

The rise of
PayTech – seven
forces shaping
the future of
payments

A message from our

leaders

We believe the payments industry is going through a period of radical transformation. The rapid development of new payments technologies is dramatically reshaping how banks and traditional payments providers think about their payments businesses today. As traditional players assess their existing payments strategies and operating models, they must decide on the most effective way to transform their approach, to ultimately offer “value beyond payments.”

The trends described in this report are the most dynamic areas we think banks and payments providers should consider and make greater investment. They highlight how PayTechs and other new entrants are using innovation and technology to disrupt the conventional payments landscape, and what new payments capabilities they are devising as a result. The report was developed through in-depth analysis of the PayTech landscape and from dialogue with industry leaders, EY senior strategists, technology leaders, and payments services providers (PSPs).

We are optimistic and excited about the future of the payments industry, while recognizing the challenges banks and payments providers face to keep pace with disruptors. That’s why we continue to ask better questions, challenge the industry’s conventional wisdom, and constantly test our own thinking. That’s how we engage and collaborate with financial institutions, PSPs and other industry stakeholders to build a better working world.





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Executive summary

The payments industry is going through a period of radical transformation with profound changes occurring across the sector. Payments lie at the heart of commerce and the digital economy with a market size of around US\$240 tn.¹ As the payments world grows far beyond the confines of traditional transactions, incumbent players are facing significant challenges on many fronts.

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With the rise of PayTechs, we see a boost of innovation and new propositions that are redefining the payments landscape and powering connected commerce, while offering consumer choice that we have never seen before. Fundamentally, payments are becoming more instant, frictionless and embedded within customer journeys – hence invisible.

Alla Gancz,
EY UK Payments Consulting Leader

The rise of PayTech

The disruption of the traditional payments ecosystem has been rapid and impactful. FinTechs have grasped an opportunity to leverage their technological capabilities and customer centricity to expand into payments. As a result, users are now provided with fast, easy payments solutions that target individual needs. In the midst of this disruption, a whole new subsection of digital players has emerged: PayTechs.

PayTechs are a sub-group of FinTechs that focus on the payments value chain, as well as payments facilitators (PayFacs), PSPs, networks creating new payments propositions, and payments technology suppliers.

PayTechs' enduring impact on the payments landscape

PayTechs have helped to create a new payments landscape that is dynamic and fast-moving. As the digital economy grows and customers' appetite for seamless payments increases, PayTechs are offering integrated solutions for both consumers and merchants to meet this demand. PayTechs were quick to recognize that fast, frictionless, and embedded payments offer a distinct competitive advantage.

PayTech by numbers

Over

25%

of FinTechs are PayTechs

2,400+

PayTechs globally

Valued at over

US\$2.17^{tn}

Source: CB Insights and EY analysis
Note: As of June 2022

There are seven areas that we regard as having significant influence over today's payments landscape: open banking, real-time payments rails (RTP), buy now, pay later (BNPL), digital wallets and super apps, embedded payments, digital currencies and cross-border payments. Each one is an indication of how quickly the sector is evolving.

In this report, we will explore the evolution of these forces and look ahead to what is driving these models forward, while analyzing how banks and non-banks can be successful. The report aims to connect the dots, offer a clearer picture of how the future of payments may look, and understand the implications for incumbent PSPs.

Looking ahead to how the future of payments will evolve

As we assess the evolution of PayTech, we can observe some notable shifts and takeaways:

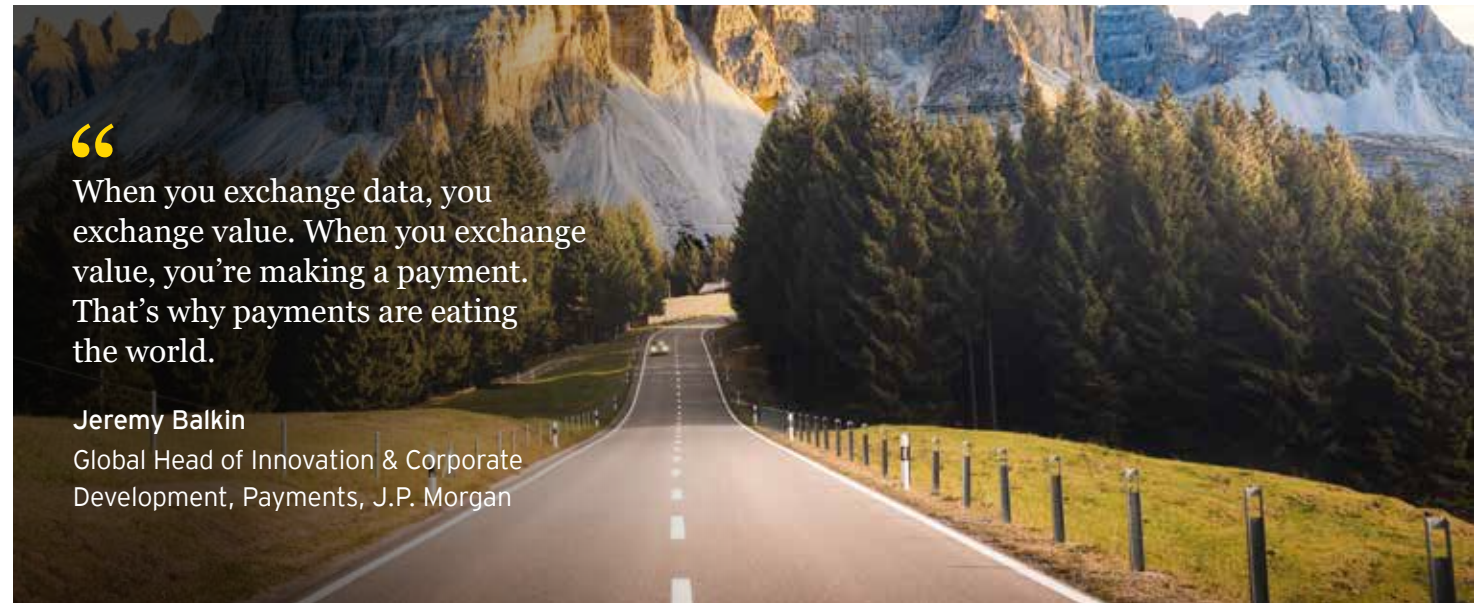
- ▶ Connected commerce is driving the digital economy. All new payments propositions are helping to connect merchants and consumers directly, in the most efficient way, leading to faster, cheaper and safer payments methods.
- ▶ "Value beyond payments" has been top of mind for many payments players as they look beyond transactions and toward the holistic customer experience by providing relevant services before and after payments, thereby turning into a "one-stop shop."
- ▶ Open banking will be a real game changer as many more players will embrace "pay by bank," as well as new payments methods like variable recurring payments (VRP).

- ▶ Adoption of RTR unlocks tremendous innovation across the overlay services, enabling all PSPs to serve customers better through account-to-account (A2A), which is further reinforced and accelerated by open banking.
- ▶ Embedded payments are expected to scale and become more invisible as non-financial services providers integrate payments into customer journeys – driven by the rise of e-commerce, platforms and marketplaces.
- ▶ Emergence of innovative PayFacs is fundamentally changing the way businesses, acquiring banks and card networks work together.
- ▶ New PayTech ecosystems are emerging to securely store, manage and leverage consumer and merchant data generated through payments transactions – representing

radical data monetization opportunities and unique customer offerings.

