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Trends in the Electronic Exchange of Value



13TH ANNUAL

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The nation's automated clearing house network has been on a tear. Now, a 10-fold increase in its same-day clearing cap, due next year, promises to keep the party going.

A Welcome Slide in Overall Fraud

Finally, some good news: Fewer organizations were victimized last year by fraudsters. But don't pop any champagne corks just yet.

The Cash Debate Just Won't Die

ATM operators and other cash-based organizations are keen to make sure lawmakers don't ban cash payments.

Plus, *Security Notes* argues **Bitcoin is the wrong kind of digital money for the future of payments**; and *Payments 3.0* says **it would be a mistake to pass over a recently issued 900-page tome from the Consumer Financial Protection Bureau.**

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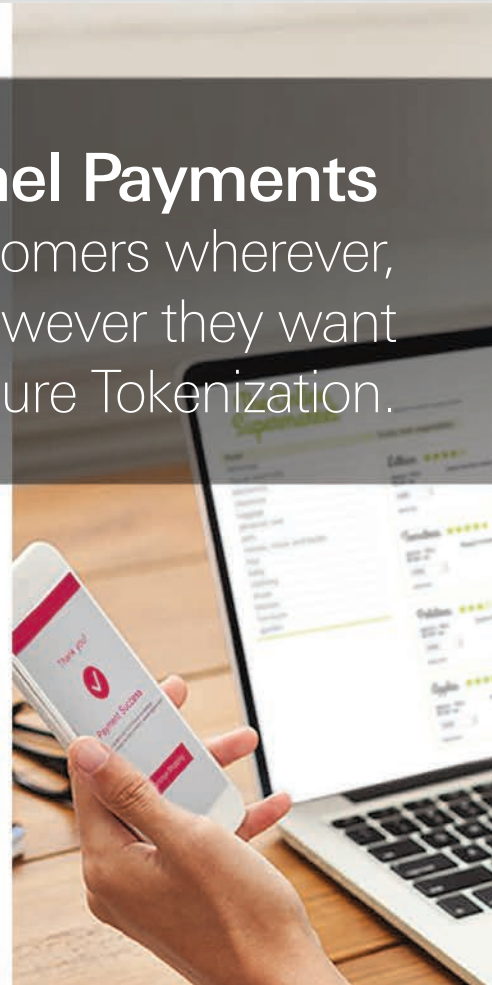
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Most merchants can't afford Amazon Go technology. But that doesn't mean it's out of reach.

Cover Illustration: Jason Smith, 123RF.com

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THE CRAZE FOR POINT-OF-SALE INSTALLMENT LENDING—a trend popularly known as buy now, pay later—has enjoyed a honeymoon among merchants and consumers alike. The option, which lets consumers receive the goods in their cart but pay for them later over a few interest-free installments, came along just as pandemic fears threatened to throttle in-store sales and dampen the boom in e-commerce.

Startups like Affirm and Afterpay, and more established players like PayPal, Square, and Klarna, now offer the service, which could account for \$1 trillion in sales by 2025, according to CBInsights—10 to 15 times the estimated current level. It seems it's all good news for BNPL, as it's come to be known.

Or is it? A revealing survey released last month indicates there could be a few lumps of coal among the diamonds. First, the good news. The survey, from payments-research firm The Strawhecker Group, found 39% of some 1,500 sampled consumers use BNPL. Of these, 55% are likely to spend more than they do with other payment methods. Most trust their BNPL services and intend to keep relying on them.

So far, so good. But here's where the clouds start to form. Some 20% of those surveyed expressed a suspicion that a BNPL service would hoodwink them in some way. And most let it be known that an old-fashioned credit or debit card, issued by a bank, is still the "most reliable" payment method. On top of that, non-users in the surveyed group indicated "psychological discomfort, a lack of familiarity, and financial hardship" as reasons for intentionally avoiding BNPL services, according to Strawhecker.

None of this is to say BNPL is somehow at risk of losing its luster any time soon. The concept on which it's based—layaway plans—is as old as anyone can remember in the retailing world. The attractive twist with BNPL is that, unlike the case with layaway, you get your merchandise upfront. Features like that are proving extremely attractive, making for very high retention rates. Indeed, the report points to a statistic from Afterpay indicating 91% of its sales in the first quarter came from repeat customers.

So how are the negative and the positive views likely to play out, particularly as payment networks and card issuers look to compete with this upstart? After all, sometimes that competition comes in the form of hardball. Capital One made the news in December with its decision to bar its cards from participating in BNPL programs.

As usual, market forces will sort this out. But it's a pretty good bet that companies like Square and PayPal aren't likely to have backed a losing proposition.

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trends & tactics

A \$1 MILLION CAP FOR SAME-DAY ACH

Nacha last month announced it will raise its dollar limit on same-day transactions 10-fold to \$1 million, starting in March 2022. The move, which will come only two years after the governing body for the automated clearing house network raised the cap to \$100,000 from the original \$25,000 limit, comes as banks and service providers look for faster processing of payroll, insurance payouts, and other large disbursements.

The latest change to Nacha's same-day processing routine will embrace both credits and debits and will apply to consumer as well as business payments, the network said. It comes after members of the network recently gave a thumbs-up to the measure, Nacha said in its announcement. "Dollar limit increases for same-day ACH have been the single most-requested change," says Mike Herd, a senior vice president at Nacha.

The decision should unlock significant new volume for same-day processing, Herd says. "The ACH community sees additional use cases with higher dollar limits," he adds. "It allows more users to adopt [same-day processing]. They've been reluctant

to adopt it if a portion of their payments wasn't covered."

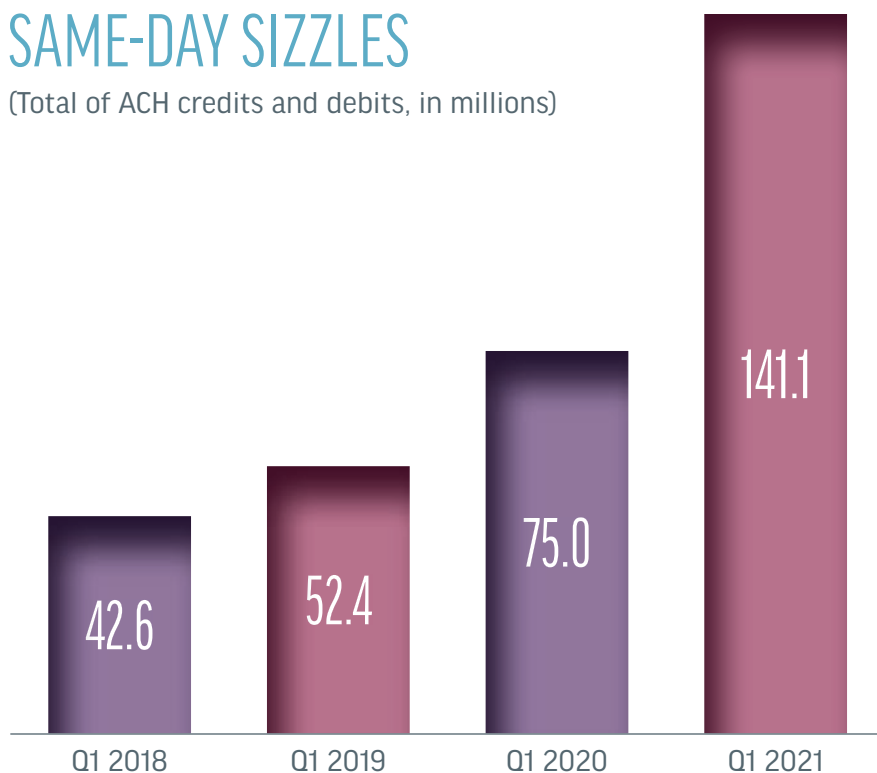
According to Nacha statistics, same-day credits and debits totaled 141.1 million in the first quarter, up fully 88% from the first quarter of 2020, when Nacha made the last move to raise the limit (chart). Dollar value for same-day ACH shot up 133% to

\$187.6 billion, according to Nacha, the Herndon, Va.-based governing body for the ACH network.

Altogether, same-day ACH transactions have now totaled more than 1 billion since the faster-payment service was introduced for credits in 2016 and for debits a year later, Nacha reported, with more than

SAME-DAY SIZZLES

(Total of ACH credits and debits, in millions)



Source: Nacha

\$1 trillion in value transferred over the years.

The latest, dramatic rise in the dollar cap followed detailed talks among Nacha and its members, Herd says. “There were discussions of what the correct limit should be,” he notes. “You don’t want to be too low and you have to be cautious about being too high.” The increase “is a big step, and it’s exciting,” he says. The lead time allowed before the change takes effect should give financial institutions and users time to adjust their coding and conduct testing routines, Herd adds.

“Nacha has made a significant enhancement to same-day ACH every year since it was introduced in 2016,” said Nacha president and chief executive Jane Larimer, in a statement. “This [latest] enhancement reflects our commitment to see that the modern ACH network meets the nation’s needs for fast and efficient payments.”

Traditionally, ACH transactions follow a two-day settlement routine. Shortly after the service began, banks and service providers started requesting higher transaction caps.

The decision to raise the limit follows other moves Nacha has made recently to facilitate same-day ACH. Last month, the network added a new settlement window at the end of the processing day to extend the time in which banks can handle same-day items. As a result, the latest daily deadline for same-day ACH has moved to 4:45 p.m. Eastern Time, two hours later than the former cut-off.

The move in part was a response to banks in the Western time zone that now have more leeway to enter same-day volume. “The further you move West, it captures a greater part of their business day,” says Herd.

—John Stewart

A WELCOME SLIDE IN OVERALL FRAUD

In 2020, 74% of organizations were targets of payments fraud, down from 81% in 2019 and 82% 2018, according to the Association for Financial Professionals’ annual fraud report. That’s the lowest level measured by the AFP since 2016 (chart, page 8). The Bethesda, Md.-based association has surveyed companies across myriad industries yearly for 17 years.

Large organizations, those with annual revenue of \$1 billion or more and fewer than 26 payment accounts, are the most frequently targeted by criminals, with 80% of respondents saying they were victims of payments fraud. In comparison, 67% respondents with annual revenue less than \$1 billion were targets of payments fraud in 2020, compared to 78% in 2019.

