



**PAYMENTS MODERNIZATION**

**JANUARY 2023**

# Beyond the summit: Overlays and plug-in services



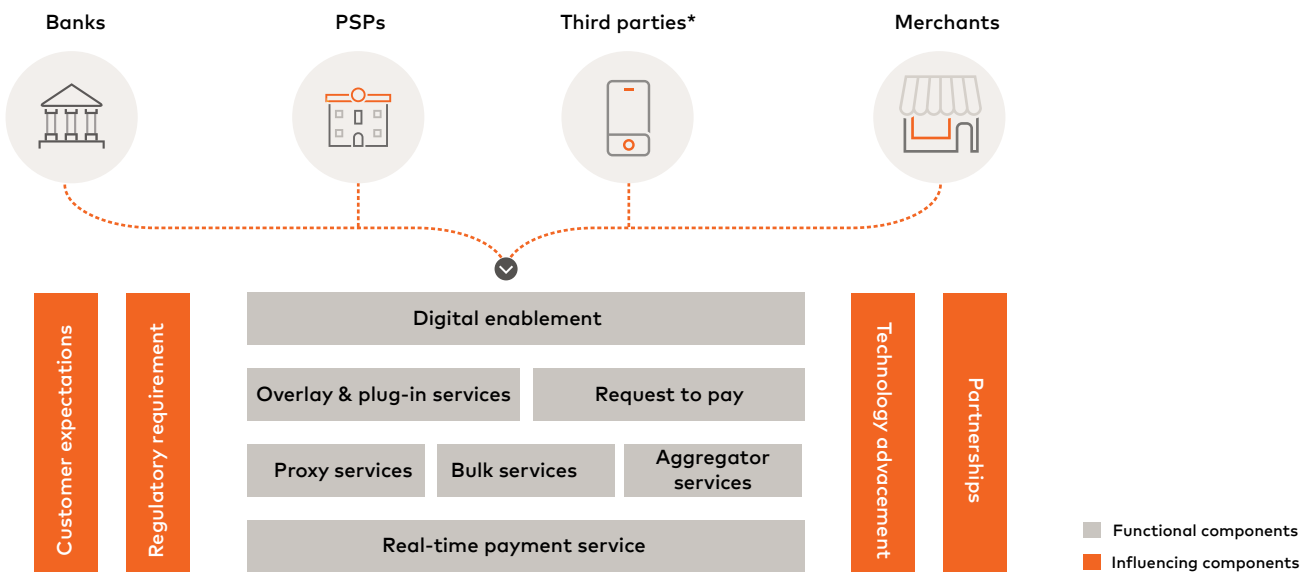
# Part 6: Overlays and plug-in services

In part five of this series, we explored the opportunities and challenges related to cloud technology, which supports payments modernization by simplifying processes.

In this sixth installment of our payments modernization series, we turn our attention to the overlays and plug-in services that are core to realizing the goal of modernized payment systems. They are the driving force behind new, innovative use cases across the world, and enable the reach required to increase usage across any given payments infrastructure.

For the purpose of this paper, we have defined an "overlay" as a service that augments a payment by building on the existing infrastructure to directly deliver a better customer experience. A "plug-in" is defined as an extension of the central infrastructure itself, providing additional features and ultimately additional value to its participants. Still, we note that there is no universally agreed definition of these terms, and also that design approaches can vary – meaning what may be a plug-in service in one market can sometimes sit in the overlay services space in another, and vice versa.

## Payments infrastructure



\*Entity that provides services that complement the facilitation of payments, e.g. open banking, identity or mobile app provider(s)

One example of an overlay service in line with our definition is a digital wallet. The likes of PayPal, WhatsApp Pay and Google Pay are overlays that offer seamless and frictionless payment experiences – and they're being integrated into our everyday lives. Whether we're shopping in person or online, purchasing travel tickets, or splitting bills and restaurant checks, overlays can help facilitate these interactions in a way that makes our lives simpler. Consumer offerings have so far been more prevalent in this space, but merchants and corporates are now finding similar benefits as invoice-based payment solutions continue to evolve, promoting better operational efficiency and cash flow management.

