



paymentsnz

PAYMENTS DIRECTION

2022 Environmental Scan Report

Developments in the global
payments landscape

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Foreword

Welcome to our 2022 Environmental Scan.

Our 2022 scan introduces six new themes examining the global trends and influences we expect to impact Aotearoa New Zealand's payments ecosystem over the next decade.

In our last scan we noticed more overlap and convergence between previous themes as our physical and digital worlds merged and payment technologies became increasingly connected to other digital capabilities. Our new themes now reflect the current broadening landscape of payment developments and those of you who have read previous scans will notice a significant change in the nature of the themes we touch on.

While the conclusions in our 2021 scan remain relevant, this year's scan identified notable shifts in three areas:

- Consumers and organisations are rapidly embracing the role of technology in shaping how we work, learn and live. In the context of payments, this has led to a proliferation of digital payment solutions which are increasingly embedded into other digital offerings.
- Governments are even more focused on preparing digital infrastructures and policies to support country specific ambitions to become world class digital nations. Given their importance to economic activity, payments often feature as a key component of those policies.
- An intensified policy focus on addressing inclusion and protecting vulnerable consumers which is also evident in payments infrastructures and services being designed from a citizen-first perspective. Globally, government and regulatory forces are pushing reforms to further open markets to competition that benefit currently under-served or excluded consumers.

This year, we have also introduced a section in the scan looking at selected payments and related developments in Aotearoa. These developments are very much in step with the rest of the world, which demonstrates we continue to head in the right direction.

Turning to work led by Payments NZ, Payments Direction, our strategic initiative, has completed its real-time payments market information gathering exercise. The outcome of this work established real-time payments will be a cornerstone of Aotearoa's future payments ecosystem. The Payments Direction team will now be sharing the work we have done so far and inviting a wider group of stakeholders to input into shaping the future of real-time payments in Aotearoa as we develop our payments modernisation roadmap.

The API Centre continues to lead Aotearoa's open banking future and is currently progressing work on how open banking could accommodate accounts with more than one signatory and establishing a customer-focused framework to help grow confidence and trust in an open banking ecosystem. The centre continues to deliver a detailed open banking framework and infrastructure which can support the development and implementation of Aotearoa's upcoming Consumer Data Right framework.

Our clearing system projects, ISO20022 and SBI365, are on the cusp of delivering important modernisation outcomes while ensuring our payments system continues to be interoperable, safe, and efficient. The move to the ISO20022 messaging format for our High Value Clearing System will commence from November 2022, and payments will be able to be sent and received 365 days a year in Aotearoa from April 2023.

I hope you enjoy reading our scan and find this report helpful as you contemplate the future and what this could look like for your organisation.



Steve Wiggins
Chief Executive, Payments NZ



Introduction



Executive summary

The 2022 scan introduces six new themes impacting the global payments ecosystem:

1. Real-time payment systems are evolving to support national economies and real-time ecosystems.
2. An evolution from open banking to open finance and embedded finance is underway.
3. Emerging technologies and next generation payment methods are driving a new wave of digital disruption.
4. Security, privacy and trust are key issues.
5. Nations are preparing for a digital future.
6. Financial services and payments regulation must navigate and respond to a broader and increasingly varied set of issues

Our new themes represent the increasing overlap and convergence we are seeing across the payments ecosystem, and in general across the digital landscape.

The long tail of COVID-19 first boosted and then entrenched the adoption of digital financial services in both developed and developing economies. For example, 40% of adults in developing economies (excluding China) who made a digital merchant payment, and one-third of adults in developing economies who paid a utility bill directly from an account, did so for the first time after the start of the pandemic.¹ In developed economies, like the US, the pandemic increased digital commerce usage across all demographics and not just among millennials and Gen Z consumers who were already comfortable with digital payments.²

Since our last scan it has become increasingly evident how important real-time payment (RTP) systems are to national economies. Providing functionality and connectivity within real-time platforms beyond payments instruments can help create a significant national infrastructure asset which opens new economic opportunities beyond those traditionally associated with account-to-account payments and which acts as an important building block of future digital economies.

One challenge that lies ahead is to address the lack of interoperability between the various national RTP systems.

