Expanding Access to Faster Payments Systems if You're Not A Bank

FPC Member Meeting

Steve Mott and Maria Arminio

September 2021

Purpose and Objective of this Session

- This session will look at alternative ways to 'ride the rails' of FedNow, TCH RTP, Zelle, and other offerings for retail buyers and sellers as well as SMBs and Billers.

- It will delve into use cases for secure acceptance QR codes, A2A payment applications (Open Banking), P2P configurations, virtual network systems, and other means of one day accessing the faster payment networks without having to be a bank.

- The intent is to draw out viewpoints from attendees to inform the Membership on options; e.g.,:
  - Is the FPC's lexicon/purview on 'faster payments' broad (and timely) enough?
  - Are there minimum security and data protection/sharing 'standards' needed to help guide users across a multitude of choices?
  - Should better authentication be a baseline for embracing and ramping up adoption of Faster Payments?

50,000-foot View of Today's Faster Payments Marketplace

Faster Payments are proliferating and growing globally (with a push from Covid)

But their growing presence is not without some concerns

Many feature Central Bank-sponsored services (bank-to-bank)

But many other forms of 'faster payment' are springing up

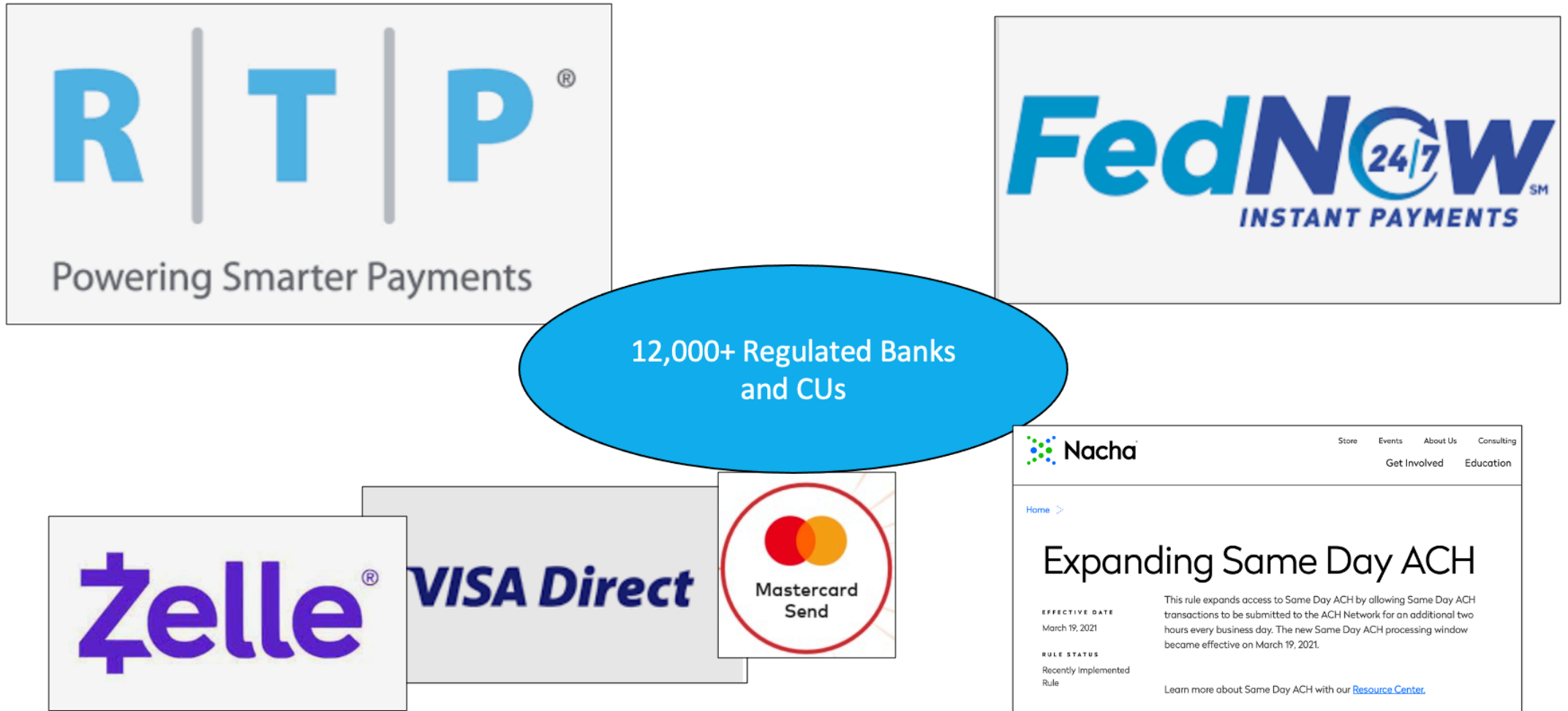Users (consumers, businesses, others) are finding their way to these alternative forms of 'real-time' payments

And non-banks appear to increasingly finding ways to become providers

Infrastructure changes will be required—chief among them security, and the role of authentication

Most of What We Know and Discuss is Concentrated

12,000+ Regulated Banks and CUs

Growing Presence? Certainly. But Not Without Growing Concerns Over Spawning a New Venue for Fraud

Global real-time payments growth:

- Total number of real-time transactions in 2020 was 70.3 bn, up 41 percent from 50.0 bn in 2019
- The real-time share of global electronic transactions in 2020 was 9.8 percent, up from 7.6 percent in 2019; it is predicted to be 17.4 percent by 2025
- The value of real-time transactions was up by 32.8 percent from 2019, rising from $69tn to $92tn; the expected CAGR by 2025 is 12 percent

Global mobile wallet adoption:

- Mobile wallet adoption rose to an historic high of 46 percent in 2020, up from 40.6 percent in 2019 and 18.9 percent in 2018
- Total mobile wallet transactions amounted to 102.7 bn in 2020 and are expected to reach 2,582.8 bn by 2025
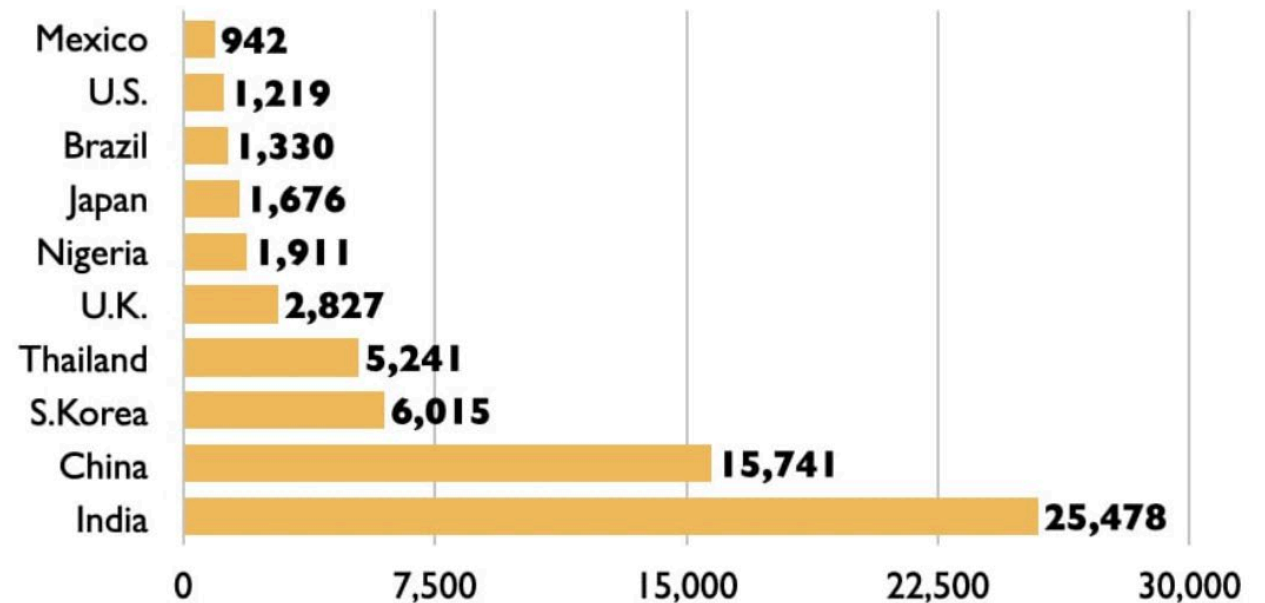
Payments fraud:

- Globally, card-related fraud remains highest in terms of reported incidents from consumers, but fraud incidents associated with real-time payments were on the rise from 2019 to 2020 as fraudsters tend to target new channels
- Real-time payments scams that were on the rise include: confidence tricks (12.5 percent of all fraud instances in 2019, rising to 13.7 percent in 2020), Identity theft (6 percent rising to 11.6 percent) and digital wallet account hacks (4.4 percent rising to 6.2 percent)
  - Top three fraud types in North America include:
    - Card details stolen/skimmed at a merchant location (e.g. at a retailer, restaurant, gas station, hotel, taxi) – 22 percent
    - Card details stolen on the internet – 20 percent
    - Personal information stolen and used to apply for financial products – 14 percent