- ▶ Crypto and digital currencies will offer not only new payments methods, but a new infrastructure enabling instant settlement through distributed ledger technology (DLT), programmability, smart contracts and tokenization.

While the pace of adoption, scale and impact of these individual forces may vary across markets, we believe that each one signifies fundamental change. PayTechs will continue to drive transformation, but incumbent PSPs also have a major role to play in shaping the future outlook of the sector to better serve their customers and guide them into the next payments era.



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When you exchange data, you exchange value. When you exchange value, you're making a payment. That's why payments are eating the world.”

Jeremy Balkin
Global Head of Innovation & Corporate Development, Payments, J.P. Morgan

1

Open banking – a game changer for the financial ecosystem

Key takeaways

- ▶ Open banking is a global phenomenon putting customers more firmly in control of their data, identity and payments, supported by inexorable technology and public policy trends.
- ▶ It provides new possibilities for faster, more secure, cheaper payments that are convenient for customers by connecting merchants and customers directly, effectively creating very compelling “open payments” or “pay by bank” options.
- ▶ Global fragmentation in payments requires variations in approach across different markets.
- ▶ Open finance is the natural continuation of open banking foundation and mandates; and open data will enable further industry convergence.

Open banking aims to put control of data, identity and payments more firmly in the hands of customers, thereby allowing authorized third-parties to access banking capabilities on customers' behalf. In many markets, this is achieved via secure application programming interfaces (APIs) which provide a new channel for banks to distribute their services.

Historically, the retail payments landscape across much of the globe was firmly dominated by cards and wallets. Access to most banking services was restricted to the bank's own channels, such as websites and mobile apps, supporting a highly integrated approach to service provision. Customers had few options and merchants were willing to pay the comparatively high costs associated with these methods due to their unparalleled reach and conversion rates.

Open banking accelerates options to leapfrog this dependency and meet increased customer demand for frictionless, customized payments experiences.

On top of this, open payments effectively allow consumers and third-parties to initiate payments disbursements and/or collections. They enable digital payments to bypass the dependency of using intermediaries and instruments, such as checks or cards to transact, while ensuring security and customer consent requirements.

Global examples of open banking vary widely. In the European Union (EU), there are regulatory minimums on granting customer access to accounts, whereas in other regions, such as the United States (US) and Canada, banks have approached this more from a commercial standpoint and begun commercializing API channels. In parts of Asia, financial super apps are offering deep integrations between financial and lifestyle brands, building extensively on APIs to drive seamless integration. This presents a somewhat fragmented global picture, but one where the general direction is an opening up of access and infrastructure, which supports customer choice.

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Open banking adoption has really taken off this year. We should not lose sight of the enormous potential already within our grasp on the existing payment initiation service (PIS) and account information service (AIS) rails, from payments to onboarding to risk services. We are seeing huge improvements in connectivity performance in Southern and Eastern Europe and expect this to drive a new wave of consumer adoption in the short term. This is before, of course, the big leap forward in recurring payments enabled by VRP and SEPA Payment Account Access (SPAA), which are fast becoming reality.

Tom Pope

Head of Payments and Platforms, Tink

Building an open payments ecosystem

Open banking has created a new bank payments method and a framework for payments innovation. While it generally does not provide a new set of payments rails, open banking creates a new mechanism for payments initiation, in effect, open payments. APIs can be used to easily trigger single payments but also give greater flexibility, such as creating a mandate or business rules for variable recurring payments transactions. The APIs that exist alongside open banking have unshackled the potential of A2A payments by removing the barriers created by fragmented payments rails, forming an effective “pay by bank” option.

This makes it easier to access payments clearing systems and embed an A2A payments at the point of purchase. As a result, customers and merchants face much greater choice. A2A payments offer the potential of unrivalled reach by covering anyone with a bank account, and strong conversion rates thanks to zero data entry and a smooth user journey. Moreover, it offers the potential to provide superb bank-grade security with regulatory checks seamlessly baked in and, crucially, a very low-cost option with fewer or no intermediaries.

Open payments and “pay by bank” will blossom in markets that are able to create an effective open payments ecosystem, which includes robust standards, strong operational performance, great customer experiences and strong adoption. As these components start to come into place, markets will see a tipping point for “pay by bank” across certain segments where it achieves initial product market fit. Payments providers need to invest ahead of open payments developments to be well-placed to take advantage of these market shifts.

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Open banking is accelerating innovation within the payments sector and providing forward-thinking businesses of all sizes with a competitive edge by enabling them to offer flexible and frictionless options at checkout. Merchants that provide customers with greater control and visibility over financial transactions, in tandem with a simple and secure payments experience, such as pay with bank transfer, will be the ones to capture the attention of today’s savvy shoppers.

Holly Coventry

Vice President of International Open Banking Payments, American Express

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Open Banking was created to drive competition and offer customers more choice. With over six million users in the UK alone, the ambition behind this is clearly starting to be realized. Whether it’s enabling better FX rates for consumers who travel, or enabling people to better manage their money in a difficult financial climate, we’re seeing more and more exciting propositions appear. Some may compete with existing providers, others may enhance current offerings. The key is that they all benefit the end customer in ways that historically just weren’t possible.

James Lynn

Co-Founder, Currensea

The UK's open banking experience

In 2018, the second payments services directive (PSD2) was implemented in Europe. The UK adopted a unique approach to driving open banking, built on key principles from PSD2, such as mandating and standardizing APIs across the nine largest banks. Over time, the UK approach was refined to include improved customer experience and a focus on operational performance of APIs. This laid the foundation for FinTech and PayTech firms to develop solutions using

this capability, fostering competition and accelerating innovation.

In 2021, more than 26 million successful payments were made,² with an estimated total value of more than £10 bn.³ There are now more than six million users⁴ and, at the current growth rate, almost two-thirds of adults will be using open banking by the end of 2023.⁵

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As open banking evolves across the globe, many financial institutions are discovering new benefits, improved operational savings, greater insight into consumer use cases and improved connectivity, all within a system that protects the consumer and respects consumer privacy.

For payments, open banking is allowing financial institutions and FinTechs to drive innovation through custom payments solutions that help to improve consumers' financial health in a safe and secure environment.

In today's uncertain economic environment, it's important for consumers to have access to financial tools, resources and actionable data insights to help make informed financial decisions and to engage with a variety of financial service providers.

Tim Poskitt
Country Manager – ANZ, Envestnet | Yodlee

Figure 2: Open payments growth since the PSD2 mandate was enforced

6 million

Strong cumulative growth

6 million regular users of open banking of which 5 million are consumers and 1 million small businesses.

26.6 million

Open banking payments

Cumulatively over 26.6 million open banking payments had been made (cumulative, by 2021), an increase of more than 500% in a year. Most open banking use cases in the UK centered around payments.



Faster momentum of adoption

60% increase in new customers (up from 2.8 million in December 2020). 1 million new regular/active users are added every six months.

