

Paying on the go:

Mobile payments slowly catch on in the United States





Japan adopted a mobile payment system for mass transit as a way to move millions of commuters through congested stations. Some African nations adopted mobile payments because people lacked access to other noncash payments, such as credit cards and checks.

Much of the technology the world market uses for mobile payments was developed by American-based companies, but few Americans use the payment method.

The Bank of Japan reported that \$22 billion in contactless payments were made in 2010. Consumers in the United States, with a larger population, made \$1.5 billion contactless payments a year before.

“It will take some time before people use this payment method here,” said Fumiko Hayashi, a senior economist at the Kansas City Fed.

The barriers to widespread use in the United States include uncertainty about the benefits of mobile payments to consumers.

Benefits and concerns

Consumers’ definitions of convenience differ, especially in the payments market. Market research, however, found a few

commonalities among those definitions, including portability, flexibility, speed, ease of use, and ease of setting up and learning to use each payment method.

“Mobile payments will likely be more convenient than traditional payment methods in terms of portability,” said Hayashi, who has published new research on the subject.

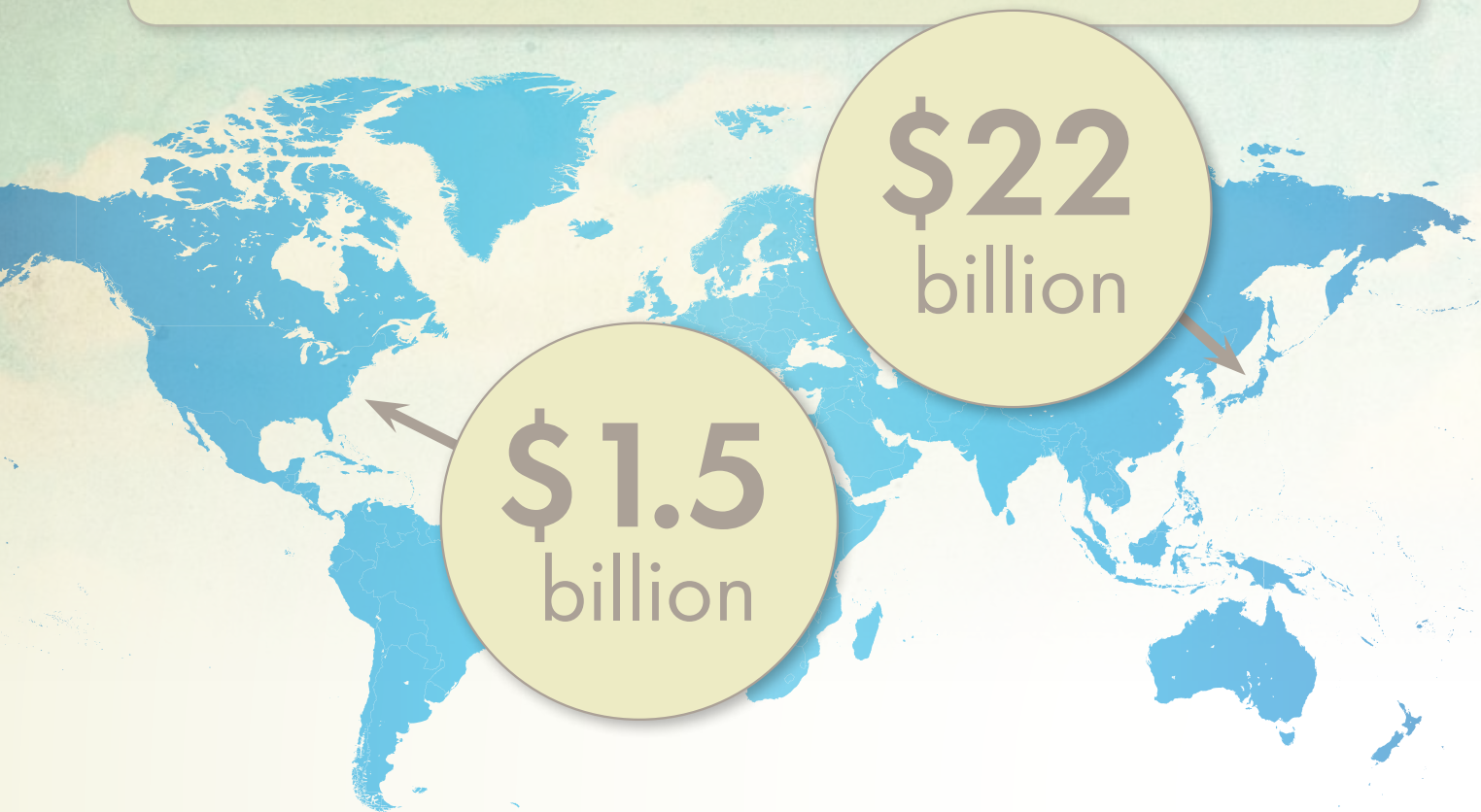
Mobile payments eliminate carrying multiple plastic cards by linking the mobile device to the cards’ accounts, including credit, debit or merchant-specific. This also produces flexibility for the consumer, allowing other payment methods, such as PayPal, direct access to bank and other financial accounts on a mobile device.

