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Trends in the Electronic Exchange of Value

THE SUDDEN ASCENT OF QR CODES

They're having their day in the sun as consumers turn toward contactless payments.



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THE SUDDEN ASCENT OF QR CODES

Efficient and fast, the funky-looking barcodes are having their day in the sun as the Covid-19 pandemic channels consumers toward contactless payments.

BY JOHN STEWART



IT HAS BECOME COMMONPLACE to observe that the Covid-19 pandemic has energized contactless payments, and all the numbers seem to bear that out. But contactless at the point of sale doesn't necessarily mean EMV cards embedded with near-field communication antennae. There's a cardless alternative, and all of a sudden it's getting a big share of the spotlight.

While common for payments in much of Asia and India, QR codes were relatively obscure in North America. Big merchants like Starbucks, Walmart Inc., and Kohls Corp. use them routinely for payments and loyalty on private-label accounts, but when it comes to general-purpose payments they were shoved aside for years in favor of NFC.

This summer, that began to change. Along with NFC, QR-code transactions have ridden a rising wave sparked by consumers' fears of touching surfaces like terminals and keypads.

That momentum could outlast the pandemic. Mohammad Khan, chief technology officer at Omnyway Inc., predicts that NFC will control fully 60% of in-store transactions by the middle of 2021. But he also figures QR codes will account for anywhere from 5% to 10% of those payments, up from less than 1% now. San Francisco-based Omnyway equips stores for contactless acceptance, including QR codes.

And that share could go even higher. Other proponents see fast growth for QR technology, particularly among small businesses, where NFC has lagged.

"I think QR will take off in the United States pretty fast. In the next three to five years we'll see the same growth curve we see in Asia," predicts Chuck Huang, chief executive of Citcon USA LLC, a Santa Clara, Calif.-based startup that specializes in equipping U.S. stores to accept the hugely popular Alipay and WeChat Pay apps used by Chinese tourists.

Both wallets rely on QR codes, which now control anywhere from 20% to 30% of all store payments in China, Huang estimates.

IMMEDIATE OPPORTUNITY

Processors are adopting QR technology as well to lead consumers to a checkout page without touching any surfaces. Shift4 Payments Inc., for example, this summer introduced QR codes that don't trigger a payment but do direct restaurant patrons to a payment page that lets them check out with a credit card.

Similarly, sensing an immediate opportunity, Schaumburg, Ill.-based point-of-sale technology vendor NMI started selling QR code capability "coming out of Covid," says Jennifer Sherman, senior vice president of product. The company markets the capability through independent sales organizations and software vendors.

"My team started talking about QR codes three months ago. It's absolutely in response to the need for contactless," she says. Already, NMI merchants are using a QR code to refer customers to a checkout page in 14% of instances where such referrals take place (chart, page 25).

Sherman says the QR approach gets contactless into more stores much faster than with NFC. "The [NFC] adoption has just been a little slower," she notes. And the approach also means any consumer with a smart phone can pay, regardless of whether he has a contactless card.

A drawback lies in the card-not-present treatment this process yields, Sherman concedes. "It essentially becomes an e-commerce transaction," she notes. That invokes a higher rate of interchange, raising merchants' transaction cost.

Even Apple Inc., long a stalwart of NFC for its iconic Apple Pay mobile wallet, shows signs of investigating QR Codes. "In July, a code leak from the second iOS 14 beta indicated Apple Pay had a new feature on the way

ACTIVE PAYPAL ACCOUNTS

(In millions)

169

Q2 2015

188

Q2 2016

212

Q2 2017

244

Q2 2018

286

Q2 2019

346

Q2 2020

Source: PayPal

for ‘Code Payment,’ which would enable Apple Pay transactions to take place via QR codes,” industry newsletter *AppleInsider* reported in September. “By scanning a code displayed in-store, this would instruct the Wallet app to perform the transaction via Apple Pay’s servers over its own cellular system.”

THE PRICING QUESTION

But much of the optimism surrounding QR codes lately rests on one signal event: PayPal Holdings Inc.’s stunning announcement in July that, together with Atlanta-based technology firm InComm Inc., it is embarking on a major effort to enable transactions via QR codes for both PayPal and Venmo at 8,200 CVS Pharmacy stores. Transactions will flow to InComm, which will route them to PayPal.

