

NFC - The Route to EMV Adoption in India

By Prakash Sambandam, Director at FIME India

Near field communications (NFC) is widely tipped to be the future of electronic payments (e-payments) in India. With over 1.17 billion mobile users in the country, and nearly half the population (40 percent) without bank accounts, does NFC have the technical capability and end-user accessibility to bring e-payments to the mass market?

In this article, Prakash Sambandam, Director at FIME India, explores the challenges faced by India's payment community. The author also explains how NFC technology can form the foundation of a more secure e-payments framework for the country's citizens, and offer financial inclusion for India's large number of un-banked individuals.

India's e-payments ecosystem

Although e-payments have experienced a steady growth over the past few years, with volume of transactions reaching 48 percent by the end of 2011, cash still remains the predominant payment method in India. A key reason for low adoption of e-payments is the relatively high number of un-banked individuals in the country who do not have access to banking facilities.

For Indian citizens that do have access to financial services, credit and debit cards are growing in popularity and the numbers in circulation are increasing steadily. The majority use the traditional 'magstripe' technology, which enables data to be stored and read via a magnetic strip on the reverse side of a plastic card.

Most credit and debit card transactions in India take place at a merchant point of sale (POS) terminal or at automatic teller machines (ATM). Although a personal identification number (PIN) is required at the ATM, the majority of POS transactions do not require any additional authentication, other than the cardholder's signature. This renders the cards susceptible to counterfeiting through 'skimming' or 'cloning' techniques and puts cardholders at risk of financial and identity theft. Fraud levels often increase in areas where neighbouring countries deploy secure e-payment measures. With both Malaysia and Singapore recently implementing anti-skimming and second factor security controls



for their payments systems, some believe that this could have a direct impact on the volume on fraudulent activity in India, as opportunists shift their focus to less secure regions.

Working towards a stabilised e-payments ecosystem

Due to the rise in fraudulent activity amongst lost and stolen cards, India's banking sector identified a need for a more stable and secure payments infrastructure to improve fraud risk management practices, strengthen merchant processes and protect cardholders. In response to this, the Reserve Bank of India set up a working group in March 2011 with representatives from various stakeholders including the Indian Banks' Association, Reserve Bank of India and selected commercial banks, to recommend a future payments strategy. The group's objectives are to improve security and reduce fraud, increase efficiencies and cut costs, while providing financial inclusion for India's un-banked.

The Reserve Bank of India subsequently published its 'Payments System Vision Document 2012 - 2015', which highlighted the need for a more secure payments infrastructure based on biometric and / or EMV® technology.

EMV is a global standard for credit and debit payment cards based on chip card technology. It underpins a large proportion of the world's payment infrastructures and enables security and technical interoperability globally. Official figures from EMVCo, the EMV standards body jointly owned by American Express, JCB, MasterCard and Visa, states that in excess of 1.5 billion EMV payment cards and 21.9 million EMV terminals are active worldwide. This represents 45 percent of all payment cards and 76 percent of all payment terminals in global circulation.

The biometrics system considered for implementation is the Aadhaar-based biometric authentication solution, which is managed by the Unique Identification Authority of India. The system assigns a unique 'Aadhaar' number to all citizens, which sits alongside other personal data for the verification of a person's identity. The idea behind this initiative is to use the biometric solution for all card present transactions in lieu of PIN-enabled cards, and particularly during migration to EMV.

The National Payments Corporation of India (NPCI), which was incorporated in 2008, has been established to act as a central 'hub' for all future e-payment systems and associated technologies in the country. Its objective is to consolidate and integrate the country's multiple payment systems to create a nationwide infrastructure for business processes and retail payments. So far, NPCI has set up and launched its own domestic card scheme called 'RuPay', in addition to offering other payments related services and is expected to be a key stakeholder in the future development of e-payments in the country.

Today, banks are free to decide whether to migrate and issue EMV-compliant cards or not. This will however, be reviewed in December 2012 by the central regulatory authority of India, RBI, alongside the biometric authentication method.

Due to the global momentum towards migration to EMV and the drive by the Reserve Bank of India to complete recommended EMV initiatives by June 2013, it is expected that India will adopt the EMV standard. This would provide the country with a reliable and proven payment framework and a globally recognised ecosystem on which to build innovative payment services. But with a relatively low number of payment cardholders in the country, how will mass EMV adoption be achieved?

