

payments system research briefing

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Paper, Plastic.....or Phone?

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In the December 2005 issue of the *Briefing*, it was noted that contactless technology could reside in several devices, including traditional payment cards, key fobs, watches, and even mobile phones. One year later, discussion in the United States about the use of mobile phones as a payment device and as a means to facilitate online banking has intensified. Such mobile functionality already has been adopted in other parts of the world, and adoption in the United States may not be far off. Soon, instead of choosing between paper and plastic when making a payment, the phone may be an option as well.

This *Briefing* article examines mobile-phone payment and banking alternatives in the United States. It explores prospects for growth, available technologies, and the outlook for one or more technologies coming to dominate the market.

Prospects for growth

A number of forces are at work suggesting that mobile-phone payments may be poised for growth. The growing number of mobile devices, increased consumer willingness to adopt new payment methods, the surge in the use of payment cards, and a wide-ranging choice of service providers all point to mobile-phone payments becoming a reality in the not-too-distant future.

According to a June 2006 survey conducted by CTIA, The Wireless Association, there are more than 219 million wireless subscribers in the United States. That means that more than 72 percent of the total U.S. population owns some type of wireless device, including mobile phones, Blackberries, and PDAs. And, when it comes to mobile phones, for many users—because of the variety of features and functionalities—phones today are being used for much more than simply making and receiving calls. They have become full-service electronic devices providing access to the Internet, music, videos, games, text messaging, graphics, and more. So, it is entirely conceivable that consumers may be ready to adopt mobile phones as a means to access payment and financial information as well.

Mobile technology can be thought of as the latest offering in a line of emerging payments. Though it has taken some time, consumers have become more familiar and comfortable with making payments in new ways. A December 2005 poll taken by the Pew Internet and American Life Project, for example, found that 43 percent of U.S. Internet users, or about 63 million American adults, bank online. PayPal reports that it now has over 100 million accounts, which consumers use to make person-to-person (P2P) payments online as well as for other

transactions. And, contactless payments also are on the rise. Where consumers have been exposed to contactless payment methods, such as Speedpass at Exxon-Mobil gas stations and PayPass and blink at CVS pharmacies, they reportedly have liked them and would use them more often if they were more widely available. Mobile phone technologies provide another platform to enable all of these types of activities.

Consumers also are increasingly using credit, and especially debit, cards for low-dollar transactions, which may further encourage mobile phone payments. Networks are offering differential pricing and creating new merchant class categories to encourage low-dollar merchants to accept cards. In turn, consumers are increasingly using plastic to make payments everywhere from the grocery store to the convenience store to the fast-food drive-thru. Speed and convenience are important in such transactions for both merchants and consumers. Mobile payment technology could make such transactions even quicker.

Finally, a host of service providers have taken initial steps into the mobile-phone payment industry, suggesting a level of interest and ensuing competition that could help spur activity in this market. A number of banks, nonbank payments providers, and telecommunications companies are offering, piloting, or seriously discussing mobile payment and banking services.

Available technologies

Several technologies are available for mobile-phone payment and banking. These include near field communication (NFC), short message service (SMS), and wireless application protocol (WAP) technologies. In addition, payments-related applications can be downloaded to reside directly on the mobile device.

NFC is a short-range wireless connectivity technology that evolved from a combination of existing contactless identification and interconnection technologies. SMS technology, which exists on most of the mobile phones available on the market today, allows users to receive and send short text messages (from 150 to 160 characters) to other mobile phones. WAP technology is an open, international standard for applications that use wireless communication

and is primarily used to enable Web access from mobile devices. And, application downloads use a mobile device's WAP capabilities to allow the user to type the Web address of the site from which they want to obtain an application, download the application, and essentially "register" their device for use by entering the phone number and creating a PIN.

JPMorgan Chase, the deployer of the blink contactless card, launched a mobile payments trial in December 2005 using NFC technology. In that trial, a small number of Atlanta Thrashers and Hawks season ticket holders, who also had Chase-issued Visa credit card accounts and Cingular wireless accounts, were provided the ability to make mobile payments at special contactless readers installed at concession stands throughout the arena. Results were evaluated and focus groups were conducted after the trial. Speedier transaction times and greater convenience were among the observations made by trial participants. In addition, participants indicated that they would like to use their mobile devices for payment at other merchant locations, for all purchase sizes, in the future.

Earlier this year, PayPal, the online P2P payment service owned by eBay, began offering an SMS-enabled payment product called PayPal Mobile. PayPal Mobile allows users to make payments or send money from their PayPal account by registering their phone at the PayPal Web site and creating a mobile PIN. Once done, users either can text message the payment information directly to the recipient or call a PayPal automated system. PayPal then notifies the recipient of the payment and tells them how it can be claimed. In addition, PayPal Mobile offers a "text to buy" feature: anytime a PayPal mobile user sees the PayPal "text to buy" icon on a poster, online, in a magazine, or at an event, they can text the item code to the number shown. PayPal then calls the user back and requests a PIN to confirm the order. Once done, the item is shipped to the consumer.

