PAYMENTS MODERNIZATION

APRIL 2022

Picking up the pace: A focus on real time

Part 3:
A focus on real-time

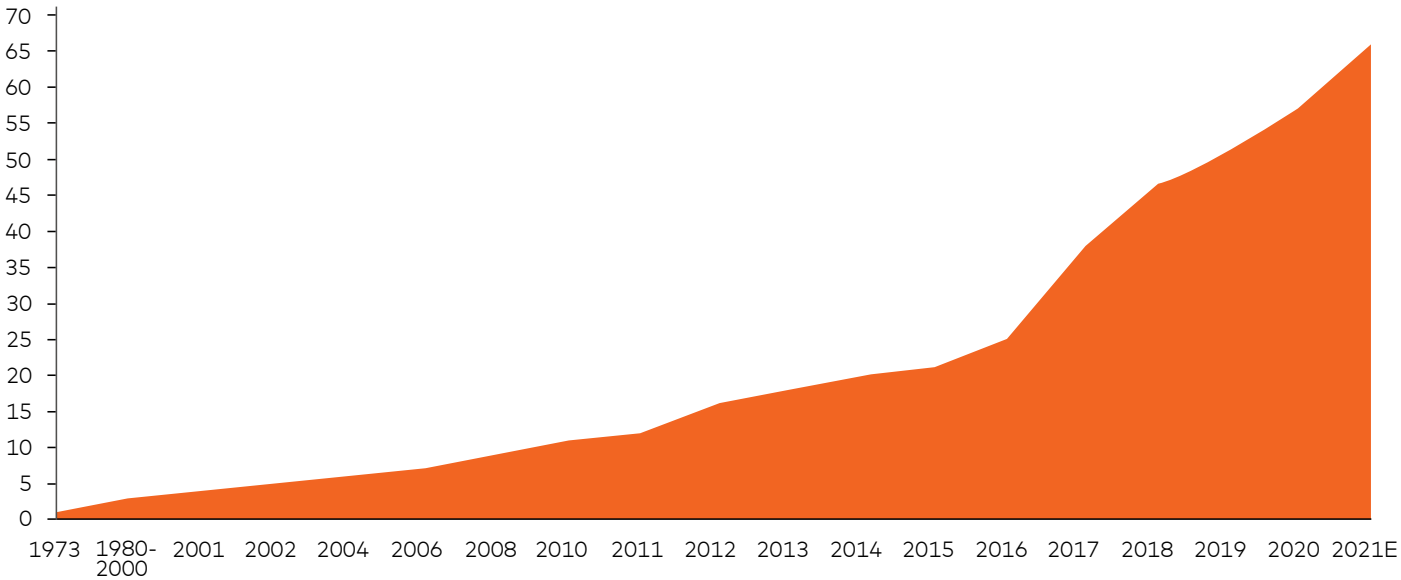
In chapter two, we looked at how the transition from cash and the associated rise in digital payments are powering the digital economy and driving payments modernization efforts around the world.

We now turn our attention to the rapid and widespread development of real-time payment systems, which has been a central component of payments modernization over the past decade.

Fast, secure and reliable, these systems typically support always-on environments. The speed of the payment combined with the certainty that accompanies irrevocability means they are well suited to supporting innovation and competition by providing a backbone for new digital experiences for all players in the payments ecosystem, including consumers, corporates, merchants and governments.

The development and implementation of real-time payment systems have come a very long way in a relatively short time. By the end of 2021, there were 66 markets globally with live access to real-time payments, accounting for the equivalent of more than 90 percent of global GDP. Whilst further progress may now slow a little due to the fallout from the pandemic, the expectation is that growth will return and the pace will pick back up.

Total number of live real-time systems



Source: *Internal analysis*

Around three-quarters of real-time payments markets have gone live within the last four years, and a considerable proportion of these new services can be attributed to the launch of Single Euro Payments Area (SEPA) Instant services across the EU. But it's not just in Europe; from Aruba to Azerbaijan, real-time payment systems are being implemented around the world to help power economies.

We expect new services to soon launch in Canada, the UAE, Myanmar, Vietnam and India. And in Peru, Mastercard and ACI Worldwide are partnering with Cámara de Compensación Electrónica (CCE) to create a new real-time payments infrastructure offering.