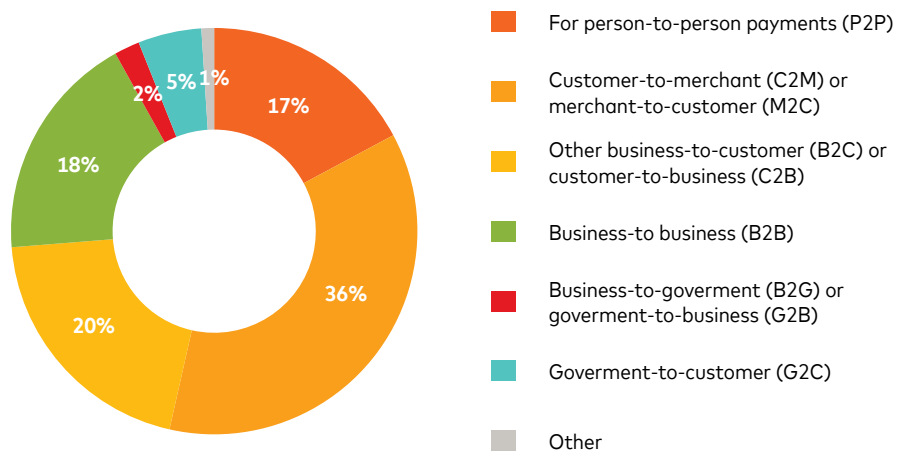
A plug-in service provides additional capabilities that impact system participants, ultimately supporting better outcomes across the industry. As described in part four of this series – **Getting the message across: ISO 20022 data standards** – fraud is a concern in many markets where real-time payments have been implemented, providing the opportunity to develop a plug-in service that better supports all network participants. For example, the ability to utilize data – pre, post or potentially during the payment process – can be used to reduce the impact of bad actors. Furthermore, services such as identity management and validation can provide the springboard for innovations that look to bring more people into the digital economy.



## The growing presence of request to pay

Described by EBA Clearing as “the missing piece in the real-time payments puzzle,” request to pay has arguably generated the most excitement of the various overlays that can support and utilize new modernized payments architecture. While mainly targeting consumer bill payments and invoice payments, this service is also supporting other payment use cases. Indeed, an **European Payments Council (EPC) survey** of payments professionals considered the potential for using request to pay across a wide range of payments scenarios.

**“In your opinion, for which situation would the Single Euro Payments Area Request to Pay (SEPA Request to Pay) scheme be the most useful?”**



A similar **survey by the European Banking Association** found that 66% of businesses either agree or strongly agree that request to pay is a relevant use case at the point of sale.

Request to pay is called out as a standalone component because it can be an overlay that exists on its own outside the national payments infrastructure, or can be incorporated by the inclusion of specific messaging that runs over the real-time payments infrastructure. So by definition, it can play into both the overlay service exposed to the end user or a plug-in as a feature of the central infrastructure.

In the UK, **request to pay** fits the former description as it’s a separate message that runs adjacent to existing credit transfer flows. Alternatively, some systems integrate the payments message with additional requests and messaging types, providing a different approach to innovation. Either approach is valid, and the more appropriate one is determined by the market dynamic. Whatever the path, the greater use of such messaging can support key growth areas for banks, such as business-to-business (B2B) payments, where additional message data can provide valuable functionality and enhancements to services.

## 2/3

of the world's real-time markets  
support or plan to support  
request to pay

The Clearing House's **RTP Network® in the U.S.**, developed using Mastercard's technology, is a prime example of a market that's adopted the latter approach. How different jurisdictions choose to implement these offerings across their infrastructure is dependent on policy considerations, historical legacy technology, and the scope of their modernization plans. Nevertheless, it's an important decision when designing the next generation of real-time payment systems.

In November 2020, the EPC published the SEPA Request to Pay scheme rulebook, which took effect in June 2021 following the UK implementation a year earlier. With further schemes gearing up for launch, such as those in Australia, India, Hong Kong, Singapore, Switzerland and Thailand, we expect significant activity over the next couple of years. Our own research indicates around two-thirds of real-time markets around the world support, or are planning to support, request to pay using instant payments.

