

Special Feature:  
*Payments Innovation in Asia*

# World Payments

REPORT **2009**



# Payments Innovation in Asia is Taking Many Forms

Payments innovation has thrived in Asia for many reasons, including the wealth of available technology options and the high level of mobile penetration among the general population. Notably, the many payments initiatives have also taken a variety of business-model forms. The Asian market therefore offers some valuable insights on the success factors for developing different payment tools and the opportunities for banks to generate new revenues from emerging payments methods.

The needs of each Asian market vary, depending on the mobile penetration rate, standard of living, wage levels, acceptance of new technology, consumer needs, and so on. Alternative service providers (telecom operators, transit agencies, and other service providers), technology vendors/phone manufacturers and banks have tailored their solutions accordingly, but some commonalities exist. For example:

- Mobile payments rely on two main technologies:
  - Near-field communication (NFC, short-range wireless technology) is being used for contactless payments. For instance, NFC-enabled phones can be linked to bank accounts, allowing for direct debits from the user. NFC phones can also be pre-loaded with credit.
  - SMS (short message service) for over-the-air m-payments allows payments to be initiated by sending text messages and an authentication code.
- Contactless payments exist in two main forms:
  - Contactless transit cards used for transport payments with added e-wallet capabilities.
  - Contactless debit/credit cards, which function as regular debit/credit cards with NFC capabilities.

Other types of initiatives are also being actively explored in the region, including online payments and biometric authentication for payments (using fingerprints or voice recognition).

Selected mobile, contactless and other types of payments efforts are outlined in Figure 1, which groups the initiatives by technology, and specifies the role of different stakeholders in terms of scheme ownership and money storage. The scheme owner is the primary interface with the customer and generally the main recipient of revenues. The owner can be a bank or an alternative service provider (telecom operator, transit agency or other service provider). The money storage criteria distinguish between money stored in bank accounts and other pre-paid accounts.

**Figure 1 Selected Payments Initiatives in Asia**

		Initiative	Country	Launch Date	Customer Base	Scheme Owner	Money Storage
<b>M-payments</b>	Contactless m-payments using NFC*	<b>NTT DoCoMo Osaifu Keitai</b>	Japan	July 2004	28.6 million	Depends on the application	Phone bill or service provider account
		<b>Union Mobile Pay</b>	China	December 2008	NA	Bank accounts and UMPay	Bank account
		<b>Citibank and Vodafone India</b>	India	July 2009	20,000	Citibank, Vodafone Essar Ltd, India	Bank account
	Over-the-air m-payments using SMS*	<b>Obopay</b>	India	March 2008	NA	Obopay and partners	Bank account
		<b>Smart Money</b>	Philippines	December 2000	2.5 million	Smart and Banco de Oro	Account held by Banco de Oro
		<b>G-Cash</b>	Philippines	November 2004	1.5 million	Globe Telecom	Globe Telecom account
		<b>Paymate and Indian banks</b>	India	2006	NA	Paymate and Indian banks	Bank account
		<b>Octopus</b>	Hong Kong	1997	19 million cards in circulation	Octopus Cards	Card account
<b>Contactless payments</b>	Contactless transit card with payments capabilities	<b>EZ Link</b>	Singapore	2002	10 million cards issued	EZ Link	Card account
		<b>Easycard</b>	Taiwan	2002	16 million cards issued	Taipei Smart Card Corp	Card account
		<b>MasterCard PayPass</b>	Philippines, Malaysia, South Korea, Taiwan	2003	100,000 in Taiwan	Card scheme	Bank account
	Contactless credit/debit card	<b>Visa payWave</b>	Hong Kong, South Korea, Malaysia, Singapore, Taiwan	2002	1 million in Taiwan	Card scheme	Bank account
		<b>Alipay</b>	China	2004	About 200 million	Alipay and partner banks	Partnerships with all leading banks in China
<b>E-payments</b>		<b>Bank Danamon</b>	Indonesia	NA	About 4 million	Bank	Bank account

