays they need to compete more and more with other new instruments. However, the division into card and mobile payments is not explicit as both payment cards and mobile devices can be based on the same technologies and standards. What is more, sometimes cards and mobile devices are integrated. In this work we use a wide definition of mobile payment understood as any process of payment transaction performed with the use of mobile telecommunication device.

Table 1 shows the division of the most important solutions in respect to (a) the kind of payment instrument (payment card, mobile payment, or an alternative form / gadget) and (b) the kind of transaction (proximity or remote). The prominent feature of proximity transactions, also known as local transactions, is that the payer finds himself or herself in close proximity or even in direct contact with the terminal. Contrary to that, remote transactions can be settled irrespective of the situation of the sales person and do not require the payer to contact or be close to the terminal or any other device that will accept the payment.

Most often, proximity payments are settled with the cashless instrument in the form of contact payment cards with the magnetic stripe; however, nowadays cards with an EMV chip are used more and more frequently. One can notice a dynamic increase in the number of payment cards which have retained the typical card form and are equipped with contactless payment technologies besides the traditional contact technologies. When used in contactless payments, the microchip and the antenna can be placed in many objects, such as key fobs and watches, and can be embedded in the casing of a handset or any other mobile device. However, payments made with such an instrument cannot be recognised as mobile payments in the strict sense, because they can be stucked to both mobile phone and any other object. Moreover, the alternative form of the payment instrument makes it impossible to use it in POS

terminals operating on contact technologies (the magnetic stripe and the EMV chip), which still prevail on the global market. Thus, these instruments (gadgets) could be perceived as an intermediate solution between the payment card and the mobile payment.

Table 1. A classification of the main types of electronic cashless payments

Instruments Transaction types \	Cards	Alternative forms (gadgets)	Mobile payments
Proximity (made locally, short-range or in direct contact with the seller)	contact (magnetic stripe and/or emv)	contactless card embedded in the phone case or an alternative form	NFC payments
	contactless		remote initiated NFC (SMS / USSD / Internet) remote used as proximity (SMS / USSD / Internet)
Remote (made remotely, online payments included)	payment cards (online payments)	lack of major solutions	fully remote (SMS / USSD / Internet)

Mobile payments *sensu stricto* include solutions that use (a) the NFC technology or (b) remote mobile payments which are adapted to proximity transactions. NFC is a close proximity communication technology functioning under the ISO 18092 standard of 2004 which is an extension of the ISO 14443 A and B standards for contactless cards. NFC was devised to integrate mobile devices and has the range of 20 cm. NFC-based devices can communicate with one another and with the equipment based on ISO 14443, including contactless POS terminals [Polasik et al. 2011b]. In the case of an NFC-based mobile payment, the payment system is independent of the mobile telephone network and the transaction can be concluded offline or online with the connection being initiated by the terminal. The basic difference between contactless payment cards and the NFC technology used in mobile phones lies in contactless chips. Contactless cards mainly use passive chips, whereas the NFC technology uses active ones. Active contactless chips have their own source of power (a battery), owing to which they can initiate data exchange with other contactless chips, both active and passive (applicable to use for P2P transactions [Górka 2010]). In order to start operating, passive chips first need to be “stimulated” with radio waves transmitted by a reader or active contactless chips. For example, a mobile phone which uses the NFC technology can work similarly to a contactless payment card. It can also “stimulate” a passive tag placed on an advertising poster or in a magazine and read the data from this tag [Cheney 2008].

When it comes to mobile payments based on remote systems, the mobile device communicates through a mobile phone network or the Internet, whereas the proximity between the sales person (and the terminal) and the customer is a matter of convenience but not of technical requirements. It is also possible to use the NFC technology to initiate a mobile transaction which will be continued through a GSM network.

