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contents

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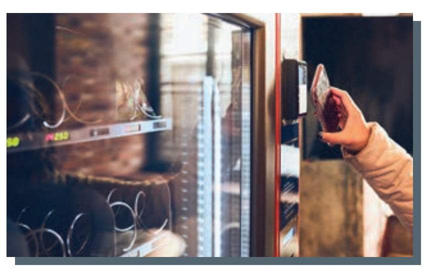

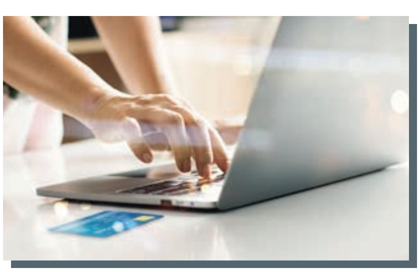

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the gimlet eye

RISK WILL ALWAYS ASSERT ITSELF

IT HAS IN recent days become apparent—as it has over and over again for centuries—that financial risk can only be managed and mitigated. Despite what breathless investors in the ill-fated FTX exchange may have thought, risk can neither be wished nor washed away.

Ironically, the epic FTX collapse in November was brought about, not so much by the riskiness of this or that cryptocurrency, but by what is perhaps the oldest risk to afflict humanity. Call it hubris, greed, or the ignorance of youth, but what matters is that an exchange that had scaled the commanding heights of crypto trading was suddenly and ignominiously brought low. Only recently, it had boasted a $32-billion valuation after just three years in business and ranked fifth among all crypto exchanges by trading volume.

But it was caught short on cash and filed for bankruptcy. Its founder, 30-year-old Sam Bankman-Fried, was jailed and faces trial for fraud. John J. Ray, a lawyer and veteran manager of distressed companies in bankruptcy, took the reins, telling the U.S. House Financial Services Committee that the total of misused funds at the company was "in excess of $7 billion." Ray is best known for taking over a distressed Enron and leading once-giant energy company through its bankruptcy in the early 2000s.

Now, the unfortunate lesson some are drawing from all this is that crypto and blockchain are a fool's errand, a sure way to lose your shirt to greed, incompetence, or wild swings in the daily valuations of digital currencies. Bitcoin and a host of other cryptos saw their values plunge in the wake of the FTX fiasco.

No doubt the industry is guilty of its share of all three of these faults. But set aside emotion for a moment and take another look at crypto—more particularly, at the underlying technology, blockchain. No less a figure than David Solomon, chairman and chief executive of Goldman Sachs, advises it would be a mistake to blacken blockchain. The key, Solomon says, is proper oversight, which should come, he argues, from banks. "Under the guidance of a regulated financial institution like ours, blockchain innovations can flourish," he wrote in a piece for *The Wall Street Journal* early last month.

We're inclined to agree with Goldman Sachs's boss. As much as banks are blamed for being slow to adopt innovative technology, they are the right institutions to manage the distributed ledgers that now drive leading-edge technologies in payments. Risk will always be with us. It's time to get past the panic induced by the FTX fiasco, and get on with putting this powerful tech in the right hands.

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Trends in the Electronic Exchange of Value

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trends & tactics

HOW THE BIG BANKS ARE ADDRESSING P2P SCAMS

An ongoing controversy regarding consumer losses to authorized but fraudulent transfers on the Zelle peer-to-peer platform has stirred at least some of the country's biggest banks to work out a range of solutions, including wider adoption of scam defense and detection technology, sources tell *Digital Transactions*.

This development comes as at least three of the national banks that own Early Warning Services LLC, the company that operates Zelle, are working on a plan to reimburse victims of Zelle scams, according to reporting by *The Wall Street Journal*.

Peer-to-peer networks typically reimburse users for unauthorized transfers, but do not take responsibility for transactions users authorize, even if they are induced by a scammer. That problem has drawn the attention of U.S. Senators, who have investigated scams on Zelle and pressured the network to reimburse scam victims.

ZELLE'S ZOOMING GROWTH

	TRANSACTIONS	CHANGE	DOLLARS	CHANGE
2021	1.8 billion	+49%	$490 billion	+59%
2020	1.2 billion	+58%	$307 billion	+62%
2019	743 million	+72%	$187 billion	+57%

Note: Full 2022 numbers not yet available. Source: Early Warning Services

The issue has also reportedly caught the attention of the Consumer Financial Protection Bureau, which has grown more active in the past year under director Rohit Chopra, a former Federal Trade Commission member.

Meanwhile, a separate *Wall Street Journal* report also indicated that at least some community banks and credit unions may not stay in P2P programs like Zelle if rules changes force them to reimburse users for losses to scams. The *Journal* quoted sources at ICBA Bancard, a unit of the Independent Community Bankers of America, as well as at the National Association of Federally-Insured Credit Unions.

Of the 18 biggest U.S. financial institutions, half are reviewing their reimbursement policies while the other half are investigating new scam-detection and -defense technologies, according to David Mattei, a senior analyst at Aite Group, a Boston-based consultancy.

Mattei referred to a survey Aite conducted earlier this year. “This has been going on for most of 2022,” he says, though the pace may have quickened lately. “Financial institutions would certainly love to head off any additional regulations,” he adds. “It’s one of those tricky situations.”

The move lately to change the standard policy regarding reimbursing victims of scams on Zelle has been embraced by JPMorgan Chase & Co., Wells Fargo & Co., and Bank of America Corp., according to the *Journal* article, which cited “people familiar with the matter.”

The three megabanks are among the seven major U.S. institutions that own Scottsdale, Ariz.-based Early Warning. Under the developing plan, the bank that holds the account where funds were sent would return the money to the bank holding the sender’s account if the transfer was determined to have been the result of a scam, according to the *Journal*.

Early Warning in October released a statement responding to the Senate investigation and referring to “misleading reports of fraud and scams” on Zelle. Some 99.9% of transactions on Zelle are “sent without any report of fraud or scams,” the company said at the time. In a veiled reference to the Senate probe, the company added: “Any external analysis done is incomplete and does not reflect the efforts and data reported by more than 1,700 financial institutions on the Zelle Network.”

Beside BofA, Chase, and Wells, the owners of Early Warning include Capital One, PNC, Truist, and U.S. Bank.

Efforts to hold the banks that own Early Warning liable for losses due to authorized but fraudulent transfers may be counterproductive, Mattei warns. In at least some cases, customers can confound their banks’ best efforts, he says.

“The clients are just adamant about ‘transfer the money’” Mattei notes. In the end, “there’s going to be some level of pushback if they become liable for scam fraud,” he says. “It’s billions of dollars. They’re not going to take that lightly.”

—John Stewart

AS COVID FEARS WANE, SO DOES CURBSIDE PICKUP

While holiday sales late last year got off to a strong start, consumers were and are making less use of curbside pickup, a service that rapidly gained momentum at the onset of the Covid-19 pandemic.

Curbside pickup accounted for 13% of online orders on Thanksgiving day and Black Friday among retailers that offer the service, down from 21% last year, according to Adobe Analytics. On Cyber Monday, curbside pickup was used for 17% of online orders, down from 18% in 2021.

But consumers aren't the only ones shying away from the service. A recent study by NewStore Inc., an omnichannel platform provider to merchants, reveals that 25% of retailers in the United States now offer the service, down from 34% in 2021.

A key driver of the decline is that, with the pandemic subsiding, retailers are looking to drive more in-store traffic, says Phil Granof, chief marketing officer and retail analyst for NewStore, in an email message to *Digital Transactions*.

"While customers love curbside for the convenience, a lot of retailers would much rather have shoppers in-store so they can better help them find what they need, suggest other products based on what they already plan to buy, and ultimately drive more revenue," Granof says.

Another factor is that many retailers launched the service out of necessity at the onset of the pandemic as a way to serve consumers skittish about entering stores, even to pick up an order placed online. Many of these retailers implemented quick-fix solutions that were not sustainable because they were not integrated with their point-of-sale, inventory, and store-fulfillment solutions, according to Granof.