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The public policy challenge

As with payments modernization in general, there are various motivations for implementing real-time payment systems.

To better understand them, we analyzed press releases, news stories, speeches and papers from 45 real-time payment system launches around the world, looking for key words that outlined the primary ambitions of the project.

Overwhelmingly, the most common motivations were to promote competition and innovation, and to improve efficiency. Transparency (including reducing the reliance on cash) and improving the end-user experience also featured prominently.

An interesting point we identified is how the words can have different meaning, depending on one's perspective. For example, "transparency" and "cash reduction" were invariably linked when discussed and became hard to separate. Similarly, "efficiency" was stated in the majority of cases, but the efficiency challenge in a developing country like Indonesia is very different to that of a developed country like Canada, for example.

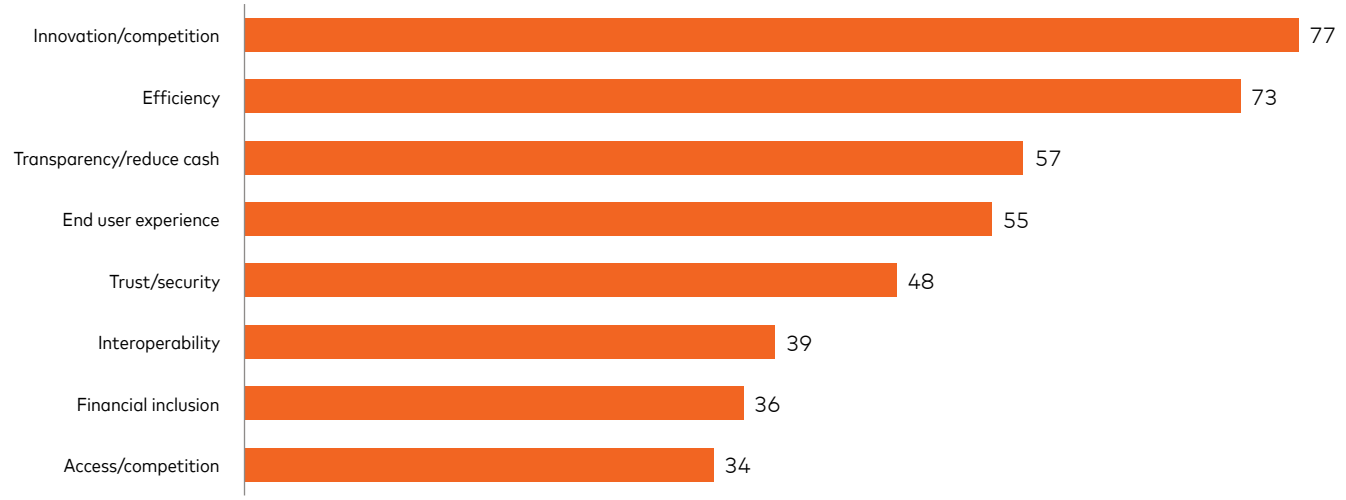
While public policymakers play a crucial role in setting the agenda for introducing real-time payments, one of the key challenges in navigating the complex world of payments and public policy is understanding who holds the greatest influence. In some markets, power will be centralized, with public policy the key driver in a highly top-down approach. In other markets, public policy may simply be a guiding principle from which a consensus is built to move the project forward, striking a balance between the opinions of regulator, central bank, PSPs, schemes, operators and technical service providers.

The balancing of different public policy objectives can also be a challenge. How do you weigh security and risk on one hand, with access and financial inclusion on the other? Cost, security and convenience are major factors to consider when it comes to payments. A focus on one aspect can be to the detriment of another. You could, for example, make the most secure payment system in the world, but if the costs are prohibitive and it adds too much friction, no one will use it, although maintaining the highest possible non-functional requirements is paramount.

The difficulty for public policy is every intervention can potentially tip this balance. Look at PSD2 in the European Economic Area, designed to open up access to payments and introduce new competition. It was also a response to a changing market and a need to protect end users by regulating an increasing array of third-party service providers. To ensure a level playing field and security, Strong Customer Authentication (SCA) rules were introduced, requiring two-factor authentication in most payment scenarios. The key challenge for the European Commission and the market has been to try and balance this approach (opening the market, increasing authentication rules) with potential increases in friction or cost.