ACH debits experienced a slight uptick in fraud, with 34% of respondents

victimized in 2020, compared to 33% a year earlier. The increase was due in part to a shift away check and wire-transfer fraud. At the same time, 19% of respondents reported ACH credit fraud compared to 22% a year earlier.

While ACH transactions are considered more difficult to compromise, the increased focus on ACH transactions by criminals suggests fraudsters are acquiring more sophisticated techniques when targeting organizations, the report says.

Corporate credit card fraud decreased significantly, with 24% of respondents reporting this type of fraud in 2020, down from 34% in 2019. The decline was largely due to shrinking payrolls as companies furloughed employees and restricted business travel, which in turn decreased discretionary spending on corporate cards.



Other factors contributing to the decline include the transition to chip cards, which are harder to counterfeit, and card issuers' use of algorithms and machine learning to detect potential fraud.

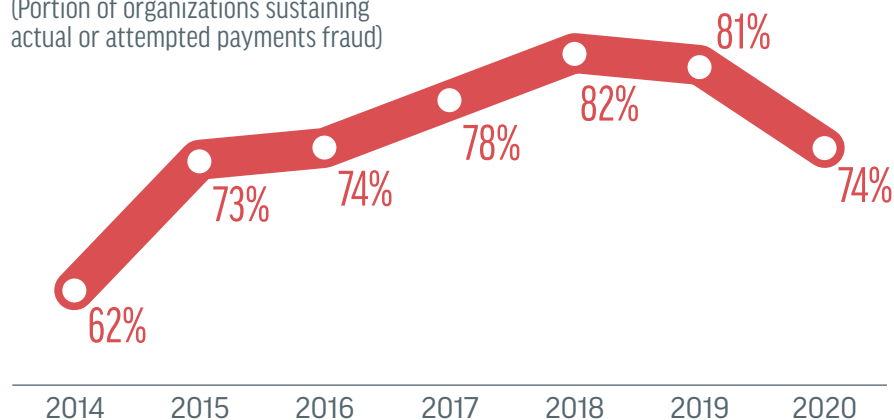
Despite the decrease in corporate card fraud, travel and entertainment cards remain the most prone to fraud, with 79% of respondents citing T&E card fraud. Purchasing cards were also subject to fraud, with 61% of respondents citing this type of corporate card fraud. The vast majority of corporate card fraud took place on card-not-present transactions, according to 71% of respondents.

Business email compromise (BEC), which emerged as a leading source of fraud attempts in 2019, rose slightly to 62% in 2020, up from 61% a year earlier. In these schemes, fraudsters often impersonate senior executives to trick employees into sending funds to accounts controlled by the criminals.

Accounts-payable departments are the most susceptible to BEC fraud, with 61% of respondents reporting their AP department was the most

FRAUD SLIDES AGAIN

(Portion of organizations sustaining actual or attempted payments fraud)



Source: Association for Financial Professionals

vulnerable business unit targeted. Treasury was the second-most targeted department, cited by 13% of respondents.

“Accounts-payable [departments] issue the bulk of the ACH payments via batch processing for the company,” Tom Hunt, CTP director, treasury & payments services, for the AFP, says by email. “Often times, accounts payable doesn’t report up into the finance organization, so maintaining proper controls and policies in place becomes even more critical in the company

where access to the payment system could be vulnerable.”

The good news is that companies are becoming better at detecting fraud sooner. Thirty-five percent of respondents took less than one week to uncover the fraud and 31% detected the fraudulent activity within one to two weeks. Thirteen percent took an additional two weeks to realize they had been targeted, and 21% uncovered the fraud within one to 12 months.

The Covid-19 pandemic played a large role in companies’ ability to detect fraud faster. Businesses put their internal processes and business-continuity plans under stricter scrutiny as more employees worked remotely. As a result, companies “were much more adept at making sure their controls were in place and have gotten better at identifying fraud and ensuring proper safeguards were in place,” Hunt says.

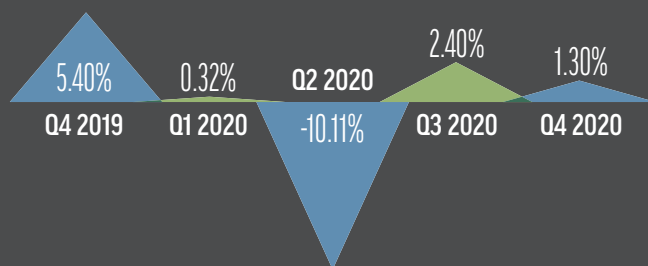
Hunt says companies need to keep having conversations with their bank or payments vendor on tools they can implement to prevent and detect fraud. “Meet with them regularly for a fraud checkup and implement a fraud policy,” he adds.

—Peter Lucas

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 data warehouse of over 3 million merchants in the U.S. market. The ability to understand this data is important as small and medium-size businesses (SMBs) and the payments providers that serve them are key drivers of the economy. All data are for SMB merchants defined as merchants with less than \$5 million in annual card volume.



Source: The Strawhecker Group © Copyright 2021. The Strawhecker Group. All Rights Reserved. All information as available.

THE CASH DEBATE JUST WON'T DIE

More than a year after the Covid-19 pandemic hit, igniting fears that the virus could be spread by handling currency, a group of three financial associations and a Chicago-based cash-in-transit and money-protection service signed off on a letter last month warning about the harmful economic and social effects of prohibiting cash payment for goods and services.

The letter, directed to members of Congress, governors, and state legislators around the country and sent by the Secure Cash Transport Association, Independent Armored Car Operators Association, ATM Industry Association, and Chicago-based money-security services provider Davis Bancorp, asked Congressional and state leaders to support legislation that protects payment choice, including cash.

The intent of the letter—which comes on the heels of a letter sent earlier this year by legislators to President Biden urging that payment choice be guaranteed—is to ensure that a war on cash does not break out as merchants adopt contactless payments or in some cases move away from cash acceptance.

While no legislation has been introduced or passed to prohibit cash acceptance, a growing number of merchants, such as restaurants and bars, are banning cash acceptance, David Tente, ATMIA's executive director for the USA, Canada, and Americas, says by email.

In addition, a growing number of stadiums are going cashless and installing reverse ATMs in which consumers insert cash in exchange for a prepaid card of equal value. Typically, the card can only be used at the

stadium, which can lead to consumers abandoning any balance left after the event if they don't frequent the venue.

"Although the pandemic is a crisis of major proportion, it is also an opportunity to denigrate the use of cash," says Tente. "Initial claims of the danger of using cash were grossly exaggerated."

"Central banks and [the] World Health Organization even had to come out with clarifying statements about the use of cash," Tente adds. "Consumers should be allowed to pay by whatever means they choose. ATMIA is a very proactive supporter of consumer payment choice and the growing effort nationally to require that retail establishments accept cash for in-person payments."

To ensure consumers have a payment choice, some states, such as Massachusetts, Rhode Island, and New Jersey, and cities, such as New York, San Francisco, and Philadelphia, have adopted laws that prohibit retailers from refusing cash, Sam Ditzion, chief executive of Boston-based Tremont Capital Group, says by email.

Such moves are aimed at ensuring that the unbanked, underbanked,

and consumers who rely on cash to pay for goods and services are not prevented from paying with cash, some observers say. More than 20% of adults in the United States fall into these three categories.

"Covid has created a more pronounced line between the middle class and more financially vulnerable consumers when it comes to accessing goods and services, so it is essential to always allow anyone who wants to use cash or any other legal tender to be able to do so," says Ditzion.

Indeed, proponents of cash acceptance argue that efforts to ban its acceptance by merchants would be a discriminatory practice.

"The banning of cash impacts consumers underserved [from a financial services standpoint] that rely on cash for purchases, says J.R. Davis, president of Davis Bancorp. "This includes the elderly, immigrants, frontline workers, and people of color. Banning cash would be disrespectful to these consumers because a lot of scientific research has emerged since the pandemic hit that shows the virus is not transmitted by handling cash, but through the air." DT

—Peter Lucas



'Covid has created a more pronounced line between the middle class and more financially vulnerable consumers when it comes to accessing goods and services.'

—SAM DITZION, CHIEF EXECUTIVE, TREMONT CAPITAL GROUP

BITCOIN: A SOBER ANALYSIS

SEVEN AND ONE-HALF BILLION DOLLARS in ransomware payments per year is the U.S. cost for upholding the tantalizing idea of Bitcoin, and that is but a fraction of the multi-faceted criminal activity that owes its surge to a coin that builds trust on ignorance and awe.

Pillars of the U.S. economy are opening their doors to cryptocurrency. Serious economists are warming up to its prospects. And central banks around the world are toying with it. So it's no wonder that we have all developed herd immunity against intuitive suspicion of a coin that represents no assets, is backed by no authority, and is as strong and as weak as the mathematics that defines it.

If you are not a student of complexity theory, and if you have not done direct reading on the mathematics that gave birth to Bitcoin, then you are a faith-based Bitcoin worshipper. And if you understand complexity theory well, you know that the Bitcoin premise is not supported by the gold standard of "mathematical proof." Rather, it is upheld by a much weaker, and much more temporary, standard: the absence of a published method to crack it.

Bitcoin, like the entire edifice of modern cryptography, is built on the limitations of common computers.



BY **GIDEON SAMID**
gideon@bitmint.com

It is only because computers don't work faster than they do that Bitcoin and national secrets are kept intact. And it's only because no mathematician who has discovered a cracking algorithm has yet published it that we can hold on to the belief that Bitcoin is as solid as gold.

"You may win the argument," I am told, "but I have made a small fortune on Bitcoin by not listening to you." I reply, "Sure. For a balloon to pop, it needs to swell first." And indeed, everyone who dumps their Bitcoins before the collapse will smile all the way to the bank.

On the other hand, one cannot be left unimpressed by the pioneering layout of the China's non-crypto digital Yuan. It takes on the unmatched power, and the unprecedented capability, of digital money and uses it to redefine banking, payments, investment, and the economic rhythm of the world.

China reached out to the best in the West, including BitMint, to fashion a monetary system in its own image. The longer we wait to go digital, and do it right, the worse off we will be.

