What's next for real-time payments?

Navigating the next wave of adoption

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Foreword

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"The emergence of real-time payment systems around the world has gained significant momentum in recent years.

These systems now play a vital role, working alongside other payment methods, offering consumers and businesses more choice to transact in ways that meet their needs.

The ability for businesses and individuals to make payments in real-time, both domestically and across borders, across a range of channels including directly from bank accounts or via wallets, has helped improve the customer experience, bring more people into the digital economy and boost economic activity.

Today, around 100 countries across the world have access to real-time payments and by 2028, instant payment transactions will surpass $58 trillion globally.[1]

The approaches to implementing and delivering growth and additional value through real-time payments differ considerably across markets, influenced by factors such as consumer needs, regulatory influence, and market maturity.

Countries that until recently have been almost entirely cash dependent have now become some of the most advanced real-time payments markets in the world. This evolution has been facilitated by a variety of innovative technologies and methods, including QR codes, mobile phone numbers and email addresses for proxy payments. These diverse solutions have enabled widespread adoption of digital real-time payments, making them accessible to a broad range of users and merchants. This raises an important question: What can we learn from these evolving markets, and how can we effectively navigate the next wave of adoption?

Based on our research in various global markets, including the eleven where Mastercard is powering real-time payments, we see the trends and innovations set to shape the future of real-time payments, helping participants stay ahead of the curve. Advancements in artificial intelligence (AI), the rise of digital assets, and the growing use of digital wallets will play a role in enhancing real-time payments and improving interoperability.

The aim of this white paper is to provide insights to industry stakeholders on how to effectively maximize the value of real-time payments to enhance user experience, drive innovation, and foster greater financial inclusion.

INTRODUCTION

Charting the next generation of payments

Since the first real-time payment system was launched in Japan in 1973,[2] the journey towards real-time services has become a goal for numerous markets worldwide. More recently, adoption has surged, with global real-time payment volumes reaching a record high of 266.2 billion transactions in 2023 – representing year-on-year growth of 42.2%.[3]

This growth is fueled by the numerous advantages of real-time payments, including the potential to lower costs, improve operations, and optimize cashflow, transforming the financial landscape for businesses and consumers alike.

Additionally, with the G20 Roadmap for Enhancing Cross-Border Payments leading efforts to make international payments more accessible, real-time services will play a critical role in enhancing speed and transparency.

With the value of transactions processed using real-time payments technology predicted to grow by 289% between 2023 and 2030,[4] understanding the evolution of markets, what technologies and stakeholders have supported them, and anticipating future developments will help participants maximize the full potential of real-time payments.

Quick view of insights

Real-time payment systems are rapidly growing globally, enhancing both economic activity and financial inclusion. This white paper provides insights for stakeholders on how to maximize the value of real-time payments to promote growth, reduce costs, and foster financial inclusion.

Part one: Lessons learned

Governments have proven instrumental in driving adoption

Governments play a crucial role in driving the adoption of real-time payments by setting visions, incentivizing adoption, and advancing implementation.

Merchant payments are a significant and growing use case

Real-time payments have expanded from person-to-person (P2P) transactions to person-to-merchant (P2M) payments, driven by government mandates, mobile phone usage, and QR codes.

Consistent user experience

A consistent and user-friendly payment experience is essential for driving adoption and ongoing usage.

Cross-border capabilities

Initiatives are focusing on extending real-time payment capabilities internationally to address challenges in cross-border payments.

Fraud prevention

As real-time payment schemes grow, increased transactions and new participants will create more fraud opportunities. Participants will need to prioritize fraud risk management to foster participants' trust and avoid unnecessary costs.

Part two: What's next for real-time payments?

Further expansion of use cases

Real-time payments will expand to cover increasingly more diverse use cases, including business-to-business (B2B) and business-to-consumer (B2C) payment flows.

Cross-border schemes

There is a growing demand for real-time payment schemes that function internationally. This will require collaboration on rules and regulatory frameworks.

Multiple domestic schemes

The emergence of multiple domestic payment schemes is indicative of a global trend towards instant financial transactions, necessitating stakeholders to adapt to challenges in interoperability, liquidity management, and cost control.

The potential of ISO 20022

Adoption of this standard will enable richer data exchange, reduce costs, drive automation, and improve payment screening, resulting in new, data-driven and personalized solutions.

Digital wallets and alternative payment methods (APMs)

APMs and digital wallets are revolutionizing the payments landscape by offering consumers fast and convenient payment options. These innovative solutions not only support financial inclusion by providing access to digital financial services for the unbanked and underbanked, but also drive the growth of e-commerce and mobile commerce by simplifying online and in-app purchases.

The role of AI in fraud prevention

AI will be crucial for fraud prevention and risk management in real-time payments, using advanced solutions like AI-driven risk scoring models.

Digital assets

These will present new opportunities and challenges for real-time payments, including regulatory considerations and the need for interoperability with existing systems.

Interoperability and collaboration

Ultimate success will also depend on the interoperability of different payment systems and collaboration among stakeholders to ensure the seamless flow of transactions, both domestically and across borders.

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Lessons learned from powering economies

Drawing on Mastercard's global experience in real-time payments, key drivers have emerged as pivotal to their development and adoption. These insights provide valuable foresight, and will help participants anticipate market shifts, stay competitive and remain customer centric. Leveraging these learnings will better position businesses for success in the increasingly dynamic payments landscape.

