

DIGITAL TRANSACTIONS

Trends in the Electronic Exchange of Value

10TH ANNUAL FIELD GUIDE TO ALTERNATIVE PAYMENTS



We list 37 entries this year, of which only three appeared in our original Guide nine years ago.

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TRANSACTIONS**
Trends in the Electronic Exchange of Value

In our maiden effort in 2009, we listed 23 companies. Of these, only three are among the 37 listed here. And of these three, only PayPal remains recognizable more or less in its 2009 form.

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C O N T E N T S

May 2018 ■ Volume 15, Number 5

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20 Field Guide to Alternative Payments

Among our 37 entries this year, mobility dominates more than ever, while crypto has crept in, scoring three places. And just how many "Pays" are there? We list a dozen.

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The Bull's-Eye on Service Providers' Backs

New research shows just how determined fraudsters are to penetrate point-of-sale integrators, help desks, and other computer-related service providers.

Charlie Lee: Litecoin Is 'Targeted Toward Payments'

If any digital currency was designed for payments, it's Litecoin. Or so its inventor argues in a wide-ranging interview.

The ACH: 44 Years Old And Growing Fast

Don't let its age and sprawling network fool you. The automated clearing house system is steadily pumping out increases of 1 billion or more transactions every year.

The Bad Guys Keep on Winning

Attempted and actual payments fraud is up for the fourth straight year, according to the annual AFP survey. What can be done?

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How Machine Learning Can Deliver Faster—And More Secure—Payments

With consumer expectations higher than ever, analytic tools that can meet those demands while weeding out fraud are more important than ever, says Luke Reynolds.

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Some Promising Signs for Crypto Acceptance

Seven months ago, our piece for this space was headlined, “So, Where Are We With Bitcoin?” The concern then was a steady climb in Bitcoin’s value and whether it constituted a bubble. The associated question was whether the cryptocurrency could ever establish itself as a means of payment, either online or in stores. So we thought it was time to update what we know and have another try at the acceptance question. Spoiler alert: that question remains more promise than reality, though there has been some progress.

First, it may be useful to review briefly just why people might be interested in any cryptocurrency as a means of payment. In theory at least, the stuff addresses several key concerns these days in digital payments. One such concern is for so-called faster payments. The Fed has expended much time and ink in helping the industry evaluate faster-payment schemes. If they’re working right, digital currencies process in the blink of an eye.

Another concern is cost of payment. Merchants have been at loggerheads with card networks and issuers for years over this very issue, a bitter contest that has spawned lawsuits and federal legislation. Again, if they’re working right, acceptance costs for cryptocurrency are exceedingly cheap.

Finally, a big headache with card transactions is chargebacks. There are any number of reasons for transactions to be charged back to the merchant, but in any case the returns are a headache. As currently conceived, cryptocurrency transactions are irrevocable.

So it’s no surprise, despite price volatility, blockchain congestion, high fees, and pokey confirmation times, that the promise of cryptos like Bitcoin continues to hold its allure.

But are more brick-and-mortar or online stores accepting any of the myriad cryptos (information site Coinmarketcap.com tracks almost 1,600 of them)? Hard to say. There’s no central authority checking on this. Still, there are some promising signs lately. In February, the big exchange Coinbase launched Coinbase Commerce, an acceptance platform enabling merchants to take Bitcoin, Bitcoin Cash, Litecoin, and Ether.

Meanwhile, independent sales organizations are starting to get into the act. One of these ISOs, Aliant Payment Systems, has already started marketing Bitcoin, Litecoin, and Ether to merchants. ISOs are largely responsible for the widespread acceptance of credit cards, so they may be best positioned to do likewise for digital currencies.

Last year, Bitcoin’s value multiplied by a factor of 20, then crashed as 2017 came to a close. Such moment-to-moment volatility deters merchant acceptance as sellers and buyers struggle to cover purchase prices. Lately, though, Bitcoin has calmed down, and so have its costs and confirmation times. Self-correction may just be this decentralized currency’s signal virtue.

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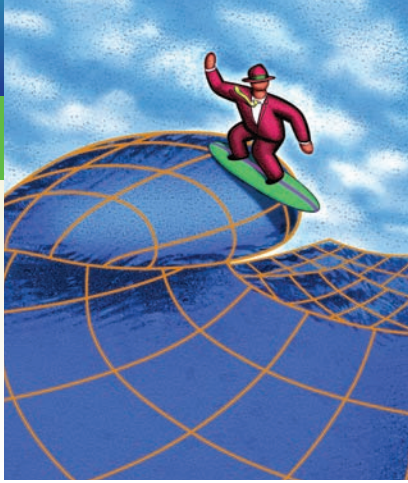


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TRENDS & TACTICS

The Bull's-Eye on Service Providers' Backs

Point-of-sale integrators, help desks, and other computer-related service providers for businesses, look out—the hackers are after you.

The new Global Security Report 2018 from Chicago-based Trustwave says service providers were involved in 9.5% of the 700-plus data compromises the firm investigated in 2017. In 2016, service providers played a role in fewer than 1% of Trustwave's investigations, says Brian Hussey, vice president of cyber threat detection and response.

"Last year [2016], it was negligible," says Hussey. Trustwave is one of the biggest providers of security investigations and data-protection

technology to card-accepting merchants and other businesses.

On one level, the allure of service providers to cyberthieves is obvious. A successful hack into a provider's network could enable hackers to worm their way into payment and other databases of all of the provider's clients, which can number in the hundreds, Hussey notes. This new focus on service providers also comes in a rapidly changing data-security environment that includes EMV chip card payments that have made POS card fraud harder to commit.

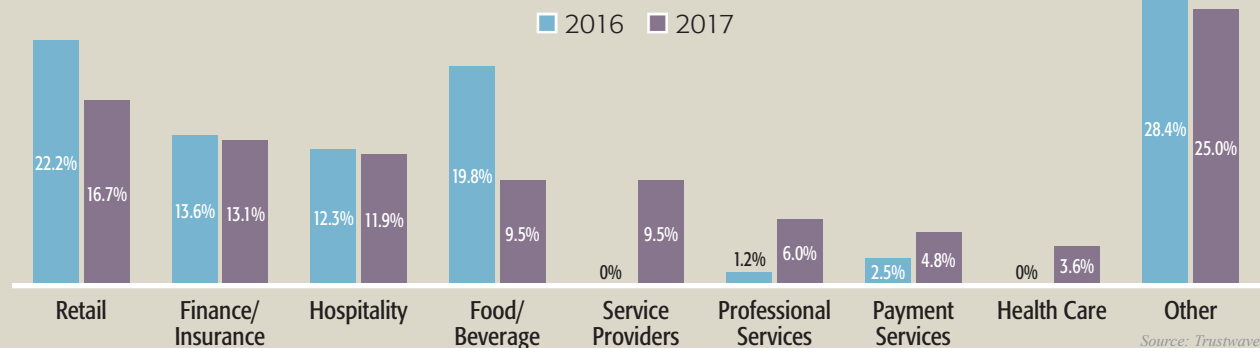
EMV "definitely contributes to less and less of the POS attacks," Hussey says. He adds that shrinking numbers

of merchants that accept only magnetic-stripe cards are increasingly juicy targets for hackers. Non-EMV merchants should "expect to be heavily, heavily attacked in the next year," he says.

Trustwave found that payment card data remains No. 1 in the eyes of hackers, accounting for 40% of the targeted information, broken down into 22% from mag-stripe track data originating with POS transactions and 18% from e-commerce. Some 11% of incidents targeted cash, mostly originating from compromises of account-management systems at financial institutions, Trustwave said.

Even with EMV, more than a decade of PCI security rules, and the

Data Compromises by Industry (% of Trustwave investigations)



increasing availability of tokenization and data-encryption services, 69% of the cases Trustwave investigated involved track data stored in plain text, the report says.

The reasons for that are varied. A merchant's new database system might be advertised as encrypting sensitive information, but a hacker may discover it doesn't, Hussey notes. "Even if it's not intentional, it could be the fault of programming," he says. "There's all kind of scenarios."

What's more, Trustwave found that 100% of the Web-based applications it examined last year had vulnerabilities, with a median of 11 each. Some 86% of those vulnerabilities allowed hackers to monitor traffic going back and forth within the application, further compromising security, Hussey says.

Retailers accounted for 17% of the compromises Trustwave investigated, more than any other industry. Next were financial and insurance companies, 13%, followed by the hospitality industry, 12%.

Data compromises detected internally in 2017 most often were discovered on the same day of intrusion. Those detected by an external party, however, had a median spread of 83 days between intrusion and discovery, up from 65 days in 2016, Trustwave found.

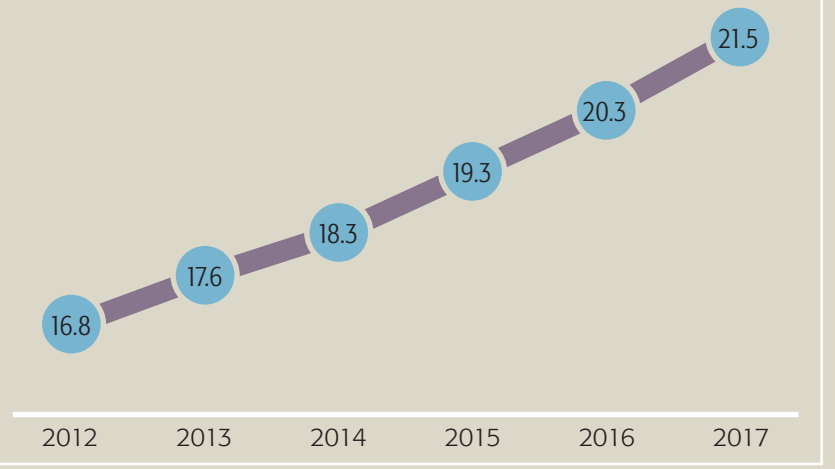
The report does have some good news, particularly regarding spam. Junk emails accounted for 87% of the incoming email Trustwave monitored in 2009, but with the exception of 2016 spam has declined every year since and currently represents just over 39% of emails, the report says. Many spam emails, however, still contain malware or links to hacker-controlled Web sites.

—Jim Daly

The ACH: 44 Years Old And Growing Fast

A Billion More a Year

(ACH network transactions, in billions)



Source: NACHA

The nation's automated clearing house network is on a tear. Transaction volume grew by 6.3% for the fourth quarter of 2017 and by 5.7% for the full year, according to numbers released last month by NACHA, the Herndon, Va.-based governing body for the 44-year-old ACH system.

All told, the network handled \$46.8 trillion in value for the year, a 6.9% increase from 2016, on 21.5 billion payments.

Growth like that is remarkable only because it's hard for a network this size to eke out measurable increases. But the ACH has been particularly active since the start of 2015, racking up year-over-year transaction growth exceeding 5% in 10 out of the 12 quarters in that span of time.

All told, the network—which links virtually every financial institution in the United States—has added at least 1 billion transactions every year since the end of 2014 (chart).

Same-day traffic, while still small relative to total network volume, is increasing especially fast now that NACHA has added same-day

processing for debit transactions. Transactions processed the same day came to 75 million last year, up 478% over 2016, which included less than four months' worth of same-day activity. Same-day processing began in September 2016 with credit transactions and expanded to include debits a year later.

Same-day volume is likely to get a further boost if NACHA follows through with reported plans to raise the transaction cap from \$25,000 to \$100,000.

Other fast-growing categories in 2017, according to the NACHA numbers, include: business-to-business (3.3 billion transactions, up 5.6% for the year); direct deposits (6.5 billion, up 5.8%); Internet-based volume (5.2 billion, up 13.1%); and person-to-person payments (97 million, up 23.3%).

For the fourth quarter, total transactions grew 6.33% year-over-year to 5.49 billion, according to according to NACHA.

WEB credits continued to be a hot category, racking up a nearly 25% increase to 25.8 million transactions.

This category includes P2P payments on mobile devices. WEB debits, which includes e-commerce activity by consumers, grew 13.9% to 1.37 billion payments.

Also showing healthy growth was the TEL code, which includes payments initiated over the telephone (139.5 million, up 7.22%).

Pre-arranged payments and deposits, or PPD, continued to grow, though not as smartly as newer applications like WEB. PPD credits, the ACH's

original application, grew nearly 6% to 1.63 billion items. These refer to payroll direct deposits. Another variety, called PPD debits, routes consumer payments for recurring obligations like health-club dues, homeowners'-association levies, and the like. These increased 3.2% to 976.2 million.

But applications that depend on the conversion of paper checks to electronic formats remain on a slow but steady decline, along with the volume of checks.

The ARC application, which converts checks sent by consumers to billers' lockboxes, totaled 293.7 million items, down 8.47%. The big losers were POP, down 14% to 57.1 million transactions, and BOC, down 16.6% to 25.4 million. Both codes refer to checks presented at retail checkouts; with POP, these are converted at the register and handed back to the customer, while with BOC they are converted later in a back office.

—John Stewart

Charlie Lee: Litecoin Is 'Targeted Toward Payments'

Lately, the cryptocurrency craze has raised any number of questions, but probably the most pressing one for the payments business is whether any of these hundreds of tokens can ever succeed as an actual payment device.

But while fluctuating trading values plague all of the digital currencies, one stands out as having been created specifically to buy things from merchants.

"We're targeted toward payments," says Charlie Lee, the inventor of Litecoin. In fact, Lee predicts 90% of online and brick-and-mortar merchants will be accepting cryptocurrency within 10 years, and Litecoin will be leading that charge. "A coin like Litecoin can do a better job at it," he says.

The reason, he says, is that transactions on the Litecoin network are faster and cheaper in comparison to the number-one digital currency by market value, Bitcoin. For example, transactions on the Litecoin blockchain can be confirmed in two-and-a-half minutes, he says, compared with 10 minutes for Bitcoin.

As of April 20, the median transaction fee for consumers spending Litecoin was close to 12 cents (chart), compared to 15 cents for Bitcoin, according to Bitinfocharts.com. At just over \$150 per coin, Litecoin had a market value of \$8.4 billion, ranking it fifth among the cryptos after Bitcoin, Ether, Ripple, and Bitcoin Cash.

Litecoin enthusiasts include Eric

Brown, founder and chief executive of Aliant Payment Systems, a Fort Lauderdale, Fla.-based independent sales organization. In March, Aliant added Litecoin to a crypto menu that includes Bitcoin and Ether. "It's cheaper for consumers and faster to hit the blockchain," says Brown. "The payments space, that's where Litecoin comes in."

But Litecoin has also had setbacks. In late March, a nascent company called LitePay, which had been set up to process Litecoin for merchant acceptance, suddenly shut down. The Litecoin Foundation, a Singapore-based non-profit which Lee heads and which had been helping to fund LitePay, posted a note about the startup's failure and its alleged opacity regarding its operations. "Litecoin was doing perfectly fine before the promise of LitePay and will continue to do so," the post promises.

For his part, Lee, a former engineer at Google and Coinbase who created Litecoin in 2011, entertains few illusions about the tough road ahead for his brainchild. "It's not easy competing with credit cards and debit cards," he says, even though, he adds, cryptocurrency offers consumer advantages over plastic, including the ability to keep personal information private.

What Price Litecoin?

(Value and median transaction fee, 2018)

	Value	Median transaction fee
January 20	\$206	\$0.0465
February 20	\$239	\$0.0895
March 20	\$163	\$0.0420
April 20	\$151	\$0.1160

Source: Bitinfocharts.com

While he maintains a majority of merchants will accept digital currencies by 2028, the first wave of acceptance will come from online retailers, he says. Already, major e-commerce sites like Overstock.com and Newegg have become well-known for their support of Bitcoin.