125

Open banking enabled products and services

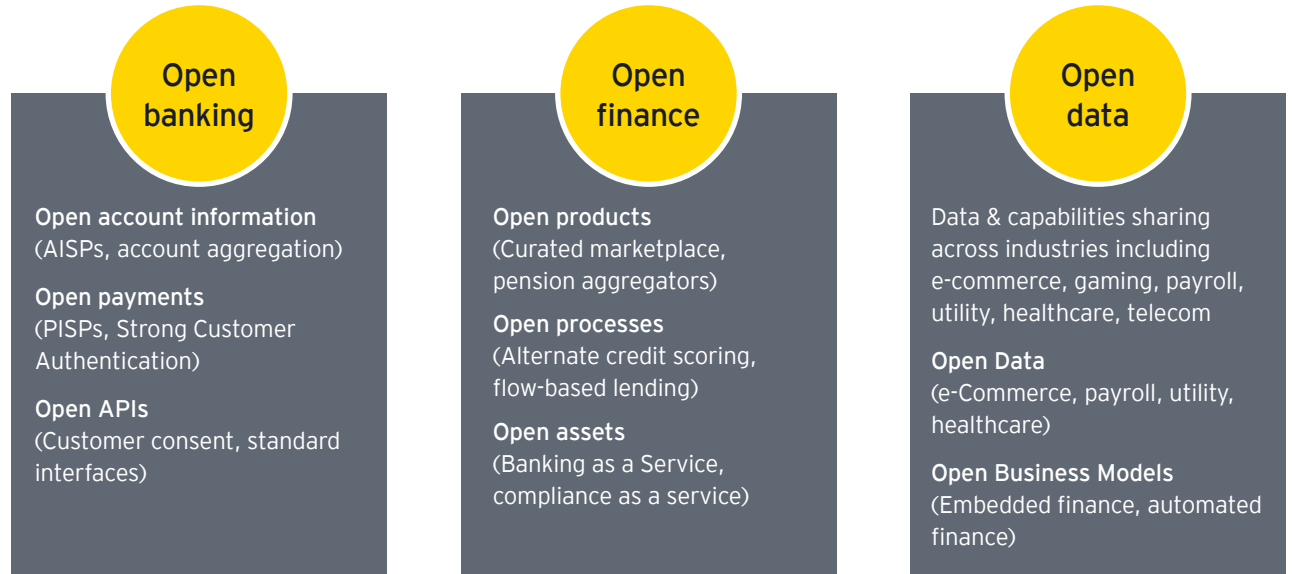
125 open banking enabled products and services live with customers within the open banking ecosystem, at any given time.

The future of open banking

Open API providers have emerged as key technology stack partners for both banks and FinTechs to unleash next generation financial innovation in an accelerated manner. As a result, incumbents and new players are increasingly collaborating on products, processes and assets. Banking-as-a-Service (BaaS) models are helping to fill the gaps and embed high-end capabilities in which customer-centric experiences will become the norm.

The open banking movement is building momentum globally, radically changing the way banks approach business models, customer engagement and service delivery. With digital experiences becoming increasingly important, open banking offers opportunities for organizations to serve customers in more innovative and intuitive ways.

But arguably this is just the beginning of a much larger phenomenon. Policymakers in markets around the world are exploring the extension of open banking into open finance, and broader initiatives to open up economies even further, embedding principles of access to services and data as wider principles.



The Australian experience on data rights

In Australia, the Consumer Data Right (CDR) promises to revolutionize the customer experience and radically reshape many industries. This is being enabled by allowing consumers to compare products and deals, and switch more easily between retailers – and allowing companies to read and use detailed consumer data in real-time.

Those who merely focus on compliance and don't actively participate, will find themselves behind the curve – with increasingly smaller avenues for growth. Compliance on its own renders the business susceptible to threats from competitors – with the non-active but compliant entity forced to release data to the active participant who has successfully lobbied the consumer's consent to demand such data.

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Open banking has extended to open finance which has also fueled the acceleration of embedded finance. Spurred by the rapid adoption of new technology alongside the boundless demands in consumer preferences and behavior, this brings us to the next digital frontier – open data economies and monetization.

May Lam

EY Partner, APAC Payments Leader, Oceania FinTech Leader

Recommended actions

- ▶ Explore options to broaden retail payments services beyond card rails and into open payments.
- ▶ European banks must look beyond compliance to develop new, compelling propositions that leverage open banking.
- ▶ Develop API channel strategies with a focus on which third-parties can bring differential value to customers.
- ▶ Gain familiarity with the key open banking FinTech service providers operating in relevant markets, including the capabilities that are available.



Real-time payments – transactions in seconds

Key takeaways

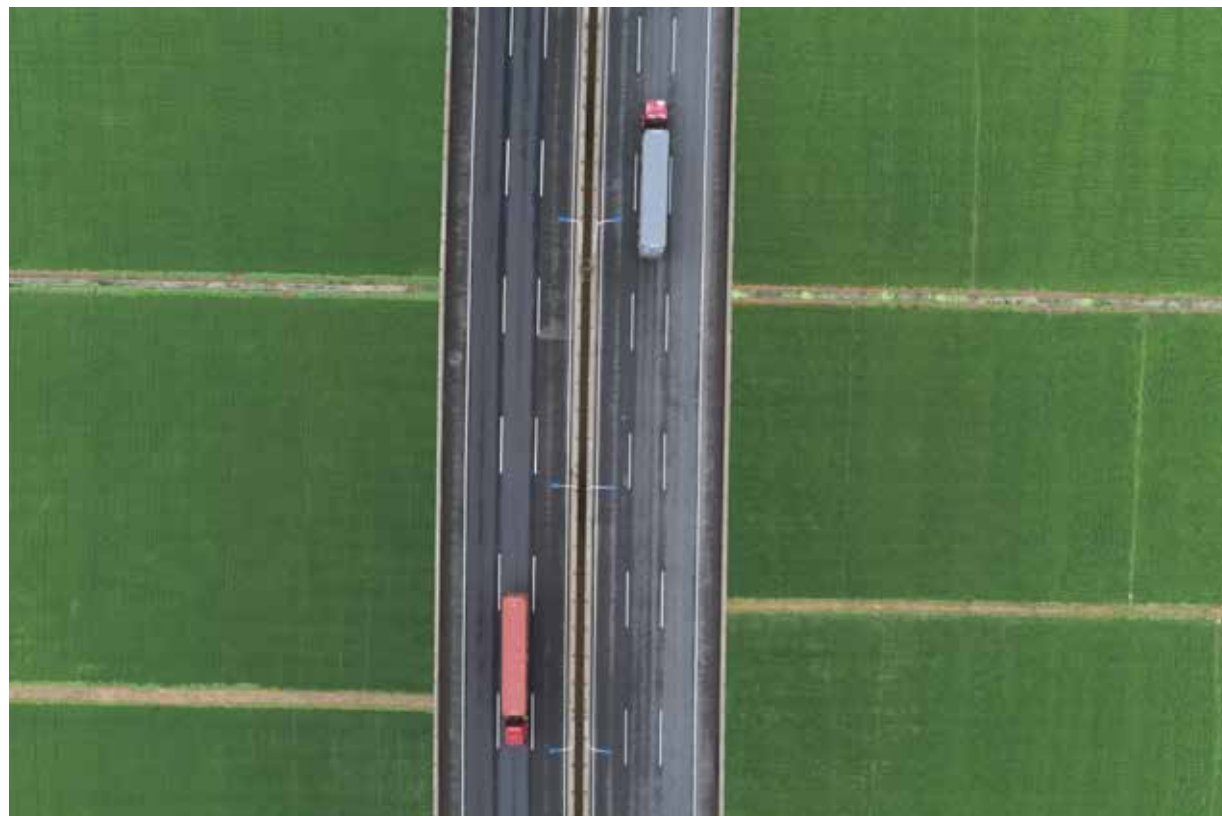
- ▶ Deployments of RTP are at an all-time high due to innovations in technology, changes in regulations and customer demand for easier access to funds. However, the maturity and adoption rates of RTPs vary by region.
- ▶ Although the base RTP infrastructure is a step toward the future of payments, the true value of RTP is only realized when surrounded with value-added services or overlays, such as request to pay, instant cross-border payments, and fraud and liquidity management tools.
- ▶ Financial institutions, PSPS, PayTechs and FinTechs would benefit from providing these “overlays”, to not only increase their bottom lines but also the transactional volumes on the rail itself. This is a win-win for all parties in the ecosystem.
- ▶ Consumers and businesses alike are looking for ease of use and immediate access to funds. With the increasing availability of overlay services to bolster revenue, those who have not yet adopted RTP are going to be left behind.