Governments have proven instrumental in driving adoption

Governments have played a key role in the establishment and advancement of real-time payment schemes by setting the vision, incentivizing adoption, directly advancing implementation, or opening the ecosystem to broader participation, particularly to unbanked populations.

The government is typically one of the largest payers or payees in a country and can thus directly affect adoption, usage, familiarity, and engagement. For example, it can move existing government payments like welfare payments to real-time systems or enable payments to the government, such as tax payments, to be made in real-time.

Examples of the government moving payments across to real-time rails include:

Thailand: Where the initial use case for its real-time payment system, PromptPay was to disburse welfare payments by the government using a proxy, such as a mobile number or citizen ID.

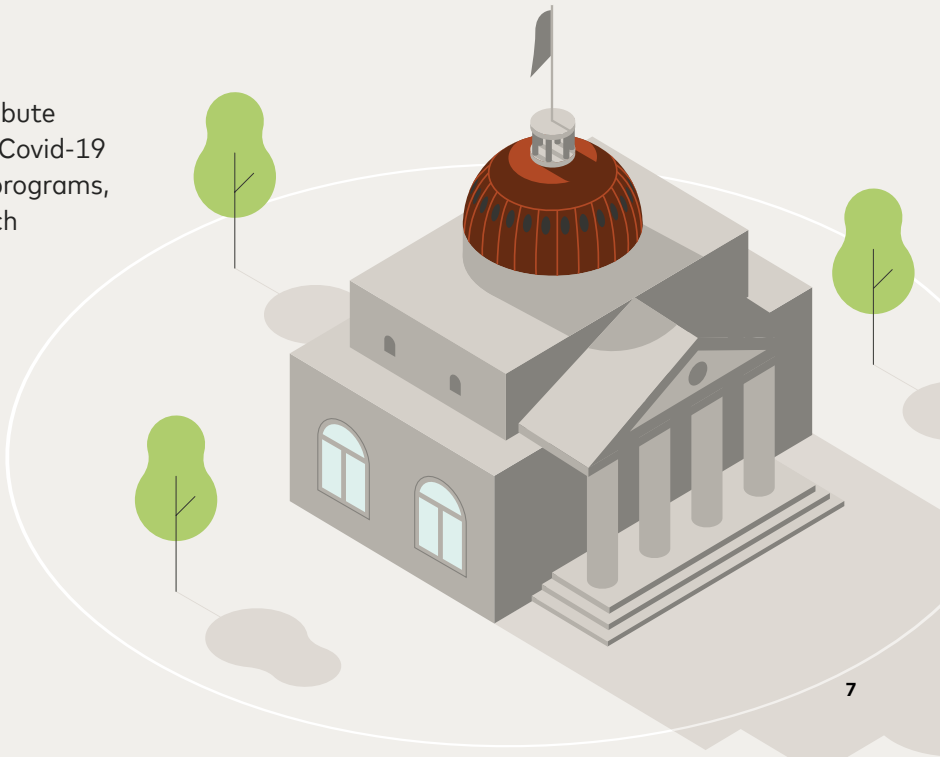
Brazil: Where the government used PIX to distribute emergency aid to millions of citizens during the Covid-19 pandemic and now uses it for ongoing welfare programs, such as the Programa Bolsa Familia (PBF), which distributes funds to low-income families.

In both cases, these actions encouraged initial consumer adoption and repeat usage of the real-time payment scheme.

We have also observed instances of government intervention through established schemes, to cite one example:

FedNow: Which was launched in the US in 2023 to operate alongside TCH's RTP scheme, aiming to increase participation opportunities and provide an alternative for financial institutions, including smaller credit unions and community banks.

Governments and central banks have and will continue to play a key role in driving adoption, repeat usage and development of real-time payment schemes. They should be viewed by all participants as a key player in the ecosystem, and should be engaged with to ensure there is a clear understanding, prioritization and alignment of future developments and priorities.



Merchant payments are a significant and growing use case

Person-to-person (P2P) payments are generally the initial use case that real-time payments enable, often as part of a broader market push to support financial inclusion, cash displacement, and digitization of the economy.

Once mainstream consumer adoption with P2P payments had been achieved, several markets, including Thailand, Philippines, China and India, were successful in extending into person-to-merchant (P2M) payments.

> *Mastercard's research shows that markets, where cash has been prevalent until recently, have broadened their application of real-time payments, particularly enabling P2M payments for micro-merchants. The effectiveness of these real-time systems highlights how both consumers and merchants are keen to benefit from the increased speed, accessibility, and certainty they offer.*
>
> **Helena Forest**
> Executive Vice President, Global Product Management & Commercial, Real-Time Payments, Mastercard

There are a few common factors that have contributed to this move into P2M:

Strong government mandates and incentives

India is a key example where, per a directive, merchants no longer pay any merchant discount rate (MDR) on UPI transactions when done through a QR code. Lower merchant fees have benefited smaller merchants and encouraged wider adoption of digital modes of payment. In a bid to transform the country into a digital society, the Indian government also supports various incentive schemes such as tax benefits for merchants and customers who pay or collect using digital payments.

Growth in mobile phone usage

The rise in mobile phone use and the development of "super apps" such as Alipay and WeChatPay have equipped many consumers globally with digital payment tools. However, without a mechanism for merchants to accept these payments, these tools remain incomplete. To date QR codes have effectively bridged this gap by enabling merchants to facilitate transactions.