Brick-and-mortar will come later, Lee predicts, in part because many of the companies that make payment terminals remain unconvinced about crypto. "They're not very friendly," he says.

Last year, Lee says, he sold all of his Litecoin, arguing his holdings represented a "conflict of interest" because of the potential they had to influence the coin's price. "I don't invest in Litecoin right now," he notes. "I want it to be independent of myself."

—John Stewart

The Bad Guys Keep on Winning

Payments executives may abhor fraud, but they have to admit the scamsters and hackers are a determined lot. The percentage of organizations sustaining actual or attempted payments fraud increased in 2017 for the fourth straight year, reaching a record high 78%, according to the latest "Payments Fraud and Control Survey" from the Association for Financial Professionals Inc. (chart, page 10).

This 14th annual survey, which the AFP fielded in January and which drew responses from 682 financial executives at companies of various sizes, pulls no punches in laying out the challenge for the payments industry. "Payments fraud activity continues to increase, and there are no signs of it abating any time soon," warns the report's opening paragraph.

Last year's big increase over 2016, when the survey found 74% of respondents had experienced actual or attempted fraud, comes as companies struggle with an epidemic of so-called business email fraud while also contending with ongoing challenges in checks and cards.

"It is concerning that [fraud] is climbing like this. You would hope to see fraud go down, but it goes up," says Magnus Carlsson, manager for treasury and payments at the Bethesda, Md.-based AFP. "Fraudsters are one step ahead."

With business email fraud, criminals dress up email messages to make them look like genuine communications from a responsible finance or treasury official. They send these messages

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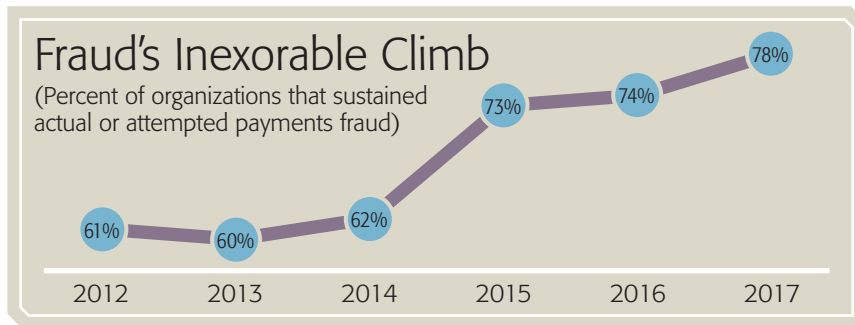
to executives who have authority to release funds, instructing them to wire money to a particular account.

The tactic has helped turn wire fraud into a raging problem after years as an afterthought. Some 48% of respondents that had experienced fraud last year said they had sustained actual or attempted wire fraud, up from just 3% in 2009.

The problem, says Carlsson, is the plethora of information about themselves people expose on the Web, including social-media sites. With this data, “you can really build a profile on your target,” he says. Samples of genuine emails help, too. “How do they typically look? [Fraudsters] will pick up on that to make their attacks look authentic,” he adds.

Wires aren’t the only channel used by these criminals. According to the report, 34% of organizations reported checks had been used in business email compromises, while 15% cited cards. Overall, 77% of respondents experiencing attempted or actual fraud were victims of business email compromise last year, up from 74% in 2016 and 64% in 2015, according to the survey.

There is no easy solution. “You can’t really control what people do on social media,” laments Carlsson. The only option, he says, is to tighten



Source: Association of Financial Professionals' "Payments Fraud and Control" survey

controls on who can disburse funds, when, and how. More stringent controls may be having an effect, says the survey report, as reflected in the fact that the incidence rate slowed down in 2017.

An emerging area of concern, according to the survey results, is same-day automated clearing house activity. ACH credits cleared and settled the same day, rather than the next business day, were introduced in September 2016, followed by same-day debits a year later. But faster processing requires faster fraud detection, something the AFP study indicates is slow in coming.

“A majority of organizations (54 percent) are not actively taking steps to prepare [for] and mitigate additional risks that might arise,” the study notes. “In addition, 29 percent of respondents report their organizations have no plans to make any revisions to prevent additional risks, and another one-fourth indicates they have not received

any advice from their banks.”

One type of fraud on the decline is actual and attempted compromise of commercial cards. This was reported by 30% of responding organizations that had sustained an actual or attempted fraud attack, the lowest level since 2012 (29%) and down from 39% in 2015 and 32% in 2016.

At the same time, actual financial loss from any type of fraud has been muted. According to the survey results, 54% of responding organizations that experienced an attack last year sustained no loss at all. Still, this result comes with a warning from the report: “While financial loss due to payments fraud may not be large, the risk of reputational damage could be far more significant.”

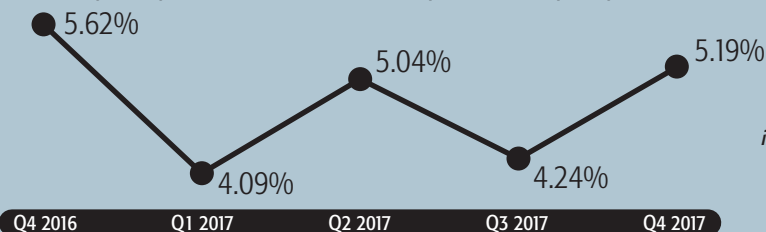
Or, as Carlsson warns, “You can’t be complacent about payments fraud.” **DT**

—John Stewart

MONTHLY MERCHANT METRIC

Growth in Same-Store Sales Year Over Year

Annual volume change/growth of retained (non-attributed) accounts for given period divided by total portfolio volume from same period of the prior year.



Note: This is sourced from The Strawhecker Group's merchant datawarehouse of over 3 million merchants in the U.S. market. The ability to understand this data is important as SMB merchants and the payments providers that serve them are key drivers of the economy.

All data is for SMB merchants defined as merchants with less than \$5 million in annual card volume.

Source: The Strawhecker Group © Copyright 2018. The Strawhecker Group. All Rights Reserved. All information as available.



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The Positives of Negative Cash



Gideon Samid • *Gideon@BitMint.com*

Have you ever seen a bank note marked “One Negative US dollar”?

Have you ever tossed a “negative dime?” Can you even think of any meaning for such entities? What is impossible for physical money is a simple tag for

digital currency. It is not just easy to mint, it is very helpful to trade with.

If I hand you a digital string worth \$100, it is the same as if I pulled out of my wallet a \$100 bill and handed it to you. That is positive cash. On the other hand, if I hand over to you a digital string worth minus \$100, then I confer upon you an obligation to pay me that much money. Paying negative cash is in essence being paid positive change.

Positive cash and negative cash cancel each other out. They share the same digital representation and are traded with equal ease back and forth—stored anywhere, exposed or hidden, as the case may be. By casting both cash and credit into a unified format, both accounting and planning become that much more frictionless.

We are all painfully aware of the complexity of today’s consumer credit market: the networks, the issuer, the acquirer, the processor, the gateway, and the myriad compliance outfits, all in full force for any insignificant credit-based transaction.

Instead, let your lending bank issue you \$5,000 of negative cash. You then carry in your phone a digital coin worth that much, and marked “negative \$5,000.” You take your family to dinner, and you honor the \$250 restaurant bill by splitting your negative money coin and handing over to the waiter \$250 negative dollars.

The waiter’s portable terminal recognizes your digital transmission as negative cash (a promise to pay made by your bank), and presents this negative money to the mint. The mint verifies this negative coin, debits the lender’s account, and sends positive digital cash for \$250 to the restaurant. In parallel, the mint sends you a negative cash coin for \$250, with you as the obligated party at a specified due date. The lender is the designated payee.

No acquirers, no issuers, no processors. It’s you, your lender, the merchant, and the mint. The coins themselves carry the full measure of the accounting load.

Minting credit and obligations as coins of negative denomination lubricates the flow of wealth and trust. The coins carry around the full history, and offer a third accounting leg to complement the two sets of books: expense and income. For a loan to be executed, the lender will issue to the borrower two coins. One is positive cash in the amount of the loan, payable right away, and the other is negative cash for a larger amount, payable by the borrower at a later time.

Negative digital coins may be posted on a public ledger to allow traders to assess the financial viability of other players in their financial community.

The same security that keeps positive digital money from fraud and counterfeiting will keep negative money from repudiation and mischief. Positive and negative coins will mix and match. They will enjoy the same protocol of safekeeping and for safe transporting. This is the benefit of streamlining, which creates new efficiencies and leverages the power of credit to create greater and greater prosperity.

By minting negative coins (obligations to pay), any entity that commands community trust can be a de facto mint for tradable currency. Say Google and Amazon issue digital coins that obligate them to pay the coin’s face value at some specific future date. These mammoth companies may use their trade power to force these coins on their suppliers. For as long as Amazon and Google command the community standing they claim today, their digital negative coins will have a dollar-equivalent value. Much as the Euro trades against the dollar, so would Amazon’s negative dollar have an exchange rate with Uncle Sam’s currency.

While everyone is worried about Bitcoin competing with fiat currency, the competition, in fact, would emerge from any entity of community trust. It would be virtually impossible to halt this avalanche of currencies with regulatory countermeasures. More important, it would not be advisable. Society should level its collective trust. That is how progress is made. By simply extending the efficiency of positive digital cash to negative digital cash, society would shift up a gear in its drive for better lifestyles. ■

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How To Innovate, Part II



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(This is the second part of a two-part column. Part I appeared in the April issue.)

Last month, we went through the first three steps in a process that banks and fintechs have used to innovate. This month, we'll complete our description of the process of facilitated group innovation.

It's All In Your Mind. Sigmund Freud believed that dreams were the royal road to the subconscious. In group innovation, our subconscious can be a route to breakthrough ideas. The facilitator encourages the group to use their subconscious minds, knowing that it won't yield a complete solution, but may point to a solution.

The facilitator might ask, "What color is the idea that your mind might be forming?" Let's say a participant says, "It's blue." The facilitator then responds, "Blue. Maybe like the sea. How would the sea make payments?" The participant might say, "Maybe with shells?" There's an idea to go on the wall: What if the system used tokens instead of currency?

Modeling the Innovations = More Innovation. Once people have put several ideas on the wall, groups can start modeling and testing the ideas using a method derived from object-oriented programming. The first step is to have people assign themselves roles in a one-to-one correlation with each of the "objects" in their proposed new, innovative process. Each thing in the system is an object: the customer, or a mobile phone, or a token, or a database, etc. The person taking the role of an object makes a sign for herself telling the rest of the group what object she is role-playing.

As one person reads out loud through the group's wall chart of the idea, the role-players model the flow of the system by passing a token from object to object, with each narrating the action their object takes while verbalizing the data being sent to it. Then the next person states what object they're role-playing and what data they have just received, narrates what action they take, and verbalizes the new data they send to the next object. Usually, the group discovers

they need some additional objects and also find that some objects have no necessary role and can be dropped out.

The people who aren't playing roles as objects monitor the process to point out when an object wouldn't be able to perform its function. Maybe it needs data it doesn't have. How might it get the data? Could something else substitute for the data? Is an additional object needed? Each time a fault is discovered and repaired, it is a good idea to start again at the beginning. This often reveals opportunities to simplify the design by eliminating unneeded objects.

After several rounds, the process should be able to be completed. But maybe it won't accomplish what it was designed to do. How could the group fix it so the object model accomplishes the task? Often, the breakthrough innovation occurs only after the first several ideas fail when modeled. Once the model can make a full circuit through the process, it is time to evaluate the innovation.

Evaluating Innovations. Does the group feel that the innovation would resolve the problem? Is it efficient in how it does it? Would it have access to each of the kinds of data that are required? Could it likely be built for a cost that would, over time, be recovered? Would people pay to use it, and if so, use it enough to recover its operating cost and yield a profit? If "yes" to all, the group can redraw the final version of the innovation and go on to the next proposed solution.

Throughout the process, the facilitator's role is not coming up with an innovation. Her role is to make the process work successfully for the group, using a combination of graphic and other facilitation skills.

Using this framework, other techniques are often deployed to seed the original insights such as analogs of the problem in other industries or analogs in nature. The new seed ideas are then worked back to their origins, graphed, modeled, and tested.

Conference Review

The Bank Innovation 2018 conference March 5-6 in San Francisco highlighted several truly new banking innovations via a series of quick-paced, competitive demos. The winner, Baton, is a multicurrency, international account-to-account processing system that connects multiple banks' payments systems via a proprietary permissioned ledger. ■



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What Ails the Mobile Wallets?

Jim Daly

General-purpose mobile wallets have yet to convince most merchants and consumers that they have real value. Can that change, and if so, when?

The hype over mobile wallets hasn't ceased ever since Google Checkout launched way back in 2006, and it's only become louder since Apple Inc. unveiled Apple Pay in September 2014. Apart from early-adopter enthusiasts, however, most merchants and consumers don't seem to be getting the message.

The major selling point of the Big 3 'Pays'—Apple Pay, Google Pay, which is Alphabet Inc.'s successor to Google Checkout, and Samsung Pay from South Korea-based consumer-electronics giant Samsung—is fast contactless transactions using your smart phone. But contactless transactions from mobile wallets and so-called dual-interface plastic debit and credit cards combined account for 1% at most of U.S. point-of-sale purchases, payments executives say.

Despite this, another big Korean phone maker, LG, is expected to join the U.S. mobile-wallet fray at any time with its LG Pay service, already live in LG's home country.

So why haven't more American merchants and consumers jumped onto the mobile-payments train? And will things change in the near future?

Several major factors are holding the Pays back in the U.S. market,

according to close market observers. They include a lack of contactless payments acceptance, the greater appeal of proprietary wallets to big merchants, and, despite plenty of hype, a general lack of awareness among consumers about the wallets.

"Things are kind of stagnant at the moment," says Jordan McKee, the Boston-based principal analyst for payments at 451 Research.

Recent Converts

None of this is to say the wallets can't turn things around. On the acceptance side, McDonald's, Subway, Walgreens and many other national merchants accept the wallets, and new acceptance locations are being announced steadily.

Recent converts include the Pennsylvania Lottery, whose ticket machines will accept mobile wallets, and Metro, the public-transportation system in Washington, D.C. and its suburbs. Metro in April disclosed plans to accept mobile wallets in subway stations and on buses.

The infrastructure for potential wallet acceptance is growing, thanks in large part to the coming of EMV chip cards to the U.S. ("Contactless II," April). Nearly all new EMV POS

terminals come with near-field communication technology that enables acceptance of contactless transactions.

NFC also is now common in the leading smart phones, and it's the core technology behind Apple Pay and Google Pay. Samsung Pay uses NFC too, though the service also uses a specialized technology that enables conventional magnetic-stripe POS terminals to accept it.

On the other side of the payments fence, a fair number of consumers now seem willing to dip their toes in the wallet waters. 451 Research reports that just over a third of new owners of Apple's iPhone link a card to Apple Pay.

Similarly, 14% of owners of new smart phones running Alphabet's Android operating system link a card to Google Pay (graphic, page 17). San Carlos, Calif.-based Crone Consulting LLC estimates Google Pay has 15 million active users (chart, page 18).

"I think adoption is increasing steadily," says Lawrence Berlin, a senior vice president at Chicago-based First Analysis Securities Corp. who follows the payments industry.