"For this group, curbside wasn't part of their long-term strategy, so what I suspect we are seeing now is these companies are turning the feature off and encouraging customers to come back in to the store," Granof says.

Still, Granof does not foresee the service fading away entirely. Consumers still like it for purchasing day-to-day necessities, such as laundry detergent and toothpaste—products they do not need a store associate to help them select.

"The pandemic has taught consumers how to use services like curbside, leading to a shift in shopper behavior," says Granof. "Now that busy shoppers know they can order and quickly pick up basic items without leaving their cars, many of them will continue to do that, if the experience is smooth and convenient, of course."

Indeed, some retailers generate a substantial portion of their sales through curbside pickup. Target Corp., for example, has stated same-day delivery and pick-up services account for more than 10% of its overall sales, according to Granof. "Curbside obviously plays a big role [for Target], so I don't see them shying away from it, especially given the fact that they are extending their partnership with Starbucks to allow customers to place curbside orders for food and beverages," says Granof.

In November, Target announced in a blog post that the Starbucks with Drive Up service had launched at 240 Target stores in California, Delaware, Minnesota, New Jersey, Pennsylvania, Texas, Washington, and West Virginia. Consumers can pick up their orders through curbside pickup.

"Curbside was widely adopted for two reasons—to keep people safe and speed up the checkout process by reducing the number of people in-store," Granof says. "If [retailers] decide to turn off curbside, they need to have line-busting solutions in place that allow associates to check out customers anywhere on the store floor."

—Peter Lucas

CRYPTO HAS HEADACHES THAT GO BEYOND FTX

Jitters about the economy and the impact of the FTX implosion may have combined to clobber the cryptocurrency market, but new data shows that app downloads peaked as long as a year ago.

In fact, downloads of crypto trading apps from the App Store, and Google Play along with direct downloads from crypto trading platforms, have been plummeting steadily for months, according to numbers from data.ai, a San Francisco-based app-tracking firm.

Worldwide downloads of the apps, which enable users to buy, sell, and spend cryptocurrencies, totaled 62.6 million in the third quarter, down 30% from the second quarter. U.S. downloads in the same period fell 42%, to 5.58 million, according to the figures from data.ai, formerly known as App Annie.

That may not seem surprising, given gloomy news such as the collapse last fall of the major trading firm FTX and the recent bankruptcy of BlockFi, another crypto firm. But the plunge in app downloads started long before these events, according to data.ai's tracking. After reaching a peak at 144 million globally and 25.5 million in the United States in the fourth quarter of 2021, downloads steadily withered throughout 2022, with percentage declines in double-digits each quarter.

If there's any good news in the trend, it's that the number of crypto app downloads worldwide and for the U.S. market are still relatively robust, if reduced. For the first 10 months of last year, they totaled 286.5 million worldwide and 31.6 million for the U.S. (chart). That's down from 2021's totals of 305.4 million and 61 million, respectively, but still considerably stronger than the 2020 numbers for the same months.

The most popular app by number of App Store and Google Play downloads in the U.S. market is that of the trading exchange Coinbase, which registered 240,000 downloads in October, well ahead of No. 2 Crypto.com, at 160,000. But that total for Coinbase represents a considerable drop from January and February, both of which registered download totals of more than a million.

The steady decline in downloads comes as the U.S. economy has slowed markedly compared to 2021, with slight declines in real gross domestic product in both the first and second quarters, according to the latest available data from the Bureau of Economic Analysis.

—John Stewart

THE DOWNER ABOUT DOWNLOADS

(YTD downloads from cryptocurrency trading apps, App Store, and Google Play)

	WORLDWIDE DOWNLOADS	U.S. DOWNLOADS
January - October 2019	23,800,000	5,290,000
January - October 2020	47,000,000	7,840,000
January - October 2021	305,400,000	61,020,000
January - October 2022	286,500,000	31,590,000

Source: data.ai

HOW CONSUMERS ARE GOING DIGITAL WITH BILL PAY

Digital payment has become table stakes for billers as consumers have increasingly gravitated toward paying their bills through mobile and online channels the past two years, according to a recent survey by EngageSmart, provider of customer-engagement and payment applications.

The study reveals that 50% of respondents say they are somewhat or significantly more likely to pay their bills digitally now than before the Covid-19 pandemic, while 46% of the remaining respondents say they make digital bill payments as often as they did prior to the pandemic. Only 4% of respondents say they are less likely to make digital bill payments.

Health care has seen rapid growth in here, with 42% of respondents paying their bill digitally in 2022, compared to 31% in 2020. Consumers are even paying their taxes more often by digital means, with 32% of respondents paying digitally in 2022, compared to 25% in 2020.

Other bills consumers regularly pay digitally include Internet service and credit cards, with 64% and 66% of respondents, respectively, saying they pay those bills digitally. In 2020, 62% and 60% of respondents said they digitally paid their Internet and credit cards bills, respectively. EngageSmart, which conducts the survey annually, surveyed more than 2,100 consumers that use its InvoiceCloud bill-payment service.

“Consumers are now used to going online first for everything from shopping to booking concert tickets,

restaurant reservations, and medical appointments, and digital payments have been proven to be just as secure and convenient as using a credit card in person or online,” Sara Faied, vice president of processing transformation for InvoiceCloud, says by email.

“Consumer choice is also a big factor, as there were only a few digital-payment options available just a few years ago as compared to today, which also has helped adoption of digital bill payment,” Faied continues.

One surprise in the findings is that bill payments initiated through mobile devices have exceeded bills paid digitally through online portals. In 2022, 67% of respondents say they made a bill payment via mobile device compared to 63% who said they made a bill payment through an online portal (more than one choice was possible).

Mobile devices are also consumers’ preferred device type for digital bill payment, with 30% of respondents saying they favor mobile devices, compared to 28% for online portals.

Convenience is the driving force behind consumer’s preference for using a mobile device, according Faied. “It doesn’t get more convenient than a computer you can carry around in your pocket [to pay a bill],” Faied says.

“It’s worth noting that while the vast majority of respondents (92%) took the survey on their phone, only 30% say mobile devices are their preferred method for making a bill payment,” Faied says. “Payers may be comfortable using their mobile phones for many things, but there’s clearly still room to optimize the mobile-payment experience.”

When it comes to mobile wallets, Apple Pay tops the list in terms of popularity, with 53% of respondents saying they prefer using Apple’s wallet over other digital-wallet options. PayPal, which ranks second overall, is most preferred by respondents over age 60, which the report says is notable considering this age group lags in mobile-wallet adoption.

“Apple is known for simple, elegant, secure solutions, and I think that applies here,” says Faied, who adds consumers may like the idea that they can also use ApplePay through their Apple Watch. “Apple Pay is safe and easy to use, and it has enabled a lot of people to feel comfortable leaving their wallet behind as long as they have their mobile device with them.”

One pain point: It can be difficult for consumers to contact customer service. This hurdle was cited as the most common problem by consumers age 30 and above.

“The more difficult the online-payment experience, the more likely customers are to call a biller’s office or abandon payment altogether,” Faied says.

—Peter Lucas

PAYMENTS AS A DISASTER-RECOVERY PLAN

BY
GIDEON SAMID
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LAST MONTH, WE noted 81 years since the devastating attack on Pearl Harbor. The leaders of the day, smart and learned, did not draw timely conclusions from a very similar attack Japan unleashed on a Russian naval base in 1904. Nor did the same leaders pay much attention to Hitler's autobiography, *Mein Kampf*.

These are two of many sobering examples illustrating how we are not very good at spotting seemingly out-of-the-blue catastrophes. Nouriel Roubini, the economist who predicted the economic collapse of 2008 (also ignored), is now predicting a convergence of mega threats with dire global consequences. Among them: severance of communication and transportation lines forcing society to a state of isolated pockets. Which brings us to the money aspect.

Money is a societal regulator, a means to manage human exchange of goods and efforts. Every society mints its money. Prison camps in World War II used cigarettes as currency. Small island communities traded with scarce sea shells. When I was a kid, we traded cards featuring sports figures.