Consumers can use mobile payments for:

- Person-to-person transfers, such as a person buying an item from another person or a homeowner paying for the services of a plumber or gardener.
- Purchasing goods or services over the Internet with a mobile device.
- Point-of-sale payments: paying for goods and services at the merchant location, such as buying groceries at a supermarket or paying for dinner at a restaurant.

With the available technology, mobile

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transactions can transpire faster than traditional methods—no more card scanning, entering personal identification numbers, signing receipts or exchanging coin or cash. Some research estimates show mobile payments 15 to 30 seconds faster per transaction.

Some customers, however, may find the aspect of mobile payment software and devices daunting.

“Compared with traditional payment methods, such as checks or debit and credit cards, setting up mobile payments will require more steps,” Hayashi said.

But a 2008 payments survey by the Boston Fed reported that consumers thought “ease of setup” of a payment method less important than ease of use or security.

Mobile payments have advantages in managing finances and controlling spending. Consumers can check their account balance prior to making a purchase, which prevents

them from spending beyond their means. Among various payment instruments stored in the mobile device, consumers can choose the payment instrument with the most favorable financial impacts, such as lower fees and higher rewards.

Mobile payments could come at little to no additional cost to the consumers or to financial providers. Consumers already pay fees for the cards and bank accounts the mobile devices will use to make the payments and pay mobile carriers for mobile data plans, Hayashi said, so it is unlikely providers would charge additional fees for mobile payments.

But consumers will need a smartphone or a smart device to take full advantage of the available payment options, finance management and convenience available in today’s market. Not all Americans, however, use smartphones, and that’s where most of the costs to consumers will occur.

Bank conference explores consumer payments innovation

A recent survey by The Nielsen Company showed 40 percent of Americans used smartphones by mid-2011. And not all smartphones are capable of using certain methods of mobile payment. Consumers would need to upgrade phones and service plans.

Security and fraud concerns also could dissuade consumers from using mobile payments. In many cases, the accounts consumers would use for mobile payments already have fraud protection, such as credit cards and bank accounts. Other financial accounts, like prepaid direct-merchant, do not.

By clarifying consumer protections, regulators could reduce, if not eliminate, uncertainty about fraud losses, Hayashi said.

Mobile payments have the potential to be more secure than traditional payment methods, Hayashi said. The chip technology can perform dynamic authentication. Unlike traditional payment methods that use a static PIN or password, dynamic authentication changes with each transaction. There's also multilayer password protection and facial recognition technology.

Hayashi says that if the industry can address issues such as costs and security, consumers most likely would adopt mobile payments because of convenience and the ability to better control spending and manage finances.

Implementing technology standards

To reduce the uncertainty about the benefits of mobile payments to consumers, providers need to agree on technology standards. The benefits, such as convenience, speed, and security, depend on which technology is used.

Companies have developed several technologies to handle various payments, with the industry using four main technologies in the United States.

Near field communication chip technology enables wireless communication between devices over a short distance.

Wireless networks combined with mobile devices create a new realm of economic possibilities.

Various banking leaders, experts, regulators, industry analysts, merchants and government officials explored these possibilities in March at the Kansas City Fed's Consumer Payment Innovation in the Connected Age conference.

"We live in an increasingly connected world," Kansas City Fed President Esther George said at the conference. "Smartphones and social networks are allowing us to exchange information with each other more freely, more quickly and from a wider variety of locations. This increased connectedness has important implications for our society and our economy."

The fourth biennial conference in Kansas City, organized by the Payments System Research group, concentrated on this "connectedness" and how it affects the way consumers and businesses make payments.

Sessions highlighted such issues as payment innovation, which involved representatives from Google and PayPal, and how new technology, security engineering and regulation can address mobile payment issues of privacy, consumer protection and payment continuity.