'It's Going To Take a Long Time'

The wallets have a long way to go, however. Millions of merchants still haven't bothered to turn on the NFC functionality in their new EMV terminals. Only 18% of U.S. merchant

locations accept contactless payments, according to Mastercard Inc.

“It’s going to take a long time for contactless acceptance to be ubiquitous,” Jamie Topolski, director for output solutions at Fiserv Inc., a Brookfield, Wis.-based banking processor and payments provider, said in late March at a Secure Technology Alliance conference in Orlando, Fla.

Many merchants, especially smaller ones, see little need for NFC, partly because they and their customers have just gotten used to contact chip transactions in which an EMV card is inserted into the terminal.

Meanwhile, only about 5% of U.S. general-purpose EMV payment cards are of the dual-interface variety that supports both contact chip payments as well as contactless NFC transactions. Card manufacturers and payment processors say demand for dual-interface cards is building, but it has yet to reach critical mass.

Further, some of the nation’s biggest merchants favor proprietary mobile-payment systems. At Starbucks, which rolled out a proprietary system in 2011, mobile payments account for 30% of U.S. tender. Dunkin’ Donuts, Kohl’s, CVS, Potbelly, and some others also have branded mobile wallets or payment services, just about all of which eschew NFC in favor of familiar barcodes.

No. 1 retailer Walmart Inc. includes its Walmart Pay service, which uses quick-response codes, in its general mobile app. Rival discounter Target Corp. is coming out with its own variation on that theme that links mobile payments to its proprietary Redcard debit and credit cards.



RECENT CONSUMER MOBILE-WALLET ADOPTION TRENDS

- 34% of new iPhone owners link a card to Apple Pay during the device onboarding process.
- 14% of new Android smart-phone owners link a card to Google Pay (formerly Android Pay) during the device onboarding process.
- 8% of Samsung smart-phone owners have tried Samsung Pay in the past 90 days.
- 8% of Android smart-phone owners have tried Google Pay in the past 90 days.
- 19% of iPhone owners have tried Apple Pay in the past 90 days.

Source: 451 Research fourth-quarter 2017 consumer survey

Last November, Walmart senior vice president Dan Eckert boasted to the Bloomberg news service that Walmart Pay could surpass Apple Pay in usage at stores where they’re accepted. Walmart does not accept the Pays.

Walmart, Target, and CVS were members of the Merchant Customer Exchange (MCX), a group of about 40 retailers that formed in 2012 and developed CurrentC, a mobile-payments system separate from the general-purpose card networks. The idea was to not only reduce card-acceptance costs, but also to create attractive loyalty programs.

Some MCX members, however, including Walmart and CVS, began developing their own mobile-pay systems apart from CurrentC. Ultimately, retailers gave up on a joint effort and last year sold CurrentC’s technology to JPMorgan Chase & Co., which used it to develop its own Chase Pay app.

“I definitely see those merchants that were in MCX going down that path to develop their own wallets,” says McKee. “I definitely think we’ll see more of that.”

‘More To Offer’

A key advantage of proprietary wallets is their ability to draw on the retailer’s customer data and easily link discounts and rewards redemptions with payments (“Mobilizing the Store Card,” March 2017).

“Part of the reason Walmart Pay is so successful is they have more to offer than Apple Pay, Samsung Pay, and Google Pay,” says payments researcher Richard K. Crone of Crone Consulting. “It has all these features that streamline the purchasing process.”

Plus, the merchants put plenty of marketing support behind their branded wallets to build customer awareness and usage. By comparison, promotions for the Pays seem paltry.

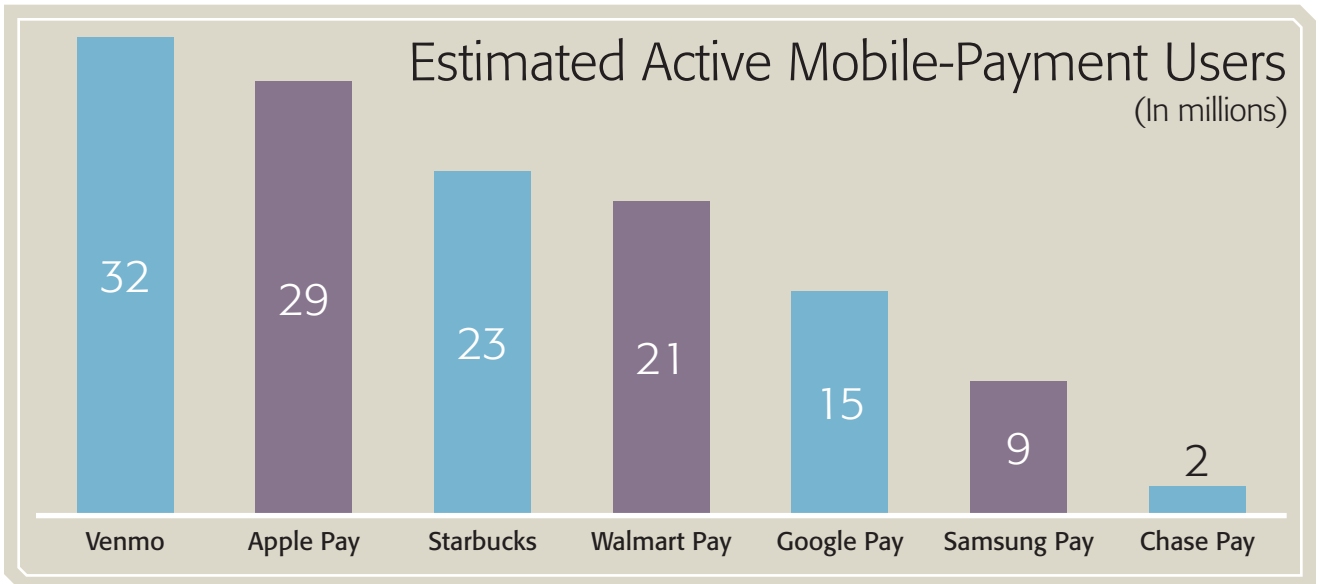
The services do run promotions in digital and general media channels—Google, for example, until May 14 is offering Google Pay users who refer friends for the service up to \$100 in credits good on the Google Play app market after a new user makes his or her first purchase.



‘We’re really excited about mobile payments, mobile apps, as it relates to corporate and commercial cards.’

—PEGGY YANKOVICH, PRODUCT AND MARKETING MANAGER FOR LARGE-MARKET BANKCARD, U.S. BANCORP

Estimated Active Mobile-Payment Users (In millions)



Note: Active defined as at least two transactions per month. Source: Crone Consulting

Apple's marketing tactics include email promotions to Apple Pay users that highlight merchants in specific categories and niches. But the Pays have yet to match the proprietary wallets' marketing resources.

"There's nowhere near the marketing they need," says Berlin of First Analysis.

Alphabet recently rebranded Android Pay as Google Pay. Earlier names for the service were Google Wallet and Google Checkout ("Field Guide to Alternative Payments, page 23). It's no wonder if consumers are confused.

Apple, Alphabet, and Samsung did not respond to *Digital Transactions*' requests for comment.

'The Big Hurdle'

The Pays sometimes get assists from card issuers. A recent example comes from Minneapolis-based U.S. Bancorp, a major commercial card issuer and owner of the big merchant acquirer Elavon. In April, the holding company's U.S. Bank enabled its Mastercard travel cards to be loaded into Apple Pay, Google Pay, and Samsung Pay. That move followed a similar one last year for the bank's Visa travel cards.

"We're really excited about mobile payments, mobile apps, as it relates to corporate and commercial cards," says

Peggy Yankovich, product and marketing manager for large-market bank-card. "We had client demand for it."

Facilitating mobile wallets keeps U.S. Bank at the cutting edge of payment innovation, and enhances cardholder choices, according to Yankovich.

"We're capturing transactions we would have had on plastic anyway, but it's allowing customers and potential customers, corporates and their employees, to pay the way they want to pay," Yankovich says, adding that the bank will be providing "a lot of education" about mobile wallets to its cardholders.

Next up, though it could take up to a year and a half, is linking U.S. Bank's purchasing cards to the Pays. "In the corporate space it's a little bit more complex," she says.

The demand for cardholder payment choice may become the Pays' best friend, particularly as NFC spreads throughout the U.S. merchant base and the services continue to add enrollees who could turn into frequent users.

"I don't think you as a merchant should be limiting customer choice ... to pay for something," says McKee of 451 Research.

The Pays, however, can't just sit by waiting for that to happen; they'll especially need to find a way to persuade small merchants to come on board.

"That's the big hurdle for the space, to guide these small merchants that don't see any impetus to invest," McKee says.

'Here To Stay'

Another avenue to greater adoption is integration with person-to-person payment services such as Apple Pay Cash. The Apple Pay offshoot runs on Apple's Messages app and competes with PayPal Holdings Inc.'s Venmo and Zelle from the big-bank-owned Early Warning Services LLC.

"They can ride the coattails of people sending money to virally increase adoption," Crone says. "The master of this script is really PayPal and Venmo."

Still another tactic for the Pays is working with retailers to embed their credentials into mobile apps that facilitate order-ahead-and-pay transactions, a fast-growing payments segment. Crone says fast-casual chain Panera Bread Co. gets about 30% of sales through order-ahead, and he predicts order-ahead-and-pay could capture 60% of sales in the entire quick-service restaurant sector in coming years. That could be good news for general-purpose wallets.

"The Pays are here to stay," says Crone. "They're not going to go away." **DT**



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10TH ANNUAL

FIELD GUIDE TO ALTERNATIVE PAYMENTS

By John Stewart, Jim Daly,
and Kevin Woodward

We list 37 entries this year, of which only three appeared in our original Guide nine years ago.



This year's Field Guide represents our 10th annual effort to catalog the broad currents in electronic payments by listing some of the more salient players providing alternatives to the big network brands. In those 10 years, we've seen a pretty significant shift away from discrete PC-based services and toward a heavy reliance on fully digital platforms aimed at mobile devices. Just count up the number of services below whose names follow the "X Pay" formula, popularized by Apple Pay. We'll save you the trouble: there are a dozen, if you include SelfPay.

That shift can also be seen in who has had staying power in our Guide. In our maiden effort in 2009, we listed 23 companies. Of these, only three are among the 37 listed here. And of these three, only

PayPal remains recognizable more or less in its 2009 form. The other two, Amazon Payments and Google Checkout, served as launching pads for much more ambitious efforts now known as Amazon Pay and, lately, Google Pay. All three companies make it plain their future lies in mobility.

An emerging trend showing up in this year's list is the steady introduction of digital currencies as a serious bidder for merchants' attention. Indeed, this year's Guide includes three entries for cryptocurrencies showing promise as payment methods: Bitcoin, Litecoin, and Ripple.

As in prior years, *Digital Transactions* generally defines an alternative-payment system as any network or consumer interface (a mobile app, for example) that displaces the Visa/Mastercard/AmEx/Discover networks (seen as one traditional system

for this purpose), enables payments in a way that stands apart from that network (even if it ultimately uses it), and/or stands between that network and the consumer in an important way. We emphasize consumer-facing payment systems, but of course many, if not most, of the systems profiled here market themselves to merchants to maximize acceptance of their products.

Information for the listings comes from news reports over the past year, company Web sites and spokespersons, and financial filings in a few cases. We list pricing for the merchant and consumer when it is relevant and publicly available. The "Year Founded" line refers to the year the particular service was founded, not the parent company, except in those cases where the two coincide.

AMAZON PAY

PARENT Amazon.com Inc.
HQ Seattle
FOUNDED 2007 (including predecessor services)
WEB pay.amazon.com

FIELD NOTES Amazon Pay is a payment service Amazon makes available to other Web sellers, and is now starting to deploy in physical locations. The service, which claims at least 33 million users, has grown out of predecessor services like Amazon Flexible Payments. It depends on the card credentials Amazon shoppers have stored with the massive online retailer over the years, some of whom are among the company's 100 million Prime members. Last summer, Amazon began experimenting with an extension of the service to restaurants in a pilot with TGI Fridays. Users can order ahead using the Amazon Pay feature in the Amazon app and show up later to pick up their meal. The extension builds on a trend: nearly one-third of Amazon Pay transactions in 2016 came from a mobile device. Next up: Payments through Alexa, Amazon's voice-controlled form of artificial intelligence. In November, Amazon began piloting Amazon Pay for payments through certain Alexa skills with partners like Atom Tickets, a mobile app for movie tickets.

APPLE PAY

PARENT Apple Inc.
HQ Cupertino, Calif.
FOUNDED 2014
WEB Apple.com/Apple-Pay/

FIELD NOTES The big news for the most well-known mobile-payment service was the launch of Apple Pay Cash in December, another facet designed to hook consumers further into the popular service. Its debut also meant a lot of potential for Discover Financial Services, if merchants embrace the service. That's because Apple Pay Cash purchase transactions will ride Discover's network rails. Green Dot Corp. manages the prepaid product embedded in Apple Pay Cash. One survey, released in February, found that 15% of consumers between 18 and 35 years old used Apple Pay while shopping online and that 10% of this age group used the mobile-payment service in a store. Three percent had used Apple Pay

Cash. Apple also says the number of overall Apple Pay users doubled in the 12 months from November 2016. Financial institutions that adopted Apple Pay at its launch in October 2014 also had to renew their contracts with Apple, which had a three-year provision. It is unknown how many banks and credit unions renewed. As of early April, Apple says almost 2,400 U.S. banks and credit unions support Apple Pay. Apple also has been on a push to increase consumer use of the service, with a string of advertisements in early 2018. In October, at the Money 20/20 event, Apple's Jennifer Bailey, vice president for Internet service, outlined the company's ambition to make the digital wallet usable in "everyday" spending for consumers.

BITCOIN

PARENT Satoshi Nakamoto
HQ Not applicable
FOUNDED 2009
WEB BitcoinFoundation.org
PRICING Miners' transaction fees are volatile and paid by user

FIELD NOTES 2017 was the year Bitcoin had to be taken seriously. By year's end, it was trading near \$20,000, or more than 20 times its value at the start of the year, and investors were clamoring to buy in. The subsequent, probably inevitable, crash did little to dampen interest in the cryptocurrency, as even venerable futures exchanges early in 2018 began trading Bitcoin contracts. But all the hype and hysteria obscured the question of Bitcoin's usefulness as a medium of exchange—something ordinary people could actually use to buy things. By the spring of 2018, some merchants and processors—including Stripe, which had been supporting Bitcoin transactions since 2014—had stopped taking the currency, pointing to wicked swings in price and a congested blockchain that drove up both transaction costs and confirmation times for a payment method that was supposed to be superfast and supercheap. But there was good news, as well. Some organizations—including at least one merchant processor for credit and debit cards—began pushing Bitcoin for merchant acceptance. The sky-high cost and confirmation times finally began to retreat to reasonable levels. And a project called the Lightning Network made progress on work it has been pursuing to vastly speed up Bitcoin transactions.

CHASE PAY

PARENT JPMorgan Chase & Co.
HQ New York City
FOUNDED 2015
WEB ChasePay.com
PRICING Volume-related fixed fee for merchants

FIELD NOTES Nearly three years after its much-heralded launch, the bloom may be off the rose for Chase Pay. Despite its parent's formidable resources and a Chase card base numbering around 94 million, the wallet by all accounts is suffering through adoption pains—as are most others launched in the past few years. One major success for Chase Pay was its March announcement that 10,000 Shell stations across the United States will accept the wallet. The addition of Shell means at least five major chains now support Chase Pay, with Best Buy, Starbucks, Target, and Walmart also on board. Also, a \$10 million investment Chase made in September 2016 in LevelUp, an ordering-and-payment app for eateries, may yet pay off for Chase Pay if it helps the wallet penetrate that key retail segment. Unlike other wallets that are also struggling to win mass adoption, such as Apple Pay, Chase Pay works with familiar barcode technology rather than near-field communication, a factor that many merchants may find congenial.

