Electronic payments using your smartphone

By Alegra Howard

The idea behind mobile payments is simple: Instead of paying with cash, check, credit or debit card, consumers can use their smartphone to pay for purchases via a mobile app. (Apps are software applications specifically designed to run on smartphones and other mobile devices.)

To help consumers understand their mobile payment choices, Consumer Action looked into how four of these payment systems work. Popular mobile payment systems include Apple Pay and PayPal Mobile recently gained two new competitors: Android Pay and Samsung Pay.


The technology basics

Mobile payments made using a smartphone typically employ a short-range wireless communication process called near field communication (NFC). In the store, payment information is transferred wirelessly from a smartphone equipped with an NFC chip to an NFC “reader” at checkout. This is the same wireless technology used by Bluetooth devices, retail inventory control tags and keyless door entry apps. In order for the transaction to work, the two devices must be close to each other. Typically, customers tap their phones on the reader to pay (“tap-and-pay”). Apple Pay, Android Pay and Samsung Pay use NFC technology.

In addition to enabling NFC tap-and-pay purchases, Samsung Pay also can be used at terminals that read the magnetic stripe on the back of payment cards. When a credit, debit or gift card with a magnetic stripe is swiped through a card reader at a store, financial details are exchanged and the purchase is completed. For many years, consumers have relied on magnetic stripe technology to pay, and the terminals are far more widely available than tap-and-pay terminals. Unlike other mobile payment platforms, Samsung Pay can store and convey the information traditionally contained on a card’s magnetic stripe to those point-of-sale terminals using a technology called magnetic secure transmission (MST).

Acceptance

If you are confused about which retailers accept mobile payments, you’re not alone. According to a mobile payments survey by risk management firm Kount Inc., nearly 24 percent of merchants accept payments using mobile wallets online or in stores. Most retailers have not converted their payment terminals. The biggest hurdles to wider adoption cited by retailers are cost (NFC terminals can cost $500 to install) and fear of security breaches.

Even so, the number of merchants accepting Apple Pay has more than tripled in the last year to more than 700,000 stores. Android Pay is accepted at over a million retailers, including Duane Reade and Walgreens, Chevron, American Eagle, McDonalds, Jamba Juice and Foot Locker. PayPal Mobile, including Famous Footwear, Dollar General, Home Depot, Babies “R” Us and Target, has between 18,000 to 20,000 stores accept PayPal Mobile, including Famous Footwear, Dollar General, Home Depot, Babies “R” Us and Target.

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Web Bonus

Find a complete rundown on the mobile payment systems we examined as well as more related articles online! (http://bit.ly/CA_News_Fall_2015)

- Mobile payments: What happens to all that data?
  - Mobile payments collect a massive amount of data about our whereabouts and what we buy. How can we limit its use?

- Beyond the popular payment systems
  - Here are a couple of mobile payment apps that you thought you might want to know about.

What to know before you pay on the go

By Monica Steinisch

Who needs a wallet when you’ve got a smartphone in your pocket? The ability to pay for purchases—from your morning coffee and weekly groceries to household items and electronicswith a tap of your phone is becoming more available.

Consumer Action researched your mobile payment options in this ever-evolving market. Whether you’ve already embraced mobile payments or plan to get on board soon, this introduction to the systems, processes and protections will help you make informed decisions about paying by smartphone.

Small provider pool

Consumer Action’s survey features the major mobile payment systems: Apple Pay, Android Pay, PayPal Mobile and the newest entrant, Samsung Pay. These mobile wallets or tap-and-pay systems are the only ones that are accepted in stores, online and in app by unaffiliated merchants. (See “Electronic payments using your smartphone,” just above. A chart on page 4 gives a quick overview of the mobile payment platforms we reviewed.)

We also reviewed retail mobile payment systems implemented by individual companies such as Starbucks, and CurrentC, a branded payment app developed by a group of retailers for use only in their stores. (See more about this in our online Web Bonus story at http://bit.ly/CA_News_Fall_2015.)

All but one of these payment systems require a particular device. Apple Pay requires use of an iPhone 6, or an Apple Watch paired with an iPhone 5 or later; Samsung Pay is designed for Samsung Galaxy S6 and Galaxy Note 5 devices; and Android Pay is compatible only with chip-enabled Android phones. (A list of compatible Android phones is available at www.nfcworld.com/nfc-phones-list/.)