The U.S. is Now in the Mix of Leading Adopters

Top 10 instant payments markets

In 2020, these were the countries leading the volume of real-time transactions (in millions):

Country	Volume
Mexico	942
U.S.	1,219
Brazil	1,330
Japan	1,676
Nigeria	1,911
U.K.	2,827
Thailand	5,241
S.Korea	6,015
China	15,741
India	25,478

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

More than 85 Systems in 79 Countries

Faster payments, by the numbers

70 billion: Number of real-time transactions globally in 2020, up from 50 billion in 2019

10%: Share of instant digital transactions worldwide in 2020, up from 7% in 2019

$92 trillion: Value of real-time payments in 2020, up from $69 trillion in 2019

37%: Projected annual compound growth rate for real-time payments in North America through 2025

Source: ACI Worldwide

Live
Planned
Live*
Planned*
No scheme in place*
*Not included in report

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

But 'Faster Payments' are Popping Up All Over

Convergence of Digital Payment Options Complicates Market Understanding and User Adoption
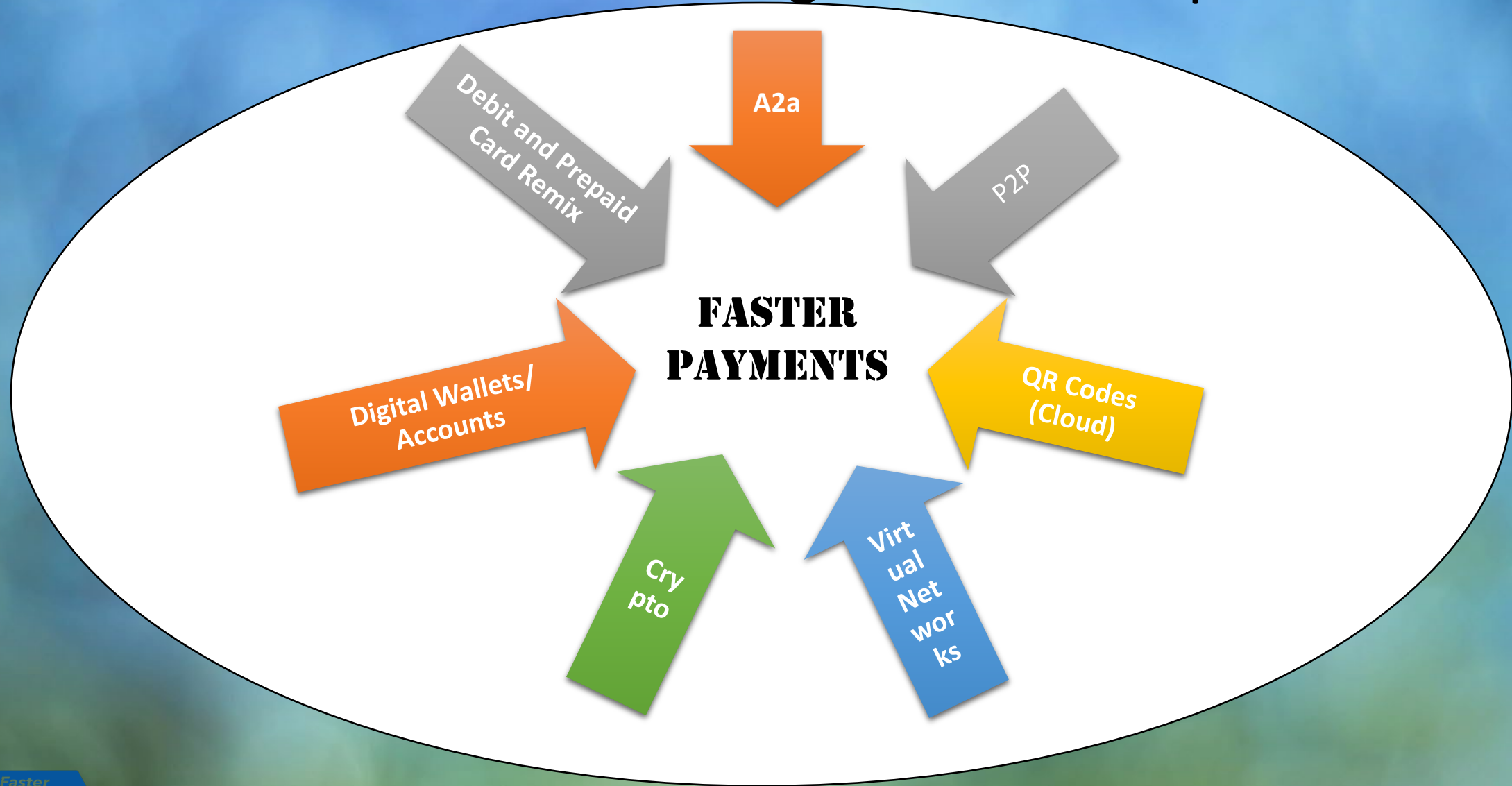
A2A Models Extend to Next-Gen (non-Card) Payments

Digital/Mobile Wallet, P2P and 'Remixed" Debit card-based Payments
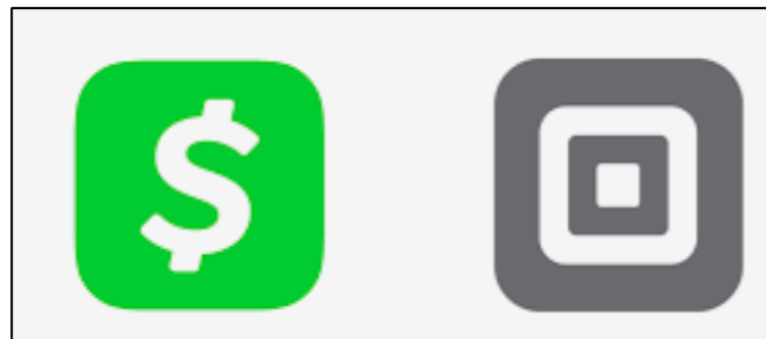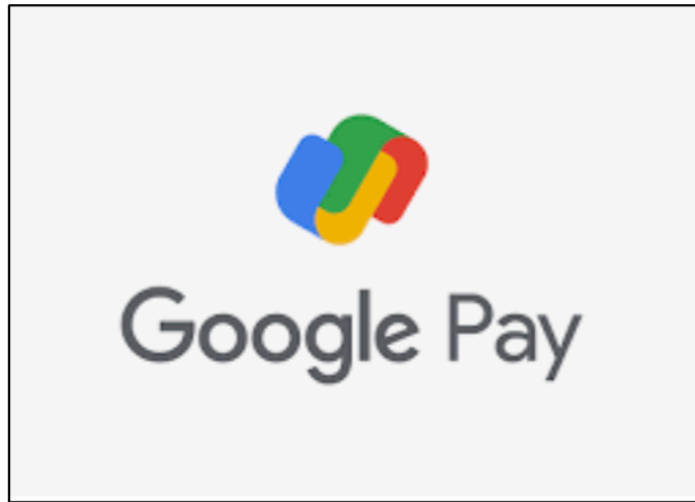
QR Code Bank Account Payment Options at POS: Citcon

E.g., PayPal and Venmo at Grocer—with QR Codes

Grocer Giant Eagle Furthers PayPal's Push to Capture In-store Volume At Checkout

Peter Lucas   August 13, 2021

Acquiring, Breaking News, Competitive Strategies, E-Commerce, Mobile Commerce, Mobile Wallets, Near-Field Communication (NFC), Point-of-sale, Transaction Processing

With consumer use of mobile wallets growing, supermarket chain Giant Eagle, Inc. is adding PayPal and Venmo acceptance at checkout in its 474 Giant Eagle supermarkets and GetGo convenience stores. The move, announced Thursday, furthers PayPay Holdings Inc.'s efforts to capture in-store transactions through its mobile wallet.

PayPal began its push to gain broader acceptance in-store in 2020 when it reached a deal with CVS Pharmacy to run PayPal and Venmo transactions on **quick-response (QR) codes** at its 8,000 locations.

Shoppers will be able to pay for purchases in-store using PayPal or Venmo QR codes at checkout. To initiate a transaction, shoppers open their PayPal or Venmo mobile wallets, click the "scan" button, and select the "show to pay option." PayPal customers can pay using their stored debit or credit cards, bank accounts, PayPal balance, or PayPal Credit.