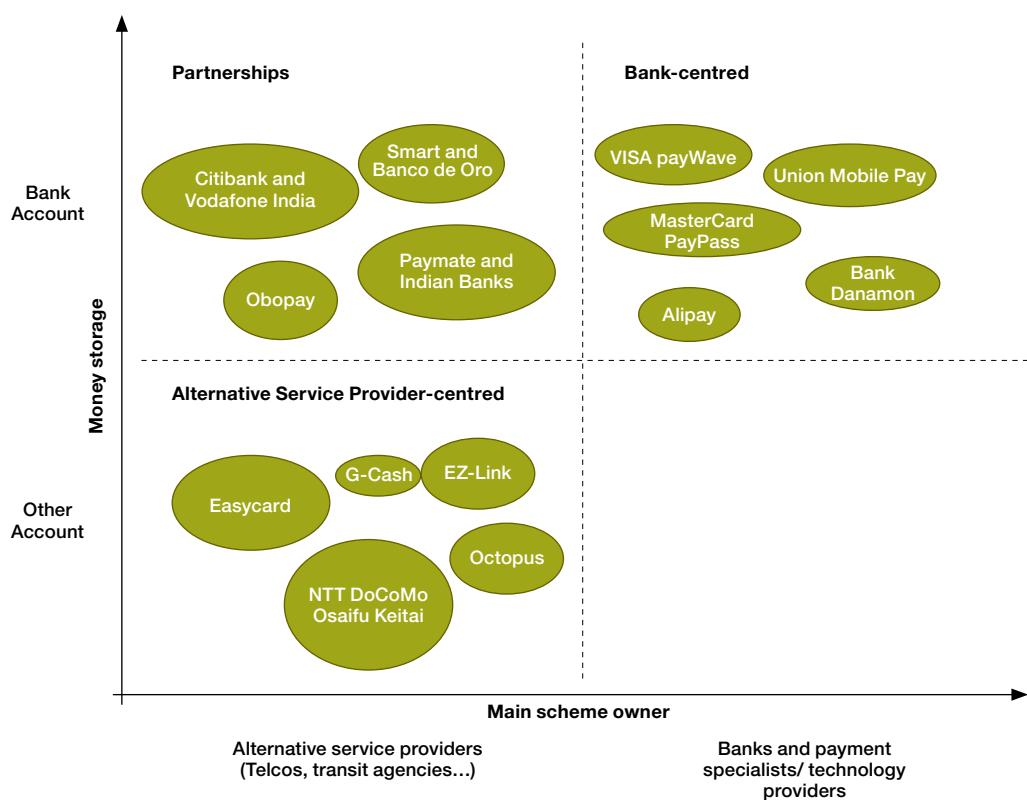
\* NFC, near-field communication (short-range wireless technology); SMS, short message service (text messaging).

Source: Capgemini research and analysis, 2009.

Three distinct business models are evident (see Figure 2):

- Alternative service provider-centred model: Telecom operators, transit agencies or other service providers are fully responsible for the offering, from customer interface to money storage.
- Partnership model: Banks and alternative service providers join forces, with each partner having a defined scope of responsibility based on their core capabilities.
- Bank-centred model: Banks control the scheme and cooperate with specialists/technology providers, as well as controlling the money transactions and accounts.

**Figure 2 Models of Ownership and Money Storage in Asia Payment Schemes**



Source: Capgemini research and analysis, 2009.

### EXAMPLES OF ALTERNATIVE SERVICE PROVIDER-CENTRED MODEL: SUCCESSFUL INITIATIVES WITHOUT BANKS

- **G-Cash** by GLOBE Telecom in the Philippines is a successful mobile payments initiative using SMS. More than 1.5 million people use the system, which allows G-Cash subscribers to transfer credit between mobiles, make retail payments and person-to-person transactions. Initial subscription to G-Cash is free, but withdrawals and deposits (made through GLOBE offices) cost 1% of the transaction, with a minimum transaction of US 19.

cents. Each customer-initiated SMS costs 2c. Scheme rules limit the account balance to US\$189. Transaction security is managed through an identification (ID) and personal identification number (PIN) code. The service thrives for several reasons. First, much of the Philippine population lacks access to a bank account, so this option fills a gap in payment options, and is especially favoured for low-value transactions. Second, the alternative service provider (telecom operator in this case) did not have to invest heavily to spur usage, because mobile and SMS usage is high anyway. The mobile penetration rate is about 60% in the Philippines, where 200 million text messages are sent on an average day.