PayPal Mobile is in a class of its own. It’s available to anyone with a mobile phone, regardless of make or model, but does not (yet) enable tap-and-pay purchases.

Payment technology

Pay-by-phone options fall into two categories: digital wallets and mobile payment systems. PayPal Mobile, a wallet, enables you to store account information for credit cards, debit cards and bank accounts to make payments in stores (at participating retailers), online and, in some cases, to individuals. PayPal also allows you to maintain a “wallet balance”—cash stored in your mobile account—and even receive money.

Apple Pay, Android Pay and Samsung Pay do not store funds. They are mobile payment systems that use near field communication (NFC) technology to facilitate payment. NFC allows devices to talk to each other, so a consumer who has a device with an NFC chip can pay by phone if a merchant has an NFC-enabled terminal, or reader. NFC technology is what allows Trader Joe’s customers to wave their phones at the counter to pay for groceries. Samsung Pay was launched in the U.S. on September 28 and, uniquely, also works with traditional magnetic-stripe terminals—the kind found in virtually every store nationwide where credit/debit cards are accepted.

Apple Pay launched two weeks earlier to replace Google Wallet as Google’s mobile payment system. Google Wallet hasn’t disappeared altogether. It is now the company’s peer-to-peer payment system, allowing individuals to make payments to each other.

PayPal Mobile account holders may have two options to pay. They will either enter a mobile phone number and PIN or use a one-time four-digit code for purchases at a

“On the go” continues on page 4
Emerging tap-and-pay consumer protections

By Ruth Susswein

One of the most significant concerns for users of mobile payments is how to resolve disputes about fraudulent or unauthorized charges. Depending on the source of funds used to make a mobile payment (such as a credit, debit or prepaid card), the rules governing unauthorized charges differ. Currently, prepaid cards and mobile payments don’t have the same legal protections as credit cards and debit cards. The Consumer Financial Protection Bureau (CFPB) is aiming to correct that with its extensive proposal to regulate general purpose reloadable prepaid cards and stored-value payment products. In some cases that will include mobile payments. Clarity by regulators will be welcome because the current environment is confusing. Reporter Bob Sullivan recently recounted a consumer’s difficult settling a Starbucks mobile payment dispute. Starbucks has a mobile app (and a reloadable prepaid card) that can be linked to a debit or credit card and used to make payments in its stores. Ryan Benharris had $20 stolen from his debit card after his Starbucks account was hijacked recently, but that’s not why he was furious at the firm. He was angry about what happened next. “I had to beg and plead to get my money back,” Benharris said. “They lied to me...I’m an attorney, and it took me four hours on the phone and six weeks to get a refund.”

His [Starbucks] account, with $14 in stored value, was hijacked, and hackers sucked two $100 payments from his checking account debit card onto his Starbucks app, and then off the app to a gift card they controlled.

Ultimately, Starbucks refunded the stolen $200-plus and sent him a $100 gift card for “his trouble.” (Read more online at http://bit.ly/1k84yMG.)

The bank that issues your debit card usually handles disputes, but in this casebackloading, a process to debit the card through a mobile payment system. In this dispute, Starbucks restored the funds—but is it the bank or the credit card company that should be resolving your problem?

Consumer protections for mobile payments are what you might call a “work in progress.” The underlying funding source is key to error resolution and fraud protection with most mobile payment services. Problems with mobile transactions paid for with a linked credit or debit card typically should be taken up with your card issuer. If you are using a credit or debit card, you have the right to dispute errors and limit liability for unauthorized (fraudulent) charges. Generally, credit cards provide the strongest level of legal protection, capping liability for unauthorized use at $50.

Debit cards users’ liability for unauthorized charges is limited to $50 if reported within two business days, and up to $500 after two business days. However, if consumers do not report unauthorized debit transactions within 60 days after their statement is mailed, they could face unlimited liability even when the charges result from theft.

Mobile wallet and prepaid card users have no clear-cut dispute and error resolution rights.

PayPal has asked the CFPB to exempt its accounts from any new rules if customers link at least two payment sources (credit, debit, pre-paid cards) to their PayPal accounts that already provide consumer protections.