Bitcoin was born in the bosom of a complex algorithm, and it will die when this algorithm surrenders to smarter mathematicians armed with quantum computers. By contrast, durable digital money should emerge from the womb of quantum physics. By capturing randomness in a solid rock of composite material, we hinge cyberspace on material reality. Hackers swim in an ocean of ephemeral bits. Rock-solid data is off their digital grid—and safe.

To be sure, digital money is here to stay. It reveals new horizons for prosperity and living, for sharing and justice, for innovation and industry. Digital money is the only way to live in cyberspace and enjoy the comfort of the growing Internet of (Paying) Things (IoPT) around us.

We are going to have purpose-specified money to reduce fraud, owner-identified money to eliminate theft, and cross-border money to allow retail payments around the planet. We are going to have escrow services. We are going to have a new, unified financial language for debit and credit, for investment instruments, for equitable taxation, and for innovation efficiency.

All this is coming. But it is hard to tell how long the Bitcoin tsunami will last before it recedes and surrenders to rock-minted digital money. **DT**



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NINE HUNDRED PAGES OF WISDOM

IN A WORLD OF SOUNDBITES and hyper partisanship, a two-volume, 900-page report is at a real disadvantage, especially if it comes from a previous administration.

Nonetheless, if the last four years have taught us anything, it's that important topics might require more depth than your average tweet.

In January, in the waning days of Kathleen Kraninger's tenure as director of the Consumer Financial Protection Bureau, the Taskforce on Federal Consumer Financial Law released its report and recommendations on how regulation and legislation surrounding financial services could be improved.

If behavior in Washington continues down its recent path, the report is likely to remain on a shelf or buried in a hard drive. That would be too bad, because even though people might disagree on some of the particulars, it outlines important concepts that would be useful for regulators.

The report encourages regulators to give up the notion that they only have two opposing choices: consumer protection or deregulation.

"Instead, the Taskforce believes that the overall objective of consumer financial protection policy should be to adopt rules, regulations, and practices that protect consumers from harm; improve consumer welfare overall; promote fair and transparent markets and eliminate practices that



BY BEN
JACKSON

bjackson@ipa.org

interfere with that goal," the report says in volume I.

Back in 2014, when the prepaid-accounts rule was first proposed, the industry supported much of the proposal because it was designed to promote transparency and make it easier for consumers to find good products.

In a press release issued at the time of the first field hearing on the rule, Green Dot Corp. took a position similar to what the Taskforce would eventually adopt.

As part of his prepared testimony, then chief executive Steve Streit said, "A football game without rules and referees isn't a sport; it's a brawl. Like sports, to be successful, industry also needs rules and referees to ensure fairness, integrity, and safety for all participants."

The report notes that well-designed rules protect both consumers and "upstanding businesses from market distortions caused by fraudulent businesses and the adverse effects on consumer confidence that those practices can cause."

Another theme that runs through the report is consistency of regulation across product types. In volume II, it is most explicit about debit and prepaid cards.

"The Bureau should expand access to the payment system by unbanked

and underbanked consumers and ensure consistent treatment of consumers and similar financial products by applying the same Regulation E rules to consumers using prepaid cards and debit cards," it says.

Another section of the report notes that regulations on one product can influence the demand and use of a product that meets similar needs. It gives as an example: small-dollar loans, pawnbrokers, and deposit-advance products all operate in a similar space for consumers, despite being viewed as different products. It recommends that the CFPB reorganize around markets rather than products.

As fintechs, traditional banks, credit unions, and prepaid cards compete to meet the same needs for customers, a consistent regulatory framework is crucial for consumer protection and fair competition.

We are in a time of rapid change as technology advances and we chart a course out of one of the biggest disruptions of modern times. Our instincts want to engage the part of the brain that thinks and acts fast.

But as we face big decisions about where we go from here, it is important to slow down, re-examine our assumptions, and think what principles we should use to navigate into the future.

A 900-page, two-volume report might be the most advantageous thing in a world of sound bites and hyper partisanship. **DT**

acquiring

THE NEW POINT OF SALE

Challenged in the past year, merchants are readying for major point-of-sale hardware and software upgrades to adapt to new consumer expectations.

BY KEVIN WOODWARD

SOME MERCHANTS HAVE HAD TO DELAY much-needed point-of-sale system upgrades. Others are adding them to stay afloat in the immediate moment. And still others are incorporating make-shift steps to match changing consumer behavior in the past year. Whatever the case may be, many merchants are preparing to make improvements to their payment systems.

As a result, 2021 could be the year many POS system installations catch up to ways that consumers want to pay and interact with merchants. From reducing the number of times consumers must touch a payment terminal to the demand for online

options for ordering ahead, consumer payment behavior has transformed in the past year and does not appear ready to revert to pre-pandemic ways.

A recent Mastercard report suggests as much as 30% of the shift to digital payments is permanent. As consumers were prevented from shopping in person because of lockdowns or contamination fears, they adopted online shopping at increasing rates. This cohort included consumer segments not used to online shopping. Or they wanted to tap a contactless card or smart phone against the POS device instead of touching yet another shared object.

Merchants have been paying attention. Thirty percent of them, as surveyed by Retail Consulting Partners for its 2021 POS & Customer Engagement Survey Report released earlier this year, intend to replace their POS software this year, up from 19% in the 2020 edition of the report. Another 22% will replace their POS hardware in the next 12 months, the same as in 2020.

“The major factors influencing hardware procurement and retirement mix at retailers are the shift to cloud-based POS systems, the ability of mobile POS to enhance the customer experience and overall engagement, the enablement of extended aisle functionality as part of the mobile experience, and the increased number of buy online, pickup in store



(BOPIS) and buy online, pickup at curbside (BOPAC) [programs],” says Ryan Grogman, a managing partner at Boston-based RCP.

“Many retailers addressed the needs of the pandemic ... through quick fixes and manual processes,” he says. “As a result, retailers will be looking to untangle some of those short-term solutions that were put in place to support omnichannel in the past couple of years by implementing solutions the right way.”

‘ALMOST CATAclySMIC’

There are two main drivers for the interest in POS software updates. One is the shift to enabling omnichannel commerce (for example, a restaurant that had no online-ordering function, but needs one now). The other is the pressure on retailers to address immediate needs stemming from the pandemic, such as mobile payments or BOPAC, Grogman says. “Retailers have continued their journeys towards transactions between their digital storefronts and physical locations for the past several years, fueled by consumer expectations around flexible channel ordering, fulfillment, and returns,” he says.

Modern POS systems are designed with these expectations in mind. “As a result, retailers wanting to deliver on these promises face a decision of trying to extend their current POS through customizations and



‘Many retailers addressed the needs of the pandemic...through quick fixes and manual processes.’

—RYAN GROGMAN, MANAGING PARTNER, RCP

upgrades, or moving to a new POS replacement. Up from 41% last year, 52% of retailers have indicated replacing their POS is a top priority in 2021,” Grogman says.

POS system upgrades are always in the works for some retailers, but a couple of factors are influencing 2021 plans, says Alex Barrotti, founder and chief executive at TouchBistro, a Toronto-based cloud POS system provider.

“We’ve seen two things,” says Barrotti. “Some customers used the time they have been closed to take care of cosmetic updates or they were looking for upgrades to their digital hospitality solutions. Suddenly, things that were never important became more important.”

The need for a POS system connected to third-party delivery providers, for example, rocketed in value, he says, adding, “all of these connections suddenly became the only way to survive.”

Though Barrotti a year ago had no idea what 2020 might mean for his business, expectations were set for little client investment amid the uncertainty. That is not what

happened. Clients made investments in POS software and hardware. “We are doing far better than expected,” Barrotti says.

Indeed, when lockdowns went into effect, forcing TouchBistro and its clients to shift to remote work, the outlook was not good, almost cataclysmic. “Instead, that did not happen,” Barrotti says. “We ended up growing for the year. That happened because we pivoted very quickly to offer our customers the ability to offer online ordering, digital reservations, and new software products to reach the diner in new and different ways.”

Merchants, particularly the hospitality segment, were prompted to evaluate their POS systems to see if they support modern features, Barrotti says. Apps that enable consumers to use their own smart phones or other Internet-connected devices to order and pay are in demand, he says.

“This trend will continue,” he says. “Now, we, the consumer, want the flexibility to use [our] own device to order and pay for meals, whether it’s at home or in the venue.”

ROOM TO BREATHE

A similar observation comes from Chris Lybeer, chief strategy and marketing officer at San Francisco-based Revel Systems Inc. Estimates are that between 10% and 15% of restaurants and smaller retailers closed because of the pandemic, he says. “The flipside



‘Now, we, the consumer, want the flexibility to use [our] own device to order and pay for meals, whether it’s at home or in the venue.’

—ALEX BARROTTI, FOUNDER AND CHIEF EXECUTIVE, TOUCHBISTRO

of that, which I don't think anybody anticipated last year, [is that], once the shock wore off from the first few months, those who had capital to survive, they quickly realized they needed to do things differently," Lybeer says.

"Whenever an industry goes through a downturn, the strong survive and the weak will go away," he says. "The strong are saying they have to do better and differently than before."

To that end, some merchants made upgrades last year, he says. Others made changes to get by for now. In 2021, more merchants will make hardware and software upgrades because they have a little more room to breathe, Lybeer says. Those with stopgap measures in place will look to adopt technology platforms that will take them into the future, he says. Revel had some clients roll out its POS system

last year, but Lybeer suggests that 2021 and the following 18 months will be very active with installations.

Merchants will be looking for ways to adapt to digital consumer channels, such as online ordering, and to gain more ownership of their customers, he says. Many restaurants, for example, relied on third-party delivery services, but that came at a cost in fees.

"That saved them in the short term," Lybeer says. "Now they have to figure out how to take their own customers back. They have to build a relationship with you. They can't have their customers order through a middleman."

THE NEXT CHALLENGE

Such integrations will be top priorities, RCP's Grogman says. "We expect

a significant portion of retailers' 2021 technology spending to be focused on integrating or expanding a seamless integration between POS and order-management capabilities, which are the center of a true omnichannel, ship anywhere, any time experience."

That'll mean, on the hardware side, reductions in demand for in-store and central servers for the point of sale. The RCP survey found that 22% of retailers use a POS system that is at least partially cloud-based and 29% indicate their next POS system will be cloud-based, Grogman says.