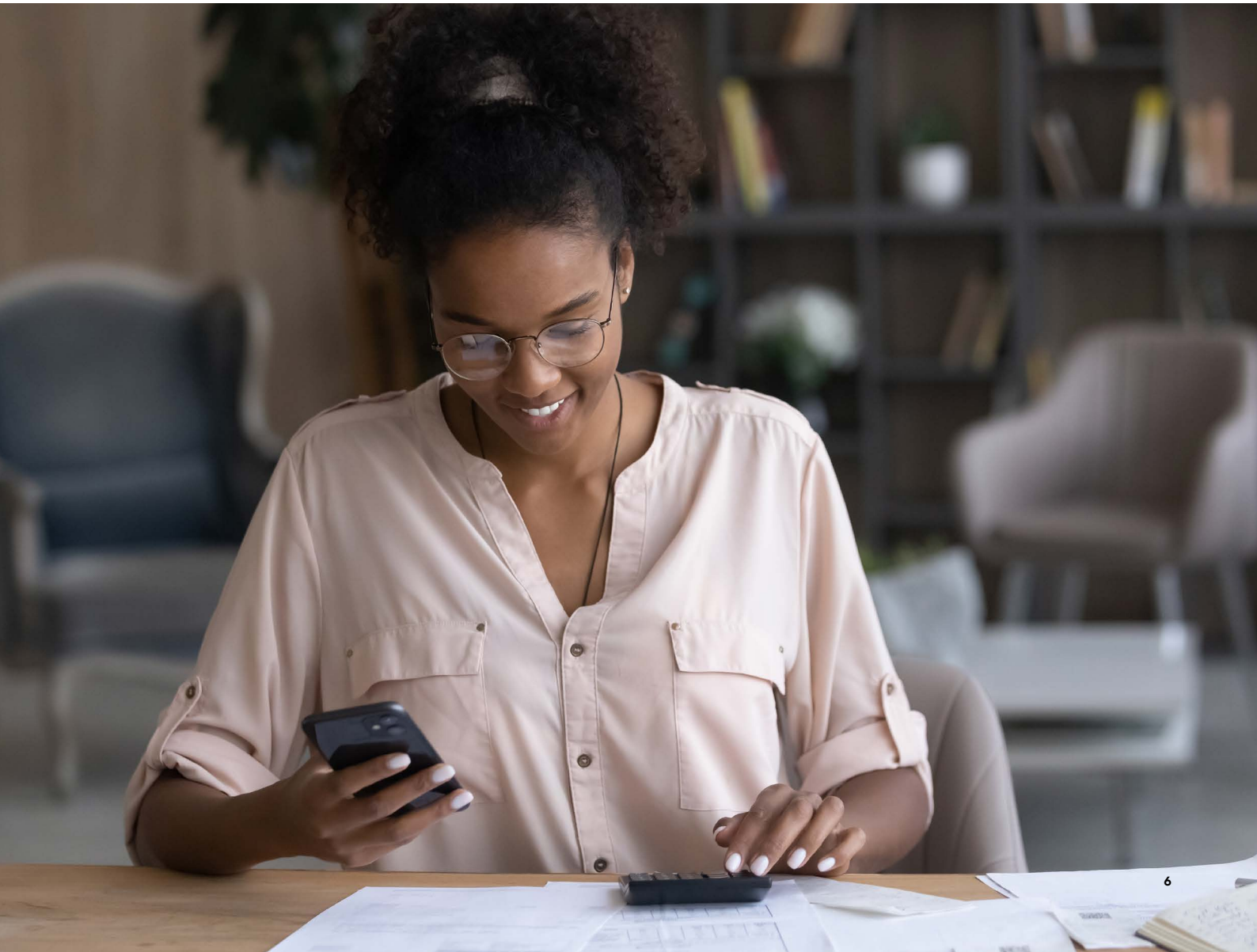
Request to pay enables a conversation between parties, be they billers and customers or buyers and suppliers. In the UK, for example, a feature of the request to pay design is the ability to initiate a digital dialogue between parties. Such a feature may have particular relevance for those on low or irregular incomes, such as the growing population of gig workers for whom financial planning is a monthly challenge. It can also be helpful for payers in financial difficulty looking to arrange a revised payment schedule to ensure continuity of the provided service. For billers, easier dialogue means greater certainty of income and the ability to better manage their liquidity. The data that's subsequently presented with payment also leads to improved reconciliation, thus reducing costs and increasing operational efficiencies.

Request to pay also has relevance for small businesses, as invoice presentment solutions not only provide the operational benefits just highlighted but could also include revenue generating opportunities through trade finance services such as trade credit, receivables discounting or term loans. For the buyer there is greater flexibility and control which, when combined with real-time payments, allows for "just in time" payments.

Despite widespread interest in request to pay, the presence of such services will vary across different markets. For example, in markets where direct debits are a well-established part of the bill payments landscape, transitioning to request to pay is more complex. However, after the pandemic and amidst recession, the static nature of a direct debit – specifically, the amount that must be paid and when – may prompt some demographics to alter their payment journey to one that better fulfils their needs.