- The **Octopus** card in Hong Kong is a contactless transit card with added payments-processing capabilities. This ‘smart card’ reduces transactions processing time in restaurants, supermarkets, car parks and other points-of-sale (as it originally did for transportation payments). While the Hong Kong population stands at 7 million people, there are more than 19 million Octopus cards in circulation, as tourists and other travelers can get the card quickly and easily. 10 million transactions are processed per day, representing a total value of HK\$87 million (US\$11 million). More than 50,000 card readers are spread across Hong Kong, and 2,000 merchants accept Octopus. Card holders can top up balances from Octopus ATMs with cash, by electronic funds transfer, at any merchant accepting Octopus cards, or automatically by subscribing to Octopus Automatic Add Value Service. Any account from the 22 banks involved in this service can be debited. The average balance held by customers is HK\$65 (US\$8). The popularity of Octopus can largely be attributed to the fact that consumers were already used to the transport card before other services were added. The enhanced Octopus card therefore provided a fast but familiar, secure and widely accepted means of payment.
- **NTT DoCoMo’s Osaifu-Keitai** mobiles (mobile phones with wallet functions) contain a chip that can be used to perform contactless payments. Card holders wave their mobile near the reader and money is debited from an electronic purse or a networked bank account. More than 28.6 million Osaifu-Keitai mobiles are in circulation and 608,000 shops accept these payments. Services are provided by NTT DoCoMo or by another service provider. Users just download the requisite application to the phone. Japan is the recognised leader in m-payments, and customers are early adopters of such technologies, so they quickly saw the benefits (speed and ease of use) of using a single device for payments, instead of handling a range of different cards. Other telecom operators in Japan also offer Osaifu-Keitai mobiles.

## SAMPLE PARTNERSHIPS BETWEEN BANKS AND ALTERNATIVE SERVICE PROVIDERS

- In the Philippines, **Smart Money and Banco de Oro** provide an over-the-air m-payment service used by more than 2.5 million subscribers. Smart Money links the user’s phone to a cash account held by Banco de Oro and enables retail payments, remittances and credit transfers. Fees vary from US 2 cents to 1% of the transaction value. Like G-Cash, privacy is protected by an ID and a PIN code. Banco de Oro’s role is to manage accounts and perform transactions. By law, the bank is responsible for security and fraud management. As noted, Filipinos are heavy SMS users and many do not have a bank account, so this service is popular, for example with workers who want to send remittances quickly and not rely on bank branches.
- In India, **Paymate** has teamed with Indian Banks (e.g., Standard Chartered Bank of India, State Bank of India) to provide an m-payment service using SMS. The transaction platform links the user’s phone to a bank account, a credit card or a prepaid account. Bill payments, retail payments and online payments can be performed easily by entering a PIN code. The money can also be withdrawn from multiple bank accounts registered by the user. Paymate is accepted by more than 15,000 merchants in India, where the number of mobile users has topped 250 million and the number of new mobile subscribers is growing

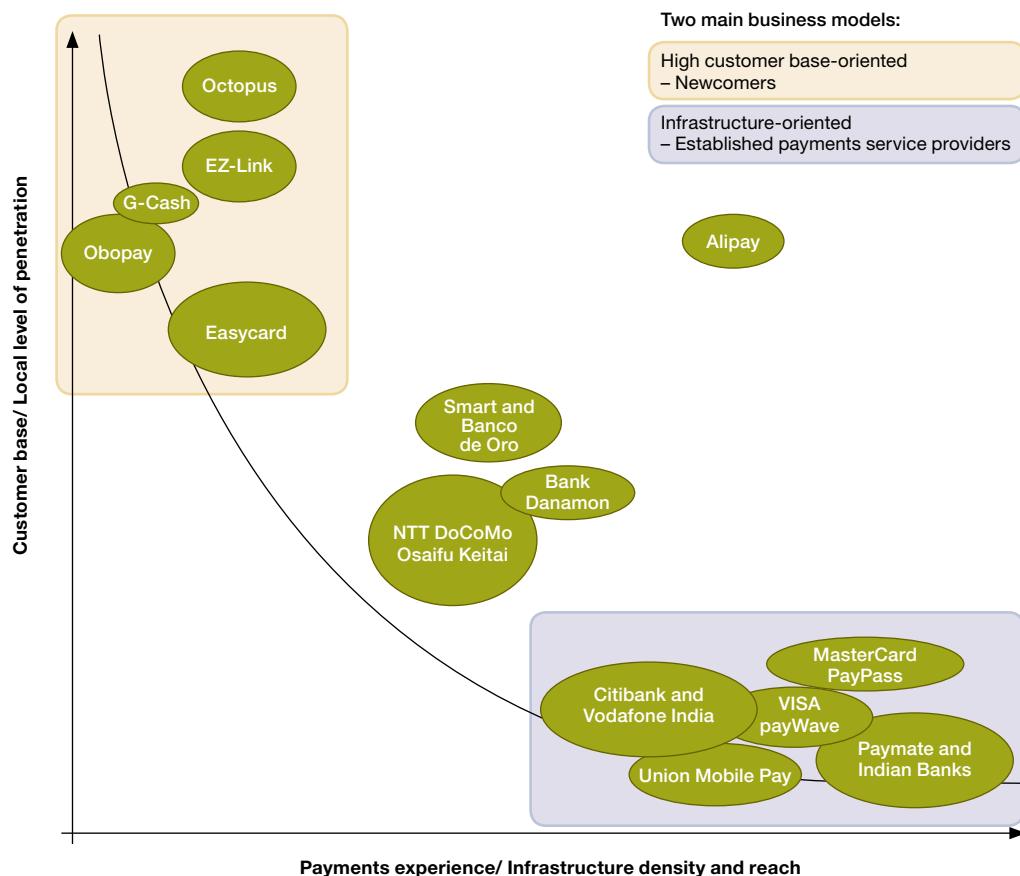
all the time (15.4 million were added in January 2009 alone). Notably, mobile devices offer greater coverage than banks in rural zones, so they make banking services available to many customers who would otherwise go un-served. For example, Paymate offers city workers an easy way to send remittances to their home villages.