NFC: the catalyst for EMV adoption

With the number of mobile devices increasing in India, NFC technology might just be the answer. Mobiles are now commonplace in the country and the number of smart phone sales has shot up by 87 percent. These NFC-enabled handsets allow the user to carry out everyday payment transactions, including contactless payments, where the mobile device is in close proximity to a merchant's POS terminal to pay for goods at a store. The mass availability of smart phones in the country therefore provides the opportunity to deliver banking and financial management capabilities to a large number of people previously without access to traditional banking facilities.

NFC is not just an enabler for mobile payments, but also provides the framework for other value added services such as transport and loyalty, for example. In essence, the technology is capable of bringing convenience to end-users via their mobile phones, revolutionising the way services are delivered to the mass market. It is these added benefits which will also help to drive acceptance and use of the technology.

Wide-scale adoption is still not guaranteed however. For the solution to infiltrate throughout the region it must work harmoniously across providers, regardless of the network operator or device manufacture. Cooperation is therefore required between banks, handset manufacturers, network operators and merchants to achieve technical interoperability across a common infrastructure. This will be crucial for the continued and adoption of mobile contactless payments.

Achieving interoperability

In order to accomplish end-user 'buy-in', payment solution providers need to ensure ease of use and convenience, without compromising security. Only when this is realised will end-user demand grow and mass adoption be realised.


The NFC and payments environment is complex. With so many stakeholders across multiple sectors required to work together, the need for standards and specifications has never been more important. Product and solution testing and evaluation – confirming that a product will perform as intended once live in the marketplace – has never been more important.

When the evaluation process is considered in the early development stages, product developers can factor in relevant tests and gain the necessary certifications to verify that their devices meet the market requirements for interoperability and security.

Third party evaluation offers a reliable certification programme, which not only ensures that products and services are fully compliant to application specific requirements, but that handsets and other terminals, for example, can be brought to market in the quickest time possible.

For India to move forward with EMV migration and NFC-enabled mobile payments, a clearly defined certification programme must be identified and adhered to. This will provide it with the best opportunity for successful deployment and end-user uptake.

India's e-payment landscape - achieving its potential

Due to the country's large population and need for a more stable payments ecosystem, the Indian market has great potential for mobile contactless payments. The number of mobile phones in circulation and unbanked individuals also makes it ripe for mobile-based banking applications to take off. As value added mobile services grow in the country and the benefits are available to all sections of society, NFC technology will be propelled to the forefront of consumer life as a secure and convenient enabler of e-payment services to the mass market. 

Standards and Specifications for Consideration:

- EMVCo - The organisation of which FIME is a Technical Associate, EMV accredited laboratory and EMV qualified test tool supplier, is the key international payments standards authority. Its primary role is to manage, maintain and enhance the EMV Integrated Circuit Card Specifications to ensure interoperability and acceptance of payment system integrated circuit cards on a worldwide basis.
- NFC Forum - The global association dedicated to advancing the use of NFC technology, launched a certification programme to support industry interoperability and provide device behaviour assurances within the market in 2010. Its authorised laboratories, including FIME, work with device manufacturers to enable them to achieve industry certification for their products, allowing them to display the 'N-Mark'. The mark informs the consumer where to touch to initiate NFC. The NFC Forum Certification Programme will advance as technical specifications evolve.
- GlobalPlatform - The organisation which standardises the management of applications on secure chip technology has launched a compliance programme for its UICC Configuration, which ensures that solutions are standardised to deliver interoperability of multiple embedded applications, such as payment and identity, on secure chip technology. GlobalPlatform issues a qualification mark to UICC products that have successfully been tested by a qualified product in an approved laboratory, such as FIME. The programme qualifies test tools and laboratories, and issues a qualification mark to UICC products that have successfully been tested by an approved laboratory, such as FIME.

Let Us in

Source: Economist

Mobile money would transform even more lives in poor countries if regulators got out of the way

IN 2007 Safaricom, the biggest mobile operator in Kenya, launched M-PESA, a service that allows money to be sent and received using mobile phones. It has since signed up 15m users, is used by 70% of the adult population and has become central to the economy: around 25% of Kenya's GNP flows through it.

Similar schemes have had some success elsewhere. More than 120 mobile operators now offer mobile-money services of various kinds, and another 90 will soon join them. There has been a particular push in east Africa. Yet in many

poor countries where mobile money should be flourishing, it isn't.

A bank in your pocket

Mobile-money services are especially useful in developing countries. A worker in the city can send money to his family in the village without having to waste a day travelling on a rickety bus. Indeed, he can pay his family's household bills directly from his phone. It is safer too: nobody wants to carry wads of currency on public transport.

Mobile money also gives its users—many of whom