62%

India: in August 2024, of all UPI transactions were P2M[5]

The ubiquity of QR codes

QR codes have provided a simple, cost-effective means for merchants, particularly micro-merchants, to accept digital payments without expensive hardware.

This combination of incentivization, capability and low-cost acceptance has seen the share of real-time P2M transactions grow rapidly and, in some cases, become the dominant use case.

To successfully expand real-time payments into new use cases, it is important to understand the challenges associated with existing payment methods and identify the additional capabilities needed to address these. Adapting to evolving consumer and business preferences, and the technologies they utilize, will help the ecosystem design solutions that naturally fit into their habits, driving widespread and sustained engagement with real-time payments. However, having a clear and aligned roadmap throughout the ecosystem is crucial. Engaging with the government can expedite adoption and help identify future use cases.

350m

Currently, there are approximately 350 million active UPI users in India and over 340 million QR codes at various merchant locations to facilitate payments in a seamless digital manner.[6]

117b

India is currently the largest the global real-time payments market, recording 117 billion real-time transactions in 2023[7].

18.2

By 2027, it is also expected to be among the top ten global markets for consumer adoption of real-time payments, with 18.2 transactions per person per month[8].

A seamless, user-centric experience ensures widespread adoption and repeat usage

Delivering a consistent and user-friendly payment experience has been key for driving initial adoption and encouraging ongoing usage. This has been implemented in various ways across different countries, for example:

Thailand: In Thailand the initial use case of welfare payments was enabled using a proxy. This led to a high number of proxy registrations and increased consumer familiarity with the proxy-enabled payment system, which subsequently promoted repeated usage.

China: In China, Alipay and WeChatPay have achieved extensive scale in P2M mobile real-time payments by integrating the payment process into their existing user interfaces to reduce friction for users. Additionally, the widespread use of QR codes in retail has greatly facilitated mobile real-time payments, driving adoption and repeat usage.

UK: In contrast, in the UK, the Paym proxy service was closed in 2023 due to "falling numbers of Paym transactions and the lack of customers signing-up to become new users of the service".[9] The user registration process and name of the service differed across the various participating banks. We also saw the emergence of new P2P services gaining traction, such as close loop solutions from neobanks.

When introducing a new product or service, it is essential to carefully consider not only the benefits it brings, but also how users become familiar, engage with, and use the product or service. The payment ecosystem should focus on removing friction to create simple, easy, and consistent experiences.

The emergence of cross-border real-time payments

With real-time payments improving domestic transactions, focus has shifted to extending these capabilities internationally.

Cross-border payments face several challenges, including speed, cost, lack of transparency, and uncertainty. Real-time payments have the potential to address these issues, and consequently, several initiatives are already underway in this area, including:

- Collaboration between individual domestic real-time payment schemes, such as PromptPay and PayNow, have enabled individuals to make real-time and low-cost transfers between Thailand and Singapore using just the recipient's mobile number.
- On a regional level, initiatives like Buna are enabling financial institutions and central banks in the Arab region and beyond to send and receive payments in Arab currencies, as well as key international currencies.
- On a global level, initiatives such as BIS's Project Nexus aim to enable instant cross-border payments by connecting multiple domestic instant payment systems globally.

It remains to be seen which approach will prevail, but Mastercard anticipates that any method will necessitate coordination and collaboration among various stakeholders in the ecosystem to establish common rules, standards, and processes, comply with regulatory requirements, and provide an optimal user experience.

To gain an in-depth understanding of how interlinking instant payment systems can improve cross-border payment efficiency, we recommend reading our white paper.

The unwelcome specter of fraud

Fraudsters have developed increasingly sophisticated methods to target consumers and businesses using the world's real-time payment systems, whether through AI-led phishing attacks, Authorized Push Payment (APP) fraud, or account takeover. The immediate and irrevocable nature of real-time payments has made them a target.

While this continues to challenge the financial services industry, with financial institutions reporting losses of more than $400 billion in 2023,[10] the fight back is gathering momentum. Fraud prevention overlay services, which are live in many markets, are making an impact by addressing and reducing specific types of fraud.

Moreover, advanced solutions such as AI-driven risk scoring models are pushing the boundaries even further. Mastercard's AI-powered Consumer Fraud Risk solution is aiding banks in the UK by using extensive payments data to predict and prevent various forms of fraud. This technology helps identify real-time payment scams before any funds are withdrawn from a victim's account.[11]

As real-time payment schemes grow, increased transactions and new participants will create more fraud opportunities. It is imperative that all participants prioritize fraud risk management to foster participants' trust and ensure the sustainable growth of real-time payments.

Read more about combating account-to-account fraud in our white paper, "Uniting Against Account-to-Account Fraud."

02

What's next for real-time payments?

What's next for real-time payments?

Many markets are advancing through to the second wave of real-time payments growth. As adoption and repeat usage have grown among various consumers and businesses, more use cases have become feasible. These growing participants include fintechs, payment initiation service providers (PISP), alternative payment methods (APMs) and corporates.

Mastercard has identified several prevalent trends that will shape the forthcoming wave of real-time payment adoption. Stakeholders within the ecosystem should diligently consider these developments.