Establishing an effective cross-border system hinges on agreeing technological standards, operational governance, dispute management and regulatory frameworks across international borders. For example, the 2021 linkage of Singapore's PayNow and Thailand's PromptPay was the beginning of a broader body of work to expand this bilateral linkage into a network of linked retail payment systems across the Association of Southeast Asian Nations.³

The Bank of International Settlements (BIS) recently commented on the benefits of interlinking payment systems to enhance cross-border payments by leveraging APIs and ISO20022. The BIS also noted the fragmentation of API protocols and global variations in the implementation of ISO20022 are still major challenges impeding a faster and more cost-effective interlinking of payment systems.⁴ Industry-wide initiatives like SWIFT gpi have resulted in smoother, more transparent and more efficient cross-border payment experiences, though a separate study by the BIS suggests payment speeds vary considerably across end-to-end payment routes.⁵

Open banking also received a boost from the pandemic, with the appetite for these capabilities clear across all jurisdictions we examined. The speed and direction of open banking are likely to be impacted by the mix of regulatory mandate versus market direction. However, the future success of open banking appears to hinge on consumers seeing the benefits of sharing their data with third parties and having the confidence their data will be protected and only used for approved purposes. The principles behind open banking are now beginning to spread into open finance.

While embedded finance is frequently associated with the proliferation of buy now pay later solutions that have been well covered in the financial media, it also has a broader role in a wide range of online use cases, corporate supply chain ecosystems and global trade networks.⁶ Regulators and policy makers are beginning to express concerns that embedded finance could have unintended consequences, such as consumers inadvertently committing to subscriptions that result in ongoing payments.

1 <https://www.worldbank.org/en/publication/globalindex>

2 https://files.consumerfinance.gov/f/documents/cfpb_convergence-payments-commerce-implications-consumers_report_2022-08.pdf

3 <https://www.mas.gov.sg/news/media-releases/2021/singapore-and-thailand-launch-worlds-first-linkage-of-real-time-payment-systems>

4 <https://www.bis.org/cpmi/publ/d205.pdf>

5 https://www.bis.org/cpmi/publ/swift_gpi.pdf

6 <https://www.mastercard.com/news/perspectives/2022/embedded-finance-in-supply-chain-management>

Since our 2021 publication, interest in cryptocurrencies has grown significantly. Recent volatility has perhaps highlighted that cryptocurrencies have some way to go before they can act as a reliable store of value and medium of exchange. Some policy bodies have expressed disquiet about the impact cryptocurrencies could have in developing nations due to the financial leakages they might create.⁷

Stablecoins - a private stabilised cryptocurrency - have also encountered some headwinds. For example, the Diem Group's assets were sold once federal regulators made it clear the project could not move ahead.⁸ The related world of Decentralised Finance (DeFi) continues to be marked by innovation and promise but faces some challenges around the extent of use cases in the real economy, regulation, and its ability to scale.⁹ Going forward, interoperability between the digital asset world and conventional forms of value will be important.

In our 2022 scan, Central Bank Digital Currencies (CBDCs) feature prominently because they appear poised to become part of the payments mix going forward. The Bahamas has its own CBDC, Nigeria recently launched theirs and China is expected to do the same.¹⁰ CBDCs offer the promise of a digital representation of central bank money that can deliver greater financial inclusion and ensure monetary sovereignty. Looking further ahead, CBDCs also could become vehicles for the delivery of policy outcomes at specific locations or for defined periods of time. However, support for CBDCs is not universal. A report by the House of Lords Economics Affairs Committee noted "we have yet to hear a convincing case for why the UK needs a retail CBDC. While a CBDC may provide some advantages, it could present significant challenges for financial stability and the protection of privacy".¹¹

At this point in time it is not clear how current activity in cryptocurrencies, DeFi and CBDCs will play out and whether the less favourable economic conditions of 2022 will significantly dent the capital raising prospects of the firms in the crypto industry and other fintechs more generally. However, activity in this space suggests the potential for future innovation in how people make and receive payments is likely to remain high.

Security, privacy, and trust continue to be key issues to consumers, institutions, regulators and policy makers alike given the rapid growth of digital technology and online communications that are essential to every aspect of how we work, govern, communicate and organise society.