RTP have spread quickly in recent years due to increased demand for instant money movement by consumers and businesses. RTP use modern payments rails to move money from end-to-end in real-time. The global real-time payments market size is currently valued at US\$17 bn and is expected to reach US\$193 bn by 2030, growing at a CAGR of 34.9% from 2022 to 2030.⁶

As of today, RTP exist in various stages of maturity across the world, with 56 RTP schemes live globally in 2022. So far, however, it is localized

and fragmented, with multiple competitive schemes. The UK was an early adopter in 2008, with many countries such as India, Sweden, Australia and Mexico following suit. Over the next few years we will see the likes of Canada and the US join the fray with their first release of real-time rails expected in 2023+.

There are several drivers that have helped some RTP systems mature faster than others – maturity being measured as adoption by the ecosystem providers.



- ▶ **Regulatory-driven frameworks** – countries where regulator-led RTP initiatives have experienced better success in initial implementation.
- ▶ **Green-field infrastructure** – lower implementation complexity for banks with newer technology.
- ▶ **Cohesive ecosystems** – the interconnected nature of the EU means that it successfully deployed Single Euro Payments Area (SEPA) Instant beyond strong regulations. Individual countries' markets are more intertwined in

terms of cross-border intergovernmental collaboration, trade and business employment opportunities, compared to the fragmented US market. RTP have five main characteristics that impact the people, process and technology of banks and non-banks alike: 24x7x365 availability, ISO 20022 message format, immediate access to deposited funds, irrevocable payments and immediate notifications. However, the rail alone does not solve consumer and business needs. Benefits are truly realized when the rail is surrounded by value-added services.

The UK Faster Payments Service – A success story transforming the UK landscape

The UK Faster Payments Service was the first generation of RTP infrastructure to change the payments processing landscape in the UK. Launched in 2008, the service has seen significant adoption over the past 14 years. The introduction of the new access program has seen direct participation triple and continues to grow, with the first non-bank PSP added to the scheme in 2018. In 2022, the scheme increased its payments limit to £1 mn, which reflects the demand from users seeking more options for higher value payments and convergence of low value and high value transactions. The scale of payments has experienced significant year-over-year growth since inception, from 967.6 million transactions in 2013 to a record breaking 3.4 billion transactions in 2021.

Sources: £1 million Faster Payments now possible, Pay.uk, February 2022.

The UK has set out its vision for its payments ecosystem by recognizing the changing needs of consumers, the ongoing transition to a digitally-enabled economy that is supported by a vibrant set of market participants driving innovation and fostering healthy competition. At the heart of this is the modernization of existing payments infrastructure – a new payments architecture (NPA). The NPA will deliver data-rich, standardized, integrated and innovative real-time payments capabilities. These will accelerate innovation, simplify access and increase competition in the market, while delivering the payments service at a lower price.

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When it comes to real time payments it's all about reach and choice. When real time payments are available ubiquitously in a market, customer adoption accelerates, and new, innovative use cases emerge that benefit the entire ecosystem. We've seen this happen in markets like the UK and Thailand – where annual RTP volumes are approaching 200 per person and have facilitated an additional 1.12% of GDP*. However, early participation by and collaboration between the financial institutions in a market are key to success.

Andrew Buckley

Executive Vice President, Product Management, Real Time Payments, Mastercard

*Prime Time for Real Time Report 2022, ACI

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Cross-border payments – cutting through boundaries

Key takeaways

- ▶ PayTechs have remodeled retail cross-border payments and remittances, while reducing fees, and improving speed and transparency of payments transactions.
- ▶ Wholesale B2B payments represent the largest share of cross-border payments, which is dominated by correspondent banking models.
- ▶ In some regions, government and regulatory bodies are developing intra-regional cross-border payments systems in a quest to develop a global harmonized solution.
- ▶ International organizations are focused on implementing the G20 roadmap to enhance cross-border payments.

The volume of international payments continues to rise and is expected to reach US\$200 tn in 2027.⁷ Wholesale B2B payments represent the largest share, while retail payments and remittances remain small in comparison. With regulations laying the groundwork for cross-border payments to be modernized, PayTechs are moving at pace to take advantage of these changes to transform the cross-border payments business models and customer experiences.

Cross-border payments tend to be slow, generate high transaction charges, and are considerably less transparent than domestic payments. Even single payments transactions can take days to settle and require involvement from a complex web of correspondent banking networks that face challenges around cost, lack of standardization across message formats (lack of interoperability), time zones and laws. There is significant industry focus on enhancing cross-border payments in terms of speed, cost, efficiency, transparency and inclusion. Banks and central banks around the world are starting to recognize the potential of digital assets, cryptocurrencies and DLT technology at large, which can help improve and transform clearing and settlement processes.

Exploring a global harmonized solution

Interlinking instant payments systems offers a new way of moving money across borders safely, quickly and at a low cost. Domestic schemes are collaborating to develop a global, immediate cross-border payments system to support multiple currencies across multiple countries.

For example, EBA Clearing, Swift and The Clearing House have launched an immediate cross-border program (IXB), which is based on ISO 20022 message standards, in an effort to speed up and enhance cross-border payments through the interlinking of USD and EUR payment systems (see figure 4). IXB is being developed in collaboration with 11 banks to utilize regional payments infrastructure, such as the RTP network in the United States and RT1 in Europe, to allow banks to make immediate cross-border payments more easily. IXB is a scalable platform, with developers intent on adding other currencies and real-time payments infrastructure in the future.

Building a regional multi-currency payments platform in the Nordics

P27 aims to create a pan-Nordic clearing platform that enables instant cross-border payments across multiple currencies and markets. P27 is the initiative of six major Nordic banks; it aims to replace a currently fragmented clearing landscape with a new infrastructure that brings simplicity and scale efficiencies, harmonization and the standardization of payments. The initiative will enable integrated payments for domestic and cross-border payments across the Nordics. In addition, P27 will support transactions throughout the eurozone in harmony with the Single Euro Payments Area (SEPA) standards.

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P27 has the ambition to build a cross-border and multicurrency payments region connecting 27 million people living in the Nordics and beyond. With P27, the Nordic countries will have one clearing system and platform for instant and batch payments where P27 will offer harmonized and simplified payments products. This will increase scale and efficiency for payments across the Nordics in DKK; EUR and SEK.