As real-time payment markets mature, there will be a focus on expanding their capabilities to cover diverse use cases beyond P2P and online or in-store consumer-to-business (C2B) purchases. This includes business-centric applications in business-to-business (B2B) and business-to-consumer (B2C) payment flows such as supplier payments, recurring payments, and payments within the gig economy leading the charge. Initially, these systems will focus on domestic transactions with fiat currencies. However, due to industry and regulatory attention on digital assets and cross-border payments, ecosystems must prioritize these areas early in this second wave of real-time payments.

Overall, a frictionless, user-friendly experience needs to remain the north star in all new payment scenarios, including when partnering and integrating with digital wallets, APMs and Open Banking application programming interfaces (APIs).

We will now discuss these key considerations and evolutionary trends in further detail, including the role of AI and machine learning in managing fraud risk and optimizing liquidity management with increasing real-time payment volumes.

The continued evolution of new use cases

Domestic real-time payment systems are now enabling P2M transactions and advanced ecosystems are addressing inefficiencies in business payments.

The trajectory of various markets will differ as they evolve to support new applications, influenced by specific market conditions. These conditions include the percentage of the banked population, the prevalence of card and cash transactions, existing APMs, digital wallets, and overarching stakeholder objectives such as financial inclusion and accelerated digitization to reduce reliance on cash.

Countries like Brazil and India have rapidly transitioned from cash to digital payments, bypassing certain stages of payment evolution. In contrast, in more mature markets such as the US, traditional payment methods like checks remain widely used in B2B transactions.

B2B payments constitute over 85% of payments globally in terms of value. This significant share, coupled with the increasingly fast-paced nature of businesses, including online e-commerce platforms and marketplaces operating 24/7, provide a large opportunity for real-time payments. B2B use cases such as supplier payments, recurring transactions or one-off payments are well suited for successful real-time payment systems and various APMs built on real-time rails.

The relevance of real-time payments to the B2B sector lies in the ability to enhance businesses' management of liquidity and cash flows, while also offering increased transparency and detailed payment information. However, successful implementation requires overcoming several challenges. Many businesses, for example, have typically not worked 24/7/365 and many legacy corporate systems, such as Enterprise Resource Planning (ERP) systems do not operate in real-time. To enable straight-through processing, real-time payment systems should consider innovative methods to reduce integration and configuration costs for corporate systems.

85%

of payments globally constitute B2B payments in terms of value according to research from McKinsey Global Payments Map 2024

$1t

in gig economy payouts by 2028[12]

Real-time payment ecosystems should also consider the growing numbers of gig economy workers and platforms as a target for their future B2C use cases. Market Reports World estimates gig economy payouts to reach almost $1 trillion by 2028.[12] This growth provides an opportunity for gig economy workers to receive payouts instantly and cost-effectively, and it can also benefit gig economy platforms by aiding in the retention of workers in a sector where demand often exceeds supply.

However, the progress of various real-time payment ecosystems in facilitating B2B and B2C payment flows is interconnected with key market factors and developments. This includes:

- **Digital wallets and APMs**: These payment methods are likely to be crucial for consumer payments, with future growth expected among businesses. Real-time payment ecosystems need to consider interoperability and value-added capabilities with these APMs in relevant markets.
- **Expanding participation in the ecosystem**: Whether due to regulatory engagement or driven by commercial motives, most domestic real-time schemes are likely to expand participation in the ecosystem to non-traditional stakeholders such as fintechs and PISPs, leveraging Open Banking APIs. This will not only lead to volume growth, inclusion, innovation, and competition, but will also result in increased complexity. With increased complexity comes higher demands for reliability and scalability, as well as the potential for increased fraud risk and there will be an increasing need for improved liquidity management capabilities for participants and regulators.

Connecting schemes to span cross-borders

In recent years, we've seen a rise in the demand for real-time payment schemes that function internationally, with projects such as the Bank for International Settlement's (BIS) Nexus, TCH and EBA Clearing's Immediate Cross-Border Payments (IXB), and the European Payments Initiative's (EPI) Wero looking to leverage existing infrastructure to speed up and reduce the costs of cross-border payments.

These projects are aligned to the G20's aim of enhancing cross-border payments by 2027[13] and Mastercard foresees that linking real-time payment systems will be a significant driver for achieving this goal.

"The technology for real-time cross-border payments is already in place, and we are ready to deliver seamless and transparent services. The key challenge now lies in governments, regulators, and industry stakeholders collaborating to establish common rules that will enable these innovations, improving speed and reducing costs.

Helena Forest
Executive Vice President, Global Product Management & Commercial, Real-Time Payments, Mastercard

A primary challenge lies in establishing comprehensive agreements, rules and regulations between countries as real-time payments platforms are often highly regulated, requiring detailed discussions and extended periods of collaboration between infrastructure providers and central banks or other regulators to reach agreement. These discussions will often need to include arrangements for the handling of anti-money laundering (AML), sanctions screening, consumer protection, foreign exchange (FX) components, and associated fees.

This complexity can also manifest in the requirement to have numerous bilateral agreements between different countries, requiring the same complex discussions to happen for each relationship. An alternative solution is to have a single multilateral agreement as is the case with Buna in the Middle East or the Single Euro Payments Area (SEPA).

Mastercard's efforts in expanding real-time payments and innovations are closely aligned with the G20 Roadmap for Enhancing Cross-Border Payments. Mastercard applies insights gained from domestic schemes in markets in which it provides real-time payment solutions to cross-border capabilities, helping establish new standards, rules, and governance.