POS system providers are certainly gearing up for a busy 2021 and 2022, but one thought lingers. "What I hope is the restaurants don't get amnesia six months after the pandemic," says Revel's Lybeer. "They need to be more prepared for the next challenge." DT

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security

CAREFUL WHAT YOU CLICK ON

Phishing attacks are nothing new, but their frequency has been on the rise the past year for one simple reason: they work. How can they be defeated?

BY PETER LUCAS

THERE ARE NUMEROUS WAYS criminals can breach a company's network. Yet one of the most time-tested and popular forms of attack remains phishing.

Launched via email, phishing attacks are typically aimed at tricking employees into giving up user names and passwords. Once a criminal has valid credentials, he has access to other accounts, applications, and confidential documents that require the same user name and password for access.

Stolen credentials can also be leveraged to target other employees to steal their credentials or persuade them to send money or digital assets.

Also, once a criminal is inside a network, he can move freely about it, probing for weaknesses.

Stolen credentials can also be used to launch a ransomware attack, in which a company's data is locked up with encryption ("Ransomware Makes a Comeback," February). The criminal then demands a ransom before turning over the decryption key. Ransomware attacks have been gaining momentum lately because criminals can realize the payoff from their attack sooner. They don't have to sneak out data, then find buyers for it.

In 2020, 57% of phishing attacks launched against companies were intended to gather network credentials, such as user names, passwords, and email addresses, according to Cofense, a Leesburg, Va.-based provider of phishing detection and response solutions.

What makes phishing so effective for harvesting network users' credentials is that it relies on social engineering, or manipulating people into divulging confidential information.

"Criminals know that most cybersecurity solutions can be easily bypassed with emails that trick an employee into giving away their credentials," says David Warburton, senior threat-research evangelist at Seattle-based cybersecurity provider F5 Labs. "It's often far easier to steal credentials and walk in through the

PHISHING MAGNETS



SAAS/Webmail	22.2%
Financial Institutions	22.5%
Payments	15.2%
Social Media	11.8%
E-Commerce/Retail	8.9%
Logistics/Shipping	6.4%
Telecom	2.5%
Other	10.4%

Source: Anti-Phishing Working Group

front door than it is to spend countless hours exploiting a vulnerability that will often trigger alarms.”

PHISHING-AS-A-SERVICE

The increasing sophistication of the technology behind phishing attacks and how criminals are altering their strategies to make the attacks more profitable are alarming experts.

On the technology side, phishing kits and so-called phishing-as-a-service have made it possible for almost anyone to launch an attack.

Phishing kits are sold by criminals on the dark Web. They provide novice hackers with all the tools needed to set up and execute phishing campaigns. Kits can sell from \$10 to \$100 or more, though newer kits sell for more as they typically have the latest tools to foil email and other security filters.

Phishing-as-a-service (PhaaS) removes many technical barriers novice hackers face. These challenges include designing and coding phishing emails, spoofing Web sites, and, in some cases, finding buyers for the ill-gotten data. In return, the sellers get a percentage of the take.

Some PhaaS operations will even provide bandwidth on their own servers to power the attacks, as well as the latest software for beating cybersecurity filters. It’s not uncommon, in these cases, for PhaaS operators to charge a licensing fee as well as take a percentage of the profits.

“With PhaaS, criminals get automatic updates just as they would with a software-as-a-service application,” says Steve Ragan, security researcher for Akamai Technologies Inc.

What makes the emergence of phishing kits and PhaaS so scary is that it is another indicator organized

crime has become even more embedded in cybercrime, according to Peter Cassidy, secretary general for the Anti-Phishing Working Group, a security-industry organization.

Just as phishing technology is evolving, so too is the motivation behind the attacks. Criminals are discovering they

can do more with stolen credentials than breach a network. They can use those credentials to trick employees to send money or digital assets.

In these instances, criminals use credentials to hijack an internal email thread or create a new one by commandeering a legitimate user’s email



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account. The attacks, known as business email compromise, are launched by criminals looking to start an email conversation with an employee while posing as a trusted colleague.

It is not uncommon for the criminal to request that money be wired to a company executive who's traveling or to ask that a digital asset, such as gift cards, be given out at an upcoming office party, for example. In the latter case, the links to the digital gift cards are emailed to the criminal posing as the employee organizing the party. In reality, the phisher has spoofed the company's email server to receive the cards directly.

"More organizations suffered payment-fraud attempts from business email compromise attacks than any other method in 2019, costing them over \$1.7 billion, according to the FBI," says Jeremy Ventura, a sales engineer for cybersecurity provider Mimecast Ltd. "Typically, these attacks don't contain malicious URLs or attachments. Rather, they target C-level executives, [and] finance [or] human resources departments to wire and transfer funds."

Such tactics can easily fool employees because they believe they are engaging with a legitimate colleague, says Tonia Dudley, strategic advisor for Cofense.

Business email attacks have been gaining momentum, partly because many employees are working remotely due to the coronavirus pandemic. Unless a company has a virtual private network linking remote employees, maintaining internal cybersecurity standards among at-home workers is difficult.

"Companies continually need to be raising the bar when it comes to security for remote workers," says Salvatore



'With PhaaS, criminals get automatic updates just as they would with a software-as-a-service application.'

—STEVE RAGAN, SECURITY RESEARCHER, AKAMAI TECHNOLOGIES INC.

Stolfo, chief technology officer and founder for Allure Security, a Waltham, Mass.-based cybersecurity firm.

BEATING FRAUD SCREENS

Companies must also be aware criminals will phish to leverage corporate brand names.

One option is the man-in-the-middle attack, in which criminals establish a hypertext transfer protocol (https) connection between themselves and the company's Web server and consumers communicating with the company's Web site. With this connection, the criminal can intercept data and send emails to the customer.

For example, a criminal with an https connection between a credit card issuer and its customers can send an email to the cardholders "alerting" them that immediate action should be taken because of suspicious activity. The email can request that the customer validate herself by resetting her password, which the criminal intercepts.

But that's not all. The criminal replies with an email requesting further validation from the customer, such as a Social Security number, date of birth, or both.

Criminals have also been known to use man-in-the-middle attacks to spot when a bank's customer is transferring funds to a third party and reroute the transfer to an account they control, cybersecurity experts say.

Today, man-in-the-middle attacks are used more often to gather consumers' personal information, such as home address, phone number, and email address. That information is then used to create a consumer profile.

The more a criminal knows about someone's identity, the easier it is to assume that identity and beat fraud screens when opening an account, says Akamai's Ragan.

IDENTIFIED AND QUARANTINED

Experts say one of the best ways to educate employees to spot an attack is to run phishing drills in which questionable emails are sent to them. Factors employees should focus on include the subject line, when an email thread was last active, and whether the sender is asking for information out of the ordinary or makes a peculiar request.

"Employees need to look at the action being requested, then slow down if it's unexpected or a first-time request," says Roger Grimes, data-driven defense evangelist for KnowBe4 Inc., a security-awareness training provider.

When employees spot a suspect email, they should immediately report it, even if they have accidentally opened it. The best defense is getting the attack out in the open so it can be identified and quarantined, says Cofense's Dudley. **DT**

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13TH ANNUAL

FIELD GUIDE TO *innovative* PAYMENTS

It's May, and that means it's time for our annual exercise to seek out and describe the nonbank players, apart from the big networks, that are rewriting the rules for the digital exchange of value.

BY JOHN STEWART, KEVIN WOODWARD, AND PETER LUCAS

SINCE 2004, *DIGITAL TRANSACTIONS* has traced the course of payments innovation through its nimblest practitioners—the startups, the fintechs, the smaller networks, the nonbank arrivistes—and their services and products, their strategies and tactics, their successes and pratfalls. In 2009, we distilled what we were learning about these innovators into a handy guide inside the May issue, and called it a “field guide” to what were then known, somewhat cheekily, as alternative payments.

Well, the guide worked out so well we decided to update it every May. And so you now hold in your hands the 13th edition. Last year, we dropped the “alternative payments” rubric and renamed our effort as a guide to innovative payments. We think the new adjective better fits our purpose in sorting out the varied new pathways the nonbanks, and yes, banks and major networks, are forging for the payments business.

The guide is as much about strategies and tactics as it is about emerging technology and new markets. We invite you to read this guide much as you have since 2009, with

an eye to how it might inform your decisions, sharpen your competitive instincts, and bring to light, perhaps, some developments you had not encountered before—as well as spotlight some potential partners.

Digital Transactions generally defines an innovative payment system as any network or consumer interface (a mobile app, for example) that enables payments in a way that relies on or stands apart from a major network 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 mention 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.

ALIPAY

PARENT: Ant Financial Services Group **HEADQUARTERS:** Pudong, Shanghai, China **FOUNDED:** 2004 **WEB:** Global.Alipay.com/index.htm

FIELD NOTES: In North America, Alipay has been adding in-store acceptance in tourist-heavy locations and in other non-face-to-face payment channels. The app, which has been wildly popular for years, now claims some 1 billion users worldwide. The big news for

U.S. merchants is that the fast-growing commerce platform Shopify (fourth-quarter gross payment volume of \$19.1 billion, more than double year-over-year) now offers a gateway allowing its sellers to accept Alipay directly, rather than through third parties.

AMAZON PAY

PARENT: Amazon.com Inc. **HEADQUARTERS:** Seattle **FOUNDED:** 2007 (including predecessor services) **WEB:** pay.Amazon.com

FIELD NOTES: Amazon has steadily introduced Amazon Pay around the world. As of March 2021, the service was available in 18 countries plus the United States. Transaction fees for Amazon Pay, which is extremely popular with Generation Z and Millennials, are comprised of a processing and authorization fee. The

processing fee for Internet and mobile purchases is 2.9% of the transaction total and the authorization fee is 30 cents. The processing fee for purchases made through Alexa, Amazon's virtual assistant into which Amazon has been integrated to facilitate voice-assisted shopping, is 4%; the authorization fee is 30 cents.