No doubt, should we be afflicted by any of the anticipated threat scenarios, we will be cast into isolation. Local communities will have to bootstrap themselves. Digital-money technology is developed enough to allow a local authority to mint "disaster money," distribute it to people's phones—either through a local network or through peer-to-peer networks—and thereby facilitate a joint recovery effort, rewarding the strong and the helpful for their contribution. When the catastrophe is recovered from, the disaster money will trade according to a set exchange rate against a more encompassing currency, eventually repairing to national fiat money.

Isolated societies trade among themselves. They make do with a local network, with a local digital mint, and with bare minimum computational phones that can exercise the money-exchange protocol. After a storm, for instance, the first rebuilt facility is a local communication tower that can keep everyone in touch. The same network will facilitate payment.

Today's peer-to-peer technology is developed enough to allow money to stream peer to peer through local phone-to-phone connections so that a digital payment migrates from payor to payee. A subtle advantage of modern digital money is distributed computation power. Payors' and payees' phones are crunching the payment algorithms to effect a payment, as opposed to relying on a large central processor.

Come to think about it, the idea of a collection of local mints serving a localized or segmented society is also an optimal deployment of digital money in normal times. Parallel mints will not mint their own currency. Rather, they will mint their own brand of the fiat currency. Traders will readily exchange a Bank of America dollar with a Miami dollar because the exchanged entity is a claim check for a dollar—one claim check honored by the Bank of America and the other honored by the city of Miami.

Mints will compete among themselves for the public trust. Unlike the term stablecoins, which really is a euphemism for probability-bound risk coins, a claim check for a dollar carries no extra risk beyond what is carried by the claimed dollar. The mints keep the claimable dollar in total-ready mode. They make their money through tethering services (see my book, *Tethered Money*). So mints will compete on service, responsiveness, and so on. The Bitcoin vision of decentralized money will be manifest in decentralized mints, with the Federal Reserve imposing a regulatory framework.

It turns out, then, that the most efficient way to power up society with digital-money technology is also the format for recovery from the paralyzing disasters that may challenge society in years to come. DT

WITH P2P FRAUD, FOCUS ON BEFORE, NOT AFTER

BY BEN JACKSON
bjackson@ipa.org

THE DISCUSSION ABOUT fraud in Zelle and other person-to-person payment apps focuses on the wrong question.

Providers, industry observers, and regulators are all discussing what should happen when someone is scammed out of money on these apps. Recent conversations have revolved around whether or not banks, payments providers, or the customer should assume the liability for fraud losses.

Many of the arguments pivot on whether a customer using a person-to-person (P2P) transfer services has made an authorized or unauthorized transaction. Providers argue that if someone is tricked but authorizes a transaction, then any losses should be the customer's responsibility.

However, attention from Congress and the press has banks in the Zelle network discussing when it might be a good idea to make customers whole. Industry observers worry that this could lead to an expansion of Regulation E liabilities for the banks. They also worry that smaller banks could be forced out of offering P2P payments because they don't have the money to investigate claims and absorb losses.

These discussions have a big problem: They only consider what happens after criminals have stolen someone's money.

Providers have put themselves in this awkward position by ignoring the customer expectations they have encouraged with past products and marketing. Consumers are accustomed to being protected when they make electronic transactions because card products have provided zero-liability guarantees for years.

Also, consumers are used to money taking time—sometimes days or weeks—to move. So they believe that there should be time to stop a transaction if they make an error (and in many cases, despite real-time account credits, there is time).

Finally, as noted in one lawsuit, advertising has positioned these products as a "safe" way to pay.

Perhaps there is a better set of questions the industry should ask itself. For instance, does the average banking customer need real-time payments? If so, what are the circumstances? Should these products be redesigned to close up some of these security gaps?

P2P products provide warnings to consumers about sending money only to people whom they know. They remind users to double check the recipient's information. They offer descriptions and examples of common scams. Despite all of this, there still seems to be a large number of people who lose money.

So, what's the solution? How about slowing down payments? Indeed, maybe we should save "real-time" payments for special occasions and emergencies?

Transactions can slow down on either side of the exchange. Providers could require a 24-hour waiting period to either send or receive money. That might give a potential victim enough time to find out that their grandchild is not sitting in a foreign jail or airport waiting for money to get home.

One design innovation might be to let customers specify the time period for delivering money. This might give them time to double check credentials while setting aside money for a transaction.

An analogy for this lies in travel. It is faster to fly across the country than it is to walk. But to access the speed of flying, a passenger needs to complete some steps to get through security. Why should payments be different?

While there may be true emergencies where a real-time account transfer is the only payment option, there's no reason those transfers need to happen without reasonable security checks. If someone really needs to send money instantaneously, then it might be time to pull that transaction out of line for some enhanced screening.

As far as the other transactions go, people can wait until Monday morning for the money from the split bar tab to arrive. DT

THE CCCA'S LONG SHADOW

Will Durbin II rise again, bringing joy to merchants but grief to credit card issuers? Potentially, more than $10 billion could be in play if routing choice becomes law.

BY JIM DALY

CREDIT CARD ISSUERS dodged a bullet in late 2022 with the failure of the Credit Card Competition Act to pass the 117th Congress.

The bill would have required large issuers to make a second, unaffiliated network available on their cards to merchants for transaction routing, potentially lowering merchants' interchange costs—and putting a lid on the hefty income banks get from card programs.

Merchant advocates, however, vow to fight on in the new 118th Congress, which commences work this month. "To me, it's a question of when, not if, the bill moves through," says Doug Kantor, general counsel at the Alexandria, Va.-based National Association of Convenience Stores, which goes by NACS.

Those on the pro-interchange side agree the battle is not over. "We would expect them to bring it up again, yes," says Jeff Tassey, chairman of the Electronic Payments Coalition, a Washington, D.C.-based lobbying group whose members include financial-institution trade associations and payments companies. "I just don't see the retail side backing down."

This ongoing merchant-bank payment conflict isn't exactly top-of-mind for most consumers. But it broke into the public consciousness in November when NACS, with backing from the Merchants Payments Coalition lobbying group, ran a TV commercial that used Visa Inc.'s sponsorship of the FIFA World Cup to decry credit card acceptance fees and advocate for the CCCA.

The 30-second ad used the image of a giant credit card blocking a soccer goal and claimed "unfair hidden fees" add up to almost $1,000 a year in higher prices for each American family.

In December, the MPC and NACS followed up with a holiday-themed 30-second commercial in which the announcer proclaims, "Unfortunately, credit card companies are still stuffing our stockings" with unfair swipe fees. As a Christmas tree crashes to the floor under the weight of swipe fees on cards in a stocking, the narrator urges viewers to tell Congress to pass the CCCA. The commercial is part of a seven-figure ad campaign.

Merchants' advocacy for the CCCA included NACS' anti-interchange commercial that ran during soccer's 2022 World Cup games. (Credit: NACS)

GOODBYE REWARDS?

If enacted, the CCCA would not impose price controls, but it still could put billions of dollars in interchange and network fee revenue streams in play. Interchange is a transaction fee set by Visa and Mastercard Inc. and paid by the merchant acquirer to the card issuer. Acquirers pass the fee on to merchants with a markup.

In the U.S., interchange fees can range in the neighborhood of 1.3% to 2.9% of the sale, with the precise amount determined by complicated schedules based on a merchant's volume, the type of card used, whether the card is presented in person or used online, and the technology used for securing the transaction.

U.S. merchants pay nearly $73 billion in interchange annually for accepting Visa and Mastercard credit card purchases. That figure comes from total credit purchase volume for the four quarters ended Sept. 30 multiplied by a blended average interchange rate of 1.8%, as estimated by Atlanta-based research firm CMS Payments Intelligence Inc. (chart).

Interchange is the biggest card cost merchants bear. They pay other fees to their processors and to the networks themselves. Network fees amount to about $10 billion annually, based on 25 basis points (0.25%) of charge volume, CMSPI estimates. In all, merchants are paying in the neighborhood of $83 billion in interchange and network fees. Some merchants say interchange is their second-largest expense, after payroll.