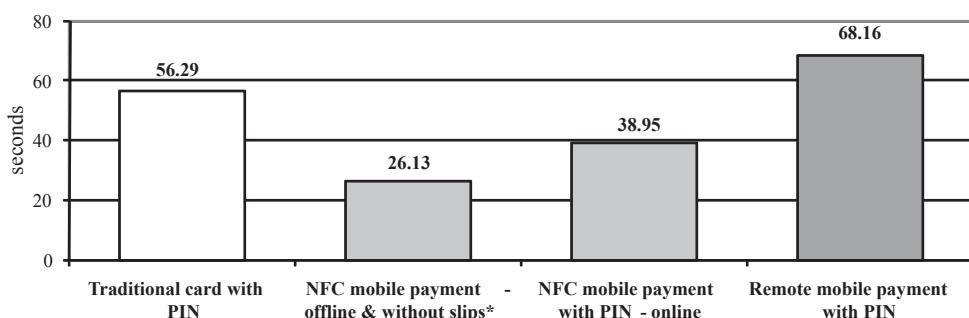
Remote transactions can use a range of payment methods: cash on delivery, virtual payment services (e.g. PayPal), bank transfers, e-transfers, Internet vouchers, and even payment cards and mobile payments [Polasik, Maciejewski 2009]. Most frequently, remote transactions use payment cards. However, it shall be emphasised that the physical form of the card does not matter in that case, so virtual cards can be used too. Mobile payments used in remote transactions are based mostly on universal systems, i.e. they can also be used in proximity transactions. These systems communicate through the GSM mobile network (most often through SMS or USSD sessions) and the payment settlement system. The versatility of these solutions results from that the acceptance of payment is possible through both a (properly adapted) POS terminal, a WEB-terminal (online payments), and, in several systems, the seller's handset. Mobile payments based on dedicated installed applications (e.g. OS native applications, JAVA applets or the SIM toolkit and using mobile Internet to communicate) or a mobile Internet browser are more likely to be used in remote payments; however, they can also be applied for proximity transactions. There are many more or less successful remote mobile payment schemes operating in the world today, a majority of which use the GSM technology and/or an installed application. Most of them are domestic systems, including Obopay and PayPal (USA), mChek and PayMate (India), M-PESA (Kenya), MoneyBox (Nigeria), and mPay (Poland) to mention the popular ones.

3. NFC and remote mobile payments in POS transactions

Due to technical advantages, contactless payments have been suggested since the very beginning as the quickest and most convenient method of payment that could be used at the Point-of-Sale. The market players were convinced by the payment organizations to the speed of contactless payments, even without scientific proof. However, the NFC mobile payments are much more complex and require integration with customer's mobile phone. Furthermore, handset holders must activate the payment process on their phones, and in some cases enter a PIN code or take further action. Therefore, NFC payments require a greater emphasis on customer education than in the case of payment cards. As a consequence, there were many doubts about the practical possibility of massive use of NFC payment instruments and the duration of the payment process (merchants would resist accepting a payment method lengthening the queues). Another risk factor for investment in the NFC payments was the development of many types of remote mobile payments systems. The remote systems were promoted by suppliers as the fastest and convenient method of payment. Therefore, they are perceived as a competition to NFC payments. In this context, the verification of performance and comparison between the NFC-based and the remote-based solutions were needed.

Incontrovertible evidence confirming advantages of the NFC mobile payments was obtained in November 2009, when the team consisting of M. Polasik, J. Górká,

G. Wilczewski, J. Kunkowski, K. Przenajkowska and N. Tetkowska conducted an empirical study on time efficiency of payment instruments at Points-Of-Sale [Polasik et al. 2011a]. The results cover a wide range of payment methods, from traditional cash and standard cards to contactless cards, RFID stickers and mobile payments, both NFC and remote. All payment instruments are compared under the criterion of the duration of payment transaction from the consumer and merchant perspective, as well as for the “pure” payment process. The measurement of more than 3,700 payment transactions was undertaken with the help of a novel research technique based on a digital chronography of video material recorded by cameras installed in the biggest chain of convenience stores in Poland.¹ In Figure 2 the results for concurrent NFC-based and remote-based mobile payment schemes are presented and compared with traditional card benchmark.