AMAZON ONE (PAY BY PALM)

PARENT: Amazon.com Inc. **HEADQUARTERS:** Seattle **FOUNDED:** 2020

WEB: AboutAmazon.com/news/innovation-at-amazon/introducing-amazon-one-a-new-innovation-to-make-everyday-activities-effortless

FIELD NOTES: Amazon One debuted at two Amazon Go stores in Seattle last September as the world grappled with the Covid 19 pandemic and demand for contactless payments was skyrocketing. To open an Amazon One account, a consumer inserts a credit card into an Amazon One terminal, then waves her palm

over the device so it can be scanned and her palm print linked to her credit card. When entering an Amazon Go store, the consumer scans her palm at the turnstile. Upon exiting the store, the consumer's credit card is automatically billed for the items in her cart.

APPLE PAY

PARENT: Apple Inc. **HEADQUARTERS:** Cupertino, Calif. **FOUNDED:** 2014 **WEB:** Apple.com/apple-pay/

FIELD NOTES: The big news for Apple Inc.'s 7-year-old mobile-payment technology is its apparent flirtation with QR codes, first reported last summer by the 9 to 5 Mac blog. Ever tight-lipped, Apple did not comment on the report. Eventual adoption of the codes would allow Apple Pay to play more naturally in overseas markets such as China, where QR codes are ubiqui-

tous for mobile payments. Meanwhile, QR code acceptance in the U.S. market began to take off late last year with chainwide acceptance by the drugstore giant CVS and other merchants. The move would add another channel alongside Apple Pay's historic commitment to the iPhone's NFC chip, an element over which the company has historically exercised tight control.

BITCOIN

PARENT: Satoshi Nakamoto **HEADQUARTERS:** N.A. **FOUNDED:** 2009 **WEB:** Bitcoin.org

FIELD NOTES: Cryptocurrencies are having a big year, and, with a market cap exceeding \$1 trillion, Bitcoin is the biggest of the cryptocurrencies. Major payments players like PayPal and Square are now heavily promoting Bitcoin, with Square making it easy to acquire the digital currency through its Cash App product (see the Cash App entry) and PayPal launching a service that lets PayPal users buy with crypto while merchants receive their local fiat currency, eliminating any risk

of value fluctuation. And Bitcoin, though king of the cryptos, remains notoriously volatile. It was trading at \$63,000 at mid-April, nine times its value a year earlier, and nearly six times its value only six months before. Merchant acceptance remains spotty, though the promotion from PayPal and Square—and the work of companies like BitPay (next entry) may fix that—and it remains a favorite of some hedge funds and other investors.

BITPAY

PARENT: BitPay Inc. **HEADQUARTERS:** Atlanta **FOUNDED:** 2011 **WEB:** Bitpay.com

FIELD NOTES: Cryptocurrency-wallet provider Bitpay has had a busy year. In June, it issued a prepaid Mastercard backed by the user's digital currency. In November, it launched BitPay Send, a mass-payout service allowing companies to pay gig workers and contractors with crypto. It followed that up in December with a deal with Slide Mobile allowing users to earn rewards in dollars for spending their crypto holdings with

Slide's network of 150 merchants. Then, in February came a deal allowing holders of the BitPay prepaid Mastercard to load the card into Apple Pay for mobile payments. And only last month it joined a crypto-patent effort led by Square Inc. The company's mission is to ease cryptocurrency usage for consumers and merchants alike. If activity is any guide, it's getting closer to its goal.

CASH APP

PARENT: Square Inc. **HEADQUARTERS:** San Francisco **FOUNDED:** 2012 **WEB:** Cash.app

FIELD NOTES: This peer-to-peer payment app, which features a Visa debit card and also lets users buy and sell stocks and Bitcoin, reached 36 million active users in December, up 50% in one year and 12 times the number four years ago. Perhaps even more important for Square, the 7-year-old app accounted for \$377 million in gross profit in the final three months of 2020, or fully 47% of gross profit for the entire company and up from 27% a year earlier.

The trend extended at least into January, with gross profit for the month 164% higher than in January 2020. The app has also allowed users to exploit the remarkable runup in Bitcoin in recent months. By allowing users to buy Satoshis, or fractions of a Bitcoin, Cash App enables purchases of affordable bits. As a result, more than 3 million users bought or sold the currency last year. And for now, about 10% of Cash App users are adopting Bitcoin.

CLOVER

PARENT: Fiserv Inc. **HEADQUARTERS:** Sunnyvale, Calif. **FOUNDED:** 2012 **WEB:** Clover.com

FIELD NOTES: Clover, which Fiserv acquired along with First Data Corp. in 2019, provided a big boost to Fiserv's 2020 fourth-quarter earnings, posting \$34 billion in volume for the quarter, a 25% year-over-year increase. In late 2020, Verizon Communications Inc.'s Verizon Business unit began offering the Clover Flex mobile point-of-sale device to its business customers. A handheld point-of-sale terminal, Clover Flex

accepts all forms of payment, including contactless scan-and-go and tap-and-go transactions. Verizon Business will equip the device with a SIM card to facilitate payment acceptance through its telecommunications network. The deal gives Verizon clients access to Fiserv's merchant services for online, mobile, in-person payment acceptance and debit and credit processing.

COINBASE

PARENT: Coinbase Inc. **HEADQUARTERS:** San Francisco **FOUNDED:** 2012 **WEB:** Coinbase.com

FIELD NOTES: Coinbase's big news this year was its public listing on the Nasdaq. It was an explosive debut, with the company finishing its first day on the market with an \$85-billion valuation, greater than any other financial exchange. The stock's popularity tracks that of Bitcoin, the principal cryptocurrency, which by spring had soared to heady heights

exceeding \$60,000, nine times its value a year earlier. Coinbase now claims more than 43 million users, up from more than 30 million a year ago, and features a Visa-branded debit card that also works within the Google Pay wallet. The company allows users to buy, sell, or manage their holdings any time via the company's apps.

CUMBERLAND FARMS

PARENT: Cumberland Farms Inc. **HEADQUARTERS:** Westborough, Mass. **FOUNDED:** 2013 **WEB:** CumberlandFarms.com/smartpay

FIELD NOTES: Cumberland Farms' payment app soldiers on, though the big news is that ZipLine, developer of the private-label debit-payment product the Cumberland Farms app is based on, was sold to Professional Datasolutions Inc., a c-store software developer and services company. PDI said the acquisition would enable it to bundle ZipLine's payment service with its Marketing Cloud platform. In January, PDI signed a deal with c-store operator EG Group to bring the

private-label debit service to its approximately 1,700 locations. 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 latest iPhones. The app enables users to pay for in-store purchases at any of the more than 600 Cumberland Farms locations in eight states, find a store location, track rewards progress, and view savings from using the app.

DUNKIN'/DD PERKS

PARENT: Dunkin' Brands Group Inc. **HEADQUARTERS:** Canton, Mass. **FOUNDED:** 2012 **WEB:** DunkinDonuts.com/en/dd-perks

FIELD NOTES: Just before Covid-19 put the economy into lockdown last year, Dunkin' announced the national expansion of its deal with the Shell Fuel Rewards program. That enables Fuel Rewards and DD Perks Rewards members at certain levels to save 10 cents per gallon of gas every time they purchase five Dunkin' beverages. Dunkin's mobile app supports NFC

contactless payments in addition to its longstanding QR-code payment feature. In 2018 Dunkin' struck a multi-year agreement with CardFree Inc., its long-time software partner for the mobile app, giving it a perpetual license to the app software. Dunkin' is using the software for its digital initiatives that include catering, delivery, and curbside pick-up.

EXXON/MOBIL SPEEDPASS

PARENT: ExxonMobil Corp. **HEADQUARTERS:** Irving, Texas **FOUNDED:** 2016 **WEB:** Exxon.com/en/Speedpass

FIELD NOTES: In October 2020, ExxonMobil Corp. added QR-code and NFC-enabled tags to its fuel dispensers. On iPhones, for consumers without the ExxonMobil app, the contactless connection prompts an Apple App Clips feature to display a portion of the full-fledged app without requiring the consumer to download it at that moment. Instead, a small part of the app is activated—the payment part. Once the transaction is

authorized, the app clip shows the status of the transaction and a prompt to get the full-fledged app. Customers with Android phones are prompted to download the app, which they can use to pay for fuel with Google Pay in the app. The tags only work with iPhones or Android phones. Consumers who want to pay with a contactless-enabled credit or debit card tap the card against the standard NFC reader on the pump.

GOOGLE PAY

PARENT: Alphabet Inc. **HEADQUARTERS:** Mountain View, Calif. **FOUNDED:** Android Pay, 2015; Google Wallet, 2011 **WEB:** pay.Google.com

FIELD NOTES: The newest version of Google Pay, which Google began testing last November, rolled out in March. The redesigned app is centered on users' relationships with people and businesses. Users who connect their bank and card accounts to the mobile wallet can gain insights into their spending patterns. Users can also track the individuals and businesses they

transact with most frequently and find offers and loyalty information organized around conversations. The new app also offers the ability to scan Gmail and Google Photos accounts for receipt data. Later this year, Google plans to enable users to apply for what it describes as "a new kind of digital bank account with trusted financial institutions."

GRABANGO

PARENT: Grabango Co. **HEADQUARTERS:** Berkeley, Calif. **FOUNDED:** 2016 **WEB:** Grabango.com

FIELD NOTES: Grabango Co. gained attention in the fall of 2020 when supermarket chain Giant Eagle Inc. selected its checkout-free technology to introduce cashierless service to its GetGo Café+Market convenience stores. Grabango's technology uses computer vision to track when an item is removed from the shelf or a refrigerated case. Small cameras hidden in the ceiling, within a casing similar to a fluorescent light fixture called a G-rail, follow consumers as they move through the store

grabbing items. When a consumer who has downloaded the Grabango app enters the store, the app automatically begins tracking items as she picks them up and keeps a running tally. To complete the purchase, the consumer scans a code, generated by the app, on a Grabango terminal, thus bypassing the checkout counter. The system charges the purchase to a credit or debit card the consumer has registered in the app and sends a digital copy of the receipt to the app.

