Contactless mobile payments (finally) gain momentum

Deloitte predicts that by end-2015, five percent of the base of 600-650 million near-field communication (NFC)119 equipped phones will be used at least once a month to make contactless in-store payments at retail outlets120. This compares with monthly usage by less than 0.5 percent of the 450-500 million NFC-phone owners as of mid-2014146. Contactless mobile payment will not be mainstream by end-2015, but niche adoption will be a major progression from near nil in prior years.

Looking further ahead, Deloitte expects the number of NFC-enabled devices being used for making in-store payment should rise steadily over the medium term, as consumers become more familiar with the process, and more banks and merchants in more markets accept this form of transaction121. We expect the volume of NFC-smartphone transactions and the range of spend value to increase steadily over time.

While usage of phones to make contactless payments is expected to increase over time, they are likely to co-exist for some time with all other means of payment, from contactless credit cards to cash. It will be a long while before the majority of us can jettison our physical wallets.

The logic of using mobile phones to make in-store payments has long been recognized, and as far back as the late 1990s prototypes of vending machines equipped to take payment via mobile phones and over cellular networks were being exhibited at trade shows. The benefit of using short-range wireless technologies over a distance of a few centimeters to transmit payment information has also long been understood. Speedpass, the first contactless payment device (a key fob for use in gas stations) was launched in 1997118. In the same year, the Hong Kong metro system introduced a contactless pre-paid fare collection system.119

Indeed, the combination of contactless payment and mobile phones has existed for over a decade. The first phone with any form of contactless technology were mobile phones has existed for over a decade. The first system introduced a contactless pre-paid fare collection and unusable otherwise. A fraudster who intercepted the transaction would only get access to the single-use token but not the card details.125

But prior to 2015 the use of phones to make in-store payments using any technology (such as QR codes, or other short-range wireless technologies) has been minimal, with only a small proportion (ten percent or lower) of the smartphone base claiming to have paid in-store via their phone at any time.121

Deloitte expects that 2015 will be an inflection point for the usage of mobile phones for NFC-enabled in-store payment, as it will be the first year in which the multiple prerequisites for mainstream adoption — satisfying financial institutions, merchants, consumers, technology vendors and carriers — are sufficiently addressed.

We expect the largest card issuers in the majority of the largest developed countries to have activated NFC-smartphone payments by end-2015, although adoption patterns are likely to vary by region, due to differing economics and technical (e.g. payments processing) models.

For financial institutions (card issuers and banks), NFC in-store phone payments offer continuity and improvement to their business models. They levy a commission on the transaction value, which they may share with a handset vendor or other entity.122 They underwrite the risk on the payment. Account holders are subject, with one of approaches used, to the same transaction limits as with a physical card and the repayment terms for credit card holders are the same.

The core advantage with any contactless smartphone transactions is the potential for greater security, when payments are made with phones featuring either built-in (via hardware or software) or SIM-based tokenization capability.122 When someone pays using an NFC-device, the tokenization facility creates a unique code (known as a token) that is sent from the device to the merchant’s NFC-enabled till. The credit card number is not transferred which means in the event of a breach, only card information used in traditional transactions would be exposed.122 The card information is either stored with the issuing networks (such as Visa or MasterCard), or is stored in the cloud (HCE), or in a secure element on the phone. The token is only good for a single transaction and unusable otherwise. A fraudster who intercepted the transaction would only get access to the single-use token but not the card details.125

314. NFC is a technology standard for very short-range wireless connectivity via magnetic field coupling, and is a quick, secure two-way interaction among electronic devices. NFC technology typically takes the form of a small chip embedded in a phone or a plastic card (like a credit card), but can also be used in the form of a device (e.g. mobile phone) or another portable NFC device to initiate transactions.

315. Our predictions assume that the Apple Pay mobile payments solution will launch in other markets during the course of 2015, and the existence of the Apple Pay mobile payments solution will also increase uptake of NFC-enabled smartphones, particularly amongst iPhone users and network operators. See: Google Wallet can grow after Apple Pay launch, Android News, 5 November 2014. http://www.androidnews.co.uk/google-wallet-can-grow-after-apple-pay-launch-17336


320. The Nokia 6131 was the first mobile phone to incorporate NFC. Other phones prior to this the Nokia N70 and N95 introduced other contactless technology standards.