Whether funds stored in a prepaid account or mobile wallet are protected by FDIC deposit insurance will depend on where you deposited your money. PayPal no longer offers FDIC insurance, but other prepaid accounts may. The CFPB’s proposed rules would not require FDIC to extend insurance to stored-value mobile payment accounts. It would, however, require customer notice about the lack of FDIC insurance.

Disputes

Google’s Android Pay, Apple Pay and Samsung Pay are passing through mobile payment systems. This means you link a payment card (credit or debit) to make payments. If you spot a billing error, contact the issuer of the credit or debit card you link it to, as well as the merchant where the transaction occurred. In most cases, you’ll have to wait until the purchase posts to your credit or debit card account before you can dispute it. If the problem is about a charge you never made, then contact the card issuer immediately to alert them that you used your card without your permission.

Lost phone? Apple Pay, Android Pay and Samsung Pay do not store payment card details on the phone, and they require passwords or PINs to make payments, so unauthorized access to your phone will be limited even if your phone is stolen. All three services offer a way to lock or wipe your phone remotely using the Android Device Manager (http://bit.ly/1Rm6L81). And Samsung can use the company’s Find My Mobile Service (http://bit.ly/1lk4X7T).

PayPal says it investigates all reports of unauthorized account use and will cover claims within 10 days. As to customer disputes, you’d better pay close attention to your transactions.

PayPal’s website (http://bit.ly/1lk8ymg) states that merchants or sellers are advised to resolve disputes with buyers within 20 days. If a problem is unresolved before that time, customers should contact PayPal and ask to file a claim. After 20 days, disputes are closed and “cannot be reopened or escalated to a claim.”

Regardless of PayPal’s policies, if a credit or debit card was used in a contested purchase or for unauthorized (fraudulent) charges, Consumer Action recommends that customers preserve their legal rights and dispute the PayPal charge with their card issuers.
Payments

Continued from page 1

Consumers have been slow to adopt mobile payments. Nine out of 10 consumers don't have a mobile payment wallet. The reasons are likely to start using one, according to a July Gallup poll. Just 13 percent of U.S. adults have a digital wallet on their smartphones. Of those, most hadn't used it in the last month. While men and Millennials (now 14-34 years old) were more likely to use a mobile wallet, security was the biggest concern. More than half cited fear of a lost phone or a data breach as reasons they had not adopted the technology.

Apple Pay

Apple Pay is a mobile payment system that can be used to make purchases in stores, at NFC-enabled terminals, and in certain apps. Its built-in digital wallet app (previously called Passbook, now Apple Wallet) holds the user's debit and credit card information as well as loyalty card information, such as e-tickets and boarding passes.

Apple is compatible only with newer iPhones (6, 6S and 6 Plus); the app comes pre-installed on these models. In order to use Apple Pay, you can use Apple Pay if they have an Apple Watch, a small, wireless device that is worn on the wrist that is compatible with an iPhone 5 or later.

Every transaction on your iPhone requires authentication with Touch ID (an Apple fingerprint recognition feature) or password. To make a purchase, raise your iPhone to an NFC sales terminal with your finger placed on its Touch ID (home) button. You’ll feel a slight vibration and hear a beep, which tells you the transaction is complete.

You will receive a physical receipt from the merchant and a card information statement to see the purchase amounts.

Making purchases with Apple Pay is free, and iPhone owners can link to more than 2,500 banks and credit card issuers. (Apple Pay is accepted at all major retailers, including Bloomberg, 1, Divee Read, Wallmart, and Don-ald’s, Nike, Office Depot, Panera Bread, Sephora and Staples.)

Apple Pay’s transactions are tokenized, meaning that every time you use Apple Pay, it generates a one-time payment number and security code. Your payment card is assigned a virtual number (token) and saved in an encrypted chip on your phone. Your credit or debit card details are not stored on Apple’s servers and are never shared during the transaction.

The merchant doesn’t see your payment account number or your name and address when you make an Apple Pay transaction. If your transactions were hacked, the stolen data would be useless to thieves. This means you wouldn't need to cancel your cards due to a breach or if you lost your phone. Apple’s Find My iPhone feature also allows users to remotely shut down Apple Pay (and other apps) in case the phone is lost or stolen.

Android Pay/Google Wallet

Google Wallet was recently re-launched as a peer-to-peer payment system allowing anyone with a U.S. debit card to send and receive money via their mobile apps, even if the recipient doesn't have the Google app. Now Android Pay has replaced Google Wallet as Google’s mobile payment service. Since the system is so new, we found that we couldn’t get most of our questions answered through Google customer service but we did learn more from Google executives.