While no one can say definitively how many transactions would move to unaffiliated networks should the CCCA make them available, the shift could impact more than 10% of annual interchange and merchant-fee revenue. "We think at least $11 billion, due to competitive pressure," says Callum Godwin, chief economist at CMSPI.

If so, consumers can say goodbye to the perks issuers fund with interchange, assert the EPC and its bank and credit-union allies. "Rewards programs, cobrands, would go away, there's no doubt about that," says Tassey, adding that the revenue supporting security technology also would be threatened. "You've disrupted the economics of the whole program."

Yet while the American Bankers Association and its state affiliates strongly oppose the CCCA, some individual bankers would like to see routing competition. "Fundamentally, I don't know how anybody should be against choice," says one banker who didn't want to be identified due to the sensitivity of the topic.

TOUGHER SLEDDING

The merchants' champion is a name long familiar to payments players: U.S. Sen. Richard Durbin, D-Ill., author of the so-called Durbin Amendment to the Dodd-Frank Act of 2010 that imposed debit card interchange price controls on large banks and transaction routing options for merchants.

In contrast to most high-profile legislative initiatives in our supposedly hyper-partisan times, Durbin introduced the CCCA with a Republican co-sponsor, Sen. Roger Marshall of Kansas ("Is Everyone Ready for Durbin II?" September 2022). An identical House version also had bipartisan co-sponsors: Rep. Peter Welch, D-Vt., and Rep. Lance Gooden, R-Texas.

As of late December, the CCCA's sponsors were staying quiet on the slim hope their bill could be attached to must-pass legislation in the waning days of the 117th Congress's lame-duck session.

An earlier effort to get the proposal hooked to a major defense bill fizzled. "We think it has little chance of being added to anything else during the lame duck because lawmakers in both parties increasingly recognize that it would harm, not help, their constituents," says one financial-industry Capitol Hill observer, speaking on background.

A revived CCCA could face even tougher sledding in 2023. Democrats controlled both houses of Congress for the last two years, but now less regulation-friendly Republicans are taking over the House in the wake of November's elections.

Durbin's office did not respond to a *Digital Transactions* request for comment. Welch, meanwhile, was elected to the Senate seat vacated by Vermont's long-time Sen. Patrick Leahy, leaving the CCCA on the House side without an apparent Democratic chief advocate.

A spokesperson for Gooden did not respond to a *Digital Transactions* request for comment about the Congressman's plans for a CCCA redux.

Nonetheless, it would surprise no one if Durbin and his allies put a new CCCA in the hopper this year. The issues that spawned the bill—what merchants view as excessively high card-acceptance costs and the dominance of the Visa and Mastercard networks—haven't changed. Visa and Mastercard command about two-thirds of U.S. credit card purchase volume on the four major networks—themselves and American Express Co. and Discover Financial Services—and their brands prevail among banks.

"In this market, Visa and Mastercard compete with each other to raise interchange rates to get more banks to issue their cards," says Kantor.

Visa didn't respond to a request for comment, and Mastercard punted to the EPC when asked for comment.

INTERCHANGE AND NETWORK FEES ADD UP

(Four quarters ended Sept. 30, 2022, $ billions)

U.S. Credit Card Purchase Volume	
Visa	$2,772.00
Mastercard	$1,278.00
Total	$4,050.00
Interchange @ 1.8% blended average	$72.90
Network fees, 25 bp	$10.13
Total interchange and network fees	$83.03

Source: CMSPI, Digital Transactions

'PRETTY GOOD PADDING'

The CCCA would have required credit card issuers with $100 billion or more in assets to offer at least one unaffiliated network other than one of the top two (Visa and Mastercard) for transaction routing in hopes of inducing competition for merchant business through lower costs. There are only 33 such banks, but they issue the vast majority of U.S. credit cards.

The bill also would have banned penalties assessed to merchants for failing to meet specified transaction numbers on a network. And akin to the Federal Reserve Board's role in carrying out the Durbin Amendment's requirements, the CCCA would have appointed the Fed to oversee the new credit card regulatory regime.

The apparent network alternatives would include the so-called PIN-debit networks such as Fiserv Inc.'s Star and Accel, FIS Inc.'s NYCE, Discover's Pulse, and bank-owned Shazam Inc., along with a few others, and possibly AmEx and Discover. The debit networks have been broadening their product offerings in recent years, with many now offering so-called dual-messaging capabilities.

In contrast to PIN-debit transactions that use a single message for authorization and clearing, dual messaging uses separate authorization and settlement messages. That's the basic structure of most transactions with Visa and Mastercard-branded debit cards, as well as credit cards.

But just how such alternatives would work in reality isn't any clearer now than it was in July when Durbin and Marshall introduced the CCCA. Despite their enhanced capabilities, the PIN-debit networks aren't necessarily ready to compete in the credit card market, at least not right away, according to one network executive who asked not to be identified because the issue is a hot one in the industry.

"There's a difference between a credit network and a debit network," the executive says. "There is a difference between a dual-message debit and a dual-message credit… there is a difference in the complexity of the message." Credit's greater complexity, the executive adds, arises in part from the rewards-related data to be transmitted.

"Some of the networks may be ready to start competing," says researcher Godwin, "but others may require a grace period and some investment for it to be a truly competitive environment like the one we see in debit."

Godwin, however, discounts the idea that rewards will disappear under the CCCA. He points to Australia, where the central bank, the Reserve Bank of Australia, has regulated credit card interchange since 2003. The RBA currently sets a benchmark of 50 basis points (0.5%, less than a third the U.S. average) as a weighted average and a cap of 80 basis points.

Yet rewards cards haven't gone away in Australia, and Godwin doesn't think they will in the U.S. either. That's because transaction revenues will still be substantial despite a potential $10-billion-plus shift. "There's some pretty good padding there," he says.

Godwin adds that issuers chop rewards programs at their peril, since it's much easier for consumers to swap out credit cards than debit cards, most of which are linked to checking accounts. "The credit card market is a lot more fluid," he says. "Any issuers

Tassey

"You've disrupted the economics of the whole program."

who want to cut rewards have to determine if it's worth the potential loss of customers."

BIG BOX BENEFIT

But if the Durbin Amendment is any indication, it will be Walmart, Target, and other big-box retailers and national merchants that will benefit the most if interchange regulation were extended to credit cards, according to the EPC.

The Durbin Amendment has saved merchants an estimated $102 billion since 2011, but they have passed little of that relief on to consumers in the form of lower prices, the group says. Eyeing even more savings, "big-box stores are all over the Hill" lobbying for the CCCA, says Tassey.

If anything, Durbin's salvo against the credit card status quo confirms the confounding nature of payment pricing and operations. "I personally believe that Durbin was on the right track on requiring two networks on a debit card," the banker says. "I wasn't crazy about the price fixing. How is that different than credit card?" DT

THE SELF-SERVE FUTURE

Vending, as well as unattended payments, is evolving into a more-encompassing retail setting and bringing digital payments along.

BY KEVIN WOODWARD

FEW MERCHANT SEGMENTS have been as well-suited to contactless payments as vending and unattended payments. And now, spurred by changing consumer habits during the pandemic, contactless payments are driving cashless payments in vending.

By October 2021, according to data from Cantaloupe Inc., a specialist in vending and unattended payments, contactless transactions accounted for fully 43% of total cashless transactions, up from 18% in January 2020.

With contactless habits firmly established among consumers—45% of consumers rank contactless payments a preferred payment method, say S&P Global Marketing Intelligence and 451 Research—and self-serve retail and checkout much more commonplace than they were prior to the pandemic, the vending and unattended payments segment may be ready for another transformation. One big change: it is becoming self-service commerce.

That is the direction in which Ravi Venkatesan, chief executive of Cantaloupe, sees this market heading. "Self-service commerce is going to continue to grow at a fast pace, and within segments we haven't seen before," Venkatesan says. "In fact, we no longer think of this business in terms of being 'unattended,' but instead are calling it self-service commerce, as it is broader than just unattended."