* Due to the lack of a sufficient number of observations for NFC payments in an offline mode without printing paper slips, the time for this payment method was estimated on the basis of simulation procedure.

Figure 2. The average duration of purchase transaction by payment methods in seconds – A consumer perspective of payment process

Source: [Polasik et al. 2011a].

Total time spent by customer on purchase transactions (customer perspective)² using the NFC solution with PIN code in an online mode is almost 30 seconds shorter than in the case of remote payment solution with PIN code.³ The time difference

¹ Video material was recorded in Żabka Polska SA convenient stores. Realization of the study was supported by MasterCard Europe and IT company MCX Systems Ltd.

² Time was measured throughout the whole purchase process, starting with the customer approaching the cash desk and finishing with the customer leaving the shop.

³ The study comprised a remote mobile payment system that works commercially on the Polish market under the brand “mPay”. The system is based on telecommunication connections in GSM standard – text USSD or voice IVR. It can be used on any mobile phone without having to install additional software. A transaction is performed by entering text codes on the mobile. mPay mainly works as an electronic purse. Payments can be made to merchants (C2B) as well as to any mobile phone user (C2C); see [Polasik et al. 2011a].

seems to be very significant, especially in POS transactions. Moreover, it turned out that NFC payments are effective compared to traditional payment card with the PIN code as well. Moreover, NFC payment performed in an offline mode without printing paper slips (simulation conducted on the basis of empirical data) may be even faster than cash (see: [Polasik et al. 2011a]) and their advantages over a remote payment increase. An interesting observation is that NFC payments proved to be as fast as contactless payment cards, despite entering the PIN code on the mobile phone [Polasik et al. 2011a]. On the other hand, remote mobile payments were not only slow payment method, but also consumers were not keen to use it in POS transactions, due to the fact that they require concentration and extensive activity during the payment. It seems that remote mobile payments suite better for e-commerce and bill payments, where the time factor is not so crucial.

The feature of speed of NFC-based solutions can considerably benefit all participants of the payment system [Polasik et al. 2011b]. The first research on mobile payments suggests a key role of the perceived usefulness and the perceived ease of use in order to apply solution by consumers [Kim et al. 2010; Gu et al. 2009]. NFC mobile payments have potential to fulfil both these requirements. The speed, convenience and customer satisfaction are important factors, which suggest the success of NFC payments in the future.

4. Current development of NFC payments

4.1. NFC payments in the world

The most important regions where contactless mobile payment innovations were developed and tested include Eastern and South-Eastern Asia [Bradford, Hayashi 2007] and to a lesser extent North America and Western Europe. In Asian countries dominate the contactless mobile payments with systems based on the FeliCa standard. The Japanese contactless payment market is highly developed (at the end of 2009 there were 16.6 million contactless mobile phones); however, it has become fragmented and very complex [Salmony 2011]. This situation stems from two factors: the number of payment systems and the lack of compatibility. Contactless mobile payments in Japan are mainly based on Osaifu-Keitai – a technology introduced by NTT DoCoMo (the leading mobile phone operator in the country). It integrates a mobile phone with the FeliCa system, so the handheld can be used as a contactless card. Osaifu-Keitai can be used wherever the FeliCa technology is accepted. NTT DoCoMo has also developed an iD – a credit card brand for card issuers, which enables customers to make credit card payments with the Osaifu-Keitai mobile phone equipped with wallet (purse) functions. The iD can be used in more than 90% of all convenience stores in Japan. Another mobile payment method in Japan is Mobile Suica that also requires a phone that is supported by the Osaifu-Keitai. The iD has

9 million users (as of the end of 2009), but a part of this number can include some of the 7.2 million mobile phone users of the Suica.⁴

South Korea is another Asian country where a fast development in the area of mobile contactless payments has been observed. Korea has a national e-purse scheme, called T-money. Mobile phones can be used as travel cards and to make payments for smaller items in shops, owing to a different pre-paid account on the same mobile. T-money uses SIM cards for banking services and chips are made under a single standard based on ISO14443 A/B. The South Koreans who use the T-money system can check the account balance in real time, make transfers to any bank account in the country both online and at POS. So far, more than 30 million cards have been issued and used 35 million times a day in Seoul [Polasik et al. 2011b].