Governments around the world increasingly acknowledge future prosperity depends on developing an inclusive and thriving digital economy with a fit-for-purpose regulatory framework. Payments and financial services frequently play an important role in the various policy frameworks and plans prepared to realise these future digital ambitions. Recognising the importance of a global commitment to digital technologies, Aotearoa was one of the nations who pledged support to the 2022 Declaration for the Future of the Internet.¹²

From a regulatory and policy perspective, while there is an ongoing emphasis on the importance of the safety, integrity and financial stability of payments and related systems, the regulatory and policy perimeter continues to expand. It now extends to competition, innovation, stewardship, fairness, inclusion, and the protection of vulnerable consumers.

The broadening of that perimeter means payment associations, like Payments NZ, are having to respond to increasingly varied group of issues and take into consideration the interests of a more diverse group of stakeholders. This is also evident in the work of other payment associations and allied bodies around the world including:

- Nacha's Payments Innovation Alliance - created a legal and risk mitigation resource guide for financial institutions seeking to implement voice payments capabilities and applications through smart devices, such as the Amazon Echo and Google Nest.¹³
- UK Finance - commissioned research on how a UK CBDC could remain interoperable with other forms of GBP through an assessment of some theoretical models for its implementation.¹⁴
- AusPayNet - published guidelines for QR codes as a payment method. The guidelines will be voluntary for financial institutions, payment service providers, merchants and other payments industry participants and are designed to encourage consistency in how QR codes are used.¹⁵

7 https://unctad.org/system/files/official-document/presspb2022d10_en.pdf

8 <https://www.diem.com/en-us/>

9 https://www.ecb.europa.eu/pub/financial-stability/macprudential-bulletin/focus/2022/html/ecb.mpbu202207_focus1.en.html

10 <https://www.enaira.gov.ng/>

11 <https://committees.parliament.uk/publications/8443/documents/85604/default/>

12 <https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/28/fact-sheet-united-states-and-60-global-partners-launch-declaration-for-the-future-of-the-internet/>

13 <https://www.nacha.org/news/nachas-payments-innovation-alliance-releases-guide-addressing-contractual-considerations-voice>

14 <https://www.ukfinance.org.uk/policy-and-guidance/reports-and-publications/designing-interoperability-potential-uk-cbdc>

15 <https://www.auspaynet.com.au/insights/Media-Release/QRCodes>

Global and local economic outlook

Since our 2021 scan, the state of the global economy has changed markedly and adversely. At the onset of the pandemic, policy makers hoped a combination of government fiscal support and central bank measures would be sufficient to maintain output and employment around the world in the face of large scale and, in some instances, highly restrictive lockdowns. The scale of that fiscal and central bank support, like the COVID-19 pandemic, was unprecedented.

While the pandemic resulted in a steep synchronised reduction in global economic activity, it turned out to be short-lived.¹⁶ Global inflation pressures began rising off the back of programmes of monetary and fiscal stimulus. A global trend of rising asset prices became quickly evident as did the resumption of consumption spending.

Underlying inflationary pressures were exacerbated by Russia's invasion of Ukraine in early 2022. That invasion has reinforced the tightly integrated nature of global supply chains. In 2022, fuel and food prices increased rapidly, impacting vulnerable populations in low-income countries most acutely. In developed economies, including the US and some European countries, inflation has now reached its highest level in more than 40 years.

In April, the International Monetary Fund (IMF) commented that the war in Ukraine has "also increased the risk of a more permanent fragmentation of the world economy into geopolitical blocks with distinct technology standards, cross-border payment systems, and reserve currencies. Such a tectonic shift would entail high adjustment costs and long-run efficiency losses as supply chains and production networks are reconfigured. It also represents a major challenge to the rules-based framework that has governed international and economic relations for the last 70 years".¹⁷

In response to decisions made by national governments, and to help end Russia's invasion of Ukraine, SWIFT acted in compliance with applicable sanctions law by disconnecting selected Russian banks from its financial messaging services.¹⁸

The outlook for the global economy, according to the IMF's July 2022 outlook, could be best characterised as gloomy and more uncertain.¹⁹

Aotearoa's proactive public health measures and strong fiscal and monetary support programme meant the economy emerged from the lockdowns in relatively strong shape. Post-lockdown, the domestic economy performed well (tourism aside), unemployment fell, and a lengthy pandemic induced recession was avoided.