THE PANDEMIC EFFECT

Myriad factors have moved the industry in this direction and could help create more potential for payments.

"Nowadays, self-service commerce is everywhere you look, from airports to office buildings, libraries, [electric vehicle] charging stations, amusement parks, hospitals, concerts, sports arenas, gyms, and more," Venkatesan says, driven by consumer demand and innovation. "For the vending industry specifically, it's always been about providing convenience."

Indeed, according to a Cantaloupe-commissioned study by Michigan

State University's Broad College of Business, 69% of all sales in Cantaloupe's network were cashless in the first six months of 2022. And 48% of these are made using a contactless payment method. The College estimates that, at the end of 2022, more than two-thirds of all vending-machine transactions were cashless. The average cashless transaction total was $2.30.

The pandemic's impact is familiar to many in the payments industry. For vending and unattended, it drove consumers to find more self-serve opportunities. Consumers also have learned to navigate self-checkout in other venues, "which has provided a sense of control to their self-checkout experience and lets them make payments quickly and efficiently," Venkatesan says.

These and other factors will likely contribute to more growth for vending and unattended payments. The increased use of contactless and digital payments, which took on even more momentum during the pandemic, is one factor, says Thad Peterson, strategic advisor at Aite-Novarica Group, a Boston-based financial-services advisory firm. The increased availability of unattended commerce that accepts card-based payments is another element, he says.

The third factor speaks to Venkatesan's note about self-service commerce. "The expansion of unattended retail beyond simple vending machines, including attended retail (Amazon Go), expanded vending machines and spaces to accommodate higher-ticket items," will influence the segment's potential, Peterson says.

"One interesting use case is the availability of cashless vendors in gyms," he says. "Consumers may not have their wallet or purse when they're working out but they nearly always have their phones, so they can buy a drink with their phone while working out."

CHALLENGES

An aspect that may also fuel growth in the segment is a problem that has plagued most organizations over the past two years or so. “Another potential driver of unattended cashless commerce is the acute shortage of retail service personnel,” Peterson says, “which is driving merchants to automate functions previously done by service people.”

Examples include the ordering kiosks in many McDonald’s restaurants. And, in 2021, Steak n Shake, a regional quick-serve chain, moved to a completely self-service ordering and payment model, using kiosks in lieu of wait staff.

“From a business perspective, offering more self-service options at checkout makes sense for a number of reasons,” Venkatesan says. “Many retailers are facing labor shortages [and] wage inflation, and supply-chain pressures are driving up the price of consumer goods. Offering self checkout can save money and manpower for retailers who need to preserve crucial resources and protect profit margins.”

Most consumers have made vending and unattended purchases, with 90% in one 2021 Cantaloupe study having done so. The segment is not without challenges, though.

Rapid growth is one challenge, Venkatesan says. “More advanced points of sale, telemetry, and connectivity are needed now than we’ve ever seen before,” he says. “Self-service commerce is going to continue to grow at a fast pace, and within segments we haven’t seen before.”

Vending and unattended payments took off during the pandemic. Now other factors may lend further momentum.

Malvern, Pa.-based Cantaloupe took another step along that path with the 2022 acquisition of Three Square Market, a $41-million deal that will be a springboard for expansion and improved profit margins. Three Square Market, known as 32M, specializes in micro-merchant and vending operations. Beyond its U.S. operations, it does business in the United Kingdom, Sweden, and Romania.

32M opens more opportunity to cross-sell and upsell Cantaloupe services to the newly expanded client base, Venkatesan says. The company was a customer of Cantaloupe’s Seed Markets platform, a service that helps with route scheduling, warehouse pre-packing, and reporting tools.

‘A HUGE OPPORTUNITY’

At least in Cantaloupe’s situation, it may be more than consumer payments that advance the company. Subscription tools such as Seeds Market and other variations of Seeds could go a long way to aiding Cantaloupe.

“We believe the key to margin expansion is continued growth of high-margin subscription revenues,” Christopher Kennedy, an equity research analyst at William Blair & Co. LLC, writes in a research note about Cantaloupe. “Key initiatives to drive growth of subscription include the increased penetration of Cantaloupe’s various software offerings, new product rollout, and growth of the newly launched subscription model, Cantaloupe One.”

The Cantaloupe One service debuted in early 2022 and is a bundled model for Cantaloupe’s ePort hardware and Yoke POS software. The Blair note says Cantaloupe has more than 25,000 customers and 1.15 million active connections, “while also increasing its presence in both adjacent verticals and internationally.”

This could entail further expansion into higher-ticket transactions. “While the lower, vending machine end of the category is well-defined and being used a great deal, it’s still an open issue how more complex or higher-end offerings, like unattended

Venkatesan

Venkatesan: “We no longer think of this business in terms of being ‘unattended,’ but instead are calling it self-service commerce.”

Peterson: "It's still an open issue how more complex or higher-end offerings, like unattended stores and unattended 'store within a store,' will ultimately roll out and scale."

stores and unattended 'store within a store,' will ultimately roll out and scale," Peterson says.

William Blair estimates the value of the overall self-service commerce market in Cantaloupe's current and targeted geographies of North America, Europe, and Latin America at $6.4 billion. The self-service notion could drive a lot of growth. The overall vending-machine market is will reach $26.4 billion globally by 2028, forecasts the IMARC Group, a market-research firm.

"The growth of self-service commerce is a sign that retail is changing from a destination to a service thanks to overall shifts in consumer behavior, technology innovation, and global economic trends," Venkatesan says.

"Traditionally," he continues, "it's been thought that retailers should drive the customers to a physical location, but merchants are now figuring out how important it is to reach the consumers where they live, work, and play. Vending and micro markets in a place of business are now commonplace and they will become more ever-present, bringing goods to convenient locations throughout the world. This represents a huge opportunity for self-service commerce." DT

PAYMENT METHOD TRENDS: JANUARY 2020 - OCTOBER 2021

49% ▼ 38%

Cash transactions
Decreased from **49%** in Jan. 2020 to **38%** in Oct. 2021

62% ▲ 51%

Cashless transactions
Increased 11 points from **51%** in Jan. 2020 to **62%** in Oct. 2021

Additionally, contactless sales increased steadily each month throughout 2020 and into 2021.

Starting in Jan 2020. 18% of cashless transactions were contactless. By Oct 2021. contactless transactions had increased to 43% of total cashless trasactions overall.

Source: Cantaloupe Inc.

The RISE of EMBEDDED PAYMENTS

With consumers expecting 21st-century digital experiences, the one-click capabilities of embedded payment are looking increasingly attractive to merchants and processors.

BY PETER LUCAS

When it comes time to pay, Uber customers don't think twice. They open the Uber app, enter a tip for the driver, and click the pay button. It's a seamless, convenient process for the user bccause it eliminates the need to link to a third-party app and enter her card account information or hand her card to the driver to be swiped through a mobile terminal.

The payment process, which takes place completely in the background, is so intuitive and user-friendly that one-click payment becomes second nature for the user.

Welcome to the world of embedded payments, which is becoming an increasingly popular payment option. And not just for consumer-to-business payments, but for business- business-to-business payments, as well.

Unlike integrated payment solutions—which enable two separate applications to communicate with one another to facilitate payment—embedded payments allow consumers to pay for a product or service without having to leave the app they are using.

To activate embedded payment functionality within an app, consumers need only enter once their card- or bank-account information, which is securely stored in the app. After the card is stored, it is automatically billed each time the consumer clicks the pay button within the app.

"Embedded payments are the modern model for integrated payments," says Todd Ablowitz, chief executive for Infinicept, a Denver-based payment facilitator that supports the payment method. "Embedding payments into the digital experience, as opposed to bolting payment on to an app, improves the customer experience and benefits the merchant or business by making their app stickier because of the added value it delivers."

AN 'INVISIBLE' PROCESS

In 2027, revenues from embedded financial services, which includes embedded payments, is expected to exceed $183 billion globally, up from $65 billion in 2022, according to Juniper Research. That growth will be driven largely by non-financial businesses incorporating embedded-finance options into their apps or digital products, Juniper notes. The options will usually be woven into the checkout process, according to Juniper.