Accommodating multiple domestic schemes

As previously mentioned, the Federal Reserve in the US launched FedNow, its instant account-to-account (A2A) payment service allowing individuals and businesses to send and receive money. One of the drivers for the launch was to offer an alternative to financial institutions, especially smaller credit unions and community banks.

In June 2024, the Central Reserve Bank of Peru partnered with NPCI International Payments Limited to launch a domestic scheme service. This aims to foster innovation, financial inclusion, reduce reliance on cash, and welcome new participants into the Peruvian payments ecosystem.[14] Both cases illustrate the increasing demand for instant payments and reflect a trend we anticipate will persist in certain markets, marked by greater involvement from central banks and regulators to drive innovation, competition, and financial inclusion.

All ecosystem stakeholders should prepare for the key implications of this market development, including:

- **Interoperability**: Real-time payment networks' capability to reach the majority, if not all, users, is vital to ensure a consistent and positive user experience while incentivizing participant adoption, innovative new use cases, and market competition which is important in smaller or more fragmented markets. Ensuring multiple real-time payment schemes in a country are able to complete instant A2A payments across each other (i.e. are interoperable) is not only an efficient route to maximize reach, but it also increases the resilience of a national payments system as one scheme can act as a fall back for another.

Just

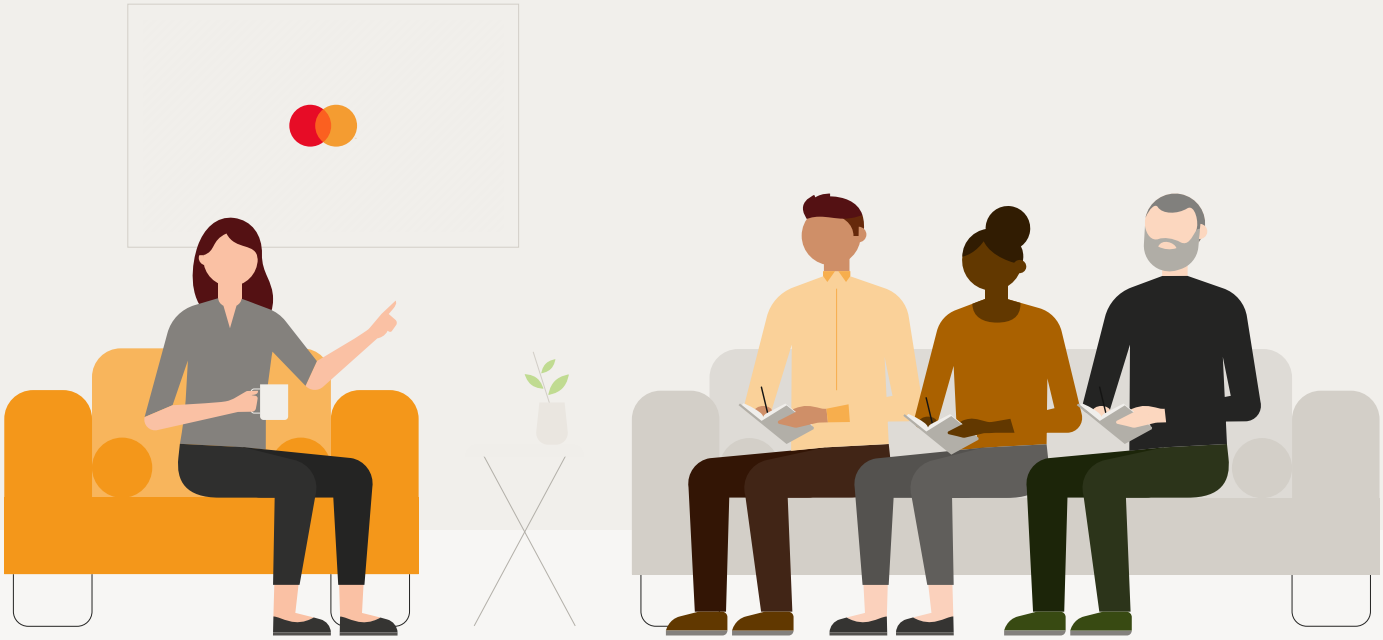
29%

of Demand Deposit Accounts are estimated to be reachable by FedNow in the US[15]

- **Liquidity management**: When multiple real-time payment schemes do not consolidate liquidity pools, participating financial institutions must allocate or collateralize liquidity across both systems. This results in an inefficient utilization of their capital, which is subject to various demands for generating returns. Read more in our white paper 'High speed, High Stakes: Navigating liquidity in an era of volatility.'
- **Incremental costs**: As seen in the US market, where TCH's RTP and FedNow are currently not interoperable, some banks are connecting to both schemes to maximize reach. Similar to duplicating liquidity, this is likely to drive up operational costs for the participants, challenging the benefits that can be realized.