NFC technology dominates in Western Europe and North America. Mobile payments are based mostly on MasterCard and Visa contactless standards. Both organizations have developed their own solutions and implemented them within several pilot programs around the world. Since 2006 MasterCard has been conducting such projects in 11 countries: the United States, Canada, Japan, Taiwan, Singapore, Great Britain, France, Italy, Turkey, Norway, and Poland, whereas Visa has been involved in mobile pilot schemes in 17 countries: the United States, Canada, Brazil, Guatemala, Great Britain, Germany, France, Spain, Switzerland, Poland, Turkey, Russia, Japan, South Korea, India, Taiwan, Malaysia, and Australia. Nokia and Samsung are companies that are deeply involved in the development of mobile NFC payments [Polasik et al. 2011b].

In Europe an important NFC trial was held in 2010 by Visa, La Caixa bank and the Telefónica mobile operator in the Spanish resort of Sitges. 1,500 customers and 500 retailers took part in the pilot. Statistics revealed that most transactions (60%) were of 20 EUR or less, although there were also many transactions for higher amounts. Most NFC payments were made in supermarkets (52%) and restaurants (14%). The pilot results showed that 70% of customers were very satisfied with the service and 90% were willing to use it in the future. This project confirms that NFC payments have a high potential and that customers would like to start using this mobile payment method [Telefonica and Visa 2010]. However, it should be emphasised that NFC mobile payments are much less developed than contactless cards and that they have not been commercially deployed on a large scale besides Japan and South Korea [Polasik et al. 2011b].

4.2. NFC mobile payments in Poland

The NFC mobile payment technology has not been introduced commercially in Poland. However, in 2010 both Visa and MasterCard conducted major NFC pilots. The first implementation of NFC mobile payments with the Visa payWave application installed in a SIM card was launched on the Polish market in April 2010 by Bank

⁴ Estimates of Polasik et al. [2011b] based on [Crotch-Harvey 2010].

Zachodni WBK, and the mobile phone operator Plus GSM. At this stage of the process, around 500 users were involved and included mainly those customers of Bank Zachodni WBK and Plus who had used Visa contactless cards issued by Bank Zachodni WBK before and lived in one of the three cities: Warsaw, Poznań, or Wrocław. Therefore, in the case of this trial for the first time in the history of mobile payment solutions in Poland, has taken place the use of an innovation in the form of the OTA (Over-The-Air)⁵ technology, enabling remote management of the SIM card. Thus, Bank Zachodni WBK was able to remotely change the parameters of the Visa pay-Wave payment application on the SIM card.

In May 2010, Inteligo, the mobile operator Era, and MasterCard launched a consumer testing program of mobile payments. The pilot scheme used the *PayPass* technology and all transactions were concluded online, as provided in Inteligo's strategy. Payments over 50 PLN required entering the PIN onto the PIN pad. The test relied on NFC-enabled Samsung Avila GT S5230N handsets which could be used at all *PayPass*-accepting POS. In order to meet test requirements, Giesecke & Devrient developed special SIM cards, operating in line with the NFC technology and adapted to all MasterCard *PayPass* terminals. The four-month long pilot scheme involved 100 participants, who were the customers of both Inteligo and Era. They concluded a total of 700 transactions, of which 65% were below 50 PLN. The average transaction value equalled about 20 PLN. Almost all customers testing the NFC-enabled service evaluated it as very good. According to the respondents, its key advantages were speed and convenience, followed by usefulness, resulting from integrating the payment card with the telephone [Inteligo 2010].