Martin Georgzen

Head of Customers & Relations, P27 Nordic Payments Platform

Transforming the cross-border payment experience

Swift is expanding its capabilities beyond financial messaging to provide comprehensive transaction management services, as part of its mission to make cross-border payments instant and frictionless. Swift has played a leading role in defining ISO 20022 standards and is driving industry-wide ISO 20022 adoption for cross-border payments. Swift is also actively involved in a number of initiatives supporting interoperability, including MI interlinking projects such as IXB with EBA Clearing and The Clearing House, and experiments to enable CBDCs, tokenized and other digital assets to interoperate with each other and existing asset types and systems.

Some of the latest innovative offerings developed by Swift include:

- ▶ **Swift Go:** It was launched in 2021, enables financial institutions to offer their small business and retail customers predictable, fast, highly secure, and competitively priced low-value international payments (i.e. payments below 10,000 USD/GBP/EUR) anywhere in the world, direct from their bank accounts.¹³
- ▶ **Swift Payment Pre-validation:** This service is designed to remove one of the leading causes of friction in international payments - incorrect payee information. More than 100 banks are already using the service, which introduces upfront checks for typos, misspellings and other entry errors that are a main cause for delays.¹⁴
- ▶ **Swift Payment Controls:** This helps banks detect anomalies that can be indicative of fraud affecting their institution, their customers or their counterparties, or of an operational error, ultimately to intercept suspicious messages before they're released, preventing financial loss or reputational damage.

Retail cross-border payments redefined

Founded in 2011, Wise is a global cross-border payments infrastructure company providing instant, convenient, transparent and eventually free money movement. With over 13 million people and businesses using their platform, it processes on average over £8 bn in cross-border transactions every month.¹⁵

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Our strategy is laying the groundwork for instant, frictionless, and interoperable end-to-end international transactions. And it's paving the way for financial institutions to enhance their customers' experience, deliver exciting new services, capture rich data and embrace emerging innovations such as CBDCs. We're also enhancing our platform to enable financial institutions to power a whole range of new digital opportunities across corporate, SME and consumer payments.

Nasir Ahmed

Head of Swift UK & Ireland



Wise is one of the great examples of innovation in the cross-border retail space. It has flourished because of its unique infrastructure that focuses on local accounts, scalable platforms and transparency, with full disclosure of fees and exchange rate mark-ups. On the back of its retail success, the company is expanding further into business, marketplaces and the corporate sector.

- ▶ **Wise Account:** A product for personal customers that started with transfers, and now customers can receive, spend, hold, and invest through Wise Assets.
- ▶ **Wise Business:** An offering for international businesses that supports several issues, including getting paid, paying employees and suppliers, managing cash flow and treasury and running expenses.
- ▶ **Wise Platform:** API-based integration for large businesses and banks looking to automate international money transfers.

International organizations are focused on implementing the G20 roadmap to enhance cross-border payments

The Financial Stability Board (FSB), Committee on Payments and Market Infrastructure (CPMI), the World Bank, the International Monetary Fund (IMF) and other standard-setting bodies were asked in G20 to co-ordinate a three-stage process to develop a roadmap to enhance cross-border transactions. Also, IMF, the World Bank and the Bank for International Settlements (BIS) have emphasized the importance of Central Bank Digital Currencies (CBDCs) to improve cross-border payments and remittance solutions.

The FSB has set global quantitative targets for addressing the challenges of cost, speed, transparency and access faced by cross-border payments. They play an important role in defining the ambition of the work of the G20 Roadmap for Enhancing Cross-border Payments, creating accountability. The targets are set to challenges across three market segments: wholesale; retail and remittances.¹⁶

The G20 endorsed a roadmap, developed by the FSB, in coordination with the CPMI and other relevant organizations to enhance cross-border payments. It lays out a comprehensive set of actions covering 19 “building blocks” identified by the CPMI across five focus areas.

Recommended actions

- ▶ ISO 20022 impacts will be significant for the foreseeable future; begin strategic planning around commercialization opportunities.
- ▶ Stay up-to-date on new technologies and regulations impacting cross-border payments.
- ▶ Build on international and governmental plans for cross-border payments with value-added services and products.

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Cross-border payments are famously slow, expensive and inefficient. We’re very excited about the G20 recommendations to inject more transparency, increase speeds and lower costs into this space. One of the biggest improvements will be to facilitate direct access to payments systems for non-banks. This will increase competition, lower costs, cut transaction chains and reduce the hidden fees that are still much too common in the industry.

Arun Tharmarajah,
Head of Europe, Wise



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Buy now, pay later – spreading the cost

Key takeaways

- ▶ BNPL continues to grow at a rapid pace given its appeal to consumers and merchants.
- ▶ Despite current headwinds, BNPL has established itself as an alternative payments method and will continue to expand.
- ▶ The BNPL model will need to evolve to deliver sustained profitability and consumer protection given the rising cost of capital and increased regulatory scrutiny.

BNPL quickly gained momentum during the pandemic as more purchases went online and customers looked for ways to stretch their money. It is a newer payments method that offers instant credit decisioning and payments options via installments at the point of sale. Retailers and merchants use this innovative credit option to drive sales, attract customers and decrease cart abandonment. Consumers choose BNPL for its convenience, low cost and predictable payments schedule.

BNPL is the fastest growing e-commerce payments method, especially in markets such as India. Indeed, BNPL accounted for nearly 3% of global e-commerce spend (~US\$157 billion) in 2021.¹⁷ It has become a popular alternative to other payments methods, including credit cards, resulting in greater competition in this space. For example, Apple is planning to offer Apple Pay Later¹⁸ and Revolut recently rolled out its BNPL product across Europe.

Land and expand

While BNPL was initially used for lower cost fashion purchases, its application has expanded. Peloton offered BNPL services from Affirm during the pandemic to make buying an exercise bike more affordable. BNPL has extended to corporate purchasing and non-discretionary purchases, such as healthcare, legal services and auto repairs. With an increase in ticket size, merchants will need to offer more lending options, and it is likely that the cost of these options will be passed or shared with the merchant.

BNPL players now offer value-added services, such as loyalty programs, discounts, shopper

recommendations, insurance and daily banking products. Afterpay offers its customers a top up feature of US\$1 donations. As operating costs rise, these services will need to demonstrate strong value to merchants to continue providing this to customers. And while BNPL has a strong presence in e-commerce, there is a push to move offline through partnerships.

Rules required

A key concern for traditional banks is the lack of regulation in the BNPL space. For most institutions, traditional consumer lending models sit as standalone products that require thorough credit risk scoring and affordability assessments. However, regulators are beginning to step in and level the playing field once more. The EU's Consumer Credit Directive rules are up for review due to BNPL. In the UK, the Financial Conduct Authority has started regulating BNPL businesses, so at least for now, all firms must comply with consumer protection legislation.

Risky business

Profitability issues are emerging with reduced consumer spending, rising interest rates and trickier credit conditions spelling trouble ahead. Bad debt impairment losses are eating into BNPL lenders' revenue fees. On average, for every US\$1 bn of processing volume, BNPLs write down US\$19.2 mn of bad debt – whereas major credit card schemes write down just US\$270,000.¹⁹ Pure-play BNPL companies will have to choose between getting acquired or evolving the financial tools they offer.