CIRCLE INTERNET

PARENT Circle Internet Financial Ltd.
HQ Boston
FOUNDED 2013
WEB Circle.com

FIELD NOTES One of the least publicized payments providers, Circle has had an active year. Two big moves involved peer-to-peer payments, both local and cross-border, and cryptocurrency. Last fall, it began allowing users of Circle Pay, its P2P payments app, to switch funds they receive in the app to a U.S. bank account nearly instantaneously and without fees. Circle followed up that move by acquiring token exchange Poloniex in February, building on its foundation in blockchain technology and furthering its ambitions to operate an open, worldwide token marketplace.

COINBASE

PARENT Coinbase Inc.
HQ San Francisco
FOUNDED 2012
WEB Coinbase.com

PRICING 1% merchant fee for converting Bitcoin to U.S. dollars. U.S. users under Method 1 pay 1.49% to 3.99% for cryptocurrency purchases or sales. Method 2 charges a 1% variable fee with a \$1 minimum and \$50 maximum, with credit and debit card transactions also subject to a fixed 2.49% fee

FIELD NOTES Coinbase, reportedly the largest of the cryptocurrency exchanges, claims 10 million users. The company offers iOS and Android digital wallets, and acceptance and processing services for merchants. In February, Coinbase unveiled an acceptance platform called Coinbase Commerce for merchants that want to take Bitcoin, Bitcoin Cash, Ethereum, or Litecoin payments. Two months later it created Coinbase Ventures to fund early-stage digital-currency companies. Coinbase encountered a couple of processing glitches over the past year that apparently caused little more than short-term disruption.

CUMBERLAND FARMS

PARENT Cumberland Farms Inc.
HQ Westborough, Mass.
FOUNDED 2013
WEB CumberlandFarms.com/SmartPay

FIELD NOTES Cumberland Farms, a convenience-store chain in the Northeast and Florida, added biometric support to SmartPay, its iOS or Android app that gives users a 10-cent discount per gallon of gas when they use it to pay for fuel. The app requires consumers to enroll a checking account as the payment method. The app—developed in-house by Cumberland Farms—uses automated clearing house payment technology from Portland, Maine-based ZipLine Inc. The biometric log-in feature for the updated app works with any iOS or Android smart phone that has a fingerprint sensor, or facial recognition, as with the iPhone X. To pay for fuel, the user verifies the store location and pump number within the app to activate the pump. In addition to paying less for fuel at one of the more than 600 Cumberland Farms locations in eight states,

the app enables users to pay for in-store purchases, find a store location, track rewards progress, and view savings from using the app. In August, Cumberland Farms said it had sold \$2 billion in fuel via the SmartPay app since its January 2013 launch.

CVS PAY

PARENT CVS Health Corp.
HQ Woonsocket, R.I.
FOUNDED 2016
WEB CVSHealth.com

FIELD NOTES The pharmacy giant CVS, which created CVS Pay in its own digital-innovation lab, launched it as a pilot in August 2016 and took it national two months later. The app works with all major credit cards as well as the chain's own ExtraCare loyalty card, and comes with some built-in advantages, experts say. One is that ExtraCare connection. The loyalty program embraces 70 million members who might be inclined to use a wallet that automatically processes points toward purchases. Another is the privacy factor. Customers can pay for prescriptions while keeping private sensitive information about themselves, such as date of birth. Like Walmart, CVS is a former member of the failed MCX wallet consortium that saw the writing on the wall for MCX and created its own payments app.

DD PERKS

PARENT Dunkin' Brands Group Inc.
HQ Canton, Mass.
FOUNDED 2012
WEB DunkinDonuts.com

FIELD NOTES Coffee and breakfast-food chain Dunkin' Donuts has more than 9,100 franchised U.S. locations and accepts the major mobile wallets, but its DD Perks customer-loyalty program centers on a prepaid account and mobile app that uses barcodes for payments and rewards redemptions. DD Perks ended 2017 with 8 million members versus about 6 million in 2016. Dunkin' doesn't disclose mobile-payments volume, but says payments through its app are increasing. Customers with iPhones can now send mobile DD gift cards through Apple Inc.'s Messages app. Dunkin' continues to heavily promote its own order-ahead and

pay feature, a signature service for rival Starbucks. Dunkin' added the feature in 2016 with its new mobile app developed by CardFree Inc.

EXXONMOBIL SPEEDPASS+

PARENT ExxonMobil Corp.
HQ Irving, Texas
FOUNDED 2016
WEB Exxon.com/en/Speedpass

FIELD NOTES ExxonMobil's Speedpass+ app debuted as a smart-phone app that used mobile-payments services and credit and debit cards to make in-app payments for fuel at the pump. The app enables consumers to pay for fuel and other convenience-store products and services without dipping a card into a reader. It determines the consumer's location either via the global positioning system or barcode on the pump scanned by the consumer. Once a transaction is initiated, the consumer can authorize payment with a stored credit or debit card, or Apple Pay, if using an iPhone, or Samsung Pay, if using an Android smart phone. The app is not only a way to avoid dipping a card, and perhaps exposing it to a card-skimming device, but as a way to drive additional sales with prompts for offers in stores or a car wash. In 2017, ExxonMobil made the app available to motorists driving a Ford vehicle with SYNC3 technology. Consumers with SYNC3-equipped Ford vehicles now can use the in-vehicle touchscreen or voice commands to authorize payment. Speedpass+ was an original member of the Plenti rewards program managed by American Express Co. AmEx announced in April that Plenti, a coalition-based rewards program, will shut down in July.

FACEBOOK MESSENGER

PARENT Facebook Inc.
HQ Menlo Park, Calif.
FOUNDED 2015
WEB Messenger.com

FIELD NOTES Facebook's messaging app was one of the first to enable peer-to-peer payments in addition to conversations, and with 1.2 billion users, it remains the

largest and perhaps most useful such utility. It's running into headwinds lately, though, as a result of a scandal involving Facebook's sharing of user data with an outside entity. As of mid-April, it appeared likely it will weather the storm of bad publicity with little impact. Messenger was also the first social network to embrace chatbots, which crawl the network to enable functions such as payments.

GOOGLE PAY

PARENT Alphabet Inc.
HQ Mountain View, Calif.
FOUNDED Android Pay, 2015; Google Wallet, 2011
WEB pay.google.com

FIELD NOTES Perhaps Google Pay is the name that finally will resolve Alphabet's payments identity crisis. The brand, formally unveiled in February, is the successor to Android Pay, which Alphabet adopted in September 2015 to take over Google Wallet's point-of-sale payment functions for mobile devices running on the Android operating system. Google Wallet, which could trace its electronic DNA back to the original Google Checkout that launched in 2006, at the same time became a person-to-person payments service only. Under the new rebranding, this is now known as Google Pay Send. Analysts say the unified branding could help Google Pay, which is available in 18 countries, gain share in the U.S. where Apple Pay dominates. All of the "Pays" have struggled, however: contactless mobile payments account for less than 1% of Visa's U.S. card-based POS transactions.

GULF PAY

PARENT Gulf Oil LP
HQ Wellesley Hills, Mass.
FOUNDED 2016
WEB Gulfoil.com/Gulf-Pay

FIELD NOTES Announced in early 2017, Gulf Pay is slowly rolling out in Gulf Oil's market. In addition to paying for fuel at the pump with a smart phone, Gulf Pay users will be able to locate Gulf stations, view actual fuel prices, obtain directions, and view offers for fuel and in-store products. Details of how payment transactions will process were not released. The app will be available for iOS and Android devices, according to a Gulf

Oil Web site. Gulf Oil has more than 1,800 Gulf gas stations. The app is built on technology from P97 Networks Inc., a Houston-based petroleum-services company. Other companies using its technology include To Go Stores, a Puerto Rico-based convenience-store chain, Phillips 66, and JPMorgan Chase & Co.'s Chase Pay. Later in 2017, Gulf ran a promotion for Discover cardholders that gave them a 15-cents-per-gallon discount when using the app.

KLARNA

PARENT Klarna Bank AB
HQ Stockholm
FOUNDED 2005
WEB Klarna.com/US

FIELD NOTES Sweden's Klarna, known for its single-click purchasing utility and its willingness to delay payment until a customer receives the goods she ordered online, entered the U.S. with some fanfare in 2015. Sensing an opportunity in its new market, it has expanded its credit offering to allow for monthly installment payments, putting it in competition with conventional credit cards. Its latest move: a 30-day financing period called Pay Later, which is in tests and expected to come to the U.S. this summer. Privately held, Klarna carries a lofty \$2.5 billion valuation, ranking it third among so-called payments unicorns, or private companies boasting \$1-billion-plus valuations. Klarna is outranked only by One97, operator of India's Paytm mobile-payments system (\$5.7 billion) and U.S.-based Stripe (\$9.2 billion). One of Klarna's backers is Visa Inc. The company says it added 26,000 new merchants in 2017, bringing its total to 89,000. It does not break out how many of these are now in the United States. Some 19 million consumers used Klarna for the first time last year, the company says.

KOHL'S PAY

PARENT Kohl's Corp
HQ Menomonee Falls, Wis.
FOUNDED 2016
WEB Kohls.com

FIELD NOTES Kohl's may operate a department-store chain, but its emphasis with its payment app is speed at checkout, and not just for payment. The app also allows

customers to redeem offers, rewards in the chain's Yes2You program, and Kohl's Cash in one barcode-based flash. "When we say fast savings at checkout, we mean really fast," the company says on its Web site. As of February, the app had been downloaded 21 million times since its introduction, according to information on the site. The app's developer is Omnyway Inc. (formerly known as Omnypay), a 4-year-old startup cofounded by Bill Melton, well-known in the payments industry as a founder of point-of-sale terminal vendor VeriFone.

LEVELUP

PARENT SCVNGR Inc.
HQ Boston
FOUNDED 2011
WEB TheLevelUp.com

FIELD NOTES LevelUp, especially because of JPMorgan Chase & Co.'s support of the mobile order-and-pay app, has been on an integration tear. Earlier this year, it announced a deal with Gusto Point of Sale that enables Gusto's clients to use LevelUp's payment and loyalty service in their stores. That followed a similar deal with Revel Systems, a tablet-based POS system provider. The deal enables Revel's restaurant clients to reach customers on their smart phones. LevelUp's mobile ordering, loyalty, and payment services were integrated into Revel's POS platform. It also announced a deal with Open Dining, a mobile order-ahead technology provider, to list restaurants using Open Dining's platform in the LevelUp and Chase Pay apps. A lowlight for LevelUp last year, however, was by a lawsuit filed against it by CardFree Inc. that alleged LevelUp improperly accessed CardFree's technology. The suit was later dismissed.

LG PAY

PARENT LG Electronics
HQ Seoul, South Korea
FOUNDED 2017
WEB LG.com

FIELD NOTES LG, whose smart phones have about 10% of the U.S. market, in a month or two is expected to join the mobile-payments fray with LG Pay, a service it launched in its home country about a year ago. Like rival Google Pay, LG uses host card

emulation, a variant of near-field communication technology in which credentials are stored in the cloud rather than on a phone's secure element. HCE gives payment card issuers that want their cards loaded into mobile wallets a degree of freedom they don't have with systems such as Apple Pay, where cardholder credentials are stored on an Apple-controlled secure element within an iPhone. Apart from HCE, it's not yet clear how LG Pay will distinguish itself in a very crowded mobile-payments market. Yet just having a payments option could help LG lift its smart-phone market share, where it ranks a distant third behind Apple and Samsung.

LITECOIN

PARENT Charlie Lee
HQ Not applicable
FOUNDED 2011
WEB Litecoin-Foundation.org

FIELD NOTES The cryptocurrency mania that overtook the country in 2017 was mostly concerned with Bitcoin, but this tide lifted a number of boats, including Litecoin, a crypto that was specifically conceived as an alternative way to pay merchants. Charlie Lee, the former Google and Coinbase engineer who invented Litecoin, predicts 90% of online and brick-and-mortar merchants will be accepting cryptocurrency within 10 years, and Litecoin will be leading that charge. The reason, he says, is that transactions on the Litecoin network are faster and cheaper in comparison to Bitcoin. For example, transactions on the Litecoin blockchain can be confirmed in two-and-a-half minutes, he says, compared with 10 minutes for Bitcoin. The first wave of acceptance will come from online retailers, Lee says. Brick-and-mortar will come later, in part because many of the companies that make payment terminals remain unconvinced about crypto, Lee maintains. "They're not very friendly," he says.



MONEYGRAM ONLINE

PARENT MoneyGram International Inc.
HQ Dallas
FOUNDED 2010
WEB MoneyGram.com
PRICING Varies, \$4 for \$500 online wire transfer to Mexico if funded by checking account with cash pick-up; \$6.99 if funded by Visa or Mastercard credit or debit card

FIELD NOTES The biggest news for MoneyGram in the past year is what didn't happen to it, which was get acquired by China's Ant Financial Services Group. Federal opposition to Chinese ownership finally killed the planned \$1.2 billion deal in January. Ant and MoneyGram said they will still work together on new remittance and digital-payments projects globally. In April, MoneyGram and its biggest agent, Walmart Inc., introduced an international service for Walmart customers dubbed Walmart2World.

PAYPAL

PARENT PayPal Holdings Inc.
HQ San Jose, Calif.
FOUNDED 1998
WEB PayPal.com
PRICING 2.9% plus 30 cents per U.S. merchant transaction; for PayPal Here, 2.7% for swiped transactions, 3.5% plus 15 cents for manually entered transactions.

FIELD NOTES PayPal is not only one of the oldest digital wallets, it's also probably the most successful with respect to actual adoption and usage by consumers. Since 2016, the company has worked hard to forge partnerships with major banks and card networks—entities that once eyed PayPal with considerable suspicion—to gain access to their tokenization engines to protect consumer card credentials. That effort will pay off if PayPal, as expected, soon makes a major play for in-store acceptance. The company hit a speed bump in January, though, when eBay Inc., a long-time client and PayPal's former owner, announced it plans to build its own payments operation and replace PayPal as its gateway provider with Adyen, a Dutch company. PayPal will continue in its current role until July 2020, when its five-year operating agreement with eBay expires. While the stock

market punished PayPal for days after the announcement, the company estimates eBay will account for just 4% of its total volume by the end of the agreement.

PEOPLE PAY

PARENT Fidelity National Information Services Inc. (FIS)
HQ Jacksonville, Fla.
FOUNDED 2013
WEB FISglobal.com

FIELD NOTES People Pay is FIS's white-label person-to-person payment service. Financial institutions can apply their own brands and set pricing for the service. People Pay is built on the PayNet network FIS introduced in 2012 to offer real-time settlement for various non-card payments, and it also draws on FIS's NYCE electronic funds transfer switch that links thousands of financial institutions, including ones that aren't otherwise FIS clients. Users send payments through their bank's online-banking system using the recipient's email address or mobile-phone number. The recipient receives a text or email with instructions on how to retrieve the money. Early in 2017, BMO Harris Bank launched People Pay for its customers. The no-fee service deposits funds to a recipient's account in one to three business days.