PayPal, long an e-commerce payments giant, is no stranger to this technology. Its efforts over the years to find a way into the physical point of sale have seen it enable QR codes in stores in some 28 countries.

Not long before announcing its deal with CVS, it rolled out a formal program to sell the technology to small and medium-size businesses, offering a two-month free period followed by pricing of 1.9% plus a dime per transaction. It hasn’t discussed pricing for

retailers on the scale of a CVS, and the pharmacy chain refused to comment for this article.

Pricing, though, could be critical. Merchants, and big chains especially, have already proven to be quite sensitive to pricing for ordinary card transactions. “What’s PayPal going to charge that merchant as a fee? Historically, it was quite high,” notes Mike Russo, chief technology officer at Allentown, Pa.-based Shift4.

One big difference with the installations for CVS—and presumably for big chains to follow—is that checkout clerks at these stores will execute transactions by reading a QR code generated by the customer’s phone. The code will represent a pre-selected funding source—card or PayPal balance—that the store’s scanner will read and process.

Advocates argue this experience is more consistent than NFC. “Whereas a consumer’s experience with NFC may be excellent at one store and subpar at another, their experience with QR and barcodes is more consistent and reliable,” say InComm executives Adam Brault, senior vice president for financial services, and Kia Taylor Lee, vice president for strategy and product development. The two responded jointly by email to questions posed by *Digital Transactions*.

This approach works best with chains, which typically have the needed equipment in place at the point of sale. “High-end merchants will use a scanner” to read customers’ QR codes as they hold up their phones, says Omnyway’s Khan.

In transactions at smaller stores—and indeed with QR code transactions, for example, in Asia—the merchant may generate a code that the consumer reads with his phone, triggering payment from the consumer’s pre-selected funding source. In some cases, the familiar barcode can be simply a paper printout pinned on a roadside vegetable stall.

The latter approach remains far more common. With Shift4’s QR Pay, where QR codes are presented to customers via the PIN pad, the

NFC ADVOCATES AREN'T BOARDING THE QR BUS

Backers of near-field communication technology for mobile payments have made it plain they're ready to fight back against QR codes, a rival technology that has won support not only from giant systems like China's Alipay and WeChat Pay but also domestically from merchant apps from big chains like Walmart Inc. and Kohls Corp. and from major payments providers like PayPal Holdings Corp., Shift4 Payments Inc., and NMI.

The NFC Forum, a Wakefield, Mass.-based standards body, released last year what it calls a "candidate" spec aimed at making mobile transactions even easier than with QR codes. The Money Transfer Candidate specification's method would apply to both person-to-person and consumer-to-merchant transactions, and has been undergoing industry review and comment.

"QR codes aren't dead but they are about to take a punch to the gut," a spokesman for the NFC Forum noted at the time the candidate spec was released.

But so far the spec exists only on paper. "We are still evangelizing the specification in the payment ecosystem," the spokesman now says. "There is to my knowledge no implementation of this specification as yet."

QR codes require users to open an app and position their phones to zero in on and scan a displayed code, steps the NFC Forum says its new spec will replace with a single tap. The group also says the new spec will offer more secure transactions than QR codes.

"The starting point was to define an NFC solution able to replace existing QR code solutions in Asia which require additional actions from the user to pre-select the right payment app and then to activate

and place the camera in the correct position," Daniel Orsatti, an executive at STMicroelectronics and group chair for the NFC Forum's reference applications framework working group, said at the time the spec was announced.

"Once the development process was started, it quickly became apparent that there was an even greater need for an NFC solution," Orsatti continued. "We have enlarged the specification's scope to not only cover Asia use cases but to offer a generic framework covering payment systems."

Orsatti's remarks were posted by the NFC Forum as part of an interview regarding the new NFC spec.

"This spec was developed based on input from member companies primarily in China. Because this is a candidate spec, we are offering member companies and the industry to provide input and feedback before the spec is adopted. It is too early to project where it may be deployed," Paula

Hunter, the forum's executive director, told *Digital Transactions* last year.