Currently, the number of market segments where embedded payments can be used is unlimited, as embedded payments are industry-agnostic. They are play well anywhere commerce takes place, whether it's a brand's app, a digital marketplace, or social media and messaging, according to Vijay Vachani, general manager for developers and partnerships for Square, the point-of-sale payments unit of Block Inc.

Subscription-based services, gaming, health care, insurance, and other businesses that involve regular or recurring payments from customers are also markets ripe for embedded payments.

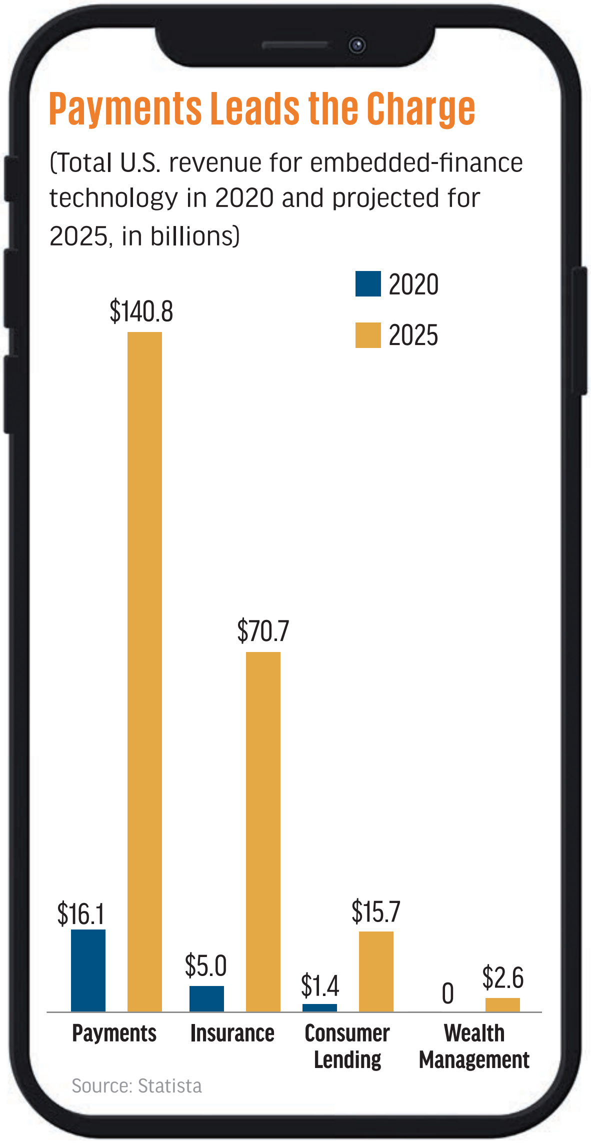
"Consumers have increasingly come to expect high-quality, frictionless experiences, especially with the accelerating shift to omnichannel commerce. With embedded payments, businesses are more easily able to meet these expectations, on multiple fronts," Vachani says.

Another example of embedded payments is the ability to use a digital wallet, such as Apple Pay or Google Pay, to make a payment on a Web site. Yet another involves tapping a buy now button on a social-media platform that allows users to make a purchase without leaving the platform.

In essence, any market segment that experiences friction in the payments process can potentially benefit from an embedded payment solution, payment experts say.

"Embedded payments drive invisible payment solutions that become part of the buying or shopping experience," says Greg Cohen, chief executive of Fortis Payment Systems LLC. "Granted, paying a doctor after a visit is not a shopping experience, but making a payment through an app [or patient portal] with embedded payments makes the payment process more invisible, and provides value to the business and the consumer."

In the case of a medical practice, offering embedded payments can speed payment. For example, the patient can be offered the opportunity to prepay her insurance co-payment when electronically checking-in through the patient portal or app prior to the visit. When prepayment occurs, the office does not have to collect payment at the time of the visit and generate a receipt, which improves back-office efficiency.



It is not uncommon for physician practices that offer digital pre-appointment check-in to ask patients to leave a card on file to enable one-click payments in the future.

Embedded payments can also be used to collect the portion of a doctor's bill not covered by insurance by sending the patient a digital invoice with an embedded payment option, which speeds payment and improves cash flow.

"Physicians have a lot of invoices that are paid slowly or are written off," Cohen says. "Embedded payments can speed payment and eliminate the need for generating and mailing follow-up invoices and payment reminders."

While ease of use for the consumer and back-office efficiencies for businesses are the most frequently cited advantages of embedded payments, one other advantage receiving more notice is that embedded-payment apps can be linked to a merchant's or business's enterprise resource planning (ERP) system to enable data to flow between the app and the ERP platform.

ERP systems manage day-to-day business activities such as accounting, risk management, and compliance and reporting, and tie together myriad business processes.

Connecting an embedded-payment app to an ERP system can set off a treasure trove of data flowing from the app to the ERP system. That data can be used to create customer profiles, marketing campaigns, and personalized digital experiences, as well as to identify cross-sell and upsell opportunities at checkout.

"If all information [around a transaction] is available to the seller's server, it can unlock additional use cases like product recommendations and loyalty programs, among others," says Square's Vachani.'

'BROADER INNOVATION'

But requiring consumers to store a card on file is not the only way merchants and businesses can enable embedded payments. Consumers can store their checking or savings accounts, too. This opens the door to leverage the automated clearing house network for embedded payments.

Leveraging the ACH is the primary way open-banking platform Plaid Inc. enables bank payments for embedded-payment apps, for example. "Our APIs help power

nearly a billion ACH-based transfers every year across thousands of apps, making it easier for people to fund new accounts and digital wallets, and send and receive payments," says John Anderson, head of payments at Plaid. "ACH payments are also prevalent in high-dollar transactions to replace checks and wire transfers."

Examples of how Plaid is leveraging the ACH include moving money into a Robinhood investment account and buying a car. Automaker Tesla Inc. and auto dealer Carvana use Plaid to streamline car buying by allowing customers to set up direct bank payments.

Similarly, Plaid enables Venmo customers to securely link their bank account to Venmo, allowing them to send money to one another, as well as use their Venmo account to make purchases at merchants such as Amazon and Uber.

"We're also excited about the emerging real-time payment rails, including RTP and FedNow," Anderson says. "We are actively building and partnering on these platforms because the speed and certainty of settlement will unlock broader innovation in embedded payments."

RTP is a real-time payments network built by The Clearing House Payments Payments Co. LLC, a company owned by many of the nation's biggest banks. FedNow is a real-time rail built by the Federal Reserve and expected to become commercially operational by summer.

THE ACH 'BACKBONE'

Just as embedded payments are quickly gaining traction with merchants, they are also gaining ground in business-to-business payments as B2B buyers come to expect the same type of digital buying and payment experiences retail merchants offer. As a result, B2B sellers are facing increasing competition to win business from B2B buyers that prefer to purchase digitally.

"B2B buyers expect payments to be as easy and convenient as an Uber transaction, where the transaction and payment happen in the background for a smooth experience," says Brandon Spear, chief executive for TreviPay, a B2B e-commerce platform provider. "Embedded payments make this possible. If a business can offer a more enhanced and seamless customer experience through payments, the likelihood of securing repeat customers and expanding a customer's share of wallet with your business increases."

Driving forces behind the growing popularity of embedded payments in the B2B space include buyers' expectation for real-time underwriting and trade-credit balance confirmation, as well as the option to check out with trade credit right away, followed by an invoice.

"Our equivalent to the Uber use case is our ability to simplify the process for a business buyer and help merchants meet these B2B expectations, including offering trade credit as a payment option at checkout," Spear says.

In 2022, U.S. Bancorp. rolled out an embedded-payment solution for businesses within Microsoft Dynamics 365, a cloud-based business-applications platform. The partnership with Microsoft allows businesses using Dynamics 365 to use U.S. Bank's AP Optimizer directly from their business application.