In some markets, critical infrastructures are of such size and scale that policymakers are promoting multiple entities to reduce the systemic risk of having all payments passed through a single organization. In India, for example, with bulk and real-time payments primarily processed through the National Payments Corporation of India (NPCI), the Reserve Bank of India plans to offer a license to a New Umbrella Entity (NUE) for a competing platform. The challenge will be to ensure that multiple systems can co-exist and are interoperable.

Real-time payments objectives



"Foundation for new payments business initiatives, encouraging financial inclusion and banking reconciliation of Saudi banks."

Saudi Arabia Monetary Authority (SAMA)

"An efficient, inclusive, safe and secure digital payments ecosystem that supports the diverse needs and capabilities of individuals and firms, towards achievement of the BSP's mandates"

Bangko Sentral ng Pilipinas

"There is a risk of new fragmentation in the euro area arising from the development of national, proprietary or closed-loop solutions which are not interoperable. To counter this risk, the Euro Retail Payment Board (ERPB) mandated the European Payments Council (EPC) to develop the SEPA Instant Credit Transfer (SCTinst), a scheme for pan-European instant payments."

European Central Bank on the development of Target Instant Payments Service (TIPS)

"The key thrust of this plan is to develop a new real-time Retail Payments Platform that will serve as both a catalyst and enabler for innovative payments in Malaysia"

Bank Negara Malaysia

The growing importance of interoperability

Interoperability is an often-cited aim of payments modernization, with 39 percent of real-time payments initiatives we reviewed highlighting it as a stated objective.

But it has a very different meaning based on one's perspective. When policymakers at the domestic level call for interoperability between systems, it can be a sign that existing infrastructure needs enhancing. Modernizing payments infrastructure aims to ensure standardized connectivity between PSPs, supporting a more competitive market environment.

However, markets are increasingly talking about interoperability in terms of cross-border reach. The advantages of such arrangements should be transformative. Not only will it remove barriers and increase the velocity of international trade, but there is also potential to ease cross-border payment pain points, including cost, speed and transparency.

This is an increasingly important consideration when looking at the standards, design and technology used, in both a domestic and cross-border context. One challenge is they are rarely aligned, meaning that a greater standardized design approach is required from the outset to ease interoperability with close trading nations/corridors or partners on a wider global setting. This is reminiscent of the rationale for the cards networks, where global standards not only allowed for mass adoption but included utilization with domestic schemes.

The pan-European goals of SEPA Instant is a notable example; SEPA Instant is helped by the fact it's a single currency. To make this a reality in other multi-market jurisdictions, significant cooperation is required at the bank and scheme level, but also amongst central banks.

The signs are good. In April 2021, the Monetary Authority of Singapore (MAS) and the Bank of Thailand, both of which Mastercard support with their domestic retail and real time payments needs, launched the connection of Singapore's PayNow and Thailand's PromptPay real-time payment systems. Customers can now perform cross-border fund transfers between both countries using their mobile numbers, instantly initiating payments 24x7 and replicating the same user experience they have been accustomed to.

"With governments now pledging to tackle the overdue payments issue, real-time payments are positioned to play an integral role in supporting these changes."

The B2B question

Businesses are a vital customer base for banks, as well as being a driving force for our economies, especially in terms of aiding post-pandemic recovery.

As such, real-time payments can support a variety of use cases that are driven by the context of which a payment is being made. For example, for supply chain management an immediate payment would be a perfect option to support a 'just in time' manufactory process that is looking to create efficiencies in automated stock management and fulfilment. Not all benefits of real-time payments are about speed – for many businesses, the digital creation of a standard invoice that is executed in a pre-determined timeframe will provide significant positive uplift, supported by the implementation of ISO 20022.

Certainty is another major benefit. This means several things in the context of real-time payments. Firstly, the payment is irrevocable, which means that parties will have confidence in the market exchange. It makes it harder to renege on a contract but can also encourage new and more efficient business practices, such as payment on delivery, ending the issue of delayed payments that has a disproportionate effect on small businesses (Sage has estimated global overdue payments are worth $3 trillion). With governments now pledging to tackle this issue, real-time payments are positioned to play an integral role in supporting these changes, especially when combined with other benefits, such as improved Straight-Through Processing (STP) and reconciliation.