PHILLIPS 66

PARENT Phillips 66
HQ Houston
FOUNDED 2016
WEB Phillips66.com

FIELD NOTES Refinery operator and fuel retailer Phillips 66 announced a mobile-commerce-focused platform in 2017 based on the P97 PetroZone mobile-commerce service Phillips announced in 2016. In August 2017, JPMorgan Chase & Co. said its Chase Pay service would be part of Phillips 66's m-commerce service. "The new platform will connect retail fueling consumers to Phillips 66, Conoco, and 76 locations through a mobile app using a dynamic station finder, enabling a mobile payment wallet and delivering contextual commerce digital offers," said developer P97. Later in 2017, Phillips 66, along with its Conoco and 76-branded smart-phone apps,

announced the ability to use a checking account as a payment method thanks to an integration with Buy It Mobility Networks, a payment platform. In February, Phillips 66 launched the mobile-payment option via the My Phillips 66 app in the Kansas City, Mo., area. The company expects to roll it out nationally.

POPMONEY

PARENT Fiserv Inc.
HQ Brookfield, Wis.
FOUNDED 2009
WEB Popmoney.com

FIELD NOTES Launched in 2009 by CashEdge Inc., the Popmoney person-to-person payments service came under Fiserv's wing when the big processor bought CashEdge in 2011 for \$465 million. Fiserv then merged Popmoney with its in-house ZashPay P2P service under the Popmoney brand. Funds sent via Popmoney must be deposited into an eligible account. The person-to-person payments arena is changing. Zelle, a bank-owned P2P service, began national advertisements in January, but banks took notice before then. In December, SunTrust Banks Inc. switched to Zelle, replacing Popmoney. Still, Popmoney continues to be used by many banks and credit unions. Fiserv is even enlisting Popmoney in its CardFree Cash service that enables consumers to draw cash from their accounts at an ATM using a smart phone. To use CardFree Cash, users obtain an access code, which they can activate from their phones. With the access code and a temporary PIN, they can then get cash at any machine supporting the Popmoney network.

QWICK CODES

PARENT MagTek Inc.
HQ Seal Beach, Calif.
FOUNDED 2012
WEB QwickCodes.com
PRICING \$49.99 annual subscription

FIELD NOTES Qwick Codes rely on MagTek's MagneSafe security architecture to generate one-time transaction codes consumers can use in place of actual payment cards in stores, online, and at ATMs. Users add cards to the Qwick Codes wallet by swiping them with a reader supplied by MagTek. The wallet can also keep transaction

parameters such as dollar limits, where the code can be used, and an expiration date, and users can revoke the code at any time. To use the code at the point of sale, the user scans a barcode generated on his smartphone screen. At ATMs or online, he enters the 8-digit code.

RIA FINANCIAL SERVICES

PARENT Euronet Worldwide Inc.
HQ Leawood, Kan.
FOUNDED 1987
WEB RIAMoneytransfer.com
PRICING Varies, \$3 online transfer fee for sending \$500 to Mexico from checking account with cash pick-up, \$4 and \$20 if funded with debit or credit card, respectively

FIELD NOTES Wire-transfer provider Ria last year expanded in India and continues to provide domestic money transfers at U.S. Walmart stores. Ria won that Walmart business from MoneyGram in 2014, but it generates significantly lower margins than its traditional wire transfers. Parent company Euronet's several money-transfer brands including Ria handled 92.2 million transactions in 2017, up 12% from 82.3 million in 2016. Euronet last year tried and failed for the second time in a decade to buy rival MoneyGram.

RIPPLE

PARENT Ripple Labs Inc.
HQ San Francisco
FOUNDED 2012
WEB Ripple.com

FIELD NOTES While Bitcoin and many other cryptocurrencies struggle with wild price swings and opaque business cases, Ripple, a provider of blockchain-based technology and the XRP digital currency, over the past year has quietly struck deals with more than 100 banks and other firms, often for low-cost and fast alternatives to traditional cross-border settlements and correspondent banking. In March, FleetCor Technologies Inc., whose main business is payment services for trucking fleets, announced a test in which its Cambridge Global Payments unit will use Ripple's XRP service to provide so-called on-demand liquidity to

international trading partners. With instant liquidity, global firms can free up funds they would otherwise tie up in foreign accounts to back real-time payments. Cambridge processes more than \$20 billion in cross-border business-to-business payments annually for 13,000 clients. In November, American Express Co. said business customers of its FX International Payments service could use the RippleNet network for payments between the U.S. and the United Kingdom.

SAMSUNG PAY

PARENT Samsung Electronics Co. Ltd.
HQ Seoul, South Korea
FOUNDED 2015
WEB Samsung.com/US/Samsung-Pay/

FIELD NOTES Samsung Pay can connect to point-of-sale terminals via near-field communication. But, unlike Apple Pay and another NFC-based competitor, Google Pay, Samsung Pay also enables Samsung's Android phones to link to the POS via a technology called magnetic secure transmission (MST), which means it works with just about any mag-stripe reader in the market. Samsung has been busy adding new features to the service. In July, Samsung said consumers with a PayPal Holdings Inc. account could add it as a payment method. PayPal will be available within Samsung Pay for in-app, online, and in-store transactions. The link-up starts in the United States and will expand later to other markets. Apparently, the integration was fairly involved because the U.S. integration was made available only in April, nine months after the announcement. Later in 2017, Interac, Canada's debit network, announced Interac debit transactions using Samsung Pay in Canada would use the Interac token-service provider. The move enables Interac debit transactions within Samsung Pay.

SELPAY

PARENT Digital Retail Apps
HQ Toronto
FOUNDED 2013
WEB DigitalRetailApps.com

FIELD NOTES SelfPay enables consumers to pay for merchandise while standing in a store aisle and leave without stopping at a cash register. SelfPay supports cards

carrying the Mastercard, Visa, Discover, and American Express brands. Consumers also can use their PayPal and Apple Pay accounts. The app presents only the merchant's accepted payment methods once the consumer has been located in the store. After recognizing the consumer, the app displays a custom retailer-branded screen, which unlocks the capability to make a purchase. The user scans either the Universal Product Code or a barcode generated by the retailer's point-of-sale system for items they are interested in. SelfPay then displays an in-store price and product description, also pulled from the retailer's POS system. The shopper adds the item to her cart, selects a payment method, and enters a SelfPay PIN. In recent news, the company moved to a license and consulting stance to boost market adoption. By licensing its patent portfolio, Digital Retail Apps says it enables merchants to verify their scan-and-go purchases and provide an audit trail.

SKRILL

PARENT Paysafe Group plc

HQ London

FOUNDED 2001

WEB Skril.com

FIELD NOTES Skrill began its digital life in 2001 as Moneybookers, a United Kingdom processor for online gaming transactions that rebranded as Skrill in 2010. The company had 17 million users a year later when it made its U.S. debut through a partnership with Live Gamer Inc. to offer a micropayments platform for game publishers worldwide without chargeback or foreign-exchange risk. Acquisitions in the next few years brought Skrill into the invoicing and prepaid markets and added mobile capabilities. Eyeing Skrill's big presence in online gambling, money transfers, and e-commerce, U.K. processor Optimal Payments, now Paysafe, bought Skrill in 2015 for \$1.2 billion. Paysafe in February introduced Skrill Send Direct, a money-transfer service that enables users to send money to recipients' bank accounts or mobile wallets in 35 countries, with 40 currencies available. Two months later, Paysafe announced a deal to buy the big U.S. merchant processor iPayment. How that acquisition might affect Skrill was not immediately clear.

SQUARE CASH

PARENT Square Inc.

HQ San Francisco

FOUNDED 2012

WEB Cash.me

FIELD NOTES The Square Cash app is a popular one, used for P2P transactions, and when users pull out the Cash card to use in stores. In February, Square said the app had 7 million active users and cardholders spent \$90 million using the card in December, good for annualized volume of \$1 billion. Many of these users may be trying one of Square Cash's new features: the ability to buy and sell Bitcoin. Tests with a small number of users began in November but expanded to most users in February. The move represents the second expansion of the capability, which was extended to an undisclosed number of additional users in December. Earlier this year, Square said Bitcoin trading had an "immaterial" effect on its financial results. As for the Square Cash card, cardholders are using it most at McDonald's, Uber, Lyft, and Walmart, Square said. These in-store transactions have the benefit of generating interchange revenue for Square. Making money with P2P services is challenging because such providers have found it nearly impossible to persuade consumers to pay fees. Square Cash also faced the prospect of another competitor, in addition to Apple Pay Cash, Venmo, and PayPal, when reports surfaced that Amazon.com Inc. might add a P2P function to its Alexa voice-commerce service.

STARBUCKS

PARENT Starbucks Corp.

HQ Seattle

FOUNDED 2011

WEB Starbucks.com

FIELD NOTES Starbucks' barcode-based mobile-payments service continues to be the envy of the general-purpose mobile wallets from Apple, Google, and Samsung. Mobile payments now account for 30% of U.S. tender, up from 20% a year earlier, the company said in January. The mobile app is tied to the prepaid Starbucks Card, which accounted for 42% of transactions at company-operated U.S. and Canadian stores for the quarter ended Dec. 31, up from 40% a year earlier. The Starbucks

Rewards loyalty program, which is linked to the prepaid card, allows users to earn "stars" for free coffee and food. The program had 14.2 million active users in fiscal 2018's first quarter, up 11% in a year. Member spend represented 37% of sales at company-operated U.S. stores. The company's popular Mobile Order and Pay service, which has caused congestion at some stores as customers come in to get items they purchased earlier, represented 11% of transactions at U.S. company-operated stores, up from 7% at the end of 2016. Starbucks' payment strategy is now expanding beyond its private-label offerings, in addition to making Mobile Order and Pay available to customers who don't belong to the loyalty program. The company recently launched a cobranded Visa credit card issued by JPMorgan Chase & Co. that enables cardholders to earn stars at an accelerated rate for Starbucks purchases, and they'll also get stars for non-Starbucks transactions. Starbucks early this year began testing a cashless store in Seattle that accepts only cards and mobile-phone payments, and more could be on the way.

TARGET WALLET

PARENT Target Corp.

HQ Minneapolis

FOUNDED 2017

WEB Target.com

FIELD NOTES Discount retailer Target merged its popular offers app known as Cartwheel into its main Target app last year and in December unveiled what it dubbed Wallet, which is a feature within the Target app for iOS and Android mobile phones. After the shopper loads a Target Redcard credit or debit card, Wallet enables the customer to redeem offers and pay in one scan by displaying a barcode at checkout. Wallet also stores Target's Weekly Ad electronic coupons and applies Target's signature 5% discount on Redcard purchases.

VENMO

PARENT PayPal Holdings Inc.

HQ San Jose, Calif.

FOUNDED 2009

WEB Venmo.com

PRICING Free

FIELD NOTES Peer-to-peer payment app Venmo just keeps sizzling. It ended 2017 with \$35 billion in volume, a 100%

increase over 2016, indicating it's as popular as ever with its Millennial customer base. Much of that popularity stems from the fact that, unlike most P2P apps, Venmo includes a social-media overlay, allowing users to converse with each other as well as send or receive funds. But there are some dark clouds over Venmo. One has to do with its price, which is exactly zero. That wasn't much of a problem when its volume was smaller, but now all that free volume is helping to drag down PayPal's take rate, or how much it earns on each transaction. The solution is Pay With Venmo, a service that lets users buy things in stores and restaurants as well as pay each other. The service is new, so the jury's out on how well it will perform. In September, PayPal began testing a Visa-branded Venmo debit card, a product backed by Venmo balances that would generate some interchange income. No word so far on how that's going. Another problem facing Venmo could be competition from major banks in the form of Zelle, a new app that already accounts for more payment volume. Earlier this year, Zelle launched a major advertising campaign aimed squarely at Venmo's audience. If that effort siphons off customers from Venmo, free transactions could be the least of its problems.

WALMART PAY

PARENT Walmart Inc.
HQ Bentonville, Ark.
FOUNDED 2015
WEB Walmart.com/cp/Walmart-Pay/3205993

FIELD NOTES The world's largest retailer completed the rollout of Walmart Pay, its QR-code-based mobile-payment service, in 2016. Part of Walmart's strategy with the service is to make it easy for consumers to use their Walmart-branded credit cards in the app. One way to motivate them is via the Instant Access program, launched in 2017. This enables new Walmart credit card holders to add temporary credentials to their Walmart Pay accounts and use the credit line in stores, or online, before receiving the physical card. Walmart offers a private-label credit card and a cobranded Mastercard, both issued by Synchrony Financial's Synchrony Bank. Consumers can use any network-branded card, a Walmart gift card (physical or electronic), and pre-

paid cards as a Walmart Pay source, in addition to the Walmart credit card. Users can split payments across multiple payment types. At the register, the consumer first pays with the method not loaded into the app and pays the remaining balance with the Walmart Pay method.

WESTERN UNION.COM

PARENT The Western Union Co.
HQ Englewood, Colo.
FOUNDED 2012
WEB WesternUnion.com
PRICING Varies, \$4 for \$500 wire transfer to Mexico with cash pick-up, \$5 for bank-account-funded transfer and \$7 for transfers funded with credit or debit cards; bill payments vary by amount and funding method

FIELD NOTES The world's biggest wire-transfer provider said revenues and transactions through its westernunion.com service increased 22% in 2017 over 2016, and the online channel now accounts for 10% of consumer-to-consumer revenues. Last May the company said its digital service was live in 40 countries. In the past year, Western Union plugged into Mastercard Inc.'s Mastercard Send service to enable transfers to be sent to U.S. debit cards, developed a bot for payments through Facebook's Messenger, and enabled in-app transfers through Apple Pay.

XOOM

PARENT PayPal Holdings Inc.
HQ San Jose, Calif.
FOUNDED 2001
WEB Xoom.com
PRICING Varies, \$4.99 for \$500 transfer to Mexico funded with a bank account, \$12.99 if funded with a credit or debit card. Bill-payment fees start at \$2.99

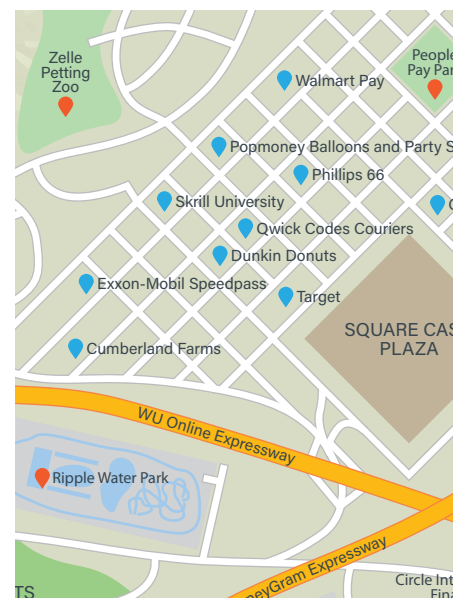
FIELD NOTES PayPal bought online wire-transfer provider Xoom Corp. in November 2015 for \$1.06 billion and instantly gained 1.5 million active U.S. customers. Two years later, Xoom had expanded into 27 new receiving countries, bringing its total to 67, and integrated its international money-transfer service into PayPal's. The active user base is up 30%, monthly transactions are up 50%, and usage of its bill-payment service has doubled, Xoom said in a

blog post marking the acquisition's two-year anniversary. Three-quarters of Xoom's transactions are on mobile devices. Last August, Xoom increased sending limits to \$10,000 for some transactions from the U.S. to Canada, the United Kingdom, India, and Australia. Xoom added a request-funds feature in 2016.