Like other nations around the globe, Aotearoa is now experiencing the brunt of declining asset prices, slowing economic activity and elevated inflation pressures emanating from both domestic and international sources. China, one of our key trading relationships, has yet to move away from its stringent zero COVID-19 policy settings; dampening domestic demand and hampering economic output in that country. In late July, Chinese data showed that economy expanding by only a meagre 0.4% in the second quarter, compared with the same period a year earlier.²⁰

The Reserve Bank of New Zealand (RBNZ) has increased interest rates to contain inflation. The housing market is beginning to cool. The combination of uncertainty and higher interest rates is likely to reduce business investment. Business confidence is somewhat fragile and consumer confidence is at a low ebb.²¹ Concerns are being expressed a recession may be on the cards, unless a soft landing can be engineered by policy makers.

16 <https://www.brookings.edu/essay/lessons-learned-from-the-breadth-of-economic-policies-during-the-pandemic/>

17 <https://blogs.imf.org/2022/04/19/war-dims-global-economic-outlook-as-inflation-accelerates/>

18 <https://www.swift.com/news-events/news/message-swift-community>

19 <https://www.imf.org/en/Publications/WEO/Issues/2022/07/26/world-economic-outlook-update-july-2022>

20 <https://edition.cnn.com/2022/07/14/economy/china-q2-gdp-2022-intl-hnk/index.html>

21 <https://www.berl.co.nz/economic-insights/lack-consumer-confidence-signals-tough-times-ahead>

With travel restrictions largely removed, there is a risk more promising economic conditions in other countries may see more people leave Aotearoa than enter the country, worsening an already tight labour market. There are concerns a brain drain may now be underway.

Like most of the developed world, Aotearoa has become used to low stable rates of inflation. High and rising inflation is corrosive. It has a particularly damaging impact on those on fixed incomes and those on lower incomes and other vulnerable groups. Reducing inflation will remain the current focus of the RBNZ for some time. The government has been attempting to deliver a range of policy measures to help address the rising cost of living whilst not markedly adding to inflationary tensions. Budget 2022 delivered an NZ \$1 billion cost of living package targeted at low and middle-income Kiwi households.

In most respects the situation facing Aotearoa is not markedly different than the rest of the world. Volatility and uncertainty continue to characterise the short-term outlook. This is unsurprising. Twelve months ago, inflation was still believed to be a short-term phenomenon, supply chains were supposed to return to normal, it was by no means clear Russia would invade Ukraine, and it was hard to imagine China would continue with its zero COVID-19 policy settings. Additionally, 12 months ago, it was difficult to suppose we would have to accept COVID-19 as part of the fabric of our daily lives, albeit in a less intrusive way than previously.

Selected developments in Aotearoa

Since our 2021 scan, much has transpired in Aotearoa. Immediately below we provide a summary of selected developments in:

- Payments modernisation
- The growth of a consumer-centric open banking ecosystem
- The development of a digital Aotearoa
- Payments policy and regulation

Payments modernisation

To help shape a payments modernisation roadmap for Aotearoa's core payments system, Payments NZ recently completed a market information gathering exercise (MIG) on real-time payments. The MIG involved gathering information from organisations with recent and relevant experience in the operation or delivery of real-time payment capabilities.

In July 2022, we reached a significant milestone in work towards developing that roadmap for Aotearoa. The Payments NZ Board approved two workstreams to progress activity on real-time capability and agreed that real-time capability would be the cornerstone on which our modernisation roadmap is built.

We will release our Future of real-time payments discussion document shortly, which presents information and insights from our work to date and will be used to help facilitate broader stakeholder engagement moving forward.²²

Turning to other aspects of modernisation, our ISO20022 project team and High Value Clearing System Participants are preparing for the November 2022 launch of the ISO20022 messaging format for our High Value Clearing System (HVCS) and cross-border payments. ISO20022 will allow for richer and more granular payment information to be attached to a transaction. This will benefit the Participants of our HVCS and end users in terms of the richer payment information that will accompany those transactions.

We have also been working with our Participants on a significant core payments system project to extend the processing of electronic payments to 365 days a year. From April 2023, 365-day payments will become a feature of Aotearoa's payments landscape, meaning consumers will be able to receive as well as send payments between banks every day of the year. This is a further evolution of Aotearoa's payments system, enabling more flexibility for individuals and businesses to pay or be paid any day they want, including weekends and public holidays.

