

Mobile Payment in Emerging Markets

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Abstract:

Mobile payments have been a key driver of socio-economic development in emerging markets. Factors such as advancements in technology, socioeconomic conditions, and the high penetration rate of mobile devices are driving m-payment development in certain emerging markets. Yet other factors are hindering further development. This department is part of a special issue on IT in Emerging Economies.

Keywords: mobile payments | emerging economies | economic development | economics | information technology

Article:

Mobile payments—payment services conducted via a mobile device—have been a key driver of socioeconomic development in emerging markets. Factors such as advancements in technology, socioeconomic conditions, and the high penetration rate of mobile devices are driving m-payment development in certain emerging markets. As Tom Standage noted in his "Virgin Territory" *Economist* article (17 Nov. 2011), it's "easier to use your mobile phone to pay for a taxi in Nairobi [Kenya's capital] than in New York."

A well-developed m-payment ecosystem has evolved in Kenya that, as of February 2012, had over 18 million m-payment users. 1 In the Asia Pacific, m-payment is expected to grow by 15 percent annually, reaching US\$3.8 billion by 2015. 2 Likewise, mobile banking in Africa is expected to reach US\$22 billion by 2015. 3 Table 1 presents some examples of m-payment systems in the emerging economies of Africa, Asia, and Latin America.

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M-payments can support a variety of services—in particular, person-to-person transfers (see the related sidebar). P2PT is significant for emerging economies, because it offers financial services

to unbanked users (those without bank accounts). M-payments have also helped facilitate emergency response and disaster recovery. For example, following the 2010 earthquake in Haiti, Voilà teamed up with Mercy Corps to distribute virtual vouchers. An inexpensive phone loaded with \$40 T-Cash (provided using an e-wallet service from Indonesia's largest cellular operator, PT Telkomsel), was provided to each victim. Subsequent aid distributions involved just sending a text message.

M-Payment Ecosystem: Driving Factors

Several factors are driving m-payment growth in emerging markets.

Socioeconomic Conditions

Most people in developing economies lack alternatives to cash, such as credit cards or checking accounts. In Africa, only 20 percent of families have bank accounts—10 percent in Kenya, 5 percent in Tanzania, and 15 percent in Liberia. 4 In Pakistan, less than 15 percent of the population has access to formal savings or credit products. In Haiti, there were only two banks for every 100,000 people, and individuals seeking to cash paychecks and pay bills had to stand in line at a bank for hours. In some economies (such as in Zimbabwe), people prefer to use m-banking to reduce the risk of someone robbing them of their money. 5

Formal safety nets and social protection instruments, such as unemployment benefits and health insurance, aren't available, so when unfavorable financial circumstances occur (owing to a poor harvest or an illness, for example), people rely on informal risk-sharing arrangements involving networks of friends and family. 6 In some cases, informal methods are also used to transfer money, which presents several risks. Poorly developed transportation systems and expensive money-transfer services also help make m-payments more appealing.

Rapid Diffusion of Mobile Phones

According to the International Telecommunication Union, mobile phone penetration reached 79 percent in the developing world in 2011. 7 By 2015, in sub-Saharan Africa, more people will have mobile phones than access to electricity. 8 Emerging markets thus have a huge population of unbanked mobile subscribers. For example, there were 90 million mobile subscribers and only 25 million bank accounts among the 167 million people living in Nigeria in early 2012. 9

Increased Efficiency and Lower Costs

In developing economies, most transactions are small. The average mobile transaction conducted via M-Pesa is about a hundredth of the average check transaction and half of the average ATM transaction. 10 For small transactions, a typical m-payments transfer costs around 1 percent of the transferred amount. In South Africa, for example, before the availability of m-payment, individuals paid \$30 to \$50 to couriers to deliver cash to relatives. M-payment services offered by MTN and Wizzit cost only \$.50. 11

Branchless banking, which involves a distribution channel to deliver financial services without relying on bank branches, is appropriate for the emerging markets. A study indicated that, for a transaction involving \$23, branchless banks cost 38 percent less than commercial banks and 54 percent less than informal money transfer channels. 12 Opening bank branches requires a huge investment in infrastructure, equipment, human resources, and security. Branchless banking services, on the other hand, leverage local resources, infrastructure, skills, and equipment (such as agent shops and mobile phones). M-payment is thus likely to benefit the bottom-of-the-pyramid households.

Convenience

M-payment is much more convenient for consumers in the developing world, where financial and banking services aren't easily accessible. As of mid-2010, there were over 17,600 retailers as M-Pesa agents in Kenya and only 840 bank branches. 13 Families in Africa's rural areas must travel far from home to pick up remittances, adding significant travel costs and time to the already high transfer fees.