GULF PAY

PARENT: Gulf Oil LP **HEADQUARTERS:** Wellesley Hills, Mass. **FOUNDED:** 2016 **WEB:** GulfOil.com/gulf-pay

FIELD NOTES: Gulf Pay enables consumers to pay at the pump without inserting a credit or debit card into the pump's reader. The app uses tokenized and encrypted card data. Gulf Pay is

built on technology from P97 Networks Inc., a Houston-based petroleum-services company. Gulf Oil has more than 1,800 Gulf gas stations.

KLARNA

PARENT: Klarna Bank AB **HEADQUARTERS:** Stockholm **FOUNDED:** 2005 **WEB:** Klarna.com/us

FIELD NOTES: Buy now, pay later providers have had banner sales as even more budget-minded consumers took to online shopping during the 2020-2021 pandemic. As one of the well-known installment-payment providers, Klarna is a good example of the segment. It raised \$1 billion in equity funding earlier this year. And in late 2020, it struck a deal that saw its service integrated into Verifone Inc. point-of-sale terminals for in-store use. But Klarna is not the only provider experiencing growth. Competitor

Splitit Payments Ltd. said its merchant sales volume increased almost 180% in 2020 to \$345 million as various agreements increased merchant acceptance. Affirm Inc., which offers point-of-sale financing, became a publicly-traded company. Afterpay Ltd. launched in-store installment payments last autumn. Global BNPL volume is forecasted to increase to more than \$680 billion in transaction value by 2025, up from \$285 billion in 2018, according to Kaleido Intelligence Ltd., a London-based research firm.

KOHL'S PAY

PARENT: Kohl's Corp. **HEADQUARTERS:** Menomonee Falls, Wis. **FOUNDED:** 2016 **WEB:** Kohls.com

FIELD NOTES: The Kohl's Pay app allows customers to redeem offers, rewards in the chain's Yes2You program, and Kohl's Cash in one barcode-based flash. But it faced a huge challenge last year as Kohl's closed all of its approximately 1,100 stores in response to the coronavirus outbreak. By April, all stores had reopened

except for one each in New Jersey and Oregon, while a store in Texas had closed permanently. The app is designed for speed at checkout. The developer is Omnyway Inc., a 7-year-old startup cofounded by Bill Melton, well-known in the payments industry as a founder of point-of-sale terminal vendor VeriFone.

KROGER PAY

PARENT: The Kroger Co. **HEADQUARTERS:** Cincinnati **FOUNDED:** 2019 **WEB:** Kroger.com/f/kroger-mobile-pay-faqs

FIELD NOTES: Launched two years ago, Kroger Pay is available for iOS and Android devices and uses QR codes for payments, as Kroger does not accept NFC-based general-purpose mobile wallets such as Apple Pay or Google Pay. Still, in the summer of 2020, the grocery giant said it was testing contactless payments at some locations, including some mobile wallets and NFC-

enabled cards. Kroger Pay is part of a multifaceted loyalty program dubbed “Rewards” that includes a debit card, digital coupons, and personalized offers. Consumers accrue loyalty points when using Kroger Pay and can receive additional points when the payment method is the Rewards debit card or a general-purpose prepaid card that also carries a Kroger store brand.

MAGICCUBE

PARENT: MagicCube Inc. **HEADQUARTERS:** Santa Clara, Calif. **FOUNDED:** 2014 **WEB:** MagicCube.co

FIELD NOTES: New Field Guide entrant MagicCube is trying to establish itself as a major player in the PIN-on-mobile field using commercially available, off-the-shelf devices. It provides the software to enable NFC payment acceptance using software installed on regular iPhone or Android devices. That’s minus any special hardware. MagicCube’s effort received a big boost in December when Visa Inc. granted a security compliance

allowance to MagicCube’s iAccept technology. With iAccept, which MagicCube said earlier this year would become available in Brazil, a seller can equip an off-the-shelf mobile device to accept NFC cards and process PINs with nothing more than software. Now, with Visa’s certification, the technology can work on all four major payment networks. Visa also invested an undisclosed sum in the company in 2020.



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PARKMOBILE

PARENT: EasyPark Group (pending) **HEADQUARTERS:** Atlanta **FOUNDED:** 2008 **WEB:** ParkMobile.io

FIELD NOTES: At 22 million active users, ParkMobile is the largest of the apps that let drivers find and pay for parking in city centers, airports, stadiums, college campuses, and other busy places. But like all of its competitors, it's had a challenging year in the face of reduced traffic and dwindled need for parking

at places like hotels and sports stadiums. In March, Sweden's EasyPark Group announced a deal to acquire ParkMobile from owners BMW Group and Daimler Mobility AG. Terms were not announced for the deal, which was expected to close by the end of June.

PAYPAL

PARENT: PayPal Holdings Inc. **HEADQUARTERS:** San Jose, Calif. **FOUNDED:** 1998 **WEB:** PayPal.com

FIELD NOTES: PayPal has added a slew of new services to its platform in the past year. The company now accepts cryptocurrency at checkout, has expanded its QR-code payment option to CVS Pharmacy stores and small businesses, and launched a Visa-branded credit card for its Venmo peer-to-peer payment service that features a QR code for P2P transfers in addition to an NFC chip for

merchant acceptance (see the Venmo entry). The company also sees opportunity in China by investing in GoPay, a payment service it acquired late in 2019. The deal leaves PayPal as the only non-domestic company operating a domestic payments service in China. In 2020, PayPal added nearly 73 million net new active accounts, reaching 377 million by year's end, up 24% over 2019.

REVOLUT

PARENT: Revolut Ltd. **HEADQUARTERS:** London **FOUNDED:** 2015 **WEB:** Revolut.com

FIELD NOTES: Long available in Europe, the so-called neobank Revolut launched in the United States in March 2020 with an app that lets users obtain either a plastic or virtual debit card, freeze or unfreeze or otherwise control the card from a mobile phone, convert from

one currency to another, and flow wages directly into the account. But its U.S. ambitions range farther than that. In March, it launched business accounts in all 50 states and submitted an application to the Federal Deposit Insurance Corp. for a banking license.

RIPPLE XRP

PARENT: Ripple Labs Inc. **HEADQUARTERS:** San Francisco **FOUNDED:** 2012 **WEB:** Ripple.com

FIELD NOTES: In 2020, Ripple announced it would add instant person-to-person payments capability and one-click checkouts to Payburner, a digital wallet for XRP. The new features include an integration with PayID, a cross-network routing standard introduced by the Open Payments Coalition, a group of 46 payments companies that includes Ripple. The standard attaches an identifier that allows transactions to

flow to and from accounts without the need for bank-account numbers. To receive instant payments through the streamlined checkout, online merchants must have a Payburner wallet; buyers need only to be able to spend XRP. Ripple XRP transactions are logged onto a Hash Tree, a data structure for rapidly checking differences between parts of a file, as opposed to a blockchain.

SAMSUNG PAY

PARENT: Samsung Electronics Co. Ltd. **HEADQUARTERS:** Seoul, South Korea **FOUNDED:** 2015 **WEB:** Samsung.com/us/samsung-pay/

FIELD NOTES: Samsung Pay, which rolled in the United States in September 2015, allows consumers to make purchases using compatible phones and other Samsung devices. The mobile wallet supports contactless payments using near-field communication and magnetic stripe-only payment terminals by incorporating magnetic secure transmission. Samsung Pay can be used for fares on

New York City's MTA and Portland's TriMet transit systems by selecting a default card, then tapping the phone on the mobile-pay location on the turnstile or ticket validator. Samsung Pay users can also earn cash rewards when making purchases at select merchants, such as Grubhub, Hello Fresh, and Sam's Club. Consumers can also purchase, send and receive gift cards directly from the app.

SECURE REMOTE COMMERCE (CLICK TO PAY)

Parents: American Express, Discover, Mastercard, Visa HEADQUARTERS: N.A. FOUNDED: 2019 WEB: EMVCo.com

FIELD NOTES: Secure Remote Commerce is not so much a brand as a behind-the-scenes digital-payment mechanism developed by EMVCo, the standards body controlled by the global payment card networks. Referred to as “click to pay” by the networks, SRC’s purpose is to replace the clutter of payment brands

on e-commerce checkout pages with a common buy button that offers a unified and simple purchase process. With e-commerce booming, the simplified checkout is getting a workout. Total U.S. online sales came to an estimated \$207 billion in the fourth quarter, up 33% year-over-year, according to the U.S. Census Bureau.

STARBUCKS REWARDS

PARENT: Starbucks Corp. HEADQUARTERS: Seattle FOUNDED: 2011 WEB: Starbucks.com/rewards/

FIELD NOTES: In 2020, coffee king Starbucks Corp. announced new ways for its loyalty program members to earn points, or stars, in the Starbucks Rewards program without paying with a registered Starbucks physical card or card loaded into the Starbucks mobile app. Program members can earn one Star per dollar spent when paying with a credit/debit card, cash, or mobile

wallets at company-owned stores in the United States and Canada. Program members can save alternative payment methods in the Starbucks app to earn stars when paying. At the close of the first quarter of Starbucks’ 2021 fiscal year, ended December 27, 2020, 90-day active members in the Starbucks Rewards program in the United States totaled 21.8 million, up 15% year-over-year.

TAPPIT

PARENT: Tappit HEADQUARTERS: Leeds, England FOUNDED: 2017 WEB: Tappit.com

With sports venues re-opening, Tappit has been a roll, striking several deals with professional sports teams to implement its contactless mobile payment application. The company’s latest deal with Major League Baseball’s Cincinnati Reds to offer contactless mobile payment in the team’s stadium follows tie-ups with the Kansas City Chiefs and Jacksonville Jaguars of the

National Football League. The company also has deals with two professional soccer teams in England—The Manchester City Football Club and Birmingham City FC, as well the Abu Dhabi HSBC Championship, a European Tour golf tournament, and Dubai 7s Stadium in Dubai. Tappit’s contactless payment solution supports mobile payments and provides users’ event analytics.

TARGET

PARENT: Target Corp. HEADQUARTERS: Minneapolis FOUNDED: 2017 WEB: Target.com

FIELD NOTES: Target began accepting Apple Pay, Google Pay, and Samsung Pay plus EMV contactless cards in 2019, preparing its checkout lanes well in advance for the touchfree demand associated with the Covid-19 pandemic and in-store shopping. The discount retailer’s preferred payment method is its RedCard family. The group includes a private-label credit card and cobranded

Mastercard credit card issued by TD Bank, and a Target-issued decoupled debit card as well as the Wallet feature of Target’s mobile app. RedCards, which give holders 5% off on Target purchases, can be loaded into Wallet for payment and coupon redemptions at Target stores, and they also provide free shipping with Target.com purchases. RedCards accounted for 21.5% of Target’s 2020 sales.