That said, it's worth noting the top five direct debit markets (the U.S., Germany, Brazil, the U.K. and France) account for around three-quarters of all direct debits globally, while just 18 countries have more than two direct debits per person per month, on average.<sup>1</sup> Direct debits are typically less widely used in Asia, so transitioning to request to pay functionality to improve bill payments may be a comparatively easier road there — although those markets may have their own distinct challenges.

1. Based on a review of the top 82 global payments markets.



# \$589 billion

in remittance flows to low/  
middle-income countries in 2021

## Overlays across borders: The potential of interlinking real-time payment infrastructures

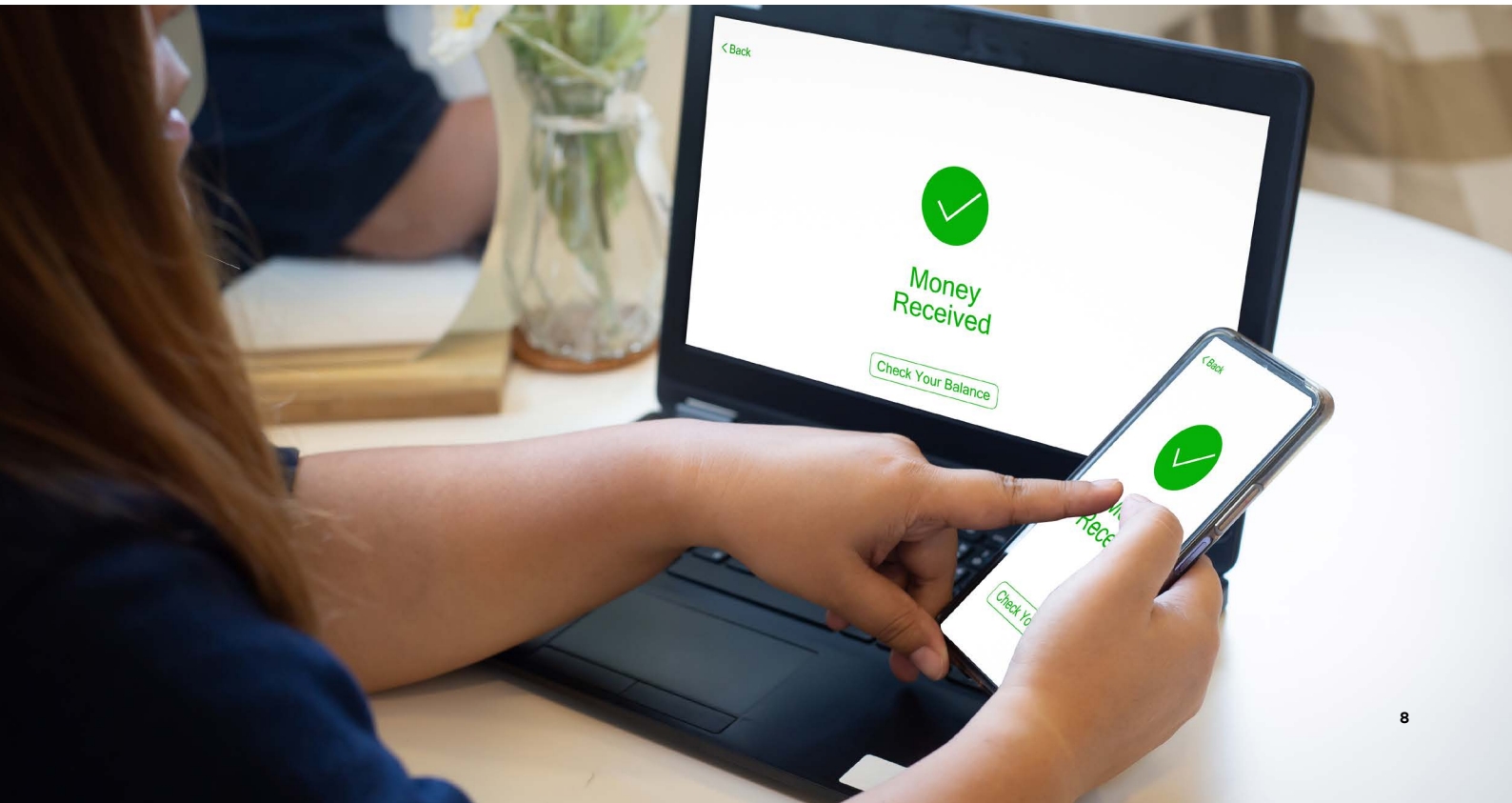
Arguably an overlay in and of itself, the ability for different real-time infrastructures to communicate and interlink effectively – allowing fast, seamless cross-border payments – is becoming crucial in an increasingly global world.