Android Pay is a free mobile pay-ment app that comes pre-installed on new Android phones and is compatible with Android 4.4 KitKat (released September 2013) and later versions. You can store an unlimited number of debit, credit, gift card and loyalty card numbers in the app, and shop at over one million stores using its tap-and-pay NFC technology. Eventually you will be able to use Android Pay to make purchases online and in retail-outlets.

There is no fee to make a purchase with Android Pay. While you may be able to make a few purchases offline using the device’s memory, typically online and mobile Internet connection to use tap-and-pay in stores with an NFC terminal. To tap, tap your phone at the payment terminal, and enter your four-digit Android Pay PIN to authorize payment. The terminal will flash or beep to show your payment is complete. The four-digit pin pro-vides an extra layer of security since Android phones don’t yet feature fingerprint ID capability.

Your receipt includes the mer-chant’s location, dollar amount, transaction ID, date, type of payment (credit or debit), and the last four digits of your card. You can review past transactions in the app by selecting the card you used, but you will still need the merchant’s paper receipt to return merchandise.

Like Apple Pay, Android Pay uses tokenization technology, generating a one-time virtual number for the transaction. In the case of a data breach, thieves would gain access only to a token number, not your actual payment account details.

Card information is stored in Google’s remote Internet datacen-ters (“cloud storage”). To allow for removal of accounts, Google signs in for 120 days following the end of the month in which the purchase was made.

PayPal Mobile

PayPal is a digital payments pion-eer; many consumers use it as an alternative to credit cards in order to reveal bank account or credit card numbers to online merchants. The PayPal Mobile payment app lets you manage your PayPal account, redeem money request funds and pay at some brick-and-mortar stores, online and via e-mail.

Before you use PayPal, you need to sign up for an account either online or by downloading the PayPal Mobile app to your mobile phone. Mobile users are asked to register their cell phone number and set up a permanent mobile PIN. PayPal will send you a text message to confirm that you have registered. PayPal Mobile users have two options for using their digital wallet to make purchases:

1. Choose PayPal at a store’s payment terminal and enter your mobile phone number and PIN.

2. Download the PayPal app, which is free and compatible with all smartphones. (The app displays near merchants that accept PayPal as payment.) The app will generate a four-digit code good for only two hours at a specific merchant loca-tion. At checkout, choose PayPal and enter the code. An electronic receipt will be sent to your PayPal Mobile feature immediately after your purchase. The transaction is completed through your PayPal account.

PayPal doesn’t share your financial information with merchants. According to PayPal, as long as you don’t share your mobile PIN with anyone but the merchant, your information should remain secure.

PayPal says that most of the 18,000 stores that accept PayPal use its mobile number and PIN system at checkout (option #1 above). Retailers that accept the mobile number and PIN do not accept a four-digit code (option #2 above). The option that accept option #2 are Dollar General and AutoZone.

Samsung Pay

Electronics manufacturer Sam- sung launched its mobile payment system, Samsung Pay, in September. The fact that it can use both NFC and MST technology might give Samsung a leg up on the competi-tion, since NFC users in Asia and Europe are able to accept one or the other.

Samsung Pay is only available on the Galaxy S6, S6 edge, S6 edge+, Note5 smartphones. Users also must provide a support payment card from a participating bank and enter their account number and PIN. Samsung Pay can securely send card details for a limited number of transactions to merchants’ magnetic readers. You must au-thorize these purchases at the point of sale with your Samsung Pay PIN. Samsung Pay uses tokenization to encrypt your financial details and does not share your “card infoma-tion with merchants. A data connec-tion is needed to generate tokens. However, as noted previously, a limited number of purchases can be made without reconnecting to the Internet.

If your phone is lost or stolen, Samsung’s Find My Mobile feature can be used to locate, lock or clear the phone.

The emerging landscape

PayPal and Android Pay will ap-peal to some consumers because both systems are compatible with older phones and operating systems. Apple Pay and PayPal’s phone and PIN option do not require a data connection. Wi-Fi is signal to make purchases. (We strongly advise against using unfamiliar or public Wi-Fi to conduct financial transac-tions.) Samsung Pay is flexible about which terminals it can use.