Certainty and predictability of payments, particularly in markets upgrading to real time from legacy payments infrastructure, can also offer significant returns for businesses. It enables them to better manage cash flows and liquidity positions as they have greater visibility over both incoming and outgoing payments. This can also lead to other financial benefits. If their outgoing payments to suppliers are more predictable, businesses can become a preferred customer with favourable discounts. This benefit could also be extended to factoring loans, with a company getting discounted rates for quicker and more predictable payments.

Some of the most important benefits to B2B payments are those that come with the ISO 20022 messaging standard. **We shall look at this unifying message standard in greater depth in a later chapter**, but it's worth highlighting here that ISO 20022 offers a richer data set meaning more information can be sent with the payment message, including invoice data and remittance data. ISO 20022 also supports request to pay functionality, meaning participants in the payments ecosystem can exchange payment-related data, saving time and costs on phone calls and email messages.

What all these benefits mean in practical terms is the ability to better automate back-end processes. For larger businesses, there is already some degree of automation through the integration of various Enterprise Resource Planning (ERP) systems or Accounts Payable/Accounts Receivable systems. However, significant resources are still required to deal with payment exceptions, such as human error, duplicate payments and misfiled invoices – with industry estimates suggesting that each exception costs a company around $50-60[1]. Additional data can help eradicate many of these exceptions and increase STP, especially when combined with complementary AI (artificial intelligence).

ISO 20022
Richer data standards mean more information can be sent with the payment message. We'll explore this in a later chapter.

"Within 5 years of launch, Thailand's PromptPay has amassed 62.5m registrations, an incredibly significant number in a population of just over 70 million."

Key considerations when implementing real-time payment systems

In the last chapter, we looked at how the Thai government mandated the country's banks to join PromptPay, alongside its decision to move government payments, including welfare payments and business subsidies, to the new service. This fuelled faster adoption, solving the challenge of how to get a critical mass of users and ensuring the service quickly benefited from network effects. By July 2021, there were 62.5 million registrations, an incredibly significant number in a population of just over 70 million.

An important aim for any real-time payments scheme is the ability to reach all bank accounts in the market, allowing everyone to connect easily and securely to the infrastructure from the outset. It's a foundation that's often the hardest to put in place. Sometimes, there are competing agendas among banks – for example, a bank may hold a strong market position and be concerned about losing its share. Alternatively, some may feel a wait and see approach is prudent. These delays can be detrimental to the development of real-time services, and are why many regulators step in to mandate enrolment in these national infrastructures.

For the most part, payments rely on network effects, so once all bank accounts are fully reachable, participants can focus their efforts on delivering innovative new solutions that support and meet their end user needs and expectations. The Hong Kong Monetary Authority (HKMA) was able to announce 20 bank participants, a majority of retail banks, and eight stored-value facility operators when it launched its Faster Payments System (FPS) in 2018. At the same time, it also announced plans for a common QR standard with a mandatory requirement for various public transport operators, chain supermarkets and convenience stores to fully accept QR code payments.

This significant push to support the HKMA's payments modernization initiatives helped Hong Kong's FPS to quickly establish itself as one of the fastest developing services globally. In 2020, an average of 18 transactions per capita were made across Hong Kong's FPS. To put this into context, Thailand, the fastest developing, had 37 transactions per capita in its second full calendar year after launch (although if measured over a comparable launch period to Hong Kong, it would be 26 transactions per capita). Australia's New Payments Platform is another good example of a mandated service, reaching 11 transactions per capita in its second year (2019) and 23 in its third (2020).

1. 1% potential impact on Australian GDP growth. Source: Centre for Economic and Business Research

"It's not just a question of the differences between direct and indirect participation, or whether non-bank financial institutions are able to join, but also scheme rules and requirements, such as funding model."

Ensuring participation within a single jurisdiction is challenging, but doing so across an entire trading block, such as the EU, is even more daunting.

Competing agendas within the EU, contrasting sharply with the overarching goal of harmonization, has made for a relatively drawn-out process in the development and implementation of SEPA Instant. Despite the launch of a number of SEPA Instant services towards the end of 2017, including services from STET, EquensWorldline and Iberpay as well as EBA Clearing's pan-European instant payments service RT1, the ECB launched the Target Instant Payments Service (TIPS) a year later.