Attendees also discussed the abilities of payments innovations to give more people access to financial services. Currently, some consumers have no access or limited access to banking or financial services. Another session focused on payments system issues involving speed of clearing and settling transactions. As the world market becomes more mobile, the U.S. payments system must evolve to keep up with consumer demand.

The more than 150 attendees ended the conference with a panel discussion on the payments system, involving international and domestic policymakers from Australia, Mexico, the Netherlands and the U.S. Department of Justice.

The conference gave the Kansas City Fed's Payments System Research group and management, as well as conference attendees, ideas for further research and a greater understanding of the effects innovation will have on the payments system.

- Information provided by Sarah Kemp,
TEN contributing writer

Japan and South Korea use a form of this technology for contactless transit cards. A chip is embedded in the card that links to either a customer's bank account or prepaid account. A device scans the card, sometimes without the customer taking it out of his or her wallet, at the point of sale.

Google uses this type of technology for its mobile application, Google Wallet. Isis, a joint venture of AT&T, Verizon Wireless and T-Mobile, joined forces in the development of a near field application as well.

Another technology is radio frequency identification, which has a longer transmission range than near field communication.

Oklahoma and Kansas use a similar radio frequency technology for toll pass collection. It's also used for tracking livestock and pets.

Starbucks and Target adopted mobile 2D barcode technology, which allows customers

to display product barcodes on their mobile devices. A clerk scans the barcode and the payment transfers from a prepaid account.

Wireless application protocol, or WAP technology, allows a consumer to log in to a payment provider's website through a mobile Web browser and download a mobile app for payment transactions. The payment service company PayPal uses WAP for its mobile point-of-sale application.

If providers adopt incompatible technologies for major point-of-sale transactions, it may delay consumer adoption and merchant acceptance of mobile payments.

Merchants may not want to invest on different devices in order to accept all different mobile payment technologies, and consumers may not adopt mobile payments that have limited usability.

Regulators may play a role here. They can

In 2011, there was about one contactless-payments terminal per 600 people in the United States. A small number compared to Japan, which had one per 130 people and South Korea had one per 100.



coordinate with industry to set technology standards.

Merchant acceptance

In a survey by Javelin about contactless payments, the marketing company found that merchant acceptance matters to consumers. Several survey respondents were reluctant to try a new payment method if merchants' acceptance of that method was low.

Researchers lack empirical data on how many consumers use mobile payment apps in the United States, but one way they track consumer use and merchant acceptance is by the number of point-of-sale terminals.

In 2009, there was one terminal per 600 people in the United States. A small number compared to Japan, which has one per 130 people and South Korea has one per 100.

"Compared to Japan and South Korea, mobile point-of-sale payments in the United States are in their infancy," Hayashi said.

Companies like Visa and MasterCard are promoting chip-based payment cards, which should encourage more merchants to accept mobile payments that use the same technology. The companies, however, are slow to implement the change, giving merchants until 2015 before requiring acceptance.

And the costs associated with certain technologies, such as near field, are a perceived barrier to many small businesses. Providers can overcome that barrier with incentives and by educating merchants about the benefits of the mobile payment method.

"Mobile payments could allow merchants to acquire more information about their actual and potential customers than is possible with traditional payment methods, increasing the scale and sophistication of their target marketing," Hayashi said.

Merchants would have direct access, sending targeted promotions and marketing material to the consumer's mobile device. Depending on the arrangement with the mobile payments provider, merchants can customize inventory, marketing strategies

and other promotions according to their customers' purchasing histories. In some instances, merchants could have that individual information the minute a customer walks in by scanning the customer's mobile device.

The future

Transit authorities in Chicago and Utah plan to implement mobile fare payment systems in the next two years, and the online magazine, Digital Trends, reported that Starbucks, which uses the 2D barcode system, processed 26 million transactions since the company launched its app in January 2011.

But a majority of American consumers don't use contactless transit cards, and almost everyone has access to some form of noncash payment, whether check, debit card or credit card.

In a survey of major credit card customers, Lightspeed Research found that most customers thought the ability to make payments from a smartphone as unimportant.

And there is a generation-gap barrier. Market research also shows that older consumers are satisfied with traditional payment methods, while younger consumers, who grow up with technology, accept mobile payments as a viable method.

"On both the demand side and the supply side, a better understanding of the potential benefits to consumers of replacing traditional payments with mobile payments may help overcome barriers to adoption," Hayashi said.



BY KEVIN WRIGHT, EDITOR

FURTHER RESOURCES

"MOBILE PAYMENTS: WHAT'S IN IT FOR CONSUMERS?"

By Fumiko Hayashi
KansasCityFed.org/research