But if you’re still not sure which mobile payment system to use, hold on to your real wallet for the time being. The mobile payment industry is rapidly evolving—it was changing even while we were double-checking the results of our initial research.

With Google still rolling out Android Pay features, Samsung’s recent launch and PayPal’s acqui-sition of a mobile payment service provider, PayPal’s consumers are likely to have new mobile payment options in the near future.
Mobile Payment Guide: At a glance

All mobile payment systems listed are free to use for making purchases. Some of the newer phones will have the mobile payment apps pre-installed. If the app you'd like to use is compatible with your phone, you can download it from the Apple App Store or Google Play Store. Find complete details on these payment systems at http://bit.ly/mobile_payments_guide_2015. Please note that you are prohibited from using Consumer Action’s name or any reference to its research in advertising or for any other commercial purpose.

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<td><strong>Samsung Pay</strong></td>
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On the go

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particular pre-selected store. (PayPal also plans to introduce a wallet with NFC technology by year’s end.)

Use of any of these systems is dependent on merchant acceptance. Currently, only a small percentage of merchants are equipped with NFC-enabled terminals, but that number was expected to grow by October of this year, when some stores installed chip-ready terminals to fight fraud and avoid being held responsible for counterfeit credit card purchases.

The U.S. credit and debit card industry is in the midst of a transition to chip cards using EMV (Europay, MasterCard, and Visa) technology, which requires special terminal readers to read the embedded chip. Learn more in Consumer Action’s “A consumer’s guide to ‘chip’ cards” (http://bit.ly/IhrJItJ).

Some chip card terminals are also able to “read” NFC-enabled mobile devices. Many merchants are expected to invest in the NFC function in these readers to serve shoppers who

embark mobile payments. To foster the budding tap-and-pay industry, payment processing companies like Square are giving away chip readers to many small and medium-sized merchants.

**Consumer protections**

In terms of safety against fraud, mobile payments that use tokenization have the edge. Tokenization substitutes a unique code (token) for your identification and payment information. Even if there were a breach, no card numbers are stored, so the one-time-use token would be worthless for additional transactions.

Apple Pay and Android Pay use tokenization. Samsung Pay uses tokenization for NFC payments, but not for MST payments (those that read the payment information in the card’s magnetic stripe). PayPal does not use tokenization.

Billing errors and fraud problems are usually handled by the underlying payment source—your credit or debit card issuer. For more information, see “Emerging tap-and-pay consumer protections,” page 2."

The best protection against unauthorized use of your mobile device—and the apps and data it contains—is setting it to lock after a brief period of inactivity, accessible only by passcode or fingerprint. For the time being, it’s unlikely you’d be able to get by without carrying at least one payment card or some cash.

According to a CBS News story, an AP reporter tried living for one week last year in New York without carrying cash or credit cards, relying only on payments with his smartphone. While he found that many places accepted mobile payments, many did not, and the transactions were not always successful. Sometimes he ended up borrowing cash for a meal, or walking home because he couldn’t reload his MetroCard so he could ride the subway. Of course, these difficulties should diminish with time.

**Weighing the options**

Of all the major mobile payment systems, Samsung Pay has a considerable advantage given that its combination of NFC and MST technology has the potential to be accepted at nearly any retail location.

PayPal’s system does not always allow you to have a mobile phone with you at the time of payment, as long as you have the phone number and account PIN or transaction code.

Until PayPal adds NFC functionality, consumers who are drawn to the convenience of tap-and-pay technology may find PayPal more suited for its traditional uses—one-line purchases/sales and money transfers—rather than mobile payments.

All mobile payment systems are free to make purchases. Choosing one of the payment options will likely come down to which device you have or prefer to use and which payment system is accepted at the places you like to shop.

The mobile payment environment is changing so rapidly that consumers who are on the sidelines today might be rewarded with even better options tomorrow.

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Smart use of smartphones

The Federal Reserve Board’s fourth annual report on Consumers and Mobile Financial Services 2015 (http://1.usa.gov/1KbWJkw) looked at how consumers bank and pay using mobile phones. It also examined consumers’ use of mobile phones to inform shopping decisions. While the Federal Reserve found that only 22 percent of surveyed mobile phone users made a mobile payment in the 12 months prior to the survey, 47 percent had used their phone to compare prices online, and 33 percent had scanned a barcode to find the best price while shopping at a retail store.