U.S. bank's AP Optimizer is a modular accounts-payable solution that integrates into a business's ERP or accounting system. As a result, treasury-management departments can automate invoice processing for business and consumer payment disbursement within Dynamics 365. The solution also allows for automated accounts payable workflows, including matching and reconciliation.

U.S. Bank's partnership with Microsoft also makes Elavon Inc.'s payment gateway available to use within

Ablowitz: Embedded payments make apps "stickier" because of the "added value" they deliver.

Dynamics 365, enabling businesses to create a secure end-to-end accounts-receivable payment solution with their ERP system. Elavon is a payments-processing subsidiary of U.S. Bancorp.

"Many businesses rely on Microsoft Dynamics 365 daily to run efficient operations, and these two new embedded solutions will improve efficiencies and enable faster payments for them," says Anu Somani, head of global payables and embedded payments for U.S. Bank. "We have several more capabilities in the pipeline to embed additional payment tools within workflows across Microsoft platforms,including Microsoft Teams and Microsoft Power Platform."

U.S. bank can also embed its payment capabilities directly into any ERP system. "With payment capabilities embedded, an accounts-payable employee can easily identify outstanding payments and send them directly through their ERP system," Somani adds.

Just as the ACH is being used to facilitate consumer-to-business embedded payments, the same is happening in the B2B space.

"From our experience, ACH is at the backbone of how settlement is happening between the various players in a B2B transaction," Spear says. "This makes it a critical part of how B2B embedded payments work behind the scenes and is one of the lowest-cost payment channels that the banking infrastructure can deliver."

'21ST-CENTURY EXPERIENCE'

U.S. bank's partnership with Microsoft is an example of the increasing collaboration between banks, fintechs, and software developers when it comes to developing embedded-payment solutions.

While fintechs may have jumped first into embedded payments, banks are now increasing their footprint in the space, largely through partnerships with fintechs and software developers. Subsequently, those partnerships open the door for fintechs and banks to broaden their range of respective services.

"It's creating a broader distribution system for fintechs and banks, as banks can offer fintechs more financial services to sell and [fintechs can offer] banks more apps to sell," says Matt Downs, president, WorldPay for platforms, at FIS Inc. "It's a mutual opportunity for both to come together to better serve businesses."

With consumers increasingly expecting fast, frictionless, intuitive payment options, embedded payments are a way for merchants and businesses to enhance their digital user experience.

"The experience that embedded payments provide is important because consumers today don't necessarily want to have to leave a native app to link to a third-party app to make a payment or conduct a financial transaction. It is not a 21st-century experience," says Seth McGuire, chief revenue officer for Galileo Financial Technologies LLC. "The value of embedded payments is its seamless nature." DT

MEETING THE SWIFT CHALLENGE

Financial institutions that use the messaging network face a deadline for conversion to a new standard. Here's one way to do that efficiently.

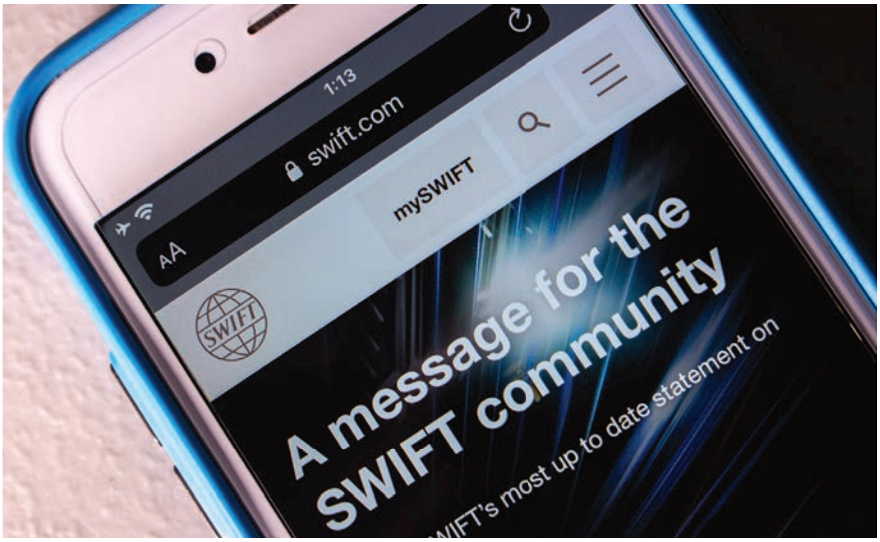
BY **SUMEET PURI**

Sumeet Puri is chief technology solutions officer at Solace.

SWIFT IS USED by banks around the world to securely send messages about money-transfer instructions. In fact, around $5 trillion a day passes through SWIFT's messaging system. This has made SWIFT the market leader for providing secure financial messages and the primary method for money transfers globally.

In 2021, SWIFT's FIN (Financial Information) message service underscored SWIFT as the chosen platform for the financial industry globally. It demonstrated SWIFT's significance for future growth in the digital economy, as 42 million payments and security transactions passed through FIN every day.

But the standard way of sending payment-instruction messages within the financial industry took on a significant revamp in November.



By adopting the ISO 20022 standard, SWIFT can offer better-quality payment-transaction information and enhanced interoperability between international payment schemes.

In turn, this has transformed the scene for the management and transfer of cross-border payments. Indeed, ISO 20022 is no minor change, particularly as institutions in the financial industry are at varying stages of the change process. While some are still planning, others are starting to implement the change.

ON THE CLOCK

All banks are on the countdown clock to make sure their message interface at least supports the receipt of ISO 20022-compliant messages. The migration of SWIFT and a range of Real-Time Gross Settlement (RTGS) systems is broadly taking place over three years, from November 2022 to November 2025.

SWIFT won't completely retire existing message formats (MT and MX) or the FIN number system until 2025, but the new ISO 20022-based Cross Border Payments and Reporting Plus (CBPR+) system became an option for early adopters in August and was generally available in November.

Digital-first fintech startups, of course, have the advantage of being much younger, founded in the digital age. Their systems are often created in the cloud and have a modern architecture that gives them the agility to adapt to market trends and regulation, the flexibility to innovate, and the opportunity to maximize the customer experience—especially across digital touchpoints.

In contrast, the legacy nature of older banking-institution IT systems means they generally encounter difficulties at the best of times when trying to adapt, particularly in terms of scalability, flexibility, reliability, and complexity. Banks still have numerous manual touchpoints when handling payments data, such as trying to reconcile missing data or incorrect data.

For example, multiple steps happen with each payment that can further complicate and stretch legacy architecture. First, there is the question of funding. Without this, we're going nowhere. Does the institution have the money? Is the money there in the savings account? When you're funding from a credit card account, can the funding occur within the credit limits?

Then, currency validation happens. This is further complicated when tax considerations are raised. Finally, we're through to clearing and settlement, where the exchange actually happens.

A recent report from the consulting firm EY zeros in on the technology change required to meet the new ISO 20022 standards: "Setting up the right technology and infrastructure to benefit from this will be a key measure of success, as it is likely to bring notable cost savings. We expect banks to be increasingly focusing on this."

There is a real opportunity here for banking organizations to build a tech stack that offers many more benefits and a richer environment than simply meeting ISO 20022 requirements.

Every bank has a different journey ahead based on its technical debt and its strategy. Software architects face decisions when moving forward with their infrastructure. Do they build their own tech stack to meet ISO 20022 and further modernize their payment process, or do they look to third-party vendors and/or opt for complex integrations?

For software architects, there are more questions: Are they going to use cloud for certain workloads, while staying on premise for others? Are they going to need real-time analytics, insights, and fraud management? How are they going to deal with bursts, with lowering value and cost, and with increasing volumes of transactions?

AN EVENTFUL NETWORK

This is where an event-driven architecture (EDA) and an event mesh can address not just the immediate need to comply with new ISO 20022 standards, but the pressing need to modernize banking and payments as a whole.

Event-driven architecture is a design pattern that has been adopted by digital leaders across industries reliant on real-time data dissemination, such as capital markets, retail, and aviation.

Puri: "All banks are on the clock to make sure their message interface at least supports the receipt of ISO 20022-compliant messages."