ZELLE

PARENT Early Warning Service LLC
HQ Scottsdale, Ariz.
FOUNDED 2011 (as clearXchange)
WEB ZellePay.com

FIELD NOTES This might be the year of Zelle. The bank-based P2P service came on strong with its national debut targeting younger consumers with stylish television commercials. "The advertising for Zelle is focused on the Millennial and younger Gen-Xer," said Norm Marraccini, director and vice president for payments marketing and adoption at Fidelity National Information Services Inc. In January, when Zelle released its most recent statistics, the service said \$75 billion in money moved across its payment network in 2017. It processed more than 247 million payments in 2017. Zelle says its service is available to more than 95 million consumers. In comparison, Venmo, the PayPal service Zelle is gunning for, processed \$35 billion in payments in 2017. Venmo, however, added the capability to use the service in stores. Meanwhile, Zelle is focused on the P2P aspect, a Zelle executive said. **DT**





Payment Improvements Take the Long Way Home

Steve Mott

The U.S. is finally moving toward faster and more secure payments, but the process is far more deliberate than it needs to be. Look at Australia for an example of how it could be done better.

Observers of the U.S. payments industry can be forgiven for wondering—in the wake of the colossal Equifax breach last fall—where the fixes in security and efficiency are supposed to come from, and who’s going to see them through.

A lot of those observers hoped the Federal Reserve could create a level of urgency and unanimity to finally fix this nation’s fraud-prone and excessively expensive payments system. But what we’ve learned from Australia’s two decades of experience is that meaningful reform of payments requires a sustained and resilient effort that acknowledges problems and addresses solutions in a holistic way.

Very little of that is happening in this country so far.

It was bad enough that big credit-issuing banks formed third-party credit “bureaus” to help the banks make better decisions on creditworthiness for financial products like credit cards. In the process, these banks created largely unregulated entities that vacuumed up credit histories and personally identifying information (PII) for tens of millions of consumers—often without their knowledge or permission.

What’s even worse is that the shocking lack of attentiveness and

responsibility that resulted in divulging data that enables hackers to move up from one-off payment card compromises to seemingly endless Social Security benefit and tax-return fraud seems lost on an apparently recalcitrant legacy payments constituency.

What’s missing, it’s clear, is a regulatory body or federal agency that’s able to circle the wagons of the industry around collaborative assessments of what needs to be done.

How Australia Did It

The Fed has a general charter to “promote the integrity and efficiency of the payments system,” as well as metrics for recovering its costs for “the provision of payment services to all depository institutions on an equitable basis and to do so in an atmosphere of competitive fairness.” This charter was outlined in an appendix to the Fed’s White Paper (January 2015), which launched its comprehensive approach to making improvements in the payment system.

Australia’s equivalent of the Fed, the Reserve Bank of Australia (RBA), faced a similar issue two decades ago, when many observers then viewed the payments system as lacking impetus for innovation. The RBA, in consultation

with the industry, managed to pass legislation (The Payment Systems Act of 1998) that expanded the central bank’s mission to provide specific forms of direction and guidance to the payments industry (Figure 1, page 30).

The ability to set interchange rates was included as part of 2 (b). While the RBA was empowered to decide what issues it needed to address, the legislation also required the central bank to consult with the industry for feedback and direction (Figure 2, page 30).

The foundation for this legal mandate was reviewed in 2007-08, and updated again in May 2016.

One of the first actions the RBA took under its new mandate was a rejiggering of interchange rates for credit and debit cards. This came in 2002, following comprehensive consultation with the industry.

The concern was that bank card rates were excessive, and contributed to a perceived lack of innovation and less-than-expected support for alternatives to cards, including the national EFTPOS network. So credit card portfolios were limited to an average of 50 basis points, and debit card rates were capped at 12 Australian cents. Also, merchants were permitted to surcharge for use of credit cards.

The RBA has checked in on the industry at various points to see if proactive regulation was still warranted. For example, the milestone timeline (page 31) was produced for

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Excerpts from The Reserve Bank of Australia's Payment Systems Act of 1998

FIGURE 1

Part 3—Regulation of payment systems

Division 1—Overview

10 Overview of main regulatory provisions

- (1) Under this Part, the Reserve Bank is given the power to designate payment systems (see Division 2).
- (2) The Reserve Bank has the following powers in relation to a designated payment system:
 - (a) it may impose an access regime on the participants in the payment system (see Division 3); and
 - (b) it may make standards to be complied with by participants in the payment system (see Division 4); and
 - (c) it may arbitrate disputes relating to the payment system (see Division 5); and
 - (d) it may give directions to participants in the payment system (see Division 6).

FIGURE 2

27 Power to determine requirements for applications

The Reserve Bank may, in writing, determine requirements to be complied with in relation to applications under this Act, including (but not limited to) requirements relating to:

- (a) the means by which an application is to be made; and
- (b) the information or documentation that is to be included in or submitted with an application; and
- (c) the verification of an application or of information or documentation included in or submitted with it.

28 Consultation obligations

- (1) Subsection (2) applies to the following actions proposed to be taken by the Reserve Bank:
 - (a) the proposed imposition of an access regime;
 - (b) the proposed variation of an access regime, other than a variation to which subsection 14(3) applies;
 - (c) the proposed determination of a standard, other than a determination to which subsection 18(5) applies;
 - (d) the proposed variation of a standard, other than a variation to which subsection 18(5) applies.
- (2) If this subsection applies to a proposed action, the Reserve Bank must, before taking the action:
 - (a) cause a notice to be published in the *Gazette*:
 - (i) advising of the proposed action; and
 - (ii) summarising its purpose and effect; and
 - (iii) inviting people to make submissions within a specified time to the Reserve Bank on the proposed action; and
 - (b) consider any submissions that are received within that time limit

the U.S. Fed in 2010 in a study done for it on regulation in Australia.

Since that time, the RBA—under its preferred mode of non-confrontational engagement with the payments industry—has continued to revisit the rate of innovation (and competitiveness internationally), including progress toward a faster-payments network option.

Another major intervention on interchange occurred in 2016 (co-incident with the May 2016 confirmation of its proactive role) with respect to escalating rates on high-end rewards cards.

It turns out that the original rate structuring in the early 2000s came with an audit of issuer portfolios every three years. However, some issuers would juggle their card portfolios in between audits to take advantage of higher-rate offerings. The RBA addressed this situation by putting a cap of 80 basis points on rewards card portfolios, and by conducting the audit every quarter.

To the surprise of many observers, protests from issuers were quite restrained, with some relieved to be rid of pressures for an 'arms race' in cardholder rewards. And a comparison of Australia's Big Four banks (which control about 80% of most financial services there) shows their profitability to be comparable to similar issuers in Canada, the U.K. and the U.S.—without all the extraneous fraud and other costs.

The lesson is that occasional regulatory intervention has been constructive of value throughout the payments system.

The Fed Steps in

In another era, perhaps in a different industry, the U.S. Fed's subtle role as a central bank looking after payments might have found its way into meaningful collaboration with, and guidance for, a troubled industry.

The draft governance framework for faster payments scheduled for release for industry comment in late April by a working group of the Fed's Faster Payments Task Force is one more effort to 'tease-out' progress on

resolving volatile governance issues affecting legacy payments before they bog down faster payments.

But the U.S. payments industry has been embroiled in constant conflict between providers and users for decades—most recently on the levels of card fraud incurred compared to other countries, as well as on standards for data protection and cybersecurity.

As a recent example, the American Bankers Association (ABA) offered a series of Webinar briefings to its community-bank members on what it called the “jungle” of payment card fraud. It pointed out that this fraud “rose to over \$20 billion globally last year alone, a rise of over 20%.”

Yet, in multiple venues and dialogs since last summer, the ABA (with support from some of its big bank members and the bank card brands) has fiercely resisted any public discussion that the U.S. has a fraud problem with cards—including and especially signature-debit fraud as compared to PIN-debit rates.

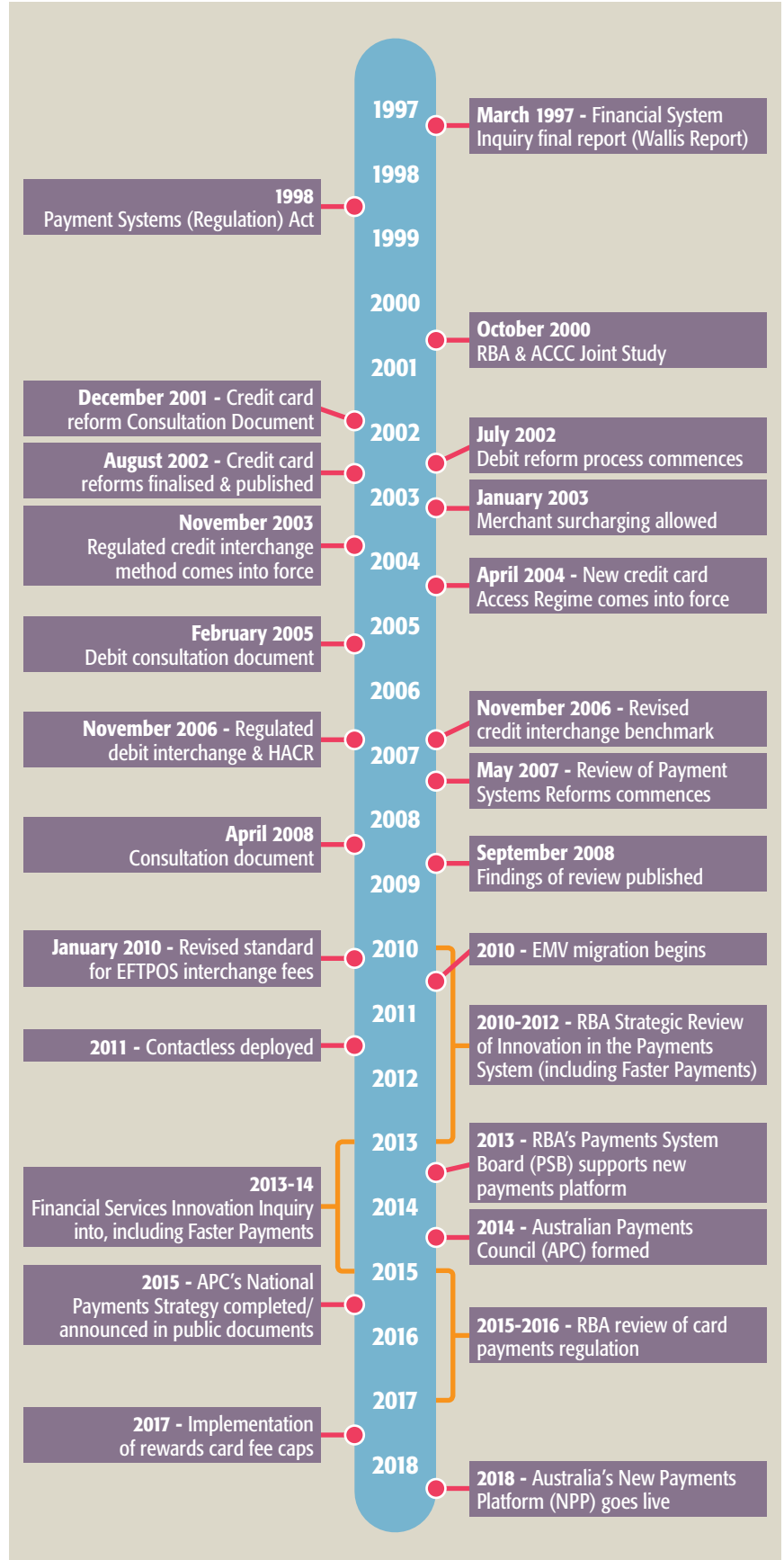
This legacy banking and payment card “consortium” also objects to endorsement of a new (and widely supported) cybersecurity framework from the National Institute of Standards and Technology designed to replace inferior frameworks currently required in financial services. The reason often given is to avoid more or duplicate regulatory requirements.

Instead, in a Feb. 28 letter to House of Representatives leaders, the American Bankers Association and several industry trade groups have advocated for “a national data-security and notification standard” in support of pending legislation to that end.

The letter noted the groups’ differences with “statements by some retailer groups” with respect to “regulatory mandates that set rigorous data-protection and breach-notification practices for financial institutions to follow.”

And on March 7, the ABA provided Congressional testimony that attributed most data-breach damage to compromises by “businesses”

Timeline of Australian Payment System Reforms



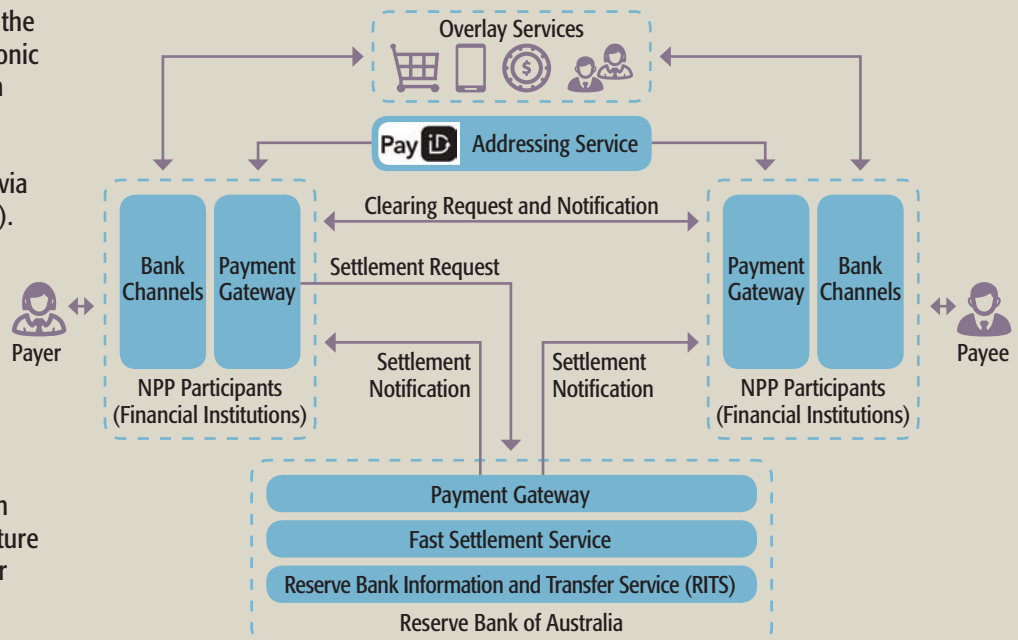
The Reserve Bank of Australia's New Payments Platform Network

The NPP uses ISO 20022, the global standard for electronic data interchange between financial institutions.

Connection to the NPP is via Payment Gateways (PAGs).

The NPP PAGs are configured to support processing and routing of transactions between the PAGs and the RBA's Fast Settlement Service.

Overlay services can sit on top of the basic infrastructure to offer different customer value propositions and experiences.



(ostensibly merchants and corporates), not “regulated financial institutions.” Yet, nowhere is the Equifax debacle addressed.

And so it is no surprise that when the legacy payments providers hold the fraud data tight to their vests, and offer only partial descriptions of who or what is at fault, the Fed’s most interesting follow-up activity for faster and secure payments is a comprehensive fraud study of its own—designed to get to the bottom of sources and responsibilities for fraud, as well as effective solutions.