The ECB's objective of pan-European reach is finely balanced in some markets due to a possible lack of interoperability. The good news is that SEPA Instant is now mandated for European banks, with the ECB requiring that payment service providers subscribe to the TIPS clearing mechanism.

According to the European Payments Council, SEPA Instant accounted for around seven percent of credit transfers across the EU in 2020, which suggests a total number of instant payments of around 1.6 billion that year, or around four transactions per capita. However, there is significant variation between markets. The Dutch, for example, have decided to migrate their batch credit transfers to instant to allow businesses to use 24x7 services. As such, the Dutch Payments Association noted 372 million transactions, or roughly 21 transactions per capita in 2020.

And what about participation and the access model? This is an important question to consider, and one that can have important ramifications to competition and reach in the market. It's not just a question of the differences between direct and indirect participation, or whether non-bank financial institutions are able to join, but also scheme rules and requirements, such as funding model.

When Faster Payments launched in the UK, for which Vocalink, now a Mastercard company, built and continues to operate the real-time central infrastructure, the country's largest banks and building societies were mandated to join the scheme.

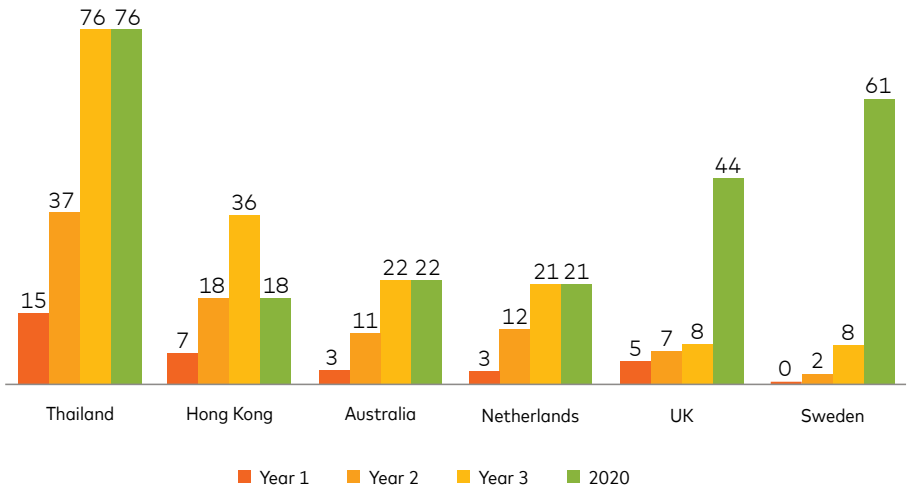
Covering an 85 percent plus share of bank accounts, this was enough to ensure reach for the initial stage. While many of the remaining banks participated in the scheme as indirect members, in 2015 the Faster Payments scheme announced it would move to a 'pre-funding' settlement system, making it easier for smaller challenger banks and third parties to become direct participants. Previously, the scheme operated a loss sharing agreement, which meant smaller entities were potentially liable if a larger bank failed. The benefit of direct participation is it has given smaller banks more control over their payments services. For example, it has enabled challenger banks, such as the likes of Starling Bank, to offer additional revenue-generating services. Today, only a very small number of accounts (less than 0.1 percent), such as some savings accounts, do not accept Faster Payments.

While it's crucial that new payments infrastructure quickly establishes a critical mass of bank participation, it should be noted that access to non-bank financial services providers varies. In the US, for example, participation in The Clearing House's Real-Time Payments (RTP) is restricted to banks, while in markets such as Hong Kong and Thailand, e-money providers are also permitted.

Access however, particularly for non-banks, can take multiple forms. Regulators and policymakers now have another tool to promote an open, inclusive and innovative payments environment: Open Banking. While real-time payments are not necessarily essential for Open Banking, they are highly complementary.

Ultimately then, access and reach of real-time payment systems comes down to more than just system design, but also incorporates the legal and regulatory frameworks that govern different markets.