Future outlook with consumer duty in mind

The popularity of BNPL shows no sign of abating. Instead, it will continue to evolve. It is estimated that BNPL will account for roughly US\$438 bn, or 5.3%, of global e-commerce transaction value by 2025, up from US\$157 bn in 2021.²⁰ However, to maintain a viable operating model and increase profitability, BNPL players will need to establish a more sustainable business model that unlocks opportunity without increasing risk exposure.

All BNPL players must be prepared to assess customers' credit worthiness. For some, this will mean replacing legacy technology with real-time risk analytics and decisioning engines, using artificial intelligence (AI) and machine learning, creating comprehensive credit scores by integrating with other BNPL providers. The use of APIs will also be instrumental in providing fast credit decisions and in turn, a seamless customer experience.

For banks, it's an opportunity to explore a new channel to drive lending growth and collaborate even further with PayTech partners.

Recommended actions

- ▶ Financial institutions should look to add BNPL as a payments method choice and consider acquisitions to accelerate time-to-market given the low valuations of BNPL pure-plays at present.
- ▶ BNPL providers will need to address responsible lending, using additional data sources for credit decisioning and offering their customers financial management tools.



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With BNPL propositions, consumers can enjoy the transparency and predictability of their regular installments, which makes it appealing as a payments method. PayTechs need to fundamentally rethink the original BNPL operating model to focus on maintaining sustainable profitability.

Patricia Partelow,
EY US Payments Competency Leader



5 Digital wallets and super apps – a one-stop shop for all

Key takeaways

- ▶ Digital wallets are helping to significantly reduce payments transaction fees while offering customers a single destination to manage their finances.
- ▶ By leveraging data, super apps are setting out to fulfill almost any financial, leisure, or lifestyle need their users may have. APAC is leading the way compared to the North American or European markets.
- ▶ The popularity of digital wallets is also linked to embedded value-added offerings, such as loyalty programs, security and the transformation of closed-to-open loop wallets.

In today's digital-first economy, where consumers store their wealth, and how they dispense with it, is rapidly disrupting traditional banking globally. At the crux of this change are digital wallets and super apps.

Digital wallets first emerged as a means to solve peer-to-peer (P2P) payments, but quickly gained traction among e-commerce firms, helping to facilitate payments online in the early days of the internet. The concept was brought to the mainstream by PayPal in 1999, transforming how consumers and merchants think about payments. In 2021, PayPal and Venmo (which it acquired in 2013) launched a new digital wallet service offering customers a single destination to manage their finances. In addition, it introduced Checkout with Crypto, giving customers the option of paying using cryptocurrencies.

The rise of e-commerce and shift toward digital and mobile wallets

The share of mobile commerce outpaced desktop e-commerce in 2021, with transaction value from mobile devices reaching 52% of all e-commerce spend. Mobile wallets held a 49% share in global e-commerce payments in 2021. Economies that were previously less dependent on credit cards and more on cash have experienced a higher surge in the use of digital and wallet payments. Digital wallets in APAC hold 68.5% of the share in e-commerce payments. This is expected to rise to 72.4% by 2025.²¹

Super-sized accessories

Digital wallets and super apps are actively expanding into services, such as, BNPL, digital identity and contactless payments, i.e., wearables, near-field communications (NFC) and others. By leveraging network effects, super apps are setting out to fulfill almost any financial, leisure, or lifestyle need their users may have. They can do this by providing messaging, payments, e-commerce and other value-added services within a single application.

This one-stop shop approach is now indispensable for many users – and an ecosystem playbook for other PayTech competitors to follow. Digital wallet spending is estimated to exceed US\$10 tn by 2025, with China and India accounting for 69% of transactions during this period.^{22,23}

Eastern innovation

The APAC region has witnessed the biggest adoption of digital wallets compared to North America and Europe, which are still heavily reliant on payments cards and card networks. The consolidation of major players in APAC has influenced a direct leap from mainly cash-based societies to digital payments. Moreover, the twofold effect of rapid technological innovation and limited existing infrastructure meant that the market was ripe for disruption.

In China, Alibaba launched Alipay in 2004, which now boasts of approximately one billion users. Soon after, WeChat, a super app developed by Tencent, introduced messaging, payments and e-commerce within its platform.



The evolution of digital wallets into a “one-stop shop”

As with GrabPay and WeChat Pay, digital wallets are striving to transform into super apps by expanding their array of omni-channel services, such as crypto wallets, contactless pay modes and more. Overall, user behavior is driving the evolution of digital wallets – and PayTech organizations recognize this. As a result, their ethos does not lie in selling banking products, but rather, on supporting the lifestyle journeys of their users.

Contactless payments have increased substantially with wearables, QR, NFC and payments gateways. Indeed, paying with QR codes has overtaken NFC payments and has become an excellent means for in-store contactless payments since it does not require additional infrastructure. It's also backed by the promotions and offers that are routinely supplied by PSPs. With 12 million users per week, QR codes have the potential to be an advanced payments and response mechanism for mobile users.

The popularity of digital wallets is also linked to embedded value-added offerings, such as loyalty programs, security and the transformation of closed-to-open loop wallets. As such, securing users' digital identity is one of the biggest challenges for PayTech players, with biometric authentication being used to provide an additional layer of security.

The future is big

We anticipate further expansion of digital wallets by offering new services in order to grow their user base. This will help to increase adoption rates and convince merchants to accept payments. We also expect to see super apps with social media-initiated payments, voice activated payments, cryptocurrencies, NFT management, Metaverse payments and biometric payments, including facial recognition, all become mainstream.

Recommended actions

- ▶ Explore PayTech digital wallet strategies and apply them to existing propositions to extend value to the customer base.
- ▶ Focus on value-add services to draw in users to the digital wallet and super app ecosystem to better leverage network effects in building the customer case.
- ▶ Diversify acquisitions and inorganic growth options to build and extend digital wallet and super app offerings to draw in different customer segments.

Grab super app case study

In 2012, Grab was launched offering ride-hailing services under the brand name GrabTaxi in Malaysia. After its international expansion to ASEAN countries, it launched GrabPay as an online payments service and GrabFood as an online food delivery service, which then emerged as a Super App in Southeast Asian countries. GrabPay is a QR code-based mobile payments application, also offering a post-paid and installment payments option in Singapore and Malaysia by the name “pay later.” With over 32 million monthly transacting users, GrabPay's potential users are by far Southeast Asia's biggest push into digital payments.²⁴

WeChat case study

WeChat was launched as an app in 2011 with messaging services as its core function. It quickly began to scale up. From first becoming a social networking platform, it rapidly evolved by adding functionalities such as shopping and food delivery services. It then integrated payments into its offering, which helped ensure high-user engagement and customer stickiness. Once fully established as a PayTech, it integrated additional third-party solutions – which helped to leverage its status as a super platform. In 2018 it achieved super app status with 4.3 million mini-apps, a 13% year-over-year increase. WeChat reached 450 million daily active users for its mini programs in 2021. It continues to leverage customer loyalty and data to acquire more users and expand its services.²⁵



Embedded payments – the art of seamless payments

Key takeaways

- ▶ Embedded payments refer to businesses offering payments as a service; for example platforms offering payments to their sellers.
- ▶ Embedded payments constitute the largest subsector within embedded finance, and their market value is estimated to be approximately US\$4.5 tn by 2030.
- ▶ Fresh opportunities lie in lucrative B2B2C and B2B2B segments, resulting in new ways to engage with customers directly or indirectly.