With Venmo QR Codes, customers can pay using their stored debit or credit cards, bank account, Venmo balance, or Venmo credit card. Transactions will be processed by the Blackhawk Network Inc., which says Giant Eagle is the first supermarket chain to accept PayPal and Venmo.
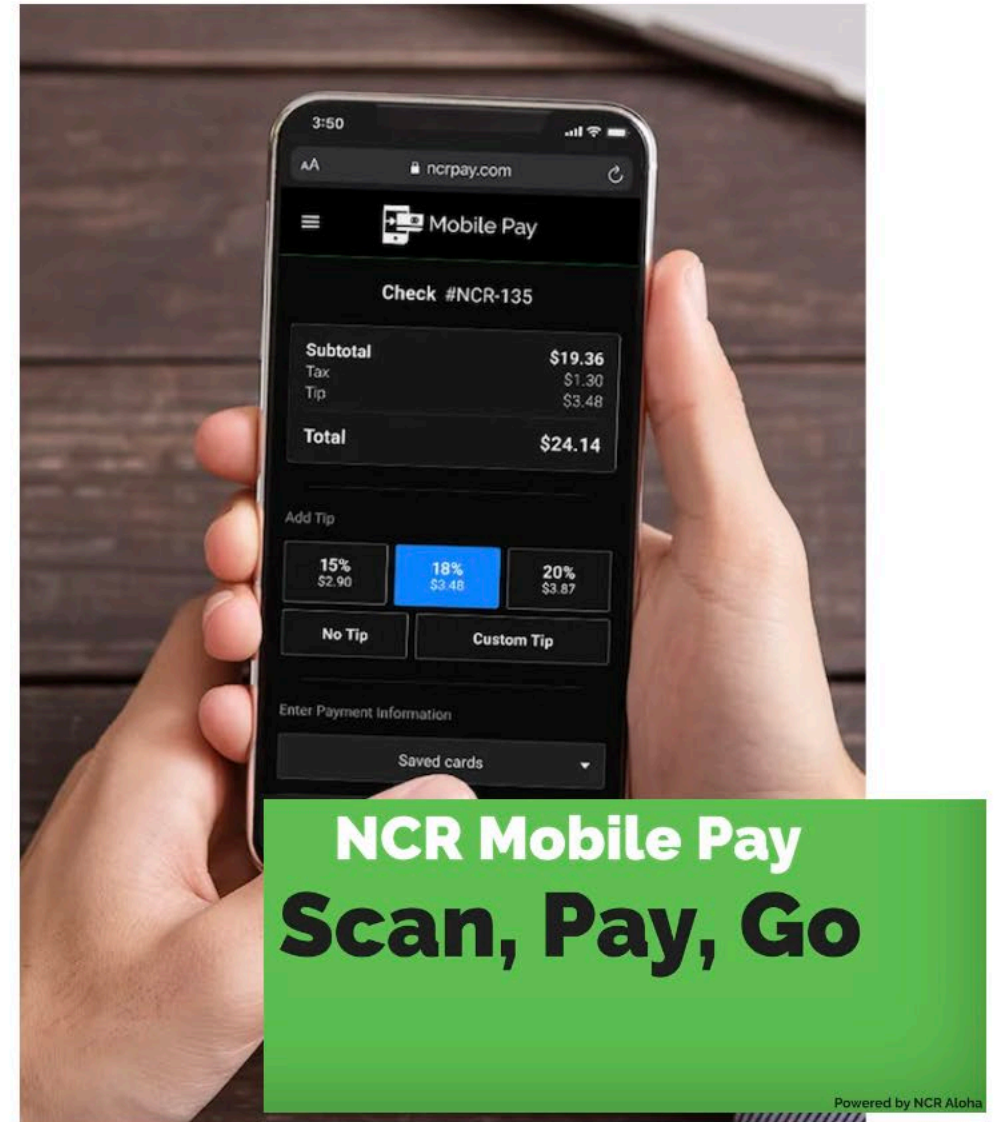
Gig Economy Puts a Premium on 'Getting Paid' Fast

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Lyft (and Uber) Extend Debit Card Model to an Embryonic Financial Services Venue for Drivers Living from Fare-to-Fare

A debit card designed for Lyft drivers
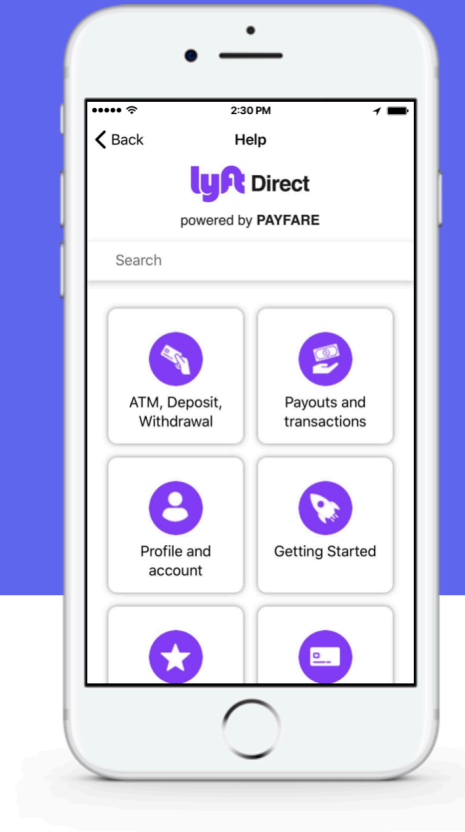
SECURITY YOU CAN TRUST

Lyft Direct is powered by Payfare and issued by Stride Bank. All deposits to your account are FDIC insured, up to $250,000

Earn cash back

Earn Lyft Direct debit card cash back and Mastercard® Easy Savings** rebates. Rewards and cash back subject to change. Terms and conditions apply. Learn more about when you'll get cash back ›

Yet Debit Cards Have Their Limits as Faster Payments

Uber Help

We're here to help — Driving & Delivering — Describe your issue

HELP WITH A TRIP

ACCOUNT AND APP ISSUES

CUSTOMER AND MERCHANT ISSUES

EARNINGS AND PAYMENTS

A GUIDE TO DRIVING AND DELIVERING

HELP WITH A FOUND ITEM

SAFETY

BOOKING APPOINTMENTS

ACCESSIBILITY

DRIVING & DELIVERING > EARNINGS AND PAYMENTS >

Using your Debit Card with Instant Pay

CAN I USE ANY DEBIT CARD FOR INSTANT PAY?

You can use most* Visa, Mastercard, or Discover debit cards to cash out with Instant Pay.
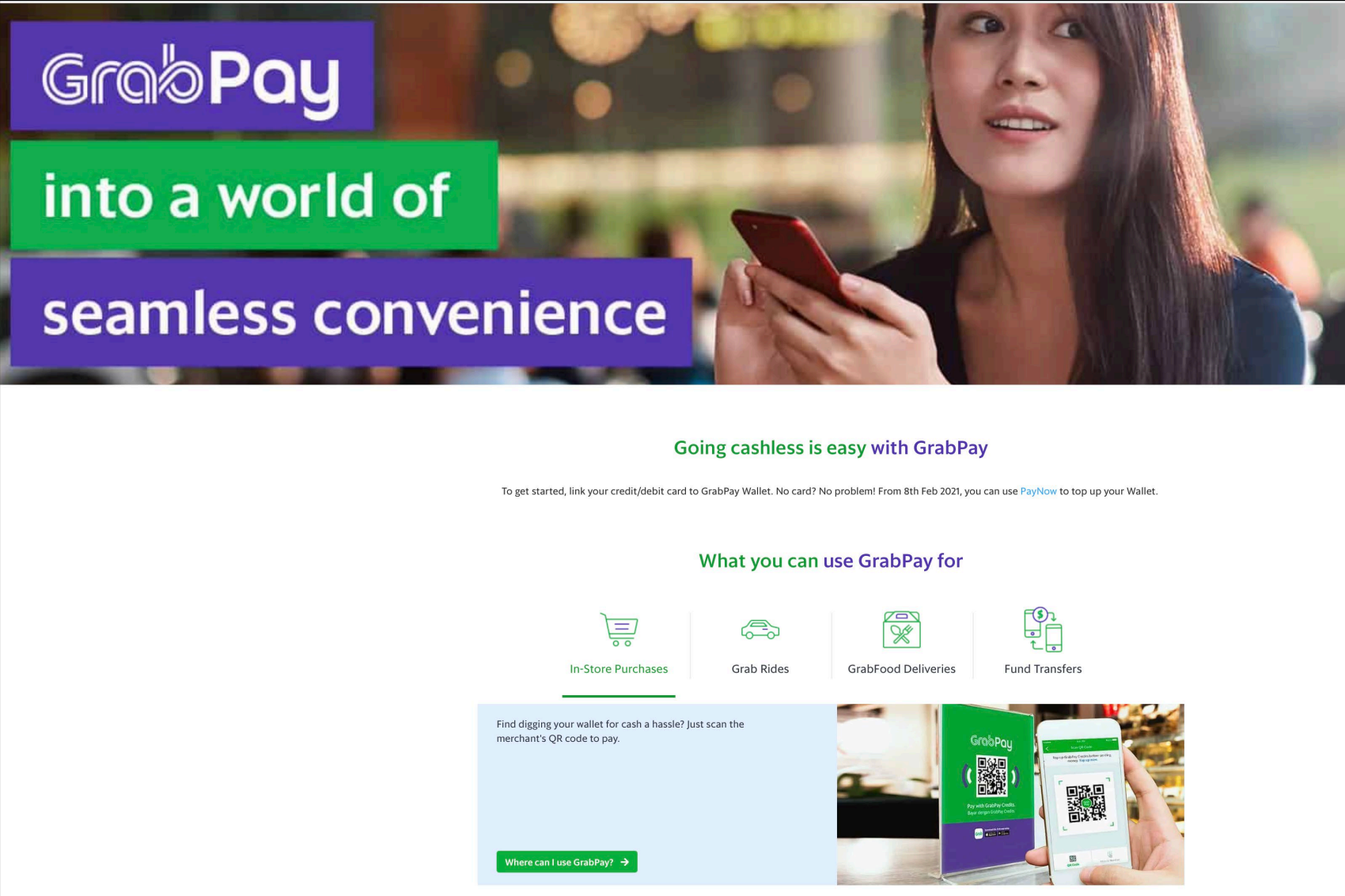
* Please note that not all debit cards are eligible.