Launched in 2005, Obopay is another early-entrant mobile payment provider. Its mobile service utilizes a prepaid MasterCard account, an assigned PIN, and either SMS technology, WAP technology, or an application download to conduct mobile payments. Obopay users establish their account online. Those choosing the application download

option must also identify their mobile telecommunications provider. Application download instructions specific to that provider then will be furnished. Using any of the three options Obopay customers can send money, request money, conduct balance inquiries, and review payment history from their mobile phones. Customers also can use the prepaid MasterCard card at ATMs and merchant checkouts.

A fourth mobile-phone payment example is Firethorn LLC. Firethorn provides services to banks that facilitate them in offering mobile-phone payment and banking services to customers. Taking the approach of establishing strategic alliances, last month, Firethorn announced two such relationships, one with CheckFree and the other with Cingular Wireless. These relationships tap into each provider's strengths in their respective industries: CheckFree's established relationship with banks in providing an electronic billing and payments infrastructure and Cingular's position as one of the largest wireless providers in the United States. To date, two banks have signed on to offer Firethorn services: Bancorp South of Tupelo, Miss., has begun offering Firethorn-enabled services to its customers and it was announced that Synovus of Columbus, Ga., anticipates doing the same by the end of second quarter 2007.

Market dynamics

An interesting question to ask is the extent to which future deployment of mobile payment and banking products will mirror the deployment of online banking and P2P payment products. With online banking, the experience was that nonbanks were at first more prominent, but banks are now major providers of the service as well. In the case of P2P payments, however, banks have not fared as well. Nonbanks dominate that space.

Banks currently play a prominent role among participants providing NFC-enabled mobile payments. Moreover, the actual payment transaction is typically recognized as being handled by a bank. With the SMS- and WAP-enabled models and downloaded applications, on the other hand, nonbank providers appear to be at the fore. The strategic alliance model adopted by Firethorn appears to strike a balance between the two. Which approach will "take hold" in the marketplace

could hinge on a number of considerations. Among them: which technologies and firms consumers feel most comfortable with; which options offer the most convenience; which option provides the best perceived security; and how widely accepted the payment methods become.

At present, consumers already are to some extent familiar with NFC-enabled, and SMS- and WAP- enabled, technologies. NFC payment via a tap or a wave of a card is becoming more familiar. And, for those already using that form of payment, a mobile phone as the payment device may not be much of a stretch. Likewise, SMS instant messaging and WAP-based Internet browsing are commonplace for some users of mobile devices, and the use of a PIN is a familiar process for many whether at the ATM or point of sale. So, mobile payment via SMS or WAP may not be much of a stretch either. Downloading applications to a phone, however, is a less familiar process.

Convenience considerations largely depend on the situation. If there were a need to make a payment in a physical environment, for example on the subway or at the point of sale, NFC likely would be the preferred method. If the need were to arise in a virtual environment or across distances, on the other hand, SMS, WAP, or an application-based payment would likely be preferred. However, if the desire were to obtain financial information or to conduct banking transactions, a downloaded application or WAP would be required.

Security considerations raise other issues. With mobile technology in general, it is known that some data, such as phone numbers and text messages, can be stored on the actual device even when the data have been deleted from the subscriber identity module (SIM) card within the device. Might this be an issue for payment and financial data as well? A security consideration associated with NFC technology is whether the information being transmitted can be captured by something other than the intended contactless reader. In addition, if a phone is lost or stolen, since there is no PIN required, there is the possibility that some unauthorized transactions could be made before the payment component could be deactivated. SMS technology employs the use of an assigned PIN and confirmations. The use of a PIN, while

not full proof, provides some protection against unauthorized use, and may therefore be more appealing to some users. The use of WAP has considerations, such as encryption of information and spoofing, similar to WiFi and Internet use in general. Ultimately, application download may offer the most protection. In addition to utilizing PIN protection, the information that resides on a phone is encrypted and is said to be comparable in amount to the information provided on an ATM receipt. Further, should the phone be lost or stolen, it could be remotely wiped clean of any financial information.

Finally, as it relates to payment acceptance, NFC-based mobile payments may experience growth related to payment terminals already deployed for use with contactless payment cards. However, it remains unclear how transactions beyond purchases might be facilitated with NFC. SMS-based mobile payments, in contrast, may require a kind of “viral” adoption

to succeed, as sender and recipient devices will have to be able to “talk” to one another. WAP provides an additional screen from which to access the Web and there already is growing acceptance of transacting online. Application download will have to gain acceptance not only from consumers, but also telecommunication companies and banks.

Conclusion

Mobile payments may be positioned for a meaningful level of adoption in the United States. While there are yet challenges to overcome, a significant portion of the population owns a mobile device, acceptance of previous emerging payment methods continues to increase, and there are a number of interested parties and available technologies that address a variety of mobile payment needs. As with other emerging payment methods, it will be interesting to see how the mobile payment and banking market evolves.

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