Other banks in Poland are preparing to conduct pilot programs of contactless mobile payments. However, so far, none of them have started commercial implementation of NFC mobile payments, which is a result of several barriers in the development of this technology.

5. Prospects and barriers for NFC mobile payments

It is likely that in the next few years the leaders in contactless payments will be these countries and regions that have already had the infrastructure for this kind of payments. However, the NFC technology will undoubtedly play a major role for mobile payments. Mobile operators, banks, and IT companies are conducting dozens of mobile contactless pilot schemes in various European countries. Unfortunately, most of these programs do not succeed, mostly because there are too many varieties depending on technology and business models, which leads to fragmentation of the market and difficulties in achieving the critical mass [Górka 2010]. However, the latest phenomena: (a) rapid popularisation of mobile applications on smart phones

⁵ OTA (Over-The-Air) is a technology used to communicate with, download applications to, and manage a SIM card without being connected physically to the card (Gemalto).

and (b) growing use of mobile Internet can announce a new opening. There is a chance that mobile applications will help overcome incompatibility barriers, increase the sale of value-added services and foster the development of m-payments, both remote and proximity ones [Meyer 2010]. From this perspective, it seems that Visa's strategy of Mobile Apps goes in the right direction. It should also be remembered that the NFC mobile payments within the MasterCard *PayPass* and Visa payWave schemes have an advantage over other solutions because they have long-term support of these global payment organisations. On the other hand, NFC market is still open to new initiatives. An example is the Google Wallet – a project announced in May 2011, which is based on the integration of NFC with an application for Android OS and a complex interactive loyalty program. High added value of this program for merchants may soon change the picture of the retail market and accelerate the development of NFC technology.

An important aspect of the development of the contactless payment market is that most countries implement solutions in two stages. The first stage consists primarily in implementing solutions based on the contactless microprocessor installed in traditional plastic cards, whereas the second one assumes the implementation of mobile payment systems based on the NFC technology. The major advantage of the two-stage development is the synergy effect between contactless cards and mobile NFC payments, which results from that both solutions use the same POS contactless terminals. Moreover, research conducted in the United States showed that the more experience in using contactless payment cards customers have, the more likely they are to agree to have a similar technology installed in their mobile phones [Cheney 2008]. Similar attitudes were observed in France and Great Britain [Ensor et al. 2008].

NFC payments faced the same major obstacles to the popularisation, as any new payment technology, which is the limited acceptance on the part of merchants. In the United States, it was initially banks and card organisations that directly invested in the development of the acceptance network, which produced excellent results. Banks and acquirers are conducting similar activities in Poland under the *Visa cards accepted everywhere* program, owing to which the market shall observe a dynamic development of the contactless terminal network. Focusing on large retail chains provides an opportunity to gain the critical mass for the acceptance of contactless cards relatively fast.

However, in the case of NFC mobile payments, the banking sector is facing new technical challenges which did not occur in the payment cards market. These are: (1) effective installation and management of applications on clients' mobile phones (unlike in case of payment cards produced by the banking sector), and (2) a continuing lack of smartphones equipped with NFC technology on the market. It turns out that an effective solution to manage applications is the use of OTA technology, which allows remote installation of the payment application on the mobile's SIM card (see Section 4.2). However, it requires close cooperation of the issuer of a payment in-

strument with GSM operators. The conjunction of NFC and OTA is perceived by the experts as the target technologies for contactless mobile payments. However, due to the very limited availability of mobile phones equipped with the NFC, the popularisation of NFC payments still could not become a reality.