- **Citibank India and Vodafone Essar Ltd** are conducting a pilot project of m-payments using NFC mobile phones. Also involved are Nokia, which provides the NFC-enabled phones, and MasterCard, which will provide its MasterCard PayPass payment and security infrastructure. The initiative—**Citi Tap and Pay**—is being rolled out in Bangalore where Citibank has 400,000 credit card holders, of which 20,000 already have an NFC-enabled phone. The service links the user's phone to a Citibank MasterCard (credit/debit) and allows customers to make payments in 500 merchant establishments. Depending on the success of this initiative, Citibank aims to roll out this service in other cities across India.

### BANK-CENTRED MODEL: A VARIETY OF INITIATIVES

- **Visa payWave and MasterCard PayPass** are contactless credit/debit cards issued by banks. They use NFC technology to perform contactless payments while acting as regular credit/debit cards elsewhere. These initiatives, coming from global players, are progressively being rolled out worldwide but Asian markets were first (along with the US) to test these initiatives as they are recognised as being receptive to innovations. Visa says it now has more than 26 Visa payWave issuers in Asia (Malaysia, Korea, Singapore, Hong Kong, Taiwan), making the Asian market far more advanced than Europe, for example, in which there are only five such issuers. These cards are convenient and can save the consumer time. However, there are costs associated with usage. Merchants have to invest in special card readers if they plan to accept these cards. In addition, interchange fees are involved as they are for regular credit/debit cards. This may have an impact on consumer prices if merchants seek to incorporate these transaction-processing fees into their retail prices. Still, merchant reward programs tied to these cards could encourage usage. Partnerships between banks, issuers, acquirers and MasterCard/Visa are key to the success of these initiatives.
- **Bank Danamon** in Indonesia launched a biometric service targeted to micro-entrepreneurs. Biometric identification (in this case fingerprints) is used to make loans and perform banking transactions. While a similar Citibank initiative in Singapore failed because the biometric technology provider (Pay-by-Touch) filed for bankruptcy, Bank Danamon has shown that biometric authentication can be a useful tool in catering to unbanked segments of the population, including those who are illiterate. The next step in biometric-related initiatives will be the ability for consumers to perform payments in stores using only their fingerprints.
- **Alipay**, started in 2004, provides online payments services to Chinese consumers. Alipay partners with all leading banks in China to offer an escrow service for payments, where funds are debited from bank accounts or via credit/debit cards linked to the Alipay account. Alipay managed to grow quickly and become the leading online payments provider in China, largely because it is the standard payment means for its sister company Taobao, which has already reached a critical mass of users. (Both are subsidiaries of the Alibaba Group.) Taobao is the leading online marketplace in China, ahead of Ebay, and Alipay service is free for registered users of both Taobao and Alipay. Fees are charged for non-registered users or for those who use only Alipay over a limited volume of trading. As of July 2009, Alipay has more than 200 million registered users in China alone.

**Figure 3 Customer Base and Infrastructure/Experience as Factors in Payments Business Models in Asia**



Source: Capgemini research and analysis, 2009.

We identified two main trends in the business case for payments innovations, whatever the structure of the operating model (see Figure 3):

- Newcomers focus on low-value transactions and pricing across a large (and often pre-established) customer base;
- Established players focus on utilising their experience and infrastructure to provide enhanced payment services and experience for customers.