As businesses move toward providing their customers with more personalized, frictionless experiences, embedded payments have become a core part of such new-era value propositions.

Embedded finance is expected to reach US\$7 tn in value globally by 2030.²⁶ Embedded payments constitute the largest subsector within embedded finance, and their market value is estimated to be nearly 60% to 70% of that embedded finance, approximately US\$4.5 tn by 2030.²⁷ By 2030, 74% of digital consumer payments globally are expected to be conducted via platforms owned by non-financial services players.²⁸

Embedded payments are associated with business models where non-financial services companies (say Uber or Shopify) offer payments functionality to their business customers. As such, embedded payments are becoming very common for all B2B2C and B2B2B business models like platforms and marketplaces. PayTechs continue to play a major role in driving the adoption of embedded payments.

Typically, embedded payments solve a number of challenges: they make it easier for businesses to offer payments. Also, they offer businesses more value to their sub-businesses (i.e., Uber offering payments services to its drivers helps to “keep them in its ecosystem” for longer by selling wallets and cards to their drivers).

In the beginning, embedded payments solutions were targeted to offer a better checkout experience for customers and provide control and payments options on the merchants’ side. Now, by expanding further into customer journeys,

PayTechs are tapping on horizontal opportunities and offering greater platform capabilities. For example, PayTech vendor Stripe currently enables Shopify to offer payments processing, money accounts and payments cards to help its merchant customers better run and grow their businesses. For organizations like Shopify, embedded payments mean that payments no longer stand out as a specific step for their customers – therefore enabling a more frictionless, seamless experience.

Fresh opportunities lie in lucrative B2B2C and B2B2B segments, resulting in new ways to engage with customers directly or indirectly. Payments services for online sellers (e.g., sellers on Shopify) are typically priced at 3% of the value sold, creating meaningful uplift for the platforms that offer it as an embedded service. Additionally, payments for gig economy and service workers, ranging from basic embedded wallets to “instant payouts,” generate meaningful revenue for numerous platforms. For example, Uber charges US\$0.50 for every instant payout requested by a driver.

E-commerce and marketplaces

Marketplaces own the largest share of the e-commerce industry and have the highest growth rate pattern. Globally, marketplaces make up ~50% of e-commerce sales. Marketplace e-commerce is also the fastest growing sub-segment followed by cross-border e-commerce. Marketplace e-commerce is growing at a CAGR (2018-22) of 19% compared to direct merchant e-commerce which is growing at a high single digit pace”.²⁹



The future of embedded payments

The next great payments leap is into further invisibility. Specifically, the idea behind invisible payments is eliminating the need to provide any additional credentials for authentication. Instead, the invisible payments system will automatically recognize and authenticate the customer, often with biometric data. This means that consumers will be barely aware that a transaction is taking place at all. The payments just happens as a part of their interaction.

For example, check-out-free stores use invisible payments to provide a “just walk out” shopping experience. In the automotive sector, cars are being embedded with in-vehicle commerce to allow drivers to pay directly for a range of car

journey services (fuel, parking, vehicle repair payments, insurance), purchase (financing, payments, car-share, car rental), mobility and more from the car touchscreen. The consumer spend over connected car e-commerce is expected to reach US\$525 bn by 2030.³⁰

Nonetheless, there are no rigid standards or definitions for what counts as an invisible payments yet, as retailers and financial institutions are still in the process of innovating new ways for customers to make easier, faster payments. But undoubtedly, the increased adoption of API services is paving the way for new opportunities for the entire financial ecosystem.

Recommended actions

- ▶ Re-imagine your merchants acquiring business while exploring new business models. Banks have assets that most payments innovators do not have; it is critical to bring them to merchants and consumers in the e-commerce ecosystem.
- ▶ Build specific propositions for different B2B2C and B2B2B verticals. As consumer and commercial commerce change rapidly, banks need to use data to identify distinct customer verticals that will maximize the value from payments services and provide tailored solutions for them.
- ▶ Payments data is central to banks and should be used to generate actionable customer insights to offer personalized experiences, expand into adjacencies and identify cross-selling opportunities.
- ▶ Enable BaaS to provide payments propositions to end customers. Design solutions to enable merchants to manage banking on an app, use data to personalize offers to customers, and benefit from lower friction in adopting to digital payments.

“

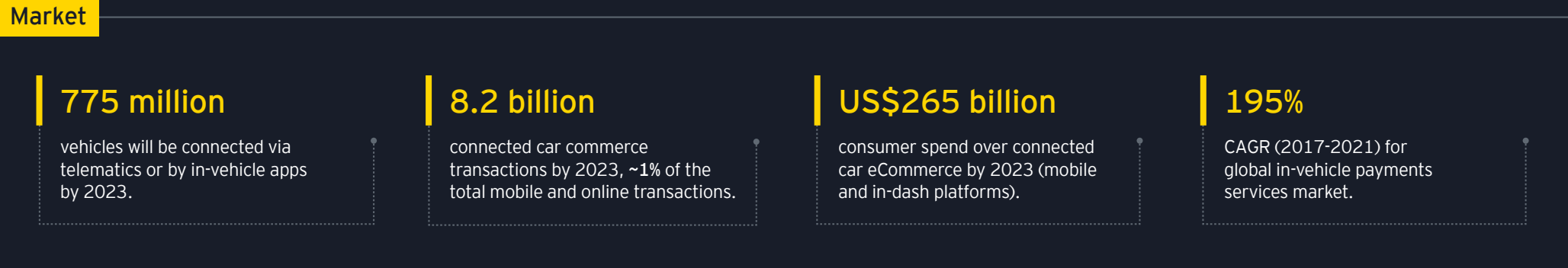
The platform business model has become increasingly pervasive in recent years, and at the same time small and medium-sized businesses (SMBs) have been underserved by traditional financial institutions.

Embedded financial products are rapidly being considered to enable platform business models to evolve additional revenue streams, to add financial services into their offering for their users, and to capitalize on the opportunity the BaaS evolution brings. The embedded payments proposition should encompass bank accounts, business financing, and card issuing; making sure platform merchants have full control of their payments flow from onboarding to issuing to payouts.

Roelant Prins
COO, Adyen



Figure 6: Connected car technology is imperative on many of the emerging electric vehicle ecosystem use cases, and the in-vehicle payments market is expected to grow rapidly



In-car payments as a game changer

Original equipment manufacturers (OEM) are looking to incorporate onboard payments technology, allowing wireless connections and tokenization to provide end-to-end payment solutions.

Majority of in-car commerce transactions are taking place via mobile devices today, automakers and mobility service providers are entering to tap this market.

Embedded finance can enable OEMs to offer advanced features and services through over-the-air (OTA) update, which is likely to become a new revenue stream.

With in-car apps and in-dash advertisements, merchants are seeking car infotainment unit as a new point of sale.