The RBNZ is also playing an important role in payments modernisation and the future of payments. In its May 2022 Financial Stability Report, the RBNZ stated "The Reserve Bank has proposed to take on a stewardship role to ensure that money and cash remain fit for purpose in Aotearoa. The work programme is currently focused on articulating the role of the 'Steward', exploring the possibilities of a new digital form of central bank money and considering options to redesign the cash system. Public feedback on the issues was broad and informative for our work plan, and further public engagement will follow".²³

²² <https://www.paymentsnz.co.nz/our-work/real-time-payments/>

²³ <https://www.rbnz.govt.nz/hub/publications/financial-stability-report/financial-stability-report-for-may-2022>

Open banking ecosystem

Our API Centre is working on phasing out optional features in its API standards, which is seen as the next step in the evolution of our standards and is developing an implementation roadmap to provide more certainty to third parties about when API Providers will support each version of those standards.²⁴

Work to establish a customer-focused framework to grow confidence and trust when using third-party services and sharing data has also progressed.

The centre has engaged with standards users and contributors and proposed a principles-based approach that considers banking, payments and customer consented data sharing practices.²⁵

The centre continues to seek opportunities to have input into the government's Consumer Data Right (CDR) framework. The government has previously indicated that a Bill covering the CDR will be introduced to Parliament in 2022.

The Digital Identity Services Trust Framework Bill, which is to work hand-in-hand with the CDR framework, continues to progress through Parliament. Once passed into law, the Bill will provide a legislative framework for the provision of secure and trusted digital identity services for individuals and organisations.²⁶ While the primary obligations in the Bill will fall on digital identity service providers, it will also impact individuals and organisations in the digital identity ecosystem, including banks and government agencies.²⁷

Digital Aotearoa

Work on a range of digital and data related initiatives is progressing as the government looks at ways to grow Aotearoa's digital future. Payments NZ has an interest in these initiatives given the contribution of payments to digital ecosystems and encourages an ongoing dialogue between policy agencies and the payments industry as the following pieces of work move forward.

The government recently released the Digital Strategy for Aotearoa (DSA). The strategy provides a framework for how Aotearoa's digital future will be shaped and revolves around three connected themes: i) Mahi Tika – Trust, ii) Mahi Tahī – Inclusion and iii) Mahi Ake – Growth. An action plan was also released alongside the strategy and outlines 11 flagship initiatives planned over the next five years to support implementation of the DSA. The action plan will be refreshed annually.²⁸ The strategy considers feedback received during public engagement in 2021 that found strong support for the issues canvassed by the discussion document and established there is interest from businesses to partner with government to grow the value of the digital tech industry. There was also widespread support for improving trust and inclusion, better supporting the people and communities most impacted by the digital divide, investing in digital skills, assets and infrastructure, and developing a digital trade plan for Aotearoa.

The Ministry of Business Innovation and Employment (MBIE) have also consulted on the scope, vision and action plan proposed in the draft Digital Technologies Industry Transformation Plan 2022-2032, a companion piece to the DSA.²⁹

More recently, the Office of the Privacy Commissioner (OPC) commenced a review of the privacy regulation of biometrics. Specifically, the OPC wants to understand more about how biometric technologies are being used or may be used in Aotearoa, what people's concerns are about biometrics, whether existing regulatory settings are adequate and what additional regulatory measures are required.³⁰ Biometric technologies have application in payments for authentication purposes.

24 <https://www.apicentre.paymentsnz.co.nz/news/articles/versions-2-2-and-2-3-api-standards-released/>

25 <https://www.paymentsnz.co.nz/our-work/company-updates/august-2022-update/>

26 <https://www.parliament.nz/en/pb/bills-and-laws/bills-digests/document/53PLLaw26591/digital-identity-services-trust-framework-bill-2021-bills>

27 <https://www.russellmcveagh.com/insights/october-2021/a-win-for-privacy-and-our-online-identities-introduction-of-the-new-digital-identity-bill-and-how>

28 <https://www.digital.govt.nz/digital-government/strategy/>

29 <https://www.mbie.govt.nz/have-your-say/consultation-for-digital-technologies-industry-transformation-plan/>

30 <https://privacy.org.nz/assets/New-order/News/Consultations/Privacy-regulation-of-biometrics-in-Aotearoa-New-Zealand.pdf>

Payments policy and regulation

As in other jurisdictions, the scope of payments policy and regulation in Aotearoa has continued to broaden. Developments appear to be driven by the need to create a more resilient payments system that allows for easy integration of future payment methods and services, the need to keep up with digital transformation and the desire to make payments more inclusive.