## IMPLICATIONS FOR BANK STRATEGY

Telecom operators and other payments service providers have pioneered most new payment services in Asia, drawing on their large customer bases. G-Cash and Octopus are among the many that have been very successful. Banks own few of the new initiatives to date, but they are pursuing various efforts (e.g., payments with biometric authentication and NFC payments). Bank initiatives are generally expensive to implement, though, as they often imply additional transaction-processing fees and require heavy investment in equipment deployment (fingerprint and NFC readers) for which merchants may not be willing to assume

the cost. For bank schemes to thrive, in fact, they need to attract the endorsement of key stakeholders—Visa or MasterCard in contactless credit/debit cards, issuers and acquirers—to bring in enough funds for investments and to drive acceptance. Alternative service providers, by contrast, build on an existing customer base that is already well established and thus mainly need to drive people into using their services.

To become successful, banks therefore need to decide first on their position in the value chain:

- Partnerships with telecom operators or other service providers will help them assume the benefits of mobile penetration. At first, banks can provide a processing and account-management structure. Consumers who become familiar with their account via e.g., Obopay or G-Cash may then migrate towards retail banking.
- Banks that are willing to create a business on their own should design an offer that will target a specific group of customers and provide users with value-added services. Technology is not the only attraction for customers. (Moneo in France, for example, developed an electronic purse that has failed to catch on because merchants and users apparently do not believe the technology benefits warrant the associated costs).

Emerging payment means provide banks with a real opportunity to gain and lock in new clients, reduce the use of cash, create new offers, reach unbanked markets and decrease operational costs. But banks must fight to stay relevant, and proactively position themselves to capture potential sources of revenue that could otherwise be lost to telecom operators and other service providers.

In order to succeed, then, bank initiatives must be able to do the following:

- Bring value-added services to customers (individuals and merchants), e.g., in terms of quicker transaction times for cards.
- Take advantage of a critical mass of users and acceptors or quickly reach it (like Octopus).
- Leverage other drivers of demand by e.g., getting support from key players (large corporates, public administrations) or improving an existing service.
- Be interoperable, at least on a national level.
- Focus on frequent low-value transactions that do not require authentication.
- Partner with other stakeholders and leverage their capabilities.
- Create a business model that will benefit all stakeholders.

In pursuing business opportunities in emerging payment means, all parties involved and especially banks must remember however that there are regulatory and security issues to consider. For instance, domestic and international bank regulations include strict anti-money laundering and fraud provisions that may be challenging to meet in the electronic and mobile payments environment where not all countries have the same disclosure requirements. Going forward, systems must certainly be capable of ensuring regulatory compliance across multiple delivery channels and countries to facilitate remittances, for example.

To date, banks tend to handle the security issues as they would for legacy payments services. Service providers usually set limits for transactions and deposits, and limits are imposed on transit-card balances. If a scheme is owned by multiple parties, a clear framework has to be defined to identify the responsibilities for each stakeholder.

Central banks, such as the Reserve Bank of India, are starting to issue specific guidelines and legal frameworks to clarify the roles and responsibilities of each stakeholder regarding anti-money laundering issues, risk management and delivery of service. More international standardisation could help to reduce the costs of investments and improve interoperability eventually, but is probably not appropriate yet.

Existing regulations vary by country to reflect divergent market characteristics (in payments instruments and customer needs and habits), making it hard to standardise even within Asia, let alone globally. Even in Europe, where new payment means are part of the SEPA agenda (e-SEPA), the number of standards is still a hurdle in developing interoperable m-payment and e-payments services.

But even when designing operating rules, regulators are not concerned with business models, so it is left to banks to develop a business model that is compliant with laws and regulations but still economically viable. Except for contactless credit/debit card initiatives, which are being rolled out worldwide by Mastercard/Visa, the current lack of standardisation essentially limits initiatives to a domestic market at least initially.

## CONCLUSION

Asia's innovation in payment methods has produced many successful initiatives, from m-payments to contactless cards. In the process, both alternative service providers and banks have been able to provide convenient payment services for consumers. However, these initiatives have often been developed with a domestic or metropolitan focus, using proprietary standards, making it difficult for them to expand into regional or global solutions.

These initiatives have demonstrated, though, that payments innovation is a potential source of revenue for banks but also for alternative service providers. However, more than bringing in new technology, banks must define a viable business model (scheme owner, security issues, investments, revenue-sharing) in cooperation with operators and service providers—and do it soon—if they are to capture the opportunity in emerging payment means.

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