Whether it's migrant workers remitting money home or businesses paying international suppliers, account-to-account (A2A) payment transactions are a vital function of the global economy. Whilst impacted by the pandemic, global remittance flows to low- and middle-income countries still increased 7.3% to a total of \$589 billion in 2021, according to a World Bank report. This increase is enabled by the digitalization of services which is helping to address a number of pain points that can often exist in cross-border payments, such as high costs, lack of transparency, poor data quality and lack of reach to certain markets.

Notably, the Monetary Authority of Singapore (MAS) and the Bank of Thailand (BOT), together with the banks in both countries, have now expanded their domestic real-time payment schemes – PayNow and PromptPay, respectively – enabling users of these services to make P2P transfer and remittances between the two countries, exactly as they would do domestically, using a proxy address. Spurred on by high mobile phone penetration rates and the growing adoption of real-time payment systems in both countries, there was a clear demand to provide the same level of convenience while also significantly lowering the costs of these types of payments. So while digital P2P services have been around for years, proxy addressing solutions using real-time rails offer exciting levels of scale, reach, convenience and security. These types of innovation are key to addressing some of the changing consumer demands, more of which we delve into in part two of our [payment modernization report](#).

The Financial Stability Board's (FSB's) G20 roadmap has identified the interlinking of real-time payments as a key building block for the future of the industry, examining the harmonization of API protocols for data exchange and adopting a standardized ISO 20022 version for message formats. As such, interoperability between payment systems is something many major markets are now actively discussing, including TCH in the U.S. and Buna in the Middle East. The latter is a cross-border payment platform that will enable financial institutions and the region's central banks to send and receive cross-border multi-currency payments in a safe, cost-effective, risk-controlled and transparent manner.

Although interlinking is not without its challenges – such as agreeing on cross-country anti-money laundering (AML), counter financing of terrorism (CFT), and regulatory and legal considerations – given the significant benefits to each participating country, many more countries will likely try to implement it. This will require the full cooperation of all countries involved.





# 39%

YoY increase in APP fraud  
from 2020–2021

## The growing potential of plug-in services

Just as a plug-in service for a software component adds a specific feature to an existing program, plug-ins for national payments infrastructures are an extension of the central infrastructure itself, providing additional features and ultimately additional value to its participants.

Most notable in this space are services that can tackle fraud, a huge global issue with the potential to affect participants and end users. The speed and finality of real-time payments makes it an attractive option for criminals. The UK Finance, the U.K. banking and finance industry trade association, reported total fraud losses of more than £1.3 billion in 2021, of which £583.2 million (a year-on-year increase of 39%) was associated with Authorised Push Payment (APP) fraud. This is a global problem, with the European Payments Council (EPC) also noting an increase in APP fraud.

Whilst there is no silver bullet to solve APP fraud, the central payments infrastructure has the potential to play a key role in helping to tackle it, especially when the industry works in partnership with law enforcement and other government bodies. Integrating modern anti-fraud capabilities into the design of new payment systems is essential and will form an integral part of the overall set of end-to-end protections within the payments ecosystem.

Another plug-in that can benefit participants is liquidity management, which has always been a critical discipline for banks. With the increase in digital payments globally, it's now paramount for banks, central banks, payment operators, and schemes to predict and fund participation in real-time payment schemes, both domestically and across the international jurisdictions in which they operate. Optimization of liquidity is vital not only to avoid over-capitalizing settlement accounts, which can be costly, but also to avoid the potential fines associated with poor liquidity management.

In the spaces of both fraud and liquidity management, technology is playing a fundamental role. Artificial intelligence (AI) is being used to predict and track outcomes by analyzing payment system transaction data, providing insights at both a participant level and a payment network level for the betterment of the wider economy.

# The next wave of services

"CMM's applicability transcends that of real-time payments."

## Overlaying payment consent

While proxy addressing solutions, request to pay, and network-based fraud solutions are among the most high-profile services, they represent just the tip of the iceberg in terms of potential. Consent and mandate management (CMM) is a great example of an overlay service that's likely to feature in the next wave of services giving end users further control and flexibility, improving the frictionless and embedded payment experience. Furthermore, CMM's applicability transcends that of real-time payments because whether it's consumer or business payments, direct debits or open banking, A2A payments can be included where there is a need to make and schedule payments including who is authorized to invoice and initiate those payments, and arrangements for moving mandates to another provider.