HOW LONG DOES IT TAKE TO RECEIVE MY EARNINGS?

In most cases, you'll receive cash in your debit card account right away. While Uber strives to make Instant Pay as reliable and instant as possible, some banks may still take 2-3 days to process an Instant Pay cashout. If a bank rejects a payment, or it fails in the Uber system for any technical reason, the payment will be routed to the bank account you have on file, and you will receive the payment in 1-3 business days.

The following banks may take a few days to receive funds: UBOC, H&R Block, First Citizens, Amegy, California Bank and Trust, First National Bank of Omaha, Webster Bank, BOKF, Silicon Valley Bank, Northern Trust, and Bank of New York Mellon.

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Singapore's GrabPay Offers an Extended Private Financial 'Venue'

Account Funding Can Come from the Government's PayNow Service, Indicating a Private plus Public Interoperation

Transfer money in & out of your GrabPay Wallet more easily.

As we continue to look at new ways to improve your GrabPay experience, please take note that **PayNow QR top up will no longer be available as a feature in the GrabPay Wallet starting 1st April 2021.**

Starting 8 Feb, we are launching GrabPay Wallet transfers and PayNow VPA top-ups – new features that will make transfers in and out of your GrabPay Wallet more seamless and convenient. Scroll down to learn more about **PayNow VPA**.

These features will be rolled out progressively to GrabPay users. For more information on GrabPay Wallet transfers, please visit our Funds Transfer page.

WHAT IS PAYNOW?

Available 24/7, 365 days a year, PayNow lets you transfer funds from your bank account to another party using their Unique Entity Number (UEN). PayNow transfers are free and instant, and are supported by 9 banks in Singapore.

Why top up via PayNow?

No card details necessary

No bank details required

Top up with your preferred banking app

Add Grab as a payee for easier repeat top ups

Enjoy the same security standard as your mobile banking platform

Is my bank supported?

You can top up your GrabPay Wallet using web or mobile banking apps from any of the following banks:

DBS POSB · UOB · OCBC Bank · HSBC · Standard Chartered · BANK OF CHINA · Citi · ICBC 中国工商银行 · Maybank

What are the different ways to top up?

Set up a **PayNow VPA** to top up straight from your preferred bank account, or top up by scanning or uploading a QR code using the **Scan and Pay** function in your banking app.

Note: PayNow QR transfers will no longer available from 1 April 2021.

FIGURE 24. SEPA Instant Credit Transfer (SCT Inst)
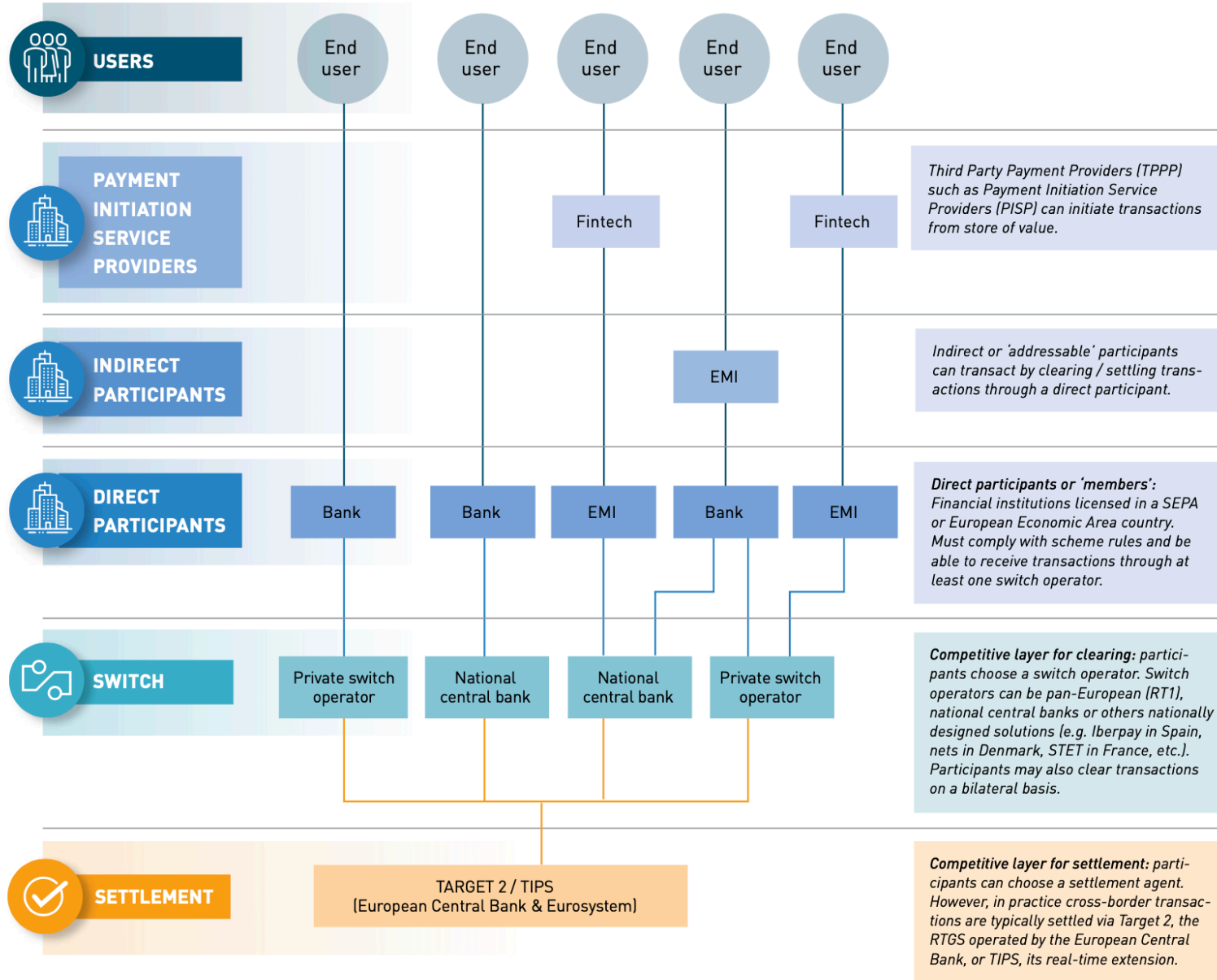
Europe (SEPA) Structures for Instant Credit Transfers Underscores the Intention to Offer Open and Competitive Participation

B2B Begins to Open Up on RTP/Zelle Foundation

PNC reports brisk B2B enrollment for real-time payments

REAL-TIME PAYMENTS

By John Adams   May 25, 2021, 12:01 a.m. EDT   3 Min Read

The past year has seen the emergence of what PNC Financial Services Group's Chris Ward calls the "immediate economy," and that has made all the difference for the bank's real-time payment program.

More than 250 of the bank's wholesale clients are now regularly using PNC's connection to The Clearing House's RTP network, which is up from just a handful a year

"As so much more gets digitized, there's more of a need to have funds imm who is the executive vice president and head of product for treasury man which is connected to both TCH's RTP network and the bank-backed Zell transfer app.
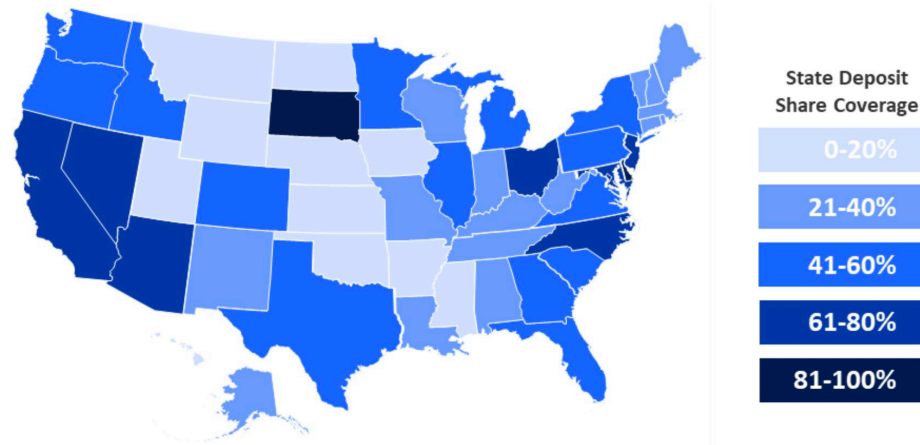
The quick uptake stems from a wish to improve liquidity for supply chains alternative payrolls as firms add early wage access and hire more contrac away from the traditional two-week wage cycle. The bank is also building supports real-time payments, enabling a request for payment, disbursem availability almost simultaneously.