TOUCHBISTRO

PARENT: TouchBistro Inc. HEADQUARTERS: Toronto FOUNDED: 2010 WEB: TouchBistro.com

FIELD NOTES: As one of the much-in-demand cloud-based point-of-sale system providers, TouchBistro, like many of its competitors, has continually offered services in addition to central payment processing. In 2020, TouchBistro acquired TableUp, a loyalty-marketing application provider, in a deal driven by restaurant requests for ways to market and offer customer incentives as

restaurants began reopening. It also offers a tableside ordering system, table management, a customer relationship management app, an employee management app, and reporting capabilities. That’s in addition to menu and inventory management. Such services became more important to hospitality operators in the past year as they turned to touch-free ways to interact with diners.

VENMO

PARENT: PayPal **HEADQUARTERS:** San Jose, Calif. **FOUNDED:** 2009 **WEB:** Venmo.com

FIELD NOTES: PayPal's peer-to-peer payments app finished the fourth quarter of 2020 with almost 70 million users and \$47 billion in volume, a dollar figure that was up fully 60% over the same period in 2019. Volume is expected to grow even faster with PayPal's move to implement Pay with Venmo for online merchants. And in February, PayPal threw the door wide open for applications for its new Visa-branded Venmo credit card, which the company has had in the works since 2019 and had started

issuing to select users in October. Issued by long-time PayPal partner Synchrony, the card includes a QR code, a rewards structure, and, through the Venmo app, the ability to track and schedule purchases and cash back, view spending trends, and share and schedule payments. While P2P volume earns slim margins, the new card, with its widespread Visa acceptance, is expected to pull in interchange revenue for PayPal and Synchrony that will allow the partners to tap into Venmo's rapid growth.

WALMART PAY

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

FIELD NOTES: Walmart Inc.'s strategy to differentiate its Walmart Pay wallet is to keep the wallet's technology simple. Instead of using near-field communication to initiate transactions, Walmart Pay users scan a secure QR code displayed at checkout with their smart phone. As the QR code is scanned, it sends a signal to Walmart's server telling the server it is okay

to use Walmart Pay for that particular purchase. The signal itself does not transmit any financial information. Walmart Pay works with any valid major credit card that's saved to a Walmart account, or one or more Walmart gift cards. The cards are listed as payment methods within the app and customers can choose which card or cards get used at checkout.

WECHAT PAY

PARENT: Tencent **HEADQUARTERS:** Shenzhen, China **FOUNDED:** 2011 **WEB:** pay.Weixin.qq.com/index.php/public/wechatpay_en

FIELD NOTES: WeChat Pay's North America presence is all about enabling acceptance for users, especially those hailing from China who vacation in the United States and Canada. To that end, WeChat Pay has struck several deals, such as one with 7-Eleven Inc. in Canada. Citcon USA LLC provides a service for merchants that enables WeChat Pay and other China-based wallets to be used at North American merchants. Earlier in 2021, Citcon launched a service offering a single

integration for more than 100 wallets, including WeChat Pay, which is part of the Tencent empire, which integrates a number of popular digital services, including social media. It depends on QR codes rather than on near-field communication, the standard major U.S. wallets like Apple Pay and Google Pay have adopted. That makes WeChat Pay easy for merchants to install and appeals to China's huge population of smart-phone aficionados.

ZELLE

PARENT: Early Warning Services LLC **HEADQUARTERS:** Scottsdale, Ariz. **FOUNDED:** 2011 (as clearXchange) **WEB:** ZellePay.com

FIELD NOTES: Zelle, the person-to-person bank-centered payment service, made waves when it announced in early 2021 that an integration with The Clearing House Payments Co. LLC's Real Time Payments network would allow Zelle transactions to be cleared and settled on that network. With the integration, senders' financial institutions will see faster availability of funds on Zelle transactions and Early Warning will be able to access features of RTP such as request for payment and bill

pay. For its part, TCH will benefit from Zelle's ability to route transactions via simple yet secure tokens like a phone number or email address. Zelle closed 2020 with 1.2 billion transactions, totaling \$307 billion sent. Zelle says these are increases of 58% and 62% year-over-year, respectively. At the beginning of 2021, 850 banks and credit unions offered Zelle, with thousands more represented in the Zelle network through consumer use of the Zelle common mobile app. DT

DIGITAL CURRENCIES AND THE FUTURE OF PAYMENTS

Stablecoins in particular hold significant promise for such functions as cross-border payments. But banks will need to make important adjustments.

BY VIVEK KOHLI

Vivek Kohli is emerging technology head, treasury services digital office, at BNY Mellon.



INNOVATION IN THE PAYMENTS SPACE is occurring at an astonishing rate, with new technology capabilities enabling huge strides to be made in enhancing speed, transparency, and efficiency in transaction processing.

Developments including real-time payments, SWIFT gpi, artificial intelligence (AI), and distributed-ledger technology (DLT) are increasingly being leveraged by banks to improve the client experience for domestic and cross-border payments. Ultimately, it is expected that moving money instantaneously, 24/7/365 and with full transparency, will become a reality.

There is no single, fixed route for the industry to take to arrive at this point, however. With multiple innovations and initiatives emerging and adding value throughout the end-to-end payments process, banks need to equip themselves with a comprehensive toolbox of payment solutions to support their clients now and in the years to come.

Indeed, innovation in the payments landscape continues to evolve. And, as we look to the future, another development has the potential to play a key role in shaping the evolution of payments: digital currencies.

A NEW MODEL

Money that exists only in electronic form and that is stored and exchanged

using DLT networks can be divided into three categories: cryptocurrencies, central bank digital currencies (CBDCs), and stablecoins.

With cryptocurrencies susceptible to highly volatile prices and limited scalability, and CBDCs still a long way off because of fundamental regulatory considerations (including their impact on monetary policy), stablecoins are sparking growing interest in the payments space.

Stablecoins share many of the features of cryptocurrencies, but by linking their value to a pool of assets, the coins can be stabilized, thereby mitigating the risk of high levels of volatility. And while there are still regulatory and governance issues to overcome, stablecoins seemingly have the most immediate potential to come to fruition and deliver tangible benefits for payments.

Much of the buzz around digital currencies stems from their ability to enable an entirely new processing model for some forms of payment and settlement.

Current payment rails are based upon a centralized model. Furthermore, even new real-time payment rails—including the Real-Time Payments (RTP) network in the United States—are restricted in terms of the value that can be transferred. This is an issue for wholesale payments

in particular, where values significantly exceed such ceilings.

By contrast, digital currencies could enable payments to be made instantly, irrespective of value, 24/7/365. Their potential lies in the fact that they are token-based. This means that they can be held directly by the participants in a transaction and therefore transferred on a peer-to-peer (P2P) basis.

THREE KEY APPLICATIONS

This approach would deliver benefits in at least three key areas: cross-currency foreign-exchange (FX) swaps, securities settlement and, if the model proves successful, cross-border payments.

By applying digital tokens to payment versus payment (PvP) transactions, cross-border FX payments could be made in real-time, around the clock. This would significantly widen the window in the day in which banks could make such transactions, rendering the cut-off times that currently dictate same day cross-currency FX swaps far less of a factor. And the transfer in the two currencies takes place simultaneously, reducing risk.

Tokenized transactions can also address the issue of cross-border payments crediting the recipient with a different value from that sent by the originator. Currently, this can occur due to FX fees, rate fluctuations, and the different costs involved as the payment makes its way along the chain.

But as a digital-token swap is made P2P and in real-time, these factors are removed. And so is the issue of a lack of transparency that can be experienced as the payment is routed through multiple banks.

As for securities settlement in delivery-versus-payment (DvP) transactions, mechanisms are applied that

ensure the securities leg is implemented only after the payment has been made and finalized. Therefore, as it is the settlement of the payment that creates the time lag, the key to enhancing asset settlement is the ability to digitize the payments leg.

Stablecoins could do just that. Tokenizing both legs of the transaction could facilitate an instant atomic transaction, with the buyer and seller simultaneously receiving their respective asset and payment through a P2P transaction and removing the need for third parties. This approach could reduce reconciliation efforts, capital costs, and settlement and counterparty credit risk.

With cross-border payments—whether wholesale, retail, or consumer—the current processing system uses a correspondent-banking model involving numerous parties. This can lead to multiple costs, risks, and a process that can take multiple days.

But if stablecoins were to achieve a network effect in the industry, ultimately, cross-border transactions could be settled P2P, securely, 24/7/365. The immediate settlement would reduce counterparty and institutional risk, as well as provide additional risk mitigation due to there being no credit lines or locked capital held in accounts.

BANKERS' TOOLKIT

With digital-currency transactions increasingly likely to gain a foothold in the payments space, it is important to note that the concept of an intermediary will not become redundant. Rather, the correspondent-banking model will likely evolve.

Not every counterparty will be a direct participant in a P2P system. That means that banks will need to


become a gateway for P2P systems, providing tokens and settling on a third party's behalf.

The roles of liquidity provider and solid partner institution will also be paramount, as digital settlements will occur on a T-instant (as opposed to today's T+2) basis. Organizations will be required to adapt to real-time liquidity management and forecasting.

Banks will therefore need to ensure clients are positioned to manage liquidity more efficiently and effectively, delivering intraday liquidity options should scenarios arise in which money to pay for an instant transaction is not instantly accessible.

As the landscape shifts, it is also important to recognize that some payments will be affected more than others. SWIFT payments through Fedwire and CHIPS, ACH settlement, real-time payments, and even cross-currency FX will continue to be executed through traditional means. Digital tokens and fiat money will therefore coexist, with different rails and channels remaining relevant and supporting different payment needs.

And, of course, the future of payments is by no means being shaped by digital currencies alone. A combination of capabilities will enable payments and settlements to be truly optimized. Banks will be required to meet the varied needs of clients through a toolkit of solutions and services.