The spec works by proposing an open framework allowing payment-service providers to "map" the payment-data exchange they've already defined for QR-code transactions. The process will take place between all NFC-enabled devices, including phones, readers, and tags, and "gives payment service providers and consumers the opportunity to take advantage of the simple and secure NFC-based payment solutions already in use worldwide as an alternative to QR code solutions," the Forum's post says.



focus has been on enabling as much touchless commerce as possible in restaurants and hotels, Russo says.

The system doesn't trigger payment but allows establishments to minimize visits to the table. When the customer is ready to pay, a terminal at the table displays a QR code, which the diner can scan. The diner's phone then displays the bill, which he can pay at the terminal with a card.

"The QR code is a way to solve a business-flow problem," Russo says. "It represents the guest check and eliminates [a server] walking back and forth."

TIP OF THE ICEBERG

But, as a technology either for payment or for leading up to payment, QR codes are not without drawbacks (box, page 24). Critics point out that NFC is faster and less frustrating when considering the seconds it can take for a consumer to position his phone's camera just right to capture the QR code on display.

"The user experience, frankly, is not great," says Randy Vanderhoof, executive director of the Secure Technology Alliance, a payments trade group.

"It's going to be difficult for QR to catch on," he adds. "Inserting your card, tapping your card, holding your watch up, is a marginally better experience. The milliseconds build up with no significant benefit to the consumer." Loyalty benefits could entice consumers to use QR, he concedes, though "that adds significant cost to the merchant."

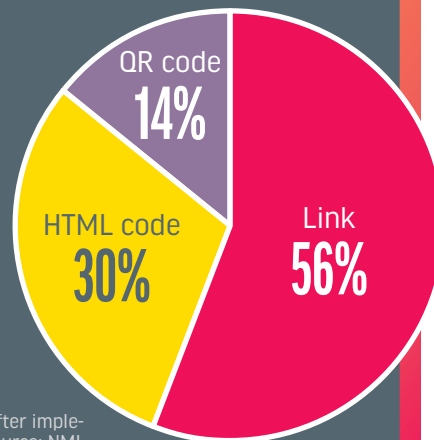
Even an entry by Apple would likely not change the picture, he says. "It's hard to predict what Apple will do, but making [payments] available through a QR interface is not a significant step up for them."

InComm's Brault and Lee counter that not all merchants can afford NFC. "There's a significant cost advantage, particularly for small retailers who do not have the resources or the budget to purchase new terminal devices enabling NFC," they say

GETTING TO CHECKOUT

(Percentage of occurrences in which an NMI merchant chose to generate a reference to NMI's checkout page via a QR code, a link, or an HTML code they embed on their Web site.)

Note: Data collected three months after implementation of QR code capability. Source: NMI



in their email response. "QR codes allow for ubiquitous adoption of contact-free payments."

More likely, though, is that merchants over time will start to accept both technologies, according to an expert source who asked not to be identified. The key is merchants' appetite for incremental transactions. "I have a little knowledge. [CVS] is the tip of the iceberg," he says. "You're going to see that [technology] get a ton of investment to start using QR codes as a new revenue opportunity."

And some observers point out U.S. consumers are more familiar with QR codes than anyone might have thought. "They're already doing those kinds of scans, with loyalty cards, for example," says Citcon's Huang, who argues QR scans are more reliable than NFC reads.

It also doesn't hurt that EMVCo, the standards body controlled by the world's six biggest card networks, established a standard for QR codes in 2018.

RIGHT PRESCRIPTION?

For a technology that came out of a Toyota automobile plant in 1994, QR codes have come a long way. They embody a ton of information and do so quite efficiently. Now the question is how much farther can they can go—and how well they can bring efficiency to in-store payments.

Indeed, the key for the technology's adoption in payments in North America, some experts argue, lies in how soon it can filter down from big chains like CVS to corner-store sellers. "We'll see if a Square could take the low-tech approach and push it down to micro-merchants and to retailer-specific apps," says Sarah Grotta, an analyst at Mercator Advisory Group, a Marlborough, Mass.-based consulting firm.

For now, though, all eyes will remain fixed on CVS. From that experience, the payments industry will decide whether QR codes are the right prescription for a Covid-haunted world. **DT**