Surprisingly, it turned out that solutions enabling most of today's mobile phones to be used for NFC mobile payments had been developed. This so-called "bridging technology" is based on the microSD card or a different "payment adaptor" attached to the handset [Desmarais 2010]. In October 2010, Visa jointly with DeviceFidelity and Akbank, one of the biggest banks in Turkey, launched the first European implementation of a mobile payment system based on the microSD technology. The In2Pay technology enables a vast majority of smartphones and other devices which are not equipped with the NFC technology to be used as contactless mobile payment instruments. The In2Pay solution conforms to the industry standard for memory chips, microSD, and fits into the memory card slot found in many mobile devices existing on the market. In2Pay integrates seamlessly with multiple mobile phone operating systems, enabling a flexible application interface and interactivity with the consumer. In2Pay uses an onboard software-controlled antenna and an industry standard dual interface contactless smart card chip that supports Visa payWave, as well as other popular contactless applications, such as transit, identification and access control. The introduction of this technology is a solution for the limited supply of NFC phones. In2Pay is based on a secure element and consistent with the EMV standard as well as the GlobalPlatform. It is also compatible with the MiFare and Javacard applications [Desmarais 2010]. This bridging technology provides an opportunity to start the popularisation of NFC payments in the nearest future, which will encourage telephone producers to introduce NFC technology on a mass scale to be available for the average customer.

6. Conclusions

Mobile payments based on the NFC technology have great potential of development, both in terms of the number of mobile phone owners and the variety of functional solutions. Until recently, it has been thought that the market is not ready for this technology yet as few mobile phones are adapted to the NFC technology and consumers have little experience in dealing with contactless payments. However, the latest solutions based on the microSD technology enable most of today's smartphones to be used as contactless mobile payment instruments. Therefore, the NFC payments may surprise the market and develop more rapidly than expected.

Due to the fact that many NFC-based pilot schemes, of various business models and technological architecture, are being conducted all over the world, it is still difficult to foresee which one will be the most advantageous. Nevertheless, it does not mean that banks and acquirers shall not become interested in NFC payments. The basic factor which will determine the development of the contactless payment

market is the synergy effect which takes place between contactless cards and NFC mobile payments and which results from the opportunity of using the same infrastructure of POS terminals. Consequently, a majority of institutions have adopted a two-phase strategy of the development of contactless technologies. Usually, contactless cards are implemented in the first phase, whereas NFC-based mobile payments are planned for the second stage.

Early involvement of card issuers and acquirers in the contactless technology will enable these entities to prepare for the implementation of the revolutionary NFC technology. The preparation has to include the education and activation of bank clients and merchants, which will be a long process. It shall be emphasised that the development of mobile payments will not mean the withdrawal of contactless cards from the market. On the contrary, customer habits and common acceptance of contact payment technologies will lead to the functioning of the contactless cards along the NFC technology for a long time.

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WYKORZYSTANIE PŁATNOŚCI MOBILNYCH W TRANSAKCJACH W PUNKTACH SPRZEDAŻY

Streszczenie: W niniejszym artykule przedstawiono analizę wykorzystania i perspektyw rozwoju płatności mobilnych NFC w transakcjach w punktach sprzedaży (POS). Według badań empirycznych płatności mobilne NFC są jedną z najszybszych i najwygodniejszych metod płatności w punktach sprzedaży. Ponadto otwierają wiele możliwości integracji systemów płatniczych z innymi usługami i funkcjami dostępnymi w telefonach komórkowych. Główne bariery w ich rozwoju to niski poziom akceptacji przez handlowców i ograniczona liczba urządzeń mobilnych wyposażonych w technologię NFC. W rezultacie jak dotąd płatności NFC zostały komercyjnie wdrożone na większą skalę jedynie w Japonii i Korei Południowej. Jednakże płatności mobilne NFC i karty zbliżeniowe korzystają z tej samej sieci terminali POS, co generuje efekt synergii. Zatem płatności mobilne NFC mogą zaskoczyć obserwatorów rynku płatniczego i rozwijać się szybciej, niż dotychczas oczekiwano.