> *Given the size of the US market, the complementary capability to substitute one system for another in the event of a failure could become crucial. This setup could increase the resilience and reliability of the nation's payment infrastructure and encourage competition for innovative use cases, benefiting the end user. However, this will rely on stakeholders collaborating to address questions regarding costs and liquidity.*

Helena Forest
Executive Vice President, Global Product Management & Commercial, Real-Time Payments, Mastercard



Harnessing ISO 20022 to enable new use cases

ISO 20022 is an increasingly common building block of real-time payment systems. Of the 61 real-time payment systems reviewed globally in 2022, Mastercard identified almost two-thirds were based on this data standard, with many others planning to upgrade to it.[16]

The standard enables banks and financial institutions to exchange richer data than was previously available (e.g. the ISO 8583 standard), reducing costs, driving automation and enabling new use cases. Domestically, it improves straight-through reconciliation and processing, the accuracy of payment screening for fraud, anti-money laundering (AML), and know your customer (KYC) procedures. However, as more participants adopt these standards, it will be particularly advantageous for cross-border transactions as well.

Additionally, as richer product and service data becomes more accessible, banks, merchants and financial service providers can build detailed customer profiles. Looking ahead, these insights will create new services and products. For example, firms will be able to offer more tailored services like credit lines, loans, insurance policies, wealth management products, and personalized loyalty programs.

There is currently no unified messaging guideline for domestic real-time payment systems, unlike CBPR+ for cross-border payments and HVPS+ for RTGS payments. However, SWIFT will collaborate with the banking community starting in 2025 to introduce IP+ guidelines. This initiative comes as the coexistence period ends in November 2025, and banks prepare to utilize the messaging standard for cross-border payments. Domestic real-time payment markets should consider these guidelines alongside recommendations from the Committee on Payments and Market Infrastructure (CPMI), which provide best practices.

These guidelines will allow service providers and businesses to deploy additional functionality, for example, Request to Pay or Confirmation of Payee with less effort and investment. This is also expected to facilitate interoperability and participation of digital wallets and APMs.

Seamless journeys: the rise of digital wallets

Digital wallets are online payment tools that, in some use cases, let users store virtual cards and make payments without physical cards. They can also enable account-to-account (A2A) payments using Open Banking methods. Crucially, they enhance convenience, security, and streamline financial transactions, fostering a seamless, cashless payment experience.

Digital wallets come in various types: Pass-through wallets, like European Payments Initiative's Wero, and Sweden's Swish, transmit consumer credentials directly to a merchant, either through cards (typically via the merchant's acquirer) or bank accounts (usually via real-time payments and a central directory). Staged wallets, like PayPal, operate as closed-loop systems where accounts are funded at the time of purchase near real-time. Stored value wallets, another form of closed-loop wallet, allow users to preload funds into their accounts for future use.

Consumers today desire more options, flexibility, and security in how they pay. We're collaborating with both global digital players and regional APMs to improve experiences and provide choices for consumers. Our partnerships with APMs are essential for Mastercard's goals of financial inclusion and enhancing consumer experience through innovative payment solutions.

Zeynep Selcuk Ekren
Senior Vice President,
Digital Solutions & Innovation, Mastercard

The industry now faces several key challenges, one of which is the interoperability of mainstream payment means. This broad term poses varied challenges across different markets, encompassing infrastructure, scheme rules, messaging standards, use cases, and corridors.

Improved interoperability not only enhances efficiency and reach for consumers and businesses but also broadens practical applications and the potential for innovative use cases to address underserved consumer and business needs. Mastercard actively engages with key market participants globally to drive greater interoperability in markets where Mastercard solutions power or complement domestic real-time payment systems.

With the foreseeable growth and pivotal role of digital wallets in most modern economies, real-time payment ecosystems should maintain digital wallet interoperability at the forefront of their evolutionary agenda to ensure value creation and growth for the wider payment ecosystem stakeholders.

CASE STUDY

ShopeePay – Revolutionizing real-time payments and digital wallets in the Philippines

ShopeePay is an integrated mobile wallet that provides users easy access to digital payment services, ensuring a seamless shopping experience for both buyers and sellers. ShopeePay allows users to make online payments on Shopee, top up their wallets, transfer and withdraw funds, and make payments offline at thousands of merchants.

Johan Diaz is the Head of Banks and Channel Partnerships at ShopeePay, but also serves as the lead at InstaPay network's Request to Pay working group in the Philippines, where he offers valuable insights into the opportunities and challenges surrounding real-time payments and digital wallets in the country.

"Consumers today are navigating complex financial landscapes, and it's crucial they feel confident in how they allocate their monthly earnings. For emerging payment methods like digital wallets, the primary challenge is to present a clear and compelling value proposition."

"The implementation of the real-time payment system has been a game-changer for ShopeePay. By eliminating the need for direct integration with the 89 banks in the Philippines, this system has enabled ShopeePay to become one of the most cost-effective payment solutions available. This allows us to streamline our services and pass on significant cost savings to our customers, further enhancing their overall user experience."

Building on this success, ShopeePay continues to expand its value with innovative solutions such as enabling loan repayments via QR codes, and transitioning from staged wallets to a seamless Account-to-Account (A2A) wallet model. These advancements will help to streamline the payment process even further and empower businesses to unlock opportunities for growth.

Looking to the future, Diaz emphasizes ShopeePay's commitment to fostering a more inclusive digital payments market in the Philippines. "The initiatives and standards the InstaPay ACH is implementing are leveling the playing field, allowing smaller players to enter the market and reducing friction for consumers. The expansion of use cases for wallets and real-time payments—including transportation and payroll disbursements—will be vital to the industry's growth."

In addition to enhancing functionality, Diaz also highlights the need to combat fraud and ensure system integrity. "Improved tracking of payments will be crucial for building user trust and encouraging the adoption of new payment methods," he asserts.