No Blame Game

By contrast, in Australia, the RBA’s frequent and comprehensive convening of the payments ecosystem around foundational industry issues such as security has resulted in quicker adoption of new technologies—including EMV (beginning in 2010)—designed to protect payment accounts.

Clearly, the argument can be made that with just four banks needed to convert 80% of payment volume, such technology migrations can move more expeditiously (and less painfully).

But recent research on the “Australian Journey to Payments Rationalization” depicts a process where senior payment-industry officials from all sides have come to collaborate materially on issues of consequence—thanks in no small part to the RBA’s soliciting and “nudging” the high-level “decision-makers” to work constructively on them.

A safer, saner transactional environment has resulted. Caps on extravagant interchange, coupled with a high reliance on safer payment options such as PIN debit (while not being saddled with fraud-prone and high-cost card products such as signature-debit) and use of chip cards at the point of sale, have all contributed to manageable fraud rates.

As well, overseen by the Australian government, the financial-services industry and other sectors of the Australian economy collaborated productively on a comprehensive and action-oriented approach to escalating cyber attacks and threats: “Australia’s Cyber Security Strategy—Enabling Innovation, Growth & Prosperity,” published in 2016.

Instead of back-biting and playing the blame game, Australia’s payments leaders chose to harness cybersecurity acumen and investment to create an economic advantage for the country.

Further, the Australian government is working on a digital-ID system that matches a user’s photograph, Medicare, driver’s-license, and birth-certificate details with information already known by government services and departments.

These “GovPass” users will register for the service with their email address and mobile-phone numbers. That’s a far cry from the predominance of payment-account credentials and PII used largely in the clear by card issuers and their agents—such as Equifax.

And in February, Australia announced its New Payments Platform (NPP) was open for business after years of development. The path to this important innovation is perhaps the most instructive use-case for central-bank regulation working in combination with a functional, respectful industry ecosystem.

At the urging of the RBA in 2006, the Big Four Australian banks set about to build a faster-payment network, nominally called MAMBO (“Me and My Bank Online”). After three years, and some fractious meetings among the big banks, the effort was mothballed.

But the need for a real-time network was surfaced again by the RBA in its payments-innovation review in 2010-12 as a central aspect of the next-generation payments that Australia needed to be competitive on the world stage.

The RBA continued to lobby behind the scenes for another stab at the project, and by 2013 the successor project—eventually named the New Payments Platform (NPP)—made its way to the Payments System Board (PSB) in the form of a business-development and design proposal. The PSB—an adjunct function of the RBA—approved it, and the new company launched in December 2014.

NPP’s approach to real-time payments was not without debate. Smaller banks (about 150 in number) had concerns about terms and costs of participation, including whether there was a choice of applications to pursue. The big innovation, in the eyes of many, was the design of the system to build “overlay services” (effectively, individual business applications) on top of an end-to-end, secure, digital-network component.

This design translated into banks serving as the primary originators and receivers of real-time payments—and therefore being unequivocally responsible for the security (the NPP network serves as an encrypted pipe).

Once a bank integrates into the network (big banks directly, smaller banks via third-party processors), it can then choose which applications make sense to field and offer. NPP thereby serves as a single, national utility for faster payments.

Importantly, the NPP and other payments-organization boards include user representation and are informally cultivated by the RBA (which

regularly convenes consumer and merchant user councils separately).

Lost in Translation

By contrast, the U.S. Fed mounted a huge effort to nurture 16 different proposals for faster payments out of the payments ecosystem. The apparent early leader in the market was the big-bank alternative—fielded by The Clearing House (TCH), the consortium of the 24 largest financial-services companies, including 16 of the largest retail banks.

Smaller banks and credit unions (12,000 of them at last count) and their network processors have struggled with the business model of the TCH option, which for now allows them to participate, but only up to the funding level of a prepaid account (e.g., \$1 million each).

Consumer and merchant users have their own challenges with the big-bank alternative for the U.S.—especially the availability of ubiquitous, low-cost, good-funds arrays of payment options capable of reaching all 12,000-plus financial institutions (as well as non-bank providers).

As a result, along with the uncertainty of how many faster-payments

options will arise, there has been grass-roots support for the Fed serving as an operator, providing the ubiquity of its reach (it connects with every bank) as a default service—just as it does for smaller financial institutions with ACH and wire payments.

But many of the big U.S. banks say they are loath to consider any competitive network service from the Fed—unless perhaps as needed down the road to provide integrating capabilities that might arise (e.g., in the event four or five different faster-payments networks surface, including from new fintech providers).

Meanwhile, governance and ownership aside, a number of questions remain to be answered about how efficient, secure, and cost-effective the TCH network design—or any other faster-payments system—will turn out to be.

Lost in translation seems to be the industry will, motivation, and leadership to do better that should have come out of the Equifax travesty. What might still be a catalyzing event for collaboration on payments security so far appears to be just another wasted crisis. **DT**

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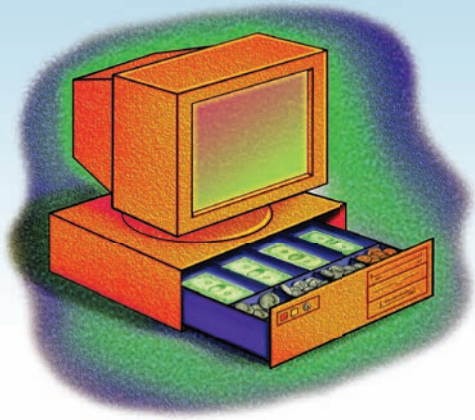
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Postpone the Requiem for Cash

David Dove

Despite what you hear about electronic payments displacing coins and folding money, the real story is a little more complicated.

The world is flat. Or at least that's what most people believed until Aristotle around 330 B.C. provided evidence of a spherical Earth.

Even then, it was slow to catch on. Recall that prevailing wisdom had the Earth at the center of the universe until around 1500, when Copernicus proved otherwise.

You'd think that the argument would have been put to bed fairly quickly after word got back to England that Columbus did not sail over the edge (as many feared). But as late as 1956, the Flat Earth Society was a healthy organization, and even that

did not disband until 2001. So much for sending men to the moon and taking pictures of Earth.

And so it is with cash, whether in the U.S. or other developed economies. For at least 25 years, the prevailing wisdom has been that cash is bound for the trash heap, to be replaced first by cards and more recently by mobile wallets carrying any of a variety of powerful brands (e.g., Apple Pay, Samsung Pay, etc.).

The question was never whether this would happen, only when. Even in the face of empirical evidence to the contrary, cash was presumed

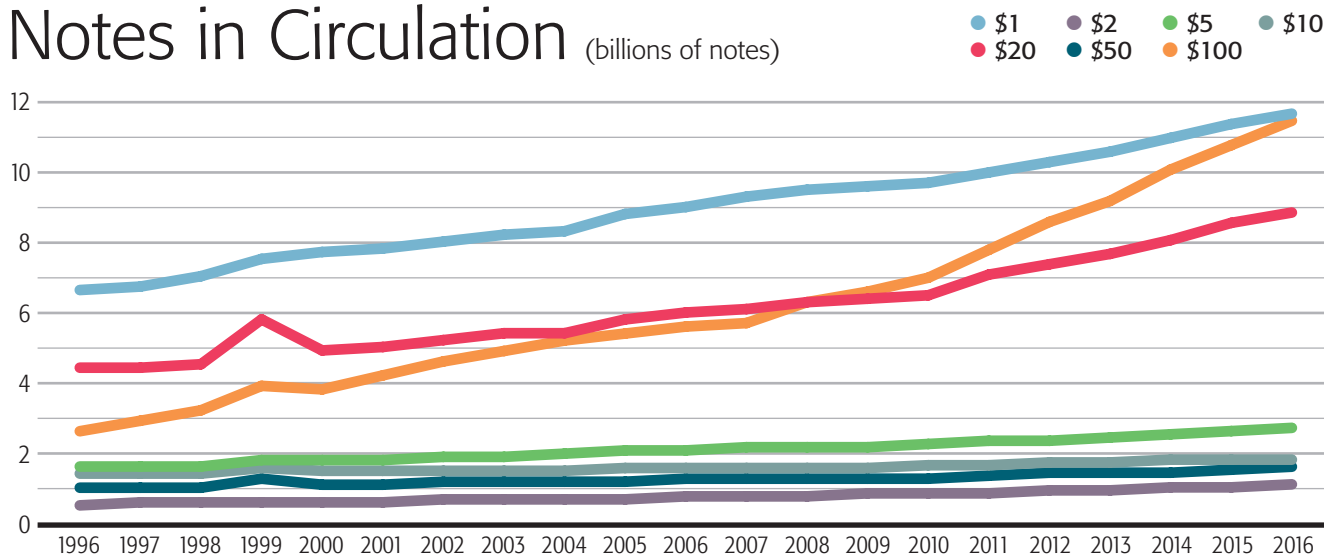
dead ... a zombie in the world of payment form factors.

Notable predictions of the demise of cash have been made over the years by CEOs and journalists alike. In 2015, Tim Cook, chief executive of Apple, said that modern payment methods, including Apple Pay, would render old-school notes and coins redundant, adding "Your kids will not know what money is" to Trinity College students.

At the February 2018 Apple shareholder meeting, his tone was more muted—"I'm hoping that I'm still going to be alive to see the elimination of money," adding that "mobile payments have taken off slower than I personally would have thought."

FIGURE 1

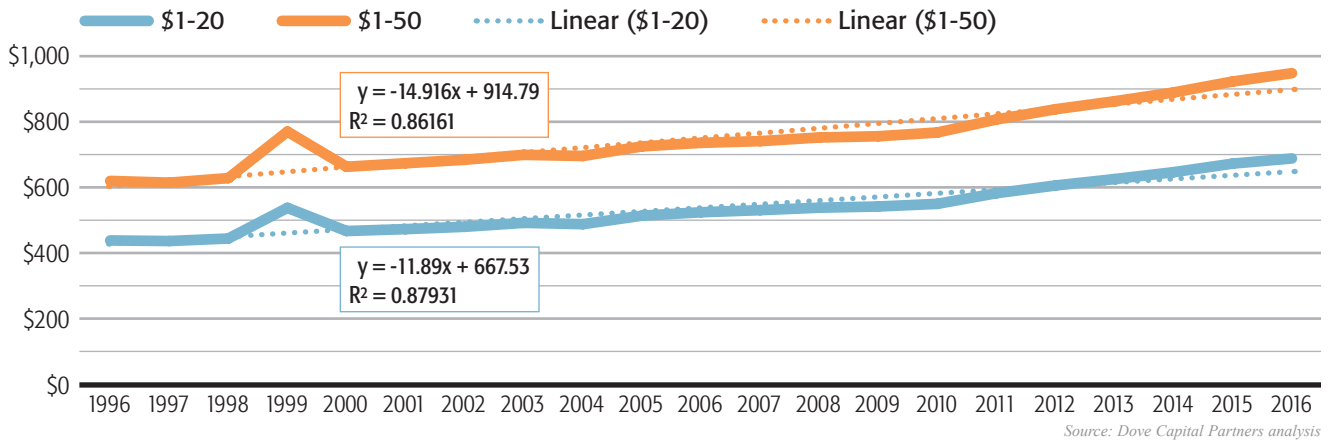
Notes in Circulation (billions of notes)



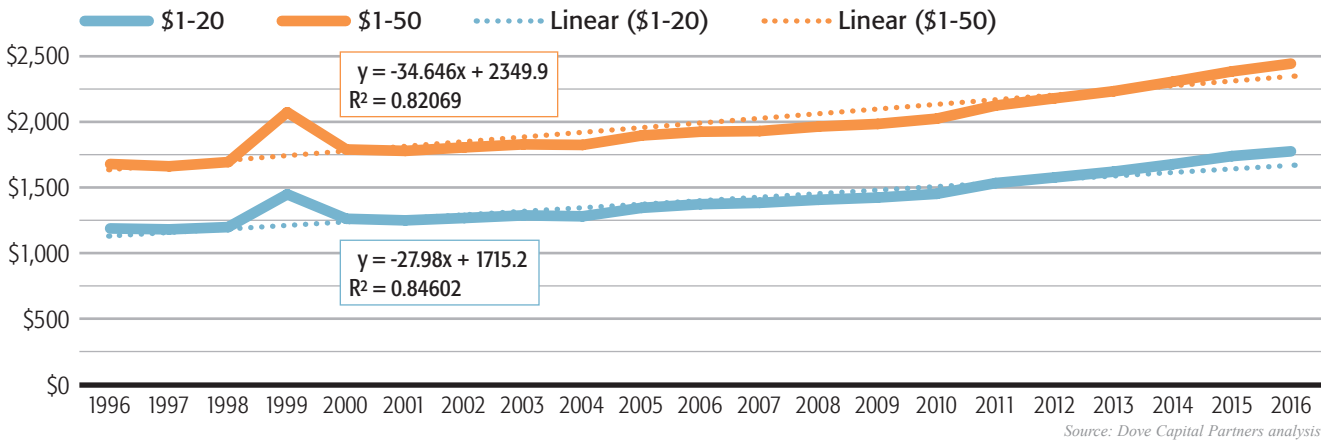
Source: FRB Cash Payments Office, *The State of Cash: Preliminary Findings from the 2015 Diary of Consumer Payment Choice*, November 2016

FIGURE 2

Value of Transaction Currency in Circulation Per Person

**FIGURE 3**

Value of Transaction Currency in Circulation Per Household



Over the past few years, I have had numerous discussions with capital sources (private equity, venture, family offices, etc.), and almost to a person the sentiment toward cash is negative—if not an outright belief that cash is already dead, then a fear that it will be dead shortly. Even when presented with evidence to the contrary, the response is predictable: “Yes, but what if in two or three years a tipping point is reached and cash falls off a precipice.” In other words ... the world is flat.

Cash Is Growing

It is true that cash, once the paragon of payments, no longer dominates. In the U.S., debit is now the leader, with cash being relegated largely to small-value payments.

And there are other proof points as well, notably that ATM transactions have peaked and in some markets are declining at 1%-to-2% annually. In the same breath, it is fair to point out that other cash-access points (e.g., cash back at the point of sale) are growing, though this fact is rarely mentioned.

In fact, cash back at the point of sale now occurs more than 1 billion times annually in the U.S., growth that would have accrued to the ATM channel had not banks and independent ATM operators increased their price points so much over the past decade. Why pay \$5 (a \$3 surcharge plus a bank fee of \$2) at an ATM in a retail location, when I can get cash back at the point of sale for free?