Bloomberg

JPMorgan Chase aims to build Zelle-like network for B2B payments

FASTER PAYMENTS

By John Adams   August 20, 2021, 2:48 p.m. EDT   4 Min Read

JPMorgan Chase is trying to duplicate its success with peer-to-peer payments by providing a real-time option for businesses to pay each other and for consumers to make certain purchases.

The bank has launched Request for Pay, which resembles JPMorgan Chase's earlier effort to help spearhead the creation of Zelle. But where the latter serves as a P2P payments tool, RFP is more focused on the bank's corporate clients.

The new Chase product enables immediate wholesale payments between companies, or certain consumer-to-business transactions, such as someone buying a car. The bank is piloting the product through an undisclosed fintech partner.

In the auto industry, consumers who don't take out a loan must pay with cash, a cashier's check or wire transfer. Chase wants to replace this with a real-time digital payment. Real-time payments in a car dealership can also speed up other processes, such as setting up the vehicle's registration.

RTP Network Coverage by State

⊕ ENLARGE

State Deposit Share Coverage

0-20%	
21-40%	
41-60%	
61-80%	
81-100%	

Source: FDIC, NCUA, S&P Market Intelligence; deposit data as of June 30, 2020; RTP Participants on network as of end of 2Q 2021.

Business Payments Coalition: Virtual Network for e-Invoicing

BPC Business Payments Coalition

e-Invoice Exchange Framework: Approach to Managing a Federated Registry Services Model in a Four-Corner Network

March 2021

Figure 1
The Four-Corner Model of an e-Delivery Network[14]

Service Metadata Location Service Provider — SML

Service Metadata Publisher Service Provider — SMP

Step 1 · Step 2 · Step 3 · Step 4

"I want to send an Invoice" — Billing System — Access Point — Message Transport Infrastructure — Access Point — Accounts Payable System — "I have received an invoice"

Participant — Access Point Service Provider — Access Point Service Provider — Participant

Corner 1 · Corner 2 · Corner 3 · Corner 4

NACHA Phixius

Moving Payments Forward

Nacha's holistic and in-depth understanding of payment challenges has led to Phixius: a platform that solves many of the challenges by facilitating the trusted exchange of payment-related information.

CHALLENGE	PHIXIUS SOLUTION
Lack of Interoperability	**Network of CSPs** An established network of banks and payment institutions on the Phixius network enables institutions to move away from bilateral agreements and toward interoperability
Insufficient Industry Standardization	**Standardized APIs** Phixius enable CSPs to communicate directly with one another via standardized APIs, frequently conforming to Afinis Interoperability Standards and ISO 20022
Limited Automation	**Streamlined Services** CSPs can leverage Phixius APIs to efficiently manage the payment information life cycle, from essential information verification to customer payment profile management
Increasing Levels of Fraud	**Secure Information Exchange** Information is exchanged securely through vetted CSPs and supporting APIs; this reduces the fraud that is more common with paper checks, account validations, and other manual processes

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Expanding Same Day ACH

**EFFECTIVE DATE**
March 19, 2021

RULE STATUS
Recently Implemented Rule

This rule expands access to Same Day ACH by allowing Same Day ACH transactions to be submitted to the ACH Network for an additional two hours every business day. The new Same Day ACH processing window became effective on March 19, 2021.

Learn more about Same Day ACH with our Resource Center.

FIGURE 26. **Instant payment system transaction volumes (interoperable transactions) across countries**
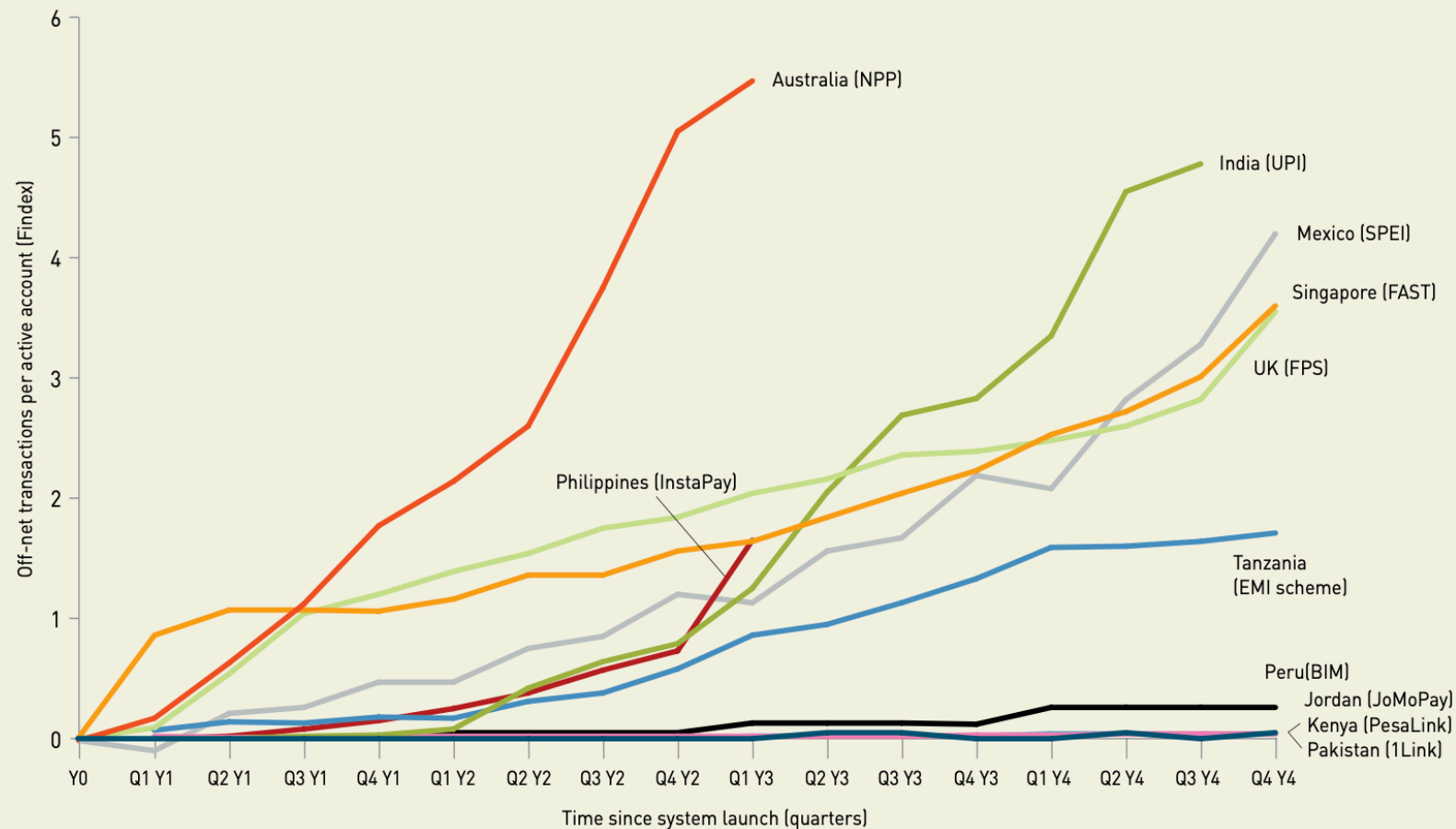
Note: Mexico shows new volumes only from the time SPEI began offering near real-time and continuously available payments in 2015.

Source: Population: UN database. Accounts: Global Findex Database 2017 (Demirgüç-Kunt et al. 2018). Australia: "Payments Data," RBA, https://www.rba.gov.au/payments-and-infrastructure/resources/payments-data.html. India: "UPI Product Statistics," NPCI, https://www.npci.org.in/product-statistics/upi-product-statistics. Jordan: JoPACC, 2020. Kenya: "Cheques & EFTs," Central Bank of Kenya, https://www.centralbank.go.ke/national-payments-system/automated-clearing-house/cheques-efts/; Mexico: "SPEI Transfers by Amount Operated (CF620)," Economic Information System, https://www.banxico.org.mx/SieInternet/consultarDirectori-oInternetAction.do?accion=consultarCuadro&idCuadro=CF620&locale=en. Pakistan: "Access to Finance in Pakistan, Key Indicators," SBP, http://www.sbp.org.pk/publications/acd/branchless.htm. Philippines: BSP, 2020. Singapore: MAS retail payment statistics. Tanzania: BoT statistics. United Kingdom: Pay.UK, 2020.

Several 'Formal' RTP Models have Shown Paths Forward in Adoption (and Interoperability)

Australia's Rapid Adoption Owes to Industry Consensus on Fostering Competition; Overlay Services Offer a Model for FedNow (and Beyond?)