Recognizing the vital role of collaboration in the growth of the Philippines' digital payments industry, Diaz commends Mastercard for its significant contributions to this initiative. "Mastercard's expertise and global best practices have been instrumental in shaping our approach to developing real-time payments in the Philippines. Their insights have empowered us to learn from established frameworks and apply those lessons effectively. I look forward to more opportunities for collaboration on how we can continue to drive innovation within this sector."

The growing promise of AI

The introduction of Generative AI is set to transform the world around us and its usage will fundamentally change industries and how we live and work. Significant changes are expected in the financial sector, including payments, as new applications of this technology continue to emerge.

New use cases for AI in the payments domain requires careful consideration, as organizations try to balance the privacy and inclusivity concerns against the raw potential it holds. We are now seeing some areas where AI is being utilized with incredibly promising results. This includes opportunities in the C2B space with e-commerce enablement, and in the B2B space by linking payments in supply chain finance, which relies on effectively connecting invoices.

> *We anticipate AI will significantly influence e-commerce enablement. Combining data from real-time payments and FedNow transactions with card data, US merchants could gain a clearer picture of spending habits and behaviors, enabling them to provide more personalized loyalty programs and other timely offers.*
>
> **Tomas Thire**
> Senior Vice President, Applied AI Technology, Mastercard

Additionally, AI has been utilized in transaction screening at various stages, including pre-transaction, in-flight and post-transaction. By understanding typical payment patterns, it enables payment service providers (PSPs) to detect unusual behavior and identify fraudulent transactions.

As real-time payments grow, it's imperative that fraud prevention tools are integrated within systems as they scale, as high fraud rates can undermine consumer confidence. Mastercard employs several AI tools to help improve processes, elevate user experiences, and effectively combat fraud.

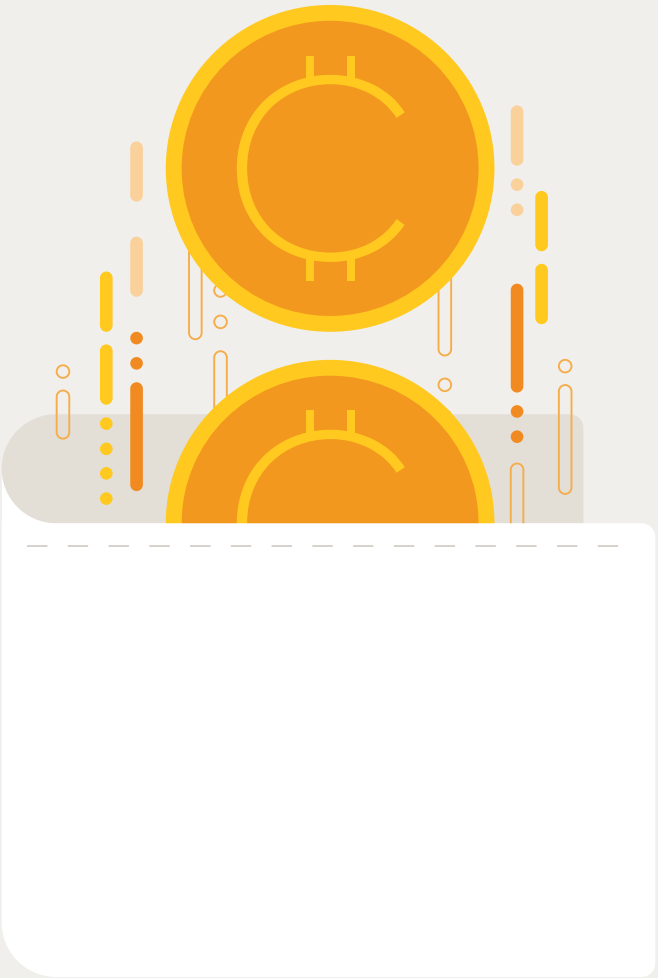
> *We deliver fraud prevention solutions for the real-time payment systems we manage, and our extensive global network allows us to extend these services to newer systems being developed worldwide.*
>
> **Tomas Thire**
> Senior Vice President, Applied AI Technology, Mastercard

We will continue to see rapid shifts in the industry as firms move to enable new solutions for customers and drive insights from real-time transaction data. Meanwhile, the pace of AI development is likely to accelerate, providing capabilities we've yet to even consider.

The integration of digital assets

Digital assets – assets that only exist in digital form and come with distinct usage rights or distinct permission for use, are now becoming more mainstream and legitimized. In September 2024, for example, the UK parliament introduced a Bill providing owners of Bitcoin and other digital assets with greater legal protection.[17]

Some of these digital assets aim to perform the functions of currency, and regulators, including in the EU, are preparing for a system where users have a choice between different digital assets.[18]



$4.4t

By 2024, B2B cross-border payments stored on blockchain will surpass $4.4 trillion, up from $171 billion in 2019.[19]

Alongside this, there is the emergence of central bank digital currencies (CBDCs). Australia's central bank, for one, recently announced it will prioritize work on a wholesale CBDC as its economic benefits are judged to outweigh those of a retail version.[20]

> *It's understandable that central banks are looking at the development of CBDCs. However, customers have come to expect seamless interoperability between different forms of money. There is an opportunity for real-time payment systems to expand their existing interoperability to CBDCs, allowing competitive providers of value-added services to innovate.*

Martin Etheridge
Senior Vice President, Blockchain & Digital Assets, Mastercard

Digital currencies will likely continue to expand, but they are inherently not interoperable. This provides an opportunity for real-time payment systems to increase the scope of their services to allow holders of digital currencies to transact seamlessly, similar to how they do between bank accounts and e-money accounts.