321. According to Deloitte’s research, a significant proportion of smartphone owners in developed countries (between 30 and 60 percent in markets sampled) and their rates of adoption are predicted to increase significantly in 2015, but only three to 10 percent reporting using their phones to make any type of in-store payment, including NFC-stickers and non-NFC applications such as FeliCa, which is similar in Japan, and QR code services, which requires smartphones to download an app (similar to Bixi for Apple Pay) or at lastly, for more information on FeliCa, see: FeliCa, NTT Docomo, as accessed on 23 December 2014. http://www.nttdocomo.co.jp/english/products/technologies/ferica/


323. Note however that the Apple Pay service is available in 15 countries, see: Apple Pay expands to 15 new countries, 2 March 2015. http://9to5mac.com/2015/03/02/apple-pay-expands-to-15-new-countries/


Using a fingerprint, an eye scan or a heart rate sensor as an additional form of authentication makes the payment more secure still. The combination of biometric authentication, an embedded secure element and tokenization may provide more robust security than card swipe or chip and PIN.

For merchants, NFC-equipped phones can enable fast and, with some systems, high-value transactions. All forms of payment have friction points: cash requires change and credit card requires PINs or signatures; but contactless payment requires only a card or device to be placed on a compatible reader. A fundamental benefit with some contactless smartphone payment systems is that the spending limit can be the same as the account holder’s credit or debit card limit. By comparison, contactless cards typically have a payment threshold (typically under US$50) and a transaction limit (the number of contactless payments made) before additional identification is required, so as to mitigate the impact of a stolen contactless card. As one example, the 23.8 million contactless card transactions in the UK in June 2014 had an average value of £11.03. This was about one seventh of the average transaction value of all credit and debit cards in the UK in the same month (£78.52). Accepting NFC payment requires compatible point-of-sale (POS) terminals, and new POS terminals cost several hundred dollars. As of the start of 2015, there were already millions of NFC-ready payment terminals globally, out of the tens of millions of terminals in use around that world. Over the course of 2015 that base is likely to see a significant increase, particularly in the US where merchants are replacing their terminals to comply with the EMV mandate, these will most likely to be ones supporting NFC.

By end 2015, we expect a minority of merchants to be supporting contactless smartphone payments. These will often be retailers that have already made the investment in replacing POS systems, and will often be stores with a high volume of relatively low-value transactions, such as fast food outlets.

For most of the parties involved in the adoption of NFC mobile payments, the reason to adopt is financial. For consumers it is also behavioral. Using NFC-equipped smartphones to make payments will be adopted only if it can make the payment process simpler, sleeker or provide specific incentive in the form of digital coupons or discounts.

The multiple components that enable NFC-smartphone in-store payments have been falling into place over the last few years. Hundreds of millions of smartphone owners have already submitted their credit card data (one or multiple cards) to a range of vendors so as to be able purchase apps, or download songs, or purchase additional cloud-based storage. Tens of millions of consumers have become acclimatized — over the course of many years — to the idea of contactless payments using their credit and debit cards, and in some markets their contactless transport cards. For most people, using a fingerprint reader is a rare requirement, typically occurring only when passing through border control in some countries. But as of early 2015 it has become an everyday action for approaching 100 million individuals using phones equipped with a fingerprint reader.

So for smartphone users who already have credit card data linked to their phone, have made contactless payments and are accustomed to submitting a fingerprint to unlock their phone or authorize an app purchase, submitting a fingerprint reading to authorize a contactless payment should not feel unfamiliar.

The existence of hundreds of millions of contactless credit and debit cards should not constrain the usage of NFC-enabled smartphones as an additional means of payment. We would expect when offered a choice, about 30 million individuals may opt to pay using their phone instead of a contactless card.

For some, this will be because they are more likely to be holding their phone than their wallet. A few may decide to pay by smartphone to signal their status as early adopters. With some approaches, a smartphone may offer a higher payment limit than a regular contactless card.

Some NFC-based smartphone payment systems require pre-payment. We would expect these systems to remain popular, and co-exist with approached linked to debit and credit cards. Pre-pay will probably prevail under the medium-term.
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