FIGURE 27. **NPP operational architecture**
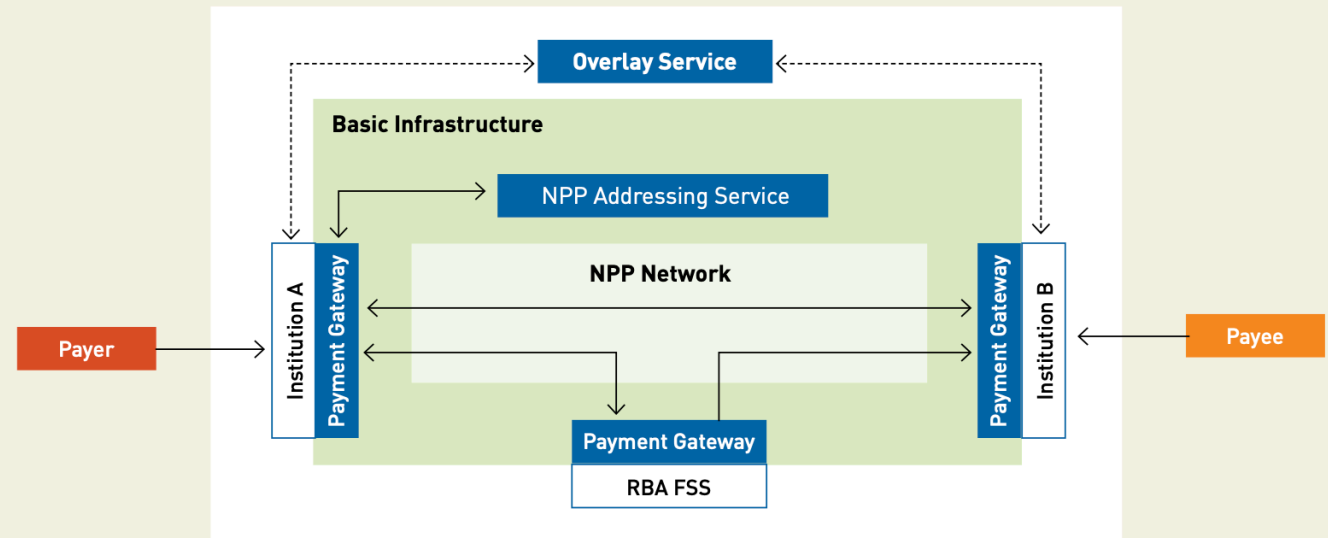
Source: RBA, 2019.

The system is designed to have a competitive ecosystem of overlay services. However, many key overlay services are centrally managed by NPPA.

In parallel, RBA developed a new settlement service called Fast Settlement Service (FSS) to enable real-time gross settlement on a 24/7 basis. FSS is separate from the country's RTGS system, but it uses central bank reserves as collateral for liquidity. These reserves are segregated from banks' main reserve accounts at RBA, but when normal RTGS operations are closed, reserves are available for NPP settlement.

WHICH OTHER SCHEMES FOLLOWED THE NPP APPROACH?

While NPP's technical architecture—connecting participants through a distributed network rather than a centralized switch—remains fairly unique, the collaborative process between public and private sectors is similar to the experience of many of the most successful instant payment systems. Pay.UK in the United Kingdom, NPCI in India, and Singapore Clearing House Association (SCHA) in Singapore, among others, include a public sector actor playing the role of a catalyst to drive industry action supported by strong regulatory oversight.

Scaling the Adoption of Faster Payments

Key Factors in Fueling Adoption

- Expanded use cases
- Expanded access for NFIs
- Innovative Applications
- Interoperability
- Global interconnections
- Mastering a new fraud target venue
- Rethinking best practices for security/privacy/data sharing
- Incorporation of standard Authentication approaches

Questions for FPC

- Scheme-driven or market-driven?
- Who qualifies and on what basis?
- Can these exist as network plug-ins (APIs)?
- How far should this go?
- How many? When? What if >1 in a country?
- Have we actually understood the threats, and identified relevant solutions?
- Where do these standards come from? Can/should they be embraced by FPC?
- Should the FPC be involved in authentication standards

Litmus Test ?: The Expansion/Fit of QR Codes with Faster Payments

- Many of the emerging 'Faster Payments' use QR codes to go beyond the legacy POS infrastructure

- China does $5.5 trillion in QR code payments with little friction or fraud; China Union Pay supports QR code payments in 40+ countries; UPI in India

- Several countries have formed/are forming national ecosystems to ensure interoperability, safety and utility

- Trans-national use will likely pressure Faster Payment systems to interoperate, putting pressure on interoperability

- QR code 'rationalization' (i.e., development of sufficient standards to avoid excessive proliferation of proprietary schemes) could be facilitated as low-risk test case for Faster Payments systems interoperability

- Rationalization could include minimum (and standard) use of encryption, and protections with/for dynamic data and links

- Authentication approaches standardized around digital access could prove out for QR codes as a model for all Faster Payments

Examples of Standards for Faster Payments: A Focus on Authentication and Data Security

Definitions

Beneficial characteristics

Technology overview

Implementation challenges

Global adoption trends

Authentication Standards Bodies for the Online Realm

FIDO ALLIANCE

W3C

FIDO Alliance Standard

Definition

The new Fast Identity Online (FIDO) standard reinforces the security of online identity authentication systems on mobile devices and web applications.

Its goal is to replace the exclusive use of passwords with more secure biometric authentication mechanisms that are protected by encryption systems.

- FIDO2 is the overarching term for FIDO Alliance's newest set of specifications.
- FIDO2 enables users to leverage common devices to easily authenticate to online services in both mobile and desktop environments.

Source: FIDO Alliance website

W3C WebAuthn Definition

- WebAuthn enables online services to use FIDO Authentication through a standard web API that can be built into browsers and related web platform infrastructure.

- It is a collaborative effort based on specifications initially submitted by FIDO Alliance to the W3C and then iterated and finalized by the broader FIDO and W3C communities.

- WebAuthn was designated an official web standard in March 2019.

- It is currently supported in Windows 10 and Android platforms, and Google Chrome, Mozilla Firefox, Microsoft Edge and Apple Safari web browsers.

Source: FIDO Alliance website

Authentication Standards for QR Models

The FIDO2 specifications are the World Wide Web Consortium's (W3C) Web Authentication (WebAuthn) specification and FIDO Alliance's corresponding Client-to-Authenticator Protocol (CTAP).

The Challenge for QR models:

Authentication must be built into the operating systems of retail platforms

Client-side device implementation - CTAP

Web browser implementation – W3C

Implementation Challenges

SUPPORT ON PLATFORMS AND WEB SERVERS

TRANSACTION ABANDONMENT

UBIQUITY

# Data Sharing Standards Bodies for Open Banking

FDX

Afinis

- Dedicated to unifying the financial industry around a common, interoperable, royalty-free standard for secure and convenient consumer and business access to their financial data.

- Operates in the US and Canada.

- Membership is open to financial institutions, fintech companies, financial data aggregators, consumer advocacy groups, payment networks and other industry stakeholders.

https://financialdataexchange.org/

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FDX on APIs

- Increased API scope for North American open finance standards

- Includes credit management, payment services infrastructure and more than 620 unique financial data elements that consumers can share and use.

- Latest release focuses on two major developments for payments:

  - **FDX API 4.6** – Completes FDX's payment services infrastructure; includes full functionality for money movement; provides comprehensive API coverage for financial rewards data

  - **FDX API Security Model v 3.3** – Defines security specifications for secure end-user permissioning for financial data sharing, identification of intermediaries, and maintaining security of data in transit.
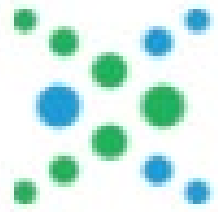
- Membership-based standards organization.

- Develops implementable, interoperable and portable standards across operating environments and platforms.

- Furthers the work of NACHA's Payments Innovation Alliance API Standardization Industry Group (ASIG) and the Interactive Financial eXchange Forum (IFX).

https://www.afinis.org/about-afinis
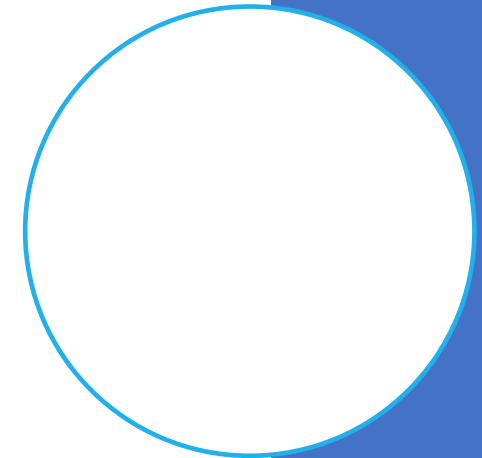
Implementation Challenges

ACCESS
PERMISSIONED

SECURITY

INTEROPERABILITY

Addendum
Expanding Access to Faster Payments Systems if You're Not A Bank

FPC Member Meeting

Steve Mott and Maria Arminio

September 2021

Primary Security Challenges with Faster Payments Using QR Codes

- Users can't detect a phony QR Code

- QR codes downloaded via phishing attacks can promulgate malicious code—especially re-direction to dangerous URLs

- Bad QR codes can trigger payments, reveal locations

- Immersion in advertising uses can jeopardize user identification and data, and expose them to scams

- Some or all of a QR code can be replaced (e.g., POS sticker), or changed/hacked (in the case of dynamic QR codes) to commit fraud

- A 2021 report by McAfee listed QR code abuse as a top-five threat for the new year ("QRishing")

From ACI Report (2021): Time for a Change in Lexicon

Real-Time Payments

Real-time payments, also known as instant payments, faster payments and immediate payments.
Key features include:

- Immediate availability of funds to the beneficiary of the transaction
- Irrevocability, meaning once a payment has been made, the sender cannot deauthorize the transfer
- Confirmation of funds via real-time balance. Once a payment is authorized, the sender's account balance reflects the deduction instantaneously
- While settlement timing may vary by scheme, it is often completed within a matter of seconds
- Newer real-time systems are often based on ISO 20022, the de facto real-time standard

Digital Overlay Services

Digital overlay services have appeared in global markets, particularly where we see high levels of real-time payments adoption. These ancillary services often ride the real-time payment rails and are flexible, nimble drivers of innovation. They enable many kinds of alternative payment methods. The front-end touchpoint for consumers, merchants or corporate customers is a digital overlay service, as it's about connecting real-time payments to a purchasing experience, billing scenario or accounts payable process. Google Pay, WhatsApp Pay, Amazon Pay, Paytm and Walmart PhonePe are all examples of real-life overlay services.