Card systems are already doing this: Mastercard recently partnered with Eurasian bank to launch the first Digital Tenge Card in Kazakhstan. This CBDC-linked debit card enables instant conversion of digital Tenge to traditional currency and can be used globally where Mastercard is accepted.[21]

The policy and economic factors involve more complex questions around who will be allowed to have access to this system. This and questions around funding the infrastructure will need addressing. What may help the process is the identification of a compelling use case, for example, one of which could be using digital assets to enhance the speed, transparency, security and cost-effectiveness of B2B cross-border payments.

> *Public blockchain infrastructure, the technology behind many digital assets, offers the promise of 24/7/365 cross-border payments that are accessible to everyone. While this boosts expectations for convenience, consumers also expect safety and security — creating a key opportunity for real-time payment systems to innovate and meet these demands.*
>
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Mastercard is committed to delivering the services its clients and their customers need, whether it's a transaction between bank accounts or digital asset wallets. The focus is on providing fast, secure, and flexible payment solutions, ensuring customers have choices that meet their evolving needs.

A convergence in the real-time world

Since their inception, real-time payments have unlocked a myriad of opportunities and benefits around the world. From increasing competition and customer satisfaction in payments to promoting trade, integrating more people into formal economies, and ensuring access to state support in times of need.

The first wave of real-time payment systems has highlighted the critical role governments play in driving adoption among individuals and businesses, as well as the various objectives these systems can support. Government and industry initiatives have led several traditionally cash-reliant markets to rapidly implement real-time systems, positioning them as leaders in this domain.

This has involved expanding beyond initial person-to-person (P2P) use cases into areas such as person-to-merchant (P2M), leading to the adoption of technologies like QR codes and the integration of payment systems into 'super apps' to enhance usage. Furthermore, there is a growing focus on creating seamless user experiences, which has increased the repeated use of real-time services.

Noteworthy progress has been made in applying new technologies, such as artificial intelligence (AI) and machine learning, to safeguard the integrity of real-time systems and mitigate the effects of fraud.

The first wave of real-time payments has led to record growth in transactions, but maintaining this momentum is now the challenge for ecosystem stakeholders.

As we enter the second wave of real-time payments, it is clear that emerging use cases will continue to drive adoption. B2B payments, in particular, offer significant potential in terms of reach and value.

Innovations in AI and digital wallets will improve real-time payments by providing spending insights, personalized services, and flexible payment options. Similarly, the adoption of digital currencies will be enhanced through real-time services that facilitate greater interoperability and promote a more integrated system across various currencies and account types.

With the G20 deadline to enhance cross-border payments nearing, real-time payments present a significant opportunity to enable faster, more transparent, and cost-effective transactions for millions of individuals worldwide. Despite the technology being ready, achieving this will require collaboration and aligned objectives among governments, regulators and industry players across the globe.

As a key player in the real-time payments landscape, Mastercard's mission is to facilitate this next wave of real-time payments, helping customers meet and exceed the evolving expectations of their end users.

Mastercard has significant capabilities and experience in operating real-time payments markets globally and is ready to support these ecosystems reach their goals. Whether it's integrating new digital currencies, implementing AI-driven fraud prevention, expanding real-time payments into the B2B space, or enhancing interoperability between digital wallets, Mastercard combines its advanced technology and expert insights to foster these developments and drive innovation.

Footnotes

1. Juniper Research | Instant Payment Transactions to Surpass $58 Trillion Globally by 2028
2. Your real-time guide to real-time payments | Mastercard
3. Prime time for real-time global payments report 2024 | ACI Worldwide
4. Market size of real-time payments worldwide in 2024, with a forecast for 2028 | Statista
5. DFS drives expansion of digital payments in India and abroad | Government of India Press Information Bureau
6. UPI: revolutionising real-time digital payments in India | European Payments Council
7. UPI Product Statistics | NPCI
8. Prime time for real-time global payments report 2023 | ACI Worldwide
9. Paym closure | Pay.uk
10. Global Losses from Scams and Schemes in 2023 | Voronoi
11. Mastercard expands first-of-its-kind AI technology to help banks protect more consumers from scams in real time | Mastercard
12. Gig Economy Market Size & Revenue by 2028 | Market Reports World
13. G20 Roadmap for Enhancing Cross-border Payments: Consolidated progress report for 2023 | Financial Stability Board
14. NPCI International and the Central Reserve Bank of Peru Partner to Develop UPI-Like Real-Time Payments System in Peru | NPCI International
15. FedNow's first year, and its impact on real-time payments | PaymentsSource | American Banker
16. Journey to payments modernization | Mastercard
17. New bill introduced in Parliament to clarify crypto's legal status | GOV.UK
18. Markets in Crypto-Assets Regulation (MiCA) | ESMA
19. Blockchain-based Cross-border B2B Transactions to Skyrocket to $4.4 Trillion by 2024 | Juniper Research
20. Australia's RBA to prioritise wholesale CBDC work over retail | Reuters
21. Eurasian Bank partners with Mastercard to launch the first Digital Tenge Card | Mastercard