- Key drivers**
- Changing customer demand**
 - ▶ With increasing travel time and traffic congestion, customers are seeking convenient and rapid payments options.
 - ▶ Commuters are spending ever more on commerce in their cars.
 - ▶ Customers are looking for value-added services, **loyalty programs and rewards** tagged with in-car infotainment unit.
 - Technology enhancement for vehicle connectivity**
 - ▶ Rising integration of smartphones with the car infotainment system and advancement in in-dash technology is making in-car payments convenient.
 - ▶ Enhancements in voice biometrics, Near Field Communication (NFC) and blockchain could help bypass safety concerns among customers.
 - Improving internet connectivity**
 - ▶ Faster network speeds (5G, WiFi etc.) has improved in-car connectivity.
 - ▶ Mobile connectivity has increasing prevalence across the globe.

7

CBDCs and digital currencies – payments of another kind

Key takeaways

- ▶ Digital currencies and CBDCs are gaining momentum and rising to the top of the agenda for payments providers that are looking for regulated alternatives as first industry solutions emerge.
- ▶ The full benefit of DLT will come from tokenization, programmability, smart contracts, combined with a network effort by allowing banks to participate on a single platform (open loop).
- ▶ The ultimate benefit of digital currencies will be instant/atomic settlement, increased automation, transparency and efficiency, as well as support of new business models via programmability of money.

Blockchain technology is driving the next wave of disruption in payments with digital currencies and CBDCs gaining momentum. As a result, more payments and cryptocurrency ecosystem providers are entering the market. In context, the global cryptocurrency market capitalization stands at US\$1 tn and the market capitalization of Bitcoin is US\$384 bn (as of 07 October 2022).³¹

Cryptocurrency infrastructure providers are expanding into payments

Leading blockchain and cryptocurrency infrastructure providers are also expanding into payments.

Recently, Binance, the world's largest cryptocurrency exchange, launched a payments

technology company, Bifinity. It will be the official fiat-to-crypto payments provider for Binance and other blockchain platforms. Merchants can also use Bifinity's APIs to make their business crypto-ready and start accepting payments.

Traditional payments companies have also entered the crypto market. Consumers can now make payments with cryptocurrencies linked to Visa and Mastercard cards. Coinbase customers can use Mastercard credit and debit cards to make purchases in the crypto company's non-fungible token (NFT) marketplace. PayPal users can transfer, send and receive cryptocurrencies.



Digital currencies and the future of money

Banks and central banks around the world are starting to recognize the potential of digital assets, cryptocurrencies

and DLT technology at large, which can help improve and transform clearing and settlement processes. There are five

main types of digital currencies, two of which (stablecoins and cryptocurrencies) are unregulated:

Figure 8: Digital currencies can be leveraged to perform cross-border payments



¹ Commercial bank money explained - <https://www.moneyland.ch/en/commercial-bank-money-definition>



Many international organizations including the Bank for International Settlements (BIS), IMF and the World Bank are exploring solutions to strengthen digital currencies' infrastructure. According to a survey conducted by BIS, 86% of central banks globally are actively researching the potential for CBDCs, 60% are experimenting with the technology and 14% are deploying pilot projects.³²

Regulated solution using commercial bank money

Tokenizing commercial bank deposits has advantages over alternative stablecoins, as they would be regulated. This is because the liability exposure including source of funds is far clearer for commercial banks. The industry will likely move toward tokenized commercial bank deposits as the preferred form of on-chain money, which is a prerequisite to unlocking all tokenization opportunities.

In the rise of tokenization of financial and real assets, a digital currency solution is needed to provide Delivery-versus-Payments (DvP) efficiency, for example in securities settlement. DvP technology and programmable forms of money can also be used to drive operational efficiency for intraday movements to support cash management within large global organizations or service providers.

Industry solutions emerge leveraging blockchain technology for payments use cases

- ▶ **Baton System** provides a collateral management network with 11 clearing houses globally for post-trade settlement of margin requirements on centrally cleared derivatives.³³
- ▶ **Finality International** is a consortium of 16 institutions including banks and financial market infrastructures to build a DLT-based network for wholesale settlement in central bank money accounts to be used, for example, for securities settlements.³⁴

- ▶ **Regulated Liability Network (RLN)** is a viable concept for instant settlement. The purpose of RLN is to create a new network for sovereign currencies that is “always on,” programmable and “multi asset.” The network will deliver “on-chain” finality of settlement between the participating institutions in sovereign currencies and will allow cross-border payments automation.

Broader adoption of digital currencies

We expect the broader adoption of digital currencies to rise as acceptance by banks, merchants and regulators increases. New use cases are also expected to proliferate. Looking ahead we expect:

- ▶ **Multiple forms of digital money will compete for broad adoption.** These alternative forms of digital money include: Central bank money (including CBDCs), commercial bank money, cryptocurrencies, electronic money and stablecoins.
- ▶ **The financial system may face a significant interoperability problem in the future.** The proliferation of different CBDC models is creating new urgency for international standard setting. The IMF will work closely with the FSB and other members of the international regulatory community to develop an effective regulatory approach to crypto assets.
- ▶ **More public-private cooperation will be seen in CBDCs.** Participation of the private sector in developing, testing and deploying a CBDC will have several benefits and become more important as CBDCs could play a huge role in the future of financial systems. The UK has launched a cross-industry Digital Financial Market Infrastructure (DFMI) consortium to run a retail CBDC pilot, which will feature a live Digital Sterling (dSterling) stablecoin asset.
- ▶ **Banks will reassess their approach to payments and money.** The rapid changes to the payments landscape, and the potential for more change on the horizon, will bring payments to the fore in banks' strategic discussions.



Despite the enormous attention on crypto over the past years, the overwhelming majority of transaction activity on crypto and digital assets to date has been about one use case: people buying and selling crypto as an investment instrument. While interesting for wealth management, the bigger opportunity is in bringing the programmability, immediacy and DvP of blockchain to payments in support of a host of other financial use cases in consumer businesses (e.g., web3 commerce) or B2B use cases (trade finance , insurance, capital markets). Needless to say, the key to payments systems is trust: trust in the integrity of the technology, trust in the means of value exchange and trust in the participants of the system.

Jorn Lambert,
Chief Digital Officer, Mastercard

Recommended actions

- ▶ Banks can explore the value pools and feasibility of incorporating digital currencies and CBDCs into products and services.
- ▶ Gain a greater understanding of the underlying tokenization technology that powers digital currencies and CBDCs to leverage the underlying infrastructure for new products and services.
- ▶ Participate in industry initiatives to drive experimentation across specific use cases.

How EY can help



As disruptive technologies, customer preferences, regulations and new entrants transform the payments world, this paradigm shift is both a threat and an opportunity for existing payments service providers. Firms need to act now to build a strategy to survive the disruption in the industry and keep up with consumer demands.

The EY organization offers a broad set of services to help payments service providers, industry suppliers, new entrants and investors to become disruption-proof and reap the rewards of the future of payments. Significant changes are expected to continue across the industry with the introduction of ISO 20022 standards, new payments platforms and many of the forces we have presented in this report. To meet these challenges, the global EY network and proven skills can help you manage the disruption along the entire value chain within cards, payments, digital commerce and digital convergence.

The global EY Payments team is well positioned to help clients manage this disruption through:

- ▶ Payments growth strategy and target operating model

- ▶ Embedded payments, digital wallets and alternative payments
- ▶ Open banking and payments data monetization
- ▶ Payments infrastructure modernization
- ▶ Optimization of payments disputes, risk, fraud and security
- ▶ E-commerce and marketplaces
- ▶ CBDCs and digital currencies

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