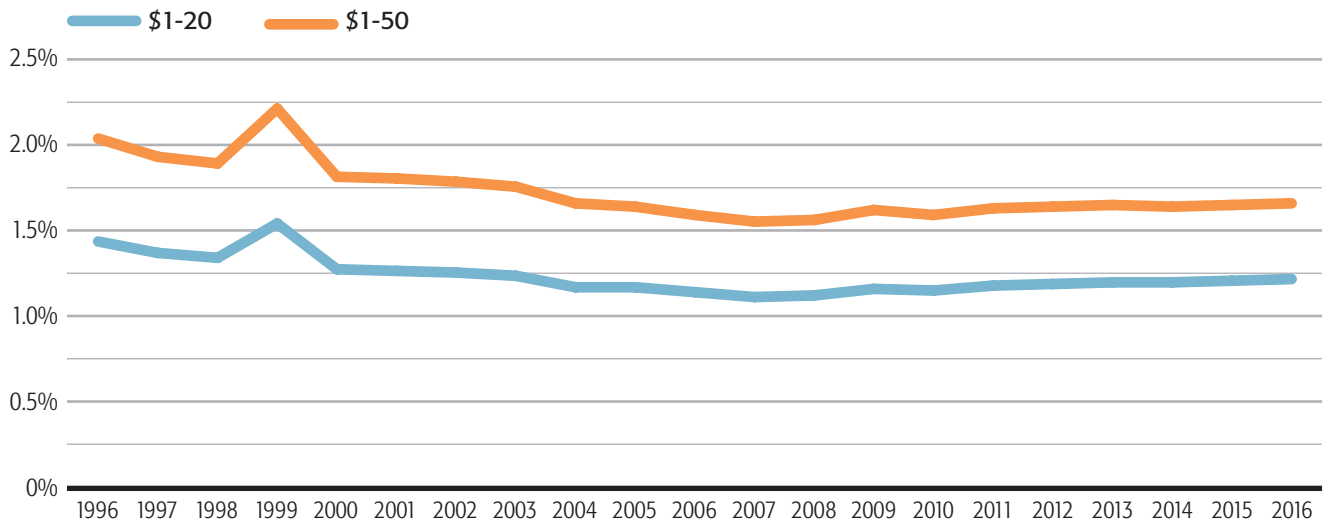
Consequently, my thesis is simple. Cash is not dead. In fact, it continues to grow, maybe not as fast as debit or mobile, but on an absolute basis, growth is positive. Now for the evidence:

- ▶ In the U.S., the Federal Reserve Bank’s Cash Payments Office (CPO) tracks cash in circulation (see Figure 1). Even with the introduction of competitive payment forms, growth has been fairly steady, with an uptick following the 2008 recession.

- ▶ Normalizing this data on a per-person or per-household basis delivers the same story (Figures 2 and 3). Transaction value notes, whether just \$1, \$5, \$10, and \$20 or these plus \$50, are all growing, again with an uptick since the 2008-09 recession (Denominations larger than \$50

FIGURE 4

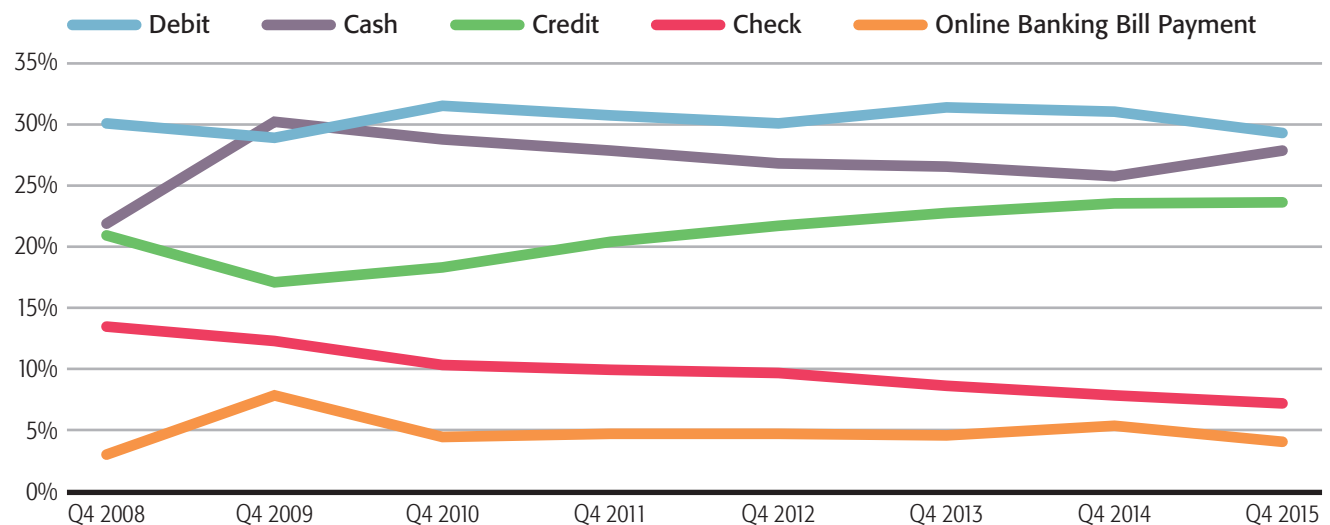
Value of Transaction Currency in Circulation as a % of GDP



Source: Dove Capital Partners analysis

FIGURE 5

Share of Transactions



Source: Survey of Consumer Payment Choice, Federal Reserve Bank of Boston.

have been excluded from this analysis in order to more accurately reflect denominations used largely for transactions. Denominations of \$100 and larger, although used for transactions in a few urban markets like New York City, more accurately reflect a store of value, and are often held in markets outside the U.S.) On a per-person basis, growth was 1.7% per year before 2009, 4.0% per year after 2009; on a household basis, growth was 2.1% per year and 3.5% per year, respectively.

▶ Even when normalized against gross domestic product, we don't see a pattern that would indicate an imminent demise of cash (Figure 4). Rather, cash appears to be leveling off at 1.2% on a per-person basis and 1.65% on a per-household basis.

Curved, Not Flat

Is cash the preferred method payment? Does it dominate the point of sale? No, those days are over. That said, cash continues to play a valuable role in the small-value payments

segment. It also plays a valuable role with the substantial segment of under-banked individuals and households in the U.S. It is by no means dead. (Figure 5)

None of us should be foolish enough to believe that cash will endure in its current state. New form factors will continue to be introduced, and each will fight for its share of the global payments market.

That world, however, the one represented figuratively as a payments horizon, is curved, not flat. **DT**

GENERATION Z: THE UNKNOWN FACTOR

THE PAYMENTS INDUSTRY has long been focused on Millennial consumer habits and with good reason: They are a highly influential consumer base and our first generation of digital natives. Now, however, it's time to be aware of an even more revolutionary demographic stepping into the payments spotlight: Generation Z.

According to the Pew Research Center, Generation Z are those born between 1997 and 2020. They've never known life without the internet. They've grown up with iPhones, Wi-Fi, and social media.

A recent Forbes article tells us that GenZers don't create distinctions between their online and real lives. They understand social media and utilize it to promote their own curated self-images and professional "brands." They understand their options are innumerable, but their time is limited.

There are 74 million Generation Z members in the United States today, accounting for 25 percent of the national population. By 2020, they will outnumber both Baby Boomers and Millennials. In short: They are our next big trendsetters in the payments industry.

One of the key ways that Generation Z may influence our industry is regarding the customer experience. In 2017, an Accenture report revealed:

About 70 percent of Millennials and GenZers are interested in digital payments advisory and expense management services. This is a clear signal that payments have moved beyond the transaction. Next-level customer experiences

matter more than ever. To deliver, the industry must design payments experiences around human needs.

According to a 2017 study completed by the Capital Performance Group (CPG), banks today have control over the data needed to create a meaningful customer experience. However, they are yet to create the ultimate digital wallet. The CPG study noted the banking industry's lack of preparedness for payments industry changes: After defining large banks as those holding at least \$10 billion or more in assets, the study noted that of the 219 banks responding to the survey, most held \$1 billion or less in assets. Of this group, 87 percent revealed their institutions did not have a formalized payments strategy and 41 percent had no plans of developing one.

A major reason banks have not kept up with the desires of Generation Z consumers for payments services may be because of the complexity in developing and implementing plans. It's an extremely arduous process involving risk management, compliance, operations, and information technology departments, amongst many others. Because of this complexity, it is imperative that third-party, non-banking payments technology companies actively work with banks to test and launch new products.

Together, we can capture the attention of the sought-after Generation Z demographic. Now is the time to think past the minutia of transactions and re-envision what the payments industry can do. The industry can blossom far beyond the reaches of individual transactions and help instigate social and lifestyle changes that will influence future generations.



Founded in 1992, North American Bancard is a leading payments technology company who helps more than 350,000 satisfied merchants process more than \$50 billion in transactions each year. For more, visit gonab.com.

Machine learning analyzes each customer's behavior in real time, enabling organizations to quickly and accurately detect the subtle anomalies that indicate someone is acting out of character.

How Machine Learning Can Deliver Faster—And More Secure—Payments



Luke Reynolds is chief product officer at Featurespace Ltd., Cambridge, United Kingdom.

With consumer expectations higher than ever, analytic tools that can meet those demands while weeding out fraud are more important than ever, says Luke Reynolds.

A recent survey conducted by Juniper Research predicted the overall value of fraudulent online transactions globally will reach \$25.6 billion by 2020. Of that activity, retail fraud will account for 65%, while banking fraud will contribute 27%.

This significant jump (up from \$10.7 billion in 2015) points to the increased sophistication of fraudsters. Sadly, as consumer, e-commerce, and banking technology advances, it is making it even easier for fraudsters to get better at account takeover, synthetic identity, and creating havoc generally.

So what products can aid banks, merchants, and processors in the fight to better safeguard their customers' collective data? One of the most significant technology solutions employed today resides in machine learning, or adaptive analytics.

The traditional, rules-based model for fighting fraud creates an environment where consumers must experience fraud first, then businesses analyze and adjust their rules or models for the next attack.

These systems are an excellent method of blocking certain types of fraud. But taking an advanced, layered-risk approach can reduce your manual intervention, block fraud immediately

as it occurs, and actually create a stronger customer experience.

Using the Right Data

Machine learning is a form of intelligence that allows your risk-management platform to understand each individual customer touchpoint and actively detect and recognize patterns in a customer's purchasing journey. It relies on understanding and reacting to behavior in the same way that we do as humans.

Human beings are innately in tune with each other's behavior. We can tell a local from a tourist in a coffee shop simply by observing how they look around and noting their body language. Machine learning works in a similar way. It analyzes each customer's behavior in real time, enabling organizations to quickly and accurately detect the subtle anomalies that indicate someone is acting out of character.

By incorporating this type of learning into your risk-management strategy, you are teaching a machine to separate the signals of a legitimate consumer's behavior from those of a fraudster.

This approach enables machines to make autonomously data-driven decisions in place of being manually programmed to perform explicit tasks. After being exposed to new data, machine-

SPONSORED CONTENT

SUPPORTING ISOs AND ISVs IN A CHANGING MARKET

By Sarah Adams, VP Product, Card Present at Paysafe

IN AN ARTICLE POSTED EARLIER THIS WEEK, my colleague Todd Linden, CEO of Payment Processing North America, looked at how the US payments landscape is changing. He also explored how Independent Sales Organizations (ISOs) and Independent Software Vendors (ISVs) were evolving in response, adapting their service offering in a way that is beginning to blur the lines between the two.

As Todd commented in his piece, this ISO/ISV convergence is a fascinating phenomenon, presenting exciting new opportunities for companies on both sides of the divide. Nevertheless, it does also pose inevitable challenges for companies as they seek to meet their merchant customers' ever-changing requirements. Both ISOs and ISVs need support through this transition—help that some Payment Service Providers (PSPs) are perfectly placed to provide.

With the right partner by their side, ISOs and ISVs can make sure they have a wide range of services at their disposal that can help them meet their specific business goals. But what does the right payments provider look like, and what do they offer? Here are my top tips to help ISOs and ISVs find the most suitable partner for their needs:

A PARTNER THAT OFFERS A RANGE OF PAYMENT SOLUTIONS

Consumers have an ever-increasing amount of choice and control over the way they pay for their goods and services, from cash, to card and alternative payments. To address this trend, ISOs and ISVs both need to consider how many payment methods their PSP partners are able to process. Choosing a PSP partner that offers not just card payments, but eWallets, bank transfers, and even next-generation Pay Later instalments, can ensure that you meet your merchant customers' varied payment needs whilst simultaneously streamlining your supply chain, thus saving yourself time and resource.

A PARTNER THAT OFFERS ONLINE AND OFFLINE PAYMENTS

With more bricks-and-mortar SMBs making the move into the eCommerce space, you need to make sure your ISO or ISV business is able to support customers in accepting both online and in-store payments.

Consider whether your PSP partners provide a complete business management solution—from in-store to online—to ensure that your merchant customers are able to make the eCommerce transition as smooth and straightforward as possible.

A PARTNER THAT OFFERS EXTRA SERVICES

Merchants don't just want their ISO and ISV suppliers to meet their payment needs, they want other kinds of support as well. To meet this demand, you should work with PSPs that offer exciting value-added services.

PSPs that provide big data analysis, for instance, can enable you to provide your merchant customers with key insights into customer behavior, such as how buying habits are affected by the weather and at what time of day sales increase for certain types of product. This kind of information can help merchants tailor their offering to create a better service for consumers.

THE MOST SUPPORTIVE PARTNER

PSPs that offer comprehensive, dedicated customer-centric support services can give your ISO or ISV business the support it needs to face future market challenges. They can help you explore new technologies and products, or provide you with guidance and information to develop your own services so you can deliver the best possible solutions for customers.

PARTNERING FOR SUCCESS

The payments landscape continues to evolve rapidly. ISOs and ISVs need support from experts to help them continue to meet merchants' needs. Such partnerships are key to helping everyone in the payment ecosystem to thrive into the future.

We explore the manner of support that PSPs such as Paysafe can provide in our latest whitepaper, *The ISO/ISV Convergence: Do Payments Systems Hold the Key to Helping Both Sides Thrive?*, available at PaySafe.com/ISOtoISV/



To discover what support Paysafe can provide ISOs and ISVs, visit PaySafe.com

learning programs can enhance themselves over time. No surprise this technology has recently become the center of many technological advances in the payments landscape.

According to a report released by Javelin Strategy & Research, fraud claims a new victim every two seconds, and many of those fraud incidents involve credit cards. In an environment where transactions can take place in milliseconds, identifying and preventing fraud requires more than just manual monitoring. Machine-learning providers are working steadily to innovate their layering technology, aiming to capture fraud without increasing false-positive rates.

Financial institutions, issuers, and acquirers are finding that machine learning has not only helped their customers by improving their risk strategy, but also by reducing their operational costs. These are not just operational costs associated with fraud and chargebacks, but also those stemming from customer service.

For example, if an issuer or acquirer has a low risk appetite, this typically

leads to a higher false-positive ratio, which can then lead to good customers having their cardholder accounts temporarily suspended or merchant funds held, pending investigation. When these are actually genuine transactions, this process leads to customer calls and emails criticizing the experience.

With any risk-mitigation tool, you are only as good as your data. Some tools take a unique approach to data by focusing more heavily on good behavior versus bad behavior, assuming fraud will be the exception and not the rule. This approach allows merchants, acquirers, and financial institutions to develop a larger pool of good-behavior data than bad-behavior data. The advantage of this approach is that the models will learn each customer's character traits more quickly compared to models that focus on fraud labels as their data source.

Many issuers, acquirers, and processors are now seeing a practical application for these analytics tools when layering them over an existing fraud solution and are partnering with machine-learning experts to create this approach.

Return on Investment

At a time when consumers are demanding a friction-free experience, faster checkouts, and speedier approvals, merchants and processors must use the necessary analytic tools to stay ahead of fraud.

The adoption of machine-learning solutions is helping reduce the amount of fraud and chargebacks, improve operational efficiency, and reduce customer friction. Companies that are actively embracing this technology are already seeing a big return on investment.

In the long run, it is widely expected that machine learning will continue to serve the payments industry as an incredible resource for helping financial institutions operate in a safer, more efficient environment.

Routine tasks once handled solely by humans can now be performed in conjunction with machines, allowing us the ability to capture fraud as it occurs, learn more rapidly as fraudsters become more complex, and, ultimately, enhance the consumer experience. **DT**

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