Real-time payments market development in first full three years after launch, transaction per capita



Notes: *Based on first full year of service. Hong Kong year 1 is based on 15 months. Thailand's first full year started 10 months after launch so will have had an initial head start. It's also noticeable that older services such as UK and Sweden took longer to build volumes, which is perhaps more reflective of the time in which they launched.*

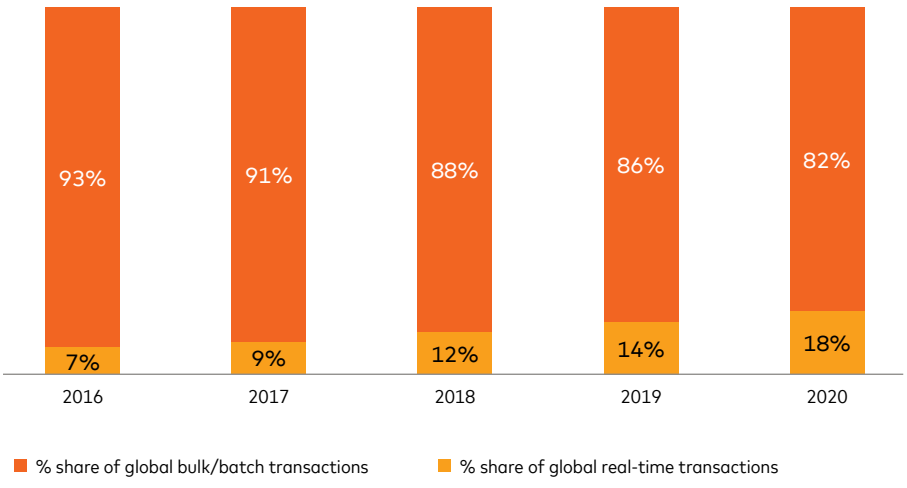
Beyond immediacy: bulk/batch payments

Another important consideration is how real-time payment systems operate in parallel to traditional bulk/batch systems. While real-time payments are growing fast, controlled bulk/batch payments are a cost-effective solution and will continue to play a significant role in many payment systems.

The fact is that for some payment types, certainty is more important than absolute speed. A salaried employee, for example, gets paid on the same day each month. It's relatively simple for the employer to schedule this payment a couple of days in advance to ensure the employee is paid on the agreed day. By contrast, those freelancing or in temporary employment are faced with more irregular payments based on work done. Immediacy in this scenario becomes a far more important proposition.

It's also worth noting that the newer bulk/batch systems support more frequent intraday settlement cycles, which creates 'fast enough' processing that will meet the requirements of many B2B, C2B, G2P and B2C use cases.

Bulk/batch versus real-time payments



Source: *Central banks, clearing companies, payment/bank associations, internal analysis*

Notes: *Calculations based on subtracting real-time transactions from total global credit transfers and debit transfers; note bulk/batch transactions may include some intra-bank transactions.*

Many real-time payment systems are built as a separate infrastructure to run in parallel with traditional bulk/batch infrastructure. While there is sometimes migration of volumes, for the most part they are considered complementary. However, there are a number of additional possibilities and options to consider here.

One option is a modular approach to implementation, an increasingly common and favoured approach to IT service delivery which means disruption can be minimized and risks are better managed. In the Netherlands, for example, they are using two speeds over the instant rails – true instant and slower, controlled payments. The migrated batch traffic can use the second option, recognizing that speed isn't essential here, but 24x7 operations are attractive. This two-speed approach also reduces technology costs for banks and other entities by smoothing volume peaks.

As more bulk/batch payments move away from paper, another option is to use an overlay on top of the real-time infrastructure that transitions some bulk/batch payments over. For markets where adoption of real time is slow, this may be a way of helping to cultivate the service. Upgrading a bulk/batch system so it can run the same message formats (e.g. ISO 20022) offers the potential for services such as bulk in, real time out – making it a lot simpler and effectively bridging interoperability between different infrastructures.

Another alternative is to directly offer banks a plug and play solution that enables them to continue to aggregate and provide bulk-like services, but integrated through their access to real-time infrastructure.

When it comes to real-time payment systems, there are a plethora of benefits for all participants in the payments ecosystem, including speed, certainty and 24x7 operations. It's a worthwhile investment when stacked up against the reality of not heeding the rising tide of payment modernization.

For the other chapters and further information on payments modernization, visit **b2b.mastercard.com/paymentsmodernization**

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