Request to Pay (R2P)

Request for Payment/Request to Pay can be both a digital overlay service used by an end user to request or make a payment, as well as a core functionality of a central infrastructure (usually a real-time payments central infrastructure) that provides the R2P transaction flows and rules to play by in the R2P network. R2P has use cases across P2P, M2C and B2B scenarios, where real-time payments must be integrated into a seamless workflow or interaction.

Central/National Infrastructure, Payments Network

A centralized system for a payments network, including for real-time payments. Referred to as a scheme, system or platform depending on locale and providing a framework and/or rulebook for payments messaging and processing as well as digital overlay services. From a central infrastructure point of view, R2P is either a capability within the real-time central infrastructure itself or a closely related offering by the same central infrastructure provider. In some markets the central infrastructure has powers to fine participants for missed SLAs, set variable fees for participants and mandate centralized fraud reporting.

Clearing and Settlement Mechanisms (CSM)

CI	Central Infrastructure
SCT Inst	SEPA Instant Credit Transfer
TIPS	TARGET Instant Payment Settlement, pan-European single currency real-time payments system launched by the European Central Bank (ECB)
RT1	Pan-European single currency real-time payments system launched by EBA Clearing
USSD	Unstructured Supplementary Service Data
EFT	Electronic Funds Transfer

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

U.S. Profile

Trends + Data

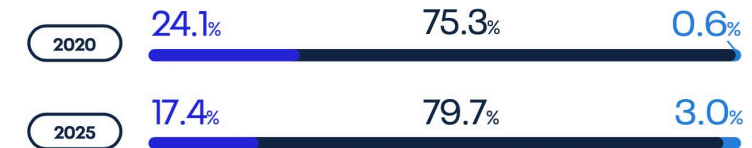Real-Time Payments Volume and Its Share in Overall Non-Paper-Based Transactions, 2015-25f

•••••• % of total electronic payment transactions volume
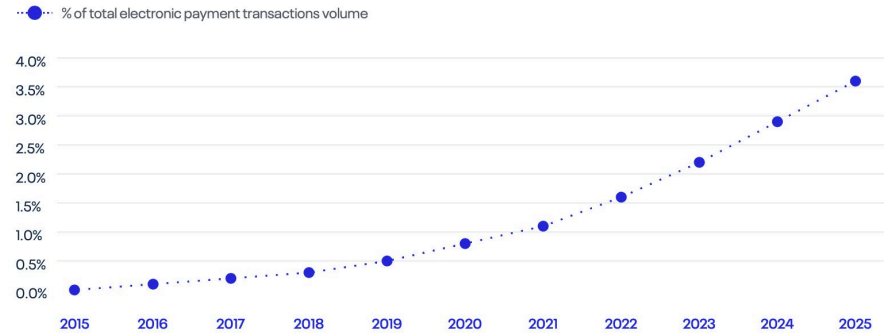
Transactions

1.2B (2020)   **7.4B** (2025f)   **43.4%** (F5 Yr CAGR)
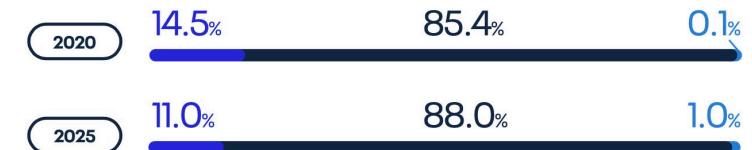

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

Share of Volumes by Payments Instrument

● Paper-based payments   ● Electronic payments   ● Real-time payments

Transactions

	Paper-based	Electronic	Real-time
2020	24.1%	75.3%	0.6%
2025	17.4%	79.7%	3.0%

Spend (USD)

	Paper-based	Electronic	Real-time
2020	14.5%	85.4%	0.1%
2025	11.0%	88.0%	1.0%

Schemes

The introduction of real-time payments to the U.S. market occurred later than in other culturally and technologically similar nations. But with two schemes live, and one more in pilot, the country is now set to see significant adoption.

Its first near-real-time payments service, **Zelle**, is offered by more than 750 financial institutions across the country. Zelle supports both individual and business accounts, and fund transfers can be made in a variety of ways including using the Zelle app, participating banks' or credit unions' mobile apps and/or banks' online banking

services. Subsequently, The Clearing House (TCH) launched the Real-Time Payments (RTP) network, a 24/7/365 scheme that allows P2P, B2B, B2C, C2B, C2G and G2C payments, with a transfer limit of $100,000.

A third network, FedNow, is currently being piloted by the Federal Reserve and is expected to launch in 2023. FedNow will allow P2P, B2B, B2C, C2B and G2C payments. Its aim is to facilitate real-time payment services for banks of every size in the country, which will enable the establishment of a wider presence than is possible with the other available networks.

U.S. Profile-2

Key Stats

Developing

Planned

Established

Market Development

With two schemes in place and another set to go live in a few years, growth of 64% year over year and adoption across banks and merchants, the U.S. is poised for continued advancement in real-time payments.

Acceptance

4 → Banks, Merchants, Consumers, Billers

Total Participants

>750

Year of Real-Time Payments Launch	Availability	Message Standard
2017	365 24/7	**ISO 20022**

Real-Time Payment Types

3 → Single Instance, Bulk Payments, Cross-Border

Initiation/Authorization Methods

3 → Bank Account, Mobile, Email

Mobile Wallet Trends

% 41

% of adults who have a mobile wallet and have used it in the past year (2020)

Payments Fraud Rate

23%

Index to global average **148**

● Population who reported being a victim of fraud in the last 4 years

Top 3 Payment Fraud Types

% of fraud victims	Trend
22.6% Card details stolen/skimmed in person	↓
20.1% Card details stolen online	↓
14.5% Identity theft	↑

Population Banking Level

4.83

Number of debit, credit and charge cards per adult

196

Index to global average

● Fully Banked
Progressing
Underbanked

History

November 2017
Launch of RTP. The first real-time payments on the network are initiated between BNY Mellon and U.S. Bank.

August 2019
The Federal Reserve Board announces that the country's federal reserve banks will develop FedNow.

February 2020
TCH increases the transaction limit via RTP from $25,000 to $100,000.

January 2021
FedNow pilot program launches with 110 participants.

June 2007
Zelle goes live.

January 2018
TCH forms a RTP Advisory Committee to obtain additional input on the

November 2019
TCH partners with Sherpa Technologies (an ACI Worldwide customer) to accelerate connecting to RTP for smaller banks and credit unions.

October 2020
Federal Reserve announces the FedNow pilot program.

2023
FedNow industry-wide launch is planned.

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

Payments Fraud Viewpoint

Relative newness to real-time fraud is a big opportunity to improve collaboration

Marc Trepanier, Principal Fraud Consultant, ACI Worldwide

The U.S. and Canada are at different stages of their real-time payments development, but consistent themes are emerging across the two markets.

The most pressing concern is getting comfortable with protecting payments in a world where it is not practical to have analysts calling the shots. Acknowledging that real-time payments require real-time fraud detection quickly leads to conversations around machine learning-driven, contextualized decisioning.

In Canada in particular, the imminent migration of low- to mid-value digital payments to the Real-Time Rail scheme means there's an urgency to getting this protection in place. They know there is fraud in the existing channels, and they know that with real-time, high-value payments also coming down the road, it is going to become a more attractive target. In the U.S., how to approach this is part of a wider mix of decisions to be made as the country's financial institutions figure out what real-time means for them. But financial institutions in both markets will need flexible and accessible solutions that enable them to take control of their own machine learning strategy. Those solutions must also be part of a single, central fraud platform that accumulates a 360-degree profile of customers to build a rich knowledge base of the behaviors that are both usual and unusual for them.

The region's relative newness to aspects of real-time fraud detection presents some strong opportunities to leverage learnings from more mature markets, particularly when it comes to industry-level cooperation. Elsewhere, traditional methods requiring participants to pool their data in consortiums are being improved upon by solutions that create community models using anonymized fraud signals in federated learning models. By automatically eliminating data privacy issues, this accelerates information sharing and makes it more cost-effective.