Australia has been an early mover. The country's Consumer Data Right (CDR) gives users the ability to direct financial service providers and third parties to take actions relating to their finances on their behalf. PayTo – a CMM service operated by NPP Australia – is a means by which consumers and businesses can authorize this. PayTo allows customers to digitally authorize, modify and manage mandates they have given for third parties to initiate payments from their bank account. Customers can also move these permissions and mandates across if they switch banks.

When developing CMM database solutions, services need to be flexible and extendable to support a wide range of payments use cases, including recurring bill payments, subscription services, e-commerce, and in-store and in-app purchases. There's also the potential to develop solutions for businesses, including permissions around triggering a payment upon receipt of an e-invoice or smart contract, as well as governing the use of supply chain management solutions and B2B marketplaces.

CMM could also become a vital component of Internet of Things (IoT) commerce, where the user can set the rules and permissions that allow these payments to be initiated. This is a more complicated scenario, though, because we're essentially dealing with machine-to-machine requests. For example, if you instruct your fridge to order more butter and eggs when you run out, to what extent do you need to be involved to authenticate the transaction each time? Likewise, in a B2B context, if you lease an asset to manufacture an item, how can this process be simplified to optimize capacity while ensuring the correct contractual rigor?

How regulation adapts to this changing landscape is crucial. Different payment types need different levels of authentication, and as new payment solutions evolve, the requirements to manage these permissions must also evolve and adapt. For example, authentication requirements for recurring payments will be very different from a one-off payment. As part of PSD2, the EU introduced the requirement for Strong Customer Authentication (SCA), which requires the application of two-factor authentication for most transaction types – but there are certain exceptions to this requirement, including for low-value payments, recurring payments and payments for which PSPs have assessed the level of transaction risk to be low.

"Increasing adoption of digital services underlines the importance of a trusted identity capability."

## Plugging in to solve identity issues

Identifying the user or device that wants to access and manage its services is particularly pressing in developing economies, where proving who you are can be tough. Digital identity provides a plug-in service and is a key component of financial inclusion but is two-sided in that the market needs trusted IDs and places to use them. The current process of signing up for services and paying for them is often complex, with consumers juggling hundreds of passwords, leaving personal data exposed and facing friction to validate their identity.

One innovative solution is **Aadhaar**, a biometrically verifiable 12-digit identification number in India. Aadhaar provides proof of who you are and where you live, which is a challenge for many Indians, particularly in rural areas. By using an Aadhaar identifier, hundreds of millions of Indians have been able to access financial services for the first time, and the solution is increasingly harnessed as a mechanism for initiating payments.

The increasing adoption of digital services, accelerated by the pandemic, continues to underline the importance of a trusted identity capability. The creation of a single, secure digital ID providing universal access to various financial and non-financial services, potentially combined with CMM services, could represent the next step in delivering on the promise of open, inclusive, and innovative payments environments. This is already being rolled out successfully in some places like the Nordics, where **BANK ID** initiatives allow users to log on and use bank and government websites. The EU Commission also recently laid out plans to take this idea further via a digital passport. In support of such initiatives, Mastercard is working with national ID databases and other stakeholders to create a Digital Identity Network where reusable IDs are used instead of a password, with only the requisite data shared.

When you make an account-to-account payment, there are two key elements: the authentication of the payment and the payment itself. The former is done up-front and handled by the bank or a trusted third party. One potential way to do this is to work with respective governments to create a standardized online identification process that works globally, in the same way that PIN identification has done for card payments. Combined with additional digital information, this could allow consumers and businesses to take control of their digital lives, moving closer towards the payments modernization ethos – open, inclusive, and innovative.

This chapter has explored how overlays and plug-in services are central to the continuous advancement and innovation of payments capabilities which are focused on strengthening the underlying benefits of a real-time payments infrastructure. By nature, these services will act as enablers and allow competition to flourish.

The other chapters in this series are available via the link below, and our hope is that this body of work provides insights that help countries, central banks, regulators, operators and users – including banks, corporates, and merchants around the world – to progress their payments modernization journey, whatever stage they may be at. We've established ourselves as a trusted partner because we don't just talk about real-time payment systems and surrounding complimentary services – we deliver them every day.

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For the other chapters and further information on payments modernization, visit [b2b.mastercard.com/paymentsmodernization](https://b2b.mastercard.com/paymentsmodernization)



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