This means: investing in the advancement of payments through industry initiatives and emerging technologies, including SWIFT gpi, AI, and real-time capabilities; supporting and driving ongoing enhancements to traditional rails; and becoming the gateway provider of choice for tokenized payments, and a valued liquidity provider. 

Payments firms
play a vital role.

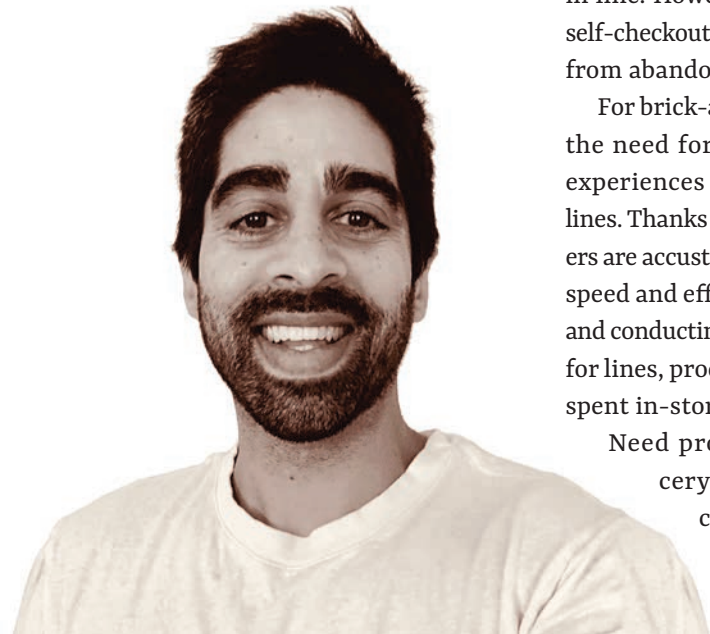
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HOW MERCHANTS AND NETWORKS CAN TRANSFORM SHOPPING

Most merchants
can't afford
Amazon Go
technology.
But that doesn't
mean it's out
of reach.

BY **TARUN BHASIN**

Tarun Bhasin is chief executive
of Kunai, Oakland, Calif.



IT'S THE END OF A LONG DAY at the office, and you swing into a pharmacy on the way home to pick up toothpaste. You're not out yet, just running low and being proactive.

You grab your favorite brand and head toward checkout. The line there stretches far back, everyone making the same "quick" post-work trip you are.

You look at your single item. Is it worth the wait?

Not today, you decide. You leave the tube behind and walk out the door, abandoning your purchase.

According to surveys, 15% of consumers would make this same in-store decision after just a one-minute wait in line. However, 61% agreed that a self-checkout option would keep them from abandoning these purchases.

For brick-and-mortar merchants, the need for streamlined shopper experiences goes beyond checkout lines. Thanks to digitization, consumers are accustomed to ever-increasing speed and efficiency while shopping and conducting transactions. Patience for lines, product research, and time spent in-store is dwindling.

Need proof? Just look at grocery delivery. Ninety percent of today's e-grocery customers expect to

continue buying food online when the pandemic is over. Nearly as many of these e-shoppers cite convenience (61%) as Covid-19 concerns (62%) as their reason for using the services.

That means that, for payment networks, there's a major opportunity to support brick-and-mortar merchants as they adapt to new consumer preferences for digital shopping.

STREAMLINED EXPERIENCE

Perhaps the most prominent example of how digitization is changing the in-store shopping experience is Amazon Go. With an Amazon account and the company's free mobile app, shoppers can walk into an Amazon Go or Amazon Go Grocery store, pick up whatever they need, and walk out. Their Amazon account is automatically charged for the items they leave with—no lines, no checkout.

Amazon Go works with the help of artificial intelligence (AI), computer vision, various sensors, and the company's own fintech capabilities. And while it's easy to feel like the tech giant has created a digitally enhanced in-store shopping experience that's out of reach for traditional merchants, that's not necessarily the case.

For example, in light of social-distancing guidelines and the need to limit how many people are inside a store at a given time, most merchants are trying to create “virtual lines” for their customers. These are like OpenTable restaurant waitlists, but for car dealers and department stores, too.

At Kunai, we created such a waitlist for a major automotive manufacturer and retailer, and also built in ways to keep customers engaged as they wait. Once shoppers join a virtual line for their turn to enter, they can browse in-store items on their mobile phone while they wait outside or in their cars.

If they see something they like, they can select products and have them waiting inside when they receive a notification that it’s their turn to enter.

Coupled with contactless payment, customers hardly have to touch anything in the store, yet they enjoy the streamlined experience pioneered by big-tech retailers.

For merchants that can’t afford to create their own version of Amazon

Go from scratch, the most obvious place to turn for in-store fintech is the payment networks and processors they’ve always relied on to connect with consumers.

Digital wallets are one such technology that can help pave the way. Once stored digitally, card information can be used for payments in-store, online, or even from the parking lot. This supports merchants by giving consumers the tools they need to shop faster using a store’s app.

Financial-service providers can also help reimagine loyalty by linking in-store rewards accounts to specific credit cards. Any time a customer makes an in-store purchase with a linked card, they can earn rewards—no phone number or loyalty card barcode required. This increases loyalty to both the merchant and the card provider.

AGILE TOOLS

Perhaps most promising, however, is the ability for any merchant to use virtual cards to create products like store credit cards the same way

big retailers do. Store credit cards provide merchants with agility and valuable data.

This data can be used to offer discounts and programs that increase customer loyalty, but can also be used to create lines of credit that provide customers and merchants with more flexibility before, during, and after transactions.

For example, Wal-Mart, Lowe’s, and even Amazon use virtual cards provided by Synchrony Financial to create credit accounts. These credit accounts allow customers to make purchases where they can buy now and pay later, use points to pay for items instead of credit, or finance purchases over time.

If a bank or financial-service provider has brick-and-mortar clients looking to extend credit to their customers the same way, providing virtual card capabilities to those clients opens the door to a completely new opportunity.

Covid-19 didn’t create the need for in-store transformation, but it certainly accelerated it. Brick-and-mortar sellers can’t afford to ignore technology’s growing presence in their industries. Those that do risk losing customers to more convenient competitors.

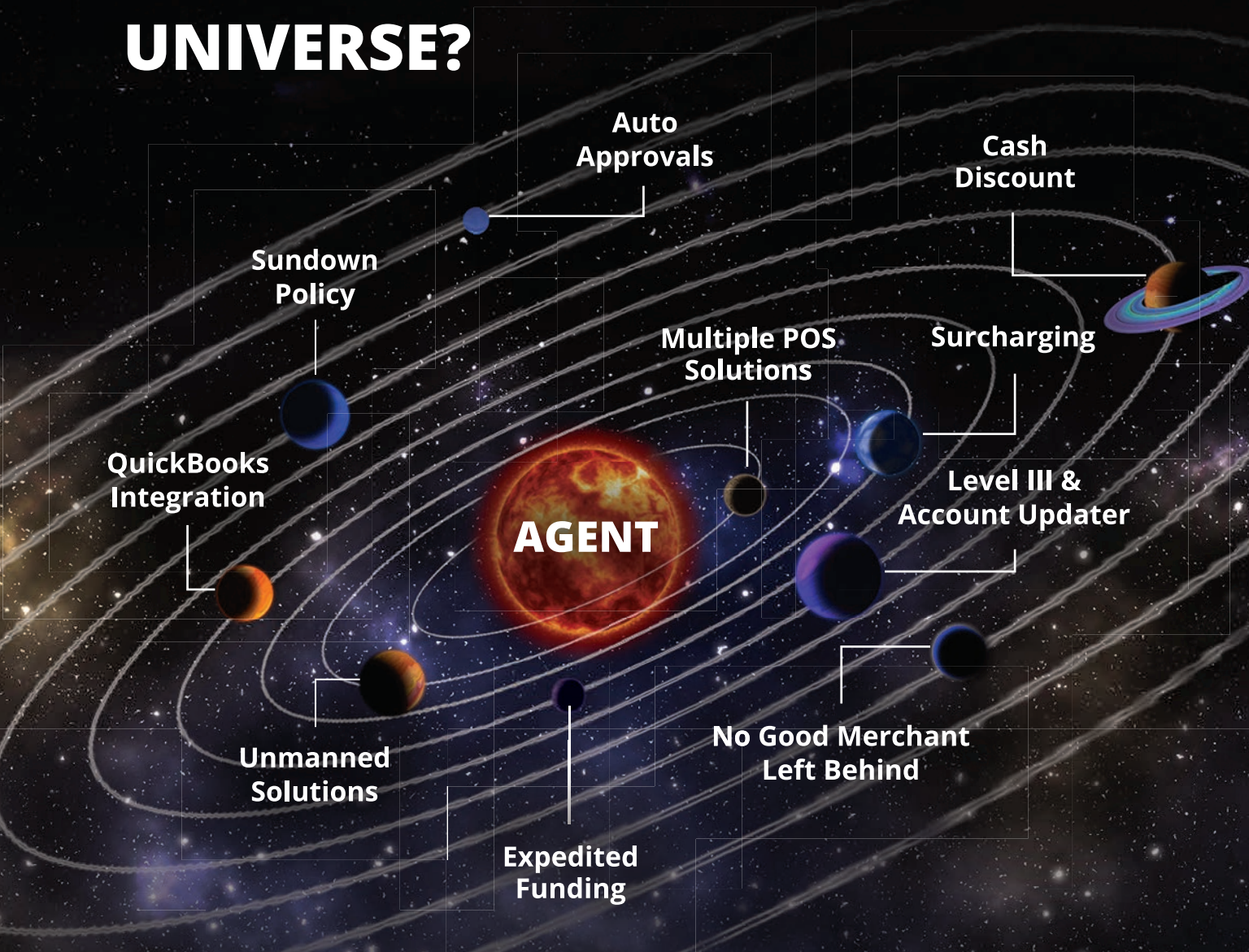
As merchants navigate consumer demand for streamlined shopping experiences, their financial institutions can support them with agile digital tools. Experienced fintech solution providers can build entire digital-shopping experiences from cart creation to checkout that support in-store purchases.

And with the right partner, payment networks can forge a seamless connection between e-commerce and brick-and-mortar shopping. **DT**

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