New Initiatives

Initiatives of nongovernment and international organizations have facilitated the diffusion of m-payments. For example, the Department for International Development, which manages the UK's aid to developing countries, helped develop the M-Pesa system. Similarly, the GSMA Development Fund and Gates Foundation started the Mobile Money for the Unbanked program, which targets people living on less than \$2 a day. The Easypaisa system (see Table 1) secured a US\$6.5 million grant from the Gates Foundation.

Constraints

Despite the success of m-payment systems, certain factors have constrained further growth.

An Underdeveloped M-Payment Ecosystem

M-payment transactions currently occur in largely underdeveloped ecosystems. In many cases, underdeveloped infrastructures, immature standards, mobile phones with only primitive features, overloading and network congestion, and outages have hindered the diffusion of m-payment services. There are also interoperability issues. In Haiti, for example, two companies—Voilà and Digicel—offer mobile money programs, but the two can't interact.

Users and providers of m-payment services have also realized the need for special types of intermediaries. For example, the m-payment system in Kenya is facing an "e-float" problem, because most transactions are deposits in cities and withdrawals in villages. To efficiently run the system, M-Pesa relies on intermediaries who help manage the liquidity. For example, PEP Intermedius (<http://pepintermedius.com>), which is a network of cash merchants, works as an intermediary between M-Pesa agents and banks (see Figure A in the sidebar).

Restrictive and Vague Regulations

M-payment-related regulatory systems are evolving more slowly compared to technological developments. For example, when M-Pesa was launched in 2007, there were no clear regulatory guidelines for m-payments. M-Pesa exploited the loophole and operated without a banking license. Kenya's retail banking sector viewed M-Pesa as a threat and called it a Ponzi scheme. A lobby of Kenyan banks led to an investigation of SafariCom and M-Pesa by Kenya's Central Bank. The audit, however, indicated that M-Pesa offered "bank-grade security and controls." 14

Central banks in other countries, however, have regulations supporting the role of the retail banks as central players in the m-payment chain. The retail banking sector in other African economies has established its influence, authority, and dominance over m-payment. Similarly, in Bangladesh, the mobile e-marketplace, CellBazaar has facilitated information exchanges between sellers and buyers, but a lack of clear policy orientation and support for mobile operators to provide m-payment services has hindered its further growth. 15

Lack of Collaboration

In some cases, the lack of collaboration among key players in the value chain of m-payment has created a roadblock to m-payment diffusion. For example, deposits initiated by M-Pesa users take a long time to be credited to customers' accounts in financial institutions. Customers have also found it difficult to use the M-Pesa channel to withdraw money from a bank account. 16 One problem is that traditional banks lack proper tools to deal with m-payments.

Security Issues

Cybercriminals have targeted unsuspecting m-payment users. This problem is especially critical in emerging markets, where cybercrime-related legal frameworks and enforcement mechanisms aren't well developed. There are instances of phishing attacks targeting mobile money users. For example, an article in Africa News reported on Kenyan job seekers being victimized by phishers ("Kenya: Cyber Criminals Hit Harder with Identical Websites of Top Firms," 13 Jan. 2011). The article said that cybercriminals had created imitation websites resembling East African Breweries Limited and had posted vacancies for accountants, brew masters, technicians, and drivers. The job applicants had to pay a "refundable" application fee of approximately US\$70 via SafariCom's M-Pesa system.

More serious effects of mobile malware are likely to be felt in the future, as cybercriminals find ways to monetize mobile malware and increase the revenue-per-infection ratio for such malware. Emerging markets are more likely to be victims of mobile malware, because their antivirus industry is less developed and their antivirus products aren't as affordable, despite the fact that some mobile innovations are coming from these markets.

The rapid growth of m-payment in emerging markets is driven by domestic rather than international remittances. To understand the socioeconomic impact of m-payments, it's important to note that domestic and international remittances correspond to different population segments. Evidence from Thailand and the Philippines indicates that most overseas workers are from urban areas with lower poverty rates. Most international remittances are sent to urban areas of developing countries, whereas most of the P2PT to rural areas are domestic transfers coming from the urban areas. This means that domestic remittances, which is facilitated by m-payment, are more relevant than international remittances to the bottom-of-the-pyramid households. 17 In this regard, P2PT has been an important source of socioeconomic development and change among the poorest of the poor.

Payment models that rely on advanced technology aren't appropriate for the developing world. In this regard, what differentiates M-Pesa from other providers is its simple, low-tech mechanism for providing money transfers. To improve the m-payments ecosystem, service providers, including banks and mobile operators, must increase collaborations and partnerships with key value-chain partners, such as solution vendors, app developers, retailers, merchants, handset and device vendors, and consumer associations. Even more importantly, the diffusion of m-payment hinges on measures taken to increase consumers' awareness and willingness to adopt such services.

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