The core of EDA is the business "event," where something occurs—for instance, a payment transaction—that drives the immediate distribution of information about that event so systems and people across the enterprise can react to it.

The fundamental building block of EDA is the event broker, an intermediary that routes data between systems that *publish* event information and those that *subscribe* to this information.

Events are published on "topics," which are like addresses on courier boxes. They consist of a noun, verb, and some meta data. For example, "payment" might be the noun, "settled" the verb, and "SGD, Internet Banking, Hong Kong" the meta data, where "SGD" refers to Singapore dollars. Collectively, this gives us a topic like 'pay/settled/sgd/ib/hk.'

Once published, events can be subscribed to by various applications, for example, *"pay/settled/>"* will generate all payments that have been settled, while *"pay/*/sgd/ib/>"* will give you all Internet banking payments in Singapore. These event topics can then be mapped to the meta data in the ISO2022 standard for easy event routing.

Now, enter the event mesh. This is a network of event brokers that dynamically distributes information about events from one application to any other application, no matter where they're deployed—cloud, private cloud, public cloud, or any combination.

This non-restrictive approach provides banks and financial institutions with the flexibility to consume whatever events they want, with no complex integrations. Even if they want to consume these events in a cloud or at another site, the event mesh takes care of making the right event stream available wherever they want.

A network of event brokers incorporated within an event mesh will dynamically route all events throughout the payment ecosystem, making for quicker and efficient transactions. Unlocking legacy assets, leveraging the best technology, and preparations for open banking and simplified governance are just some of the benefits.

MANEUVER AND ADAPT

But the benefits don't stop there. Others include lowered transaction costs, quicker payments, shared institutional knowledge, and efficient partnerships to allow banks to offer products through other businesses and payments providers without an IT meltdown.

EDA also offers traceability and lifetime benefits within the payment ecosystem. An event mesh needs underlying distributed tracing to emit trace events in OpenTelemetry format to allow banks to gather, envisage, and analyze in a compatible tool, giving them the power to quickly understand all stages a message may go through as well as to publish the message.

Event-driven architecture has attracted significant interest in the financial-services industry. In fact, recent research shows that financial services is the most advanced industry exploring EDA, with 27% of financial-service businesses employing a core team to promote EDA inside their businesses and uncover how technology can help detect and respond to openings or threats in a timely manner.

The compulsory ISO 20022 standard threw the spotlight on the need to move data quickly and efficiently inside and outside of a banking organization. It also underlines the need for changes within banking tech stacks to enable this.

Converting to EDA will not only aid banks and financial-service companies in reaching ISO 20022 compliance, it will also allow them to maneuver and adapt to new and developing industry norms in the future. DT

Don't be your Dad's bank

endpoint

HOW TO RIDE THE DIGITAL WAVE

The digitally savvy consumer base is rising fast. Banks can surf that wave—or drown in it.

BY **SERGE BECK**

Serge Beck is chief executive and founder of Optherium Labs

OVER THE PAST 12 months, many bank clients have become much more at ease with digital interactions, which has resulted in decreased branch visits. What would happen to retail banks if they never returned?

Investing in mobile banking is hard to evaluate in terms of return on investment. Although most retail banks recognize that digital and mobile banking services are an essential expense of doing business, the value these technologies offer is hazy, and challenging to quantify.

Regardless, consumers continue demanding digital banking services, and it's very unlikely this trend will stop soon.

There's a sizable and expanding client sector that's not at all interested in physical bank branches. These are digital-native consumers who prefer to skip branches entirely and instead be actively engaged online. According to PriceWaterhouseCoopers' study on digital banking, these consumers now make up more than 32% of total banking users. This is a significant increase from 26% at the beginning of 2020.

The proportion of consumers who are mostly engaged digitally—but like having the option of visiting a local branch— underwent a significant and counterbalancing reduction. Many of these customers stopped visiting physical branches altogether this year. Or, to a lesser extent, they do the majority of their banking operations online and visit branches only when there's something they don't know how to do online.

PWC, in its study, defined two types of consumers. Consumers who are "phygital" are active customers who use digital apps but also visit physical branches. The second type embraces those who are branch-dependent and prefer to visit physical stores. In the United States, 25% of customers now identify as "phygital," up from 17% a year ago due to this expanding digital comfort and accessibility.

As more consumers have gotten accustomed to using the Web and mobile apps, this shift neatly reflects the decline in branch-dependent users. This group now accounts for 35% of the total user base, down from 42% before the pandemic.

Of course, another category of people prefers to bank only digitally, but these are mainly innovators who use neobanks and challenger banks.

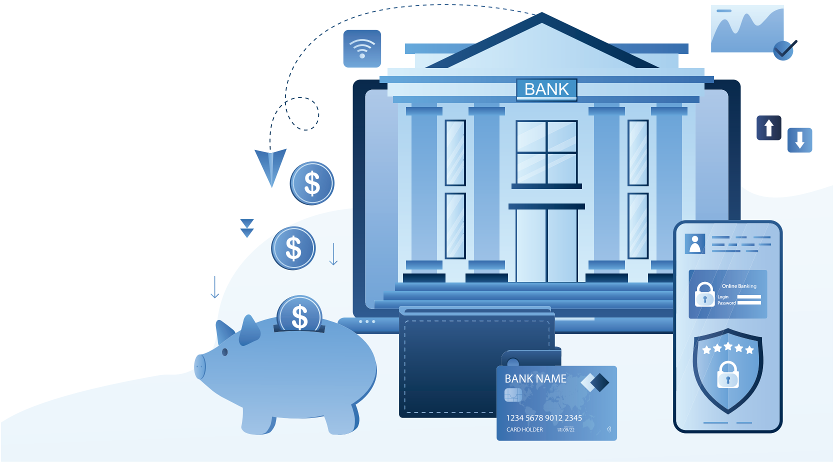
DON'T LOSE CUSTOMERS

Did you know that, on average, bank

clients who use digital banking spend more and adopt more bank products? That's not to mention that digital users enroll in far more product holdings such as loans, refinancing, and credit cards.

Bank of the West partnered with Fiserv to study an audience of 6,000 clients and determine how digital banking affected the behavior of users. In the study, the researchers found that:

- The **average holdings** of clients increased by 58% after having enrolled digitally. The growth of the holdings of non-digital users for the same period was negligible;
- **The revenue generated** per client increased by more than 10%. Monthly revenue per client grew 10.7% after signing up for digital banking versus a 4.5% growth for non-digital customers over the same time period. Greater engagement resulted in greater value. After digital enrollment, average monthly revenue increased by 13% among highly engaged clients. The study defined highly engaged consumers as those who stay with a company the longest, conduct the most business, and bring in the most money.
- Digital users had **increased transaction activity.** After digital registration, the study observed a 12% rise in credit transaction volume and a 12% growth in transaction frequency, compared to barely detectable increases for non-digital users. Similar outcomes were seen for debit activity: a 14.6% rise in volume and a 9.3% debit transaction increase.
- Compared to non-digital users, digital banking customers were 35% less inclined to leave the bank for good.



With the constantly growing percentage of digital and "phygital" banking users, Statista estimated that only in the United States will digital banking users reach 217 million by 2025. As a bank, you're most likely to lose customers if you cannot serve one-third of the country's population.

FRESH POTENTIAL

The easiest way for brick-and-mortar banks to transition into the digital world is by partnering with third-party neobank-as-a-service providers that offer turnkey solutions which can, in the span of a couple of months, digitize processes and offer them a working digital-banking application, on par with modern neobanks.

The banking environment has never been so dynamic and quick-paced. Neobanks have disrupted clients' expectations, and now they want to be able to digitally bank comfortably from the palm of their hands.

If you're willing to reconsider geographic restrictions and are prepared to expand upon the skills and specialties you already possess, there's still time to adapt. In fact, PWC's study indicates fresh potential for organic development.

Customers have already settled into new purchasing habits in the wake of the pandemic, which will have long-term effects. This can be a great opportunity for both banks and neobanks alike. DT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