Finally, sitting above these technical and operational challenges is the question of fraud reporting. In the U.S., there are still decisions to be made as to whether real-time fraud reporting should be mandatory. Our view is that it absolutely should be. You can't manage what you don't report, and patchy reporting obstructs collaboration, leaving gaps in coverage in which the criminals will thrive.

ACI View on Faster Payments Fraud Challenges

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

North America

Country	Instant Payment Method	Status	Year
Canada	Interac e-Transfer	Live	2002
USA	RTP & Zelle	Live	2017
	FedNow	Planned	2024

Pacific

Country	Instant Payment Method	Status	Year
Australia	New Payments Platform (NPP)	Live	2017
New Zealand	Yet to launch	Planned	2021

Asia

Country	Instant Payment Method	Status	Year
Cambodia	Real-Time Fund Transfer (RFT)	Live*	2019
China	IBPS	Live	2010
Hong Kong	Faster Payment System (FPS)	Live	2018
Indonesia	Yet to launch	Planned	2025
Japan	Zengin System	Live	1973
Kazakhstan	ISMT	Planned*	2025
Kuwait	NBK Quick Pay	Live*	2018
Malaysia	DuitNow	Live	2018
Myanmar		Planned*	TBD
Philippines	InstaPay	Live	2018
Russia	FPS	Live*	2019

Country	Instant Payment Method	Status	Year
Singapore	FAST	Live	2014
	PayNow	Live	2017
South Korea	CD/ATM	Live	1988
	Electronic Banking System (EBS)	Live	2001
Sri Lanka	LankaPay	Live*	2017
Taiwan	Financial XML	Live	2003
	Interbank ATM funds transfer system	Live	1987
Thailand	PromptPay	Live	2016

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

Europe

Country	Instant Payment Method	Status	Year
Austria	SCT Inst	Live	2017
Azerbaijan	IPS	Live*	2020
Belgium	SCT Inst	Live	2019
Bulgaria	Borica Instant Payments	Planned*	2021
Croatia	NKSInst	Live	2020
Czech Republic	Instant Payment	Live	2018
Denmark	Straksclearing	Live	2014
Estonia	SCT Inst	Live*	2014
Finland	Siirto	Live	2017
	SCT Inst	Live	2018
France	SCT Inst	Live	2018
Germany	SCT Inst	Live	2017
Greece	IRIS	Live	2017
Hungary	Azonnali fizetési rendszer (AFR)	Live	2020
Iceland	CBI	Live*	2020
Ireland	SCT Inst (only few banks are offering)	Live	2020
Italy	SCT Inst	Live	2017
Latvia	EKS Zibmaksajums	Live*	2017
Lithuania	CENTROlink	Live*	2017

Country	Instant Payment Method	Status	Year
Luxembourg	BILnet	Live*	2020
Netherlands	SCT Inst	Live	2019
Norway	Straksbetalinger	Live	2013
	Vipps	Live	2015
Poland	Express Elixir	Live	2012
	BlueCash	Live	2012
Portugal	SIBS	Live*	2018
Romania	Plati Instant	Live*	2005
Serbia	IPS	Live*	2018
Slovakia		Planned*	2022
Slovenia	Flik	Live*	2020
Spain	SCT Inst	Live	2017
	Bizum	Live	2016
Sweden	BIR	Live	2012
Switzerland	TWINT	Live	2016
Turkey	Retail Payment System (RPS)	Live	2012
UK	Faster Payments	Live	2007
Ukraine	*No scheme in place*		

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

Middle East, Africa and South Asia

Country	Instant Payment Method	Status	Year
Bahrain	EFTS	Live*	2015
Egypt	Yet to launch	Planned*	TBD
Ethiopia	EATS	Live*	2011
Ghana	GhIPSS Instant Pay (GIP)	Live*	2007
India	IMPS	Live	2010
	UPI	Live	2016
Iran	*No scheme in place*		
Israel	*No scheme in place*		
Kenya	PesaLink	Live	2017
Kuwait	NBK Quick Pay	Live*	2018
Lebanon	Zaky	Live*	2020
Morocco		Planned*	

Country	Instant Payment Method	Status	Year
Nigeria	NIP	Live	2011
Oman	MPCSS	Live	2017
Pakistan	Raast	Live*	2021
Philippines	InstaPay	Live	2018
Qatar	QMP	Live*	2020
Saudi Arabia	Yet to launch	Planned	2021
South Africa	RTC	Live	2006
Sri Lanka	LankaPay	Live*	2017
Tanzania	Tanzania Instant Payments System (TIPS)	Live*	2019
UAE	Immediate Payment Instructions (IPI)	Live	2019

Latin America

Country	Instant Payment Method	Status	Year
Argentina	DEBIN	Live	2017
	PEI	Live	2016
Brazil	SITRAF	Live	2002
	PIX	Live	2020
Chile	TEF	Live	2008
Colombia	Transfiya	Live	2019

Country	Instant Payment Method	Status	Year
Honduras	SIP	Live*	2008
Mexico	SPEI	Live	2004
Peru	Immediate Interbank Transfers	Live	2016
Uruguay	*No scheme in place*		
Venezuela	*No scheme in place*		

Source: Prime Time For Real-Time, ACI Worldwide, March, 2021.

Rapid uptake in use moving faster than consumer cognition of risks

Ivanti Research Finds 83% Of Respondents Used A QR Code To Process A Payment In The Last Year, But Many Are Unaware Of The Hidden Dangers

Majority of Users Don't Know the Capabilities and Therefore Risks of QR Codes

SALT LAKE CITY — April 20, 2021 — Ivanti, Inc., the automation platform that makes every IT connection smarter and more secure, today announced the results of a consumer sentiment study, which revealed that QR code usage continues to rise in popularity, with 57% of respondents claiming to have noticed an increase in QR code usage since mid-March 2020. As the need for touchless transactions increased due to COVID-19, 83% of respondents stated that they used a QR code to make a payment (or complete a financial transaction) for the first time ever. Of those respondents, over half (54%) used a QR code for a financial reason for the first time in the past three months alone.

This study is a follow up to a September 2020 report to understand how consumer attitudes and usage of QR codes has evolved over the last year. The research demonstrates that consumer QR code usage has changed from convenience in a touchless world to practicality and necessity in new realms of our lives. Early in the pandemic, restaurants were using QR codes as menus or payment options, but as the pandemic continued throughout 2020, consumers used QR codes more frequently for practical things like visiting a doctor's office or picking up a prescription – with an increase from 9% in 2020 to 14% in 2021. Meanwhile, social activities like dining out or enjoying a drink at a bar saw QR code usage decrease in that six-month period from 44% to 36%. Even offices and places of work saw an increase in usage going from 11% to 14% emphasizing the shift in how QR codes have been used during the pandemic. Consumers also grew more comfortable with QR codes that had a financial purpose. Sixty-five percent reported noticing an increase in places where QR codes can be used for payments, and 87% feel secure using a QR code to complete a financial transaction.

Many organizations have continued to allow their employees to work remotely due to the ongoing pandemic, increasing the importance of mobile devices for employees around the world. In the new "Everywhere Workplace," distributed employees require access to corporate apps and data from any device, whenever and wherever they work. Despite the fact that 39% of consumers are relying on their phones more due to social distancing, only 51% of respondents claimed they have security software installed their mobile devices. Couple this with the lack of awareness of what a QR code can do once scanned, and the security threat increases significantly to both the user and their organization. In fact, 31% of respondents claimed that they had scanned a QR code that did something they were not expecting or were taken to a suspicious website.

Ivanti Research Profile

See below for stats on how users could be putting themselves and their employers at risk by scanning QR codes:

- 47% or respondents claimed to know that a QR code can open a URL.
- However, only 37% were aware that a QR code can download an application and only 22% were aware that a QR code can give away physical location.
- Two thirds of respondents felt confident that they could identify a malicious URL, but only 39% stated they could identify a malicious QR code.
- 49% stated they either do not have or don't know if they have security installed on their mobile device.

"As a result of the pandemic, employees are using their mobile devices more than ever before to access corporate data and services from any location," Chris Goettl, senior director of product management at Ivanti. "As QR codes continue to increase in popularity and use, they will undoubtedly be leveraged more and more by cyberattackers to infiltrate devices and steal corporate data. This report underscores how critical it is that companies of all sizes prioritize mobile security for their employees, regardless if the device is company or employee owned. Organizations should implement Mobile Threat Defense (MTD) to defend mobile users against QRLjacking, phishing attacks, and to identify mobile OS or application vulnerabilities."

Ivanti offers a Mobile Threat Defense (MTD) solution that protects and remediates against known and unknown threats that target Android and iOS devices, including malicious QR codes. MTD provides the ideal deployment, detection, and remediation solution to defend against attacks that occur at the device, network, and application level. And there is no end user action required to deploy MTD on mobile devices that are enrolled in the Ivanti UEM client. As a result, organizations can achieve 100% user adoption without impacting productivity. Mobile Threat Defense is a critical part of a larger zero trust security strategy to assess and ensure good device hygiene.

The study polled 4,157 consumers across the U.S., U.K., France, Germany, China, and Japan.