A major focus for Payments NZ has been the implementation of the Financial Market Infrastructures (FMI) Act. Exposure drafts of the standards for FMIs designated under the law were published in September 2022 along with related guidance, and a draft equivalence framework for overseas FMIs.³¹

We expect the RBNZ to soon publish its initial findings on their review of the electronic payments system in Aotearoa. The review will assess the capabilities and performance of Aotearoa's electronic payments systems against consumer's needs, other jurisdictions, and global standards, and identify areas of focus for development.³²

The Retail Payment System Act 2022 came into force in May 2022 and requires the Commerce Commission to monitor the retail payment system, and regulate designated retail payment networks, for the long-term benefit of businesses and consumers in Aotearoa who rely on it to buy and sell goods and services.

The government have also proposed the Business Payment Practices disclosure regime that will require organisations with revenue over \$33 million a year and government departments and agencies to publicly report on their payment practices including how long they take to pay invoices. It is hoped the regime will encourage prompt payments, particularly to the benefit of small business. Legislation is expected to be introduced by the end of 2022, with the aim of having the regime running by 2024.³³

³¹ <https://www.rbnz.govt.nz/hub/publications/financial-stability-report/financial-stability-report-for-may-2022>

³² <https://www.cofr.govt.nz/files/regulatory-initiatives-calendar/regulatory-initiatives-calendar-q2-2022.pdf>

³³ <https://www.beehive.govt.nz/release/govt-helps-small-businesses-get-paid-time>



2022 Themes

2022 Theme summary



Theme 1: Real-time payment systems are evolving to support national economies and real-time ecosystems

The impact of real-time payments continues to accelerate across the globe via increased smart phone adoption, widespread internet access and WiFi capabilities being accessible to an increasingly large group of end users. There is a strong drive to introduce faster payments in countries with significant underbanked and non-banked communities. Internationally, real-time ecosystems are beginning to mature, playing a greater role in supporting national economic activity and as a platform for competitive and interoperable value-added services.

In 2022 this theme rests on developments in three areas:

1. The prioritisation of real-time payments in supporting national economies.
2. Real-time platforms evolving into more substantive infrastructures.
3. Real-time infrastructures being used as a platform for value-added services.

Theme 2: An evolution from open banking to open finance and embedded finance is underway

The world of open banking is beginning to extend into open finance, bringing open banking-like data sharing principles and third-party access to a wider range of financial sectors and products. The pivot to open finance is based on the awareness that consumers should both own and control the data they supply, and which is created on their behalf. Embedded finance offers the potential to deliver convenience and personalisation based on greater insights into consumer need, often at the point of sale.

In 2022 this theme rests on developments in three areas:

1. A progressive evolution of the open banking ecosystem.
2. Leveraging open banking to help create open finance.
3. Convenience and personalisation through embedded finance.

Theme 3: Emerging technologies and next generation payment methods are driving a new wave of digital disruption

Digital platforms and ecosystems are now ubiquitous, and, in some markets, super-apps have leveraged widespread access to the internet and smartphone adoption to occupy commanding positions. The potential for structural changes to ecosystems is now in play with the emergence of the metaverse and rising mainstream interest in stablecoins, cryptocurrencies and other digital assets. Work is underway on Central Bank Digital Currencies (CBDCs) in many economies around the world.

In 2022 this theme rests on developments in four areas:

1. An extension of the technology frontier; notably into the metaverse.
2. Super-app ecosystems.
3. Developments in decentralised finance and cryptocurrencies.
4. Central bank digital currencies.

Theme 4: Security, privacy and trust are key issues

Security, privacy, and trust are increasingly the new pillars of the digital age. Successfully delivering these pillars is increasingly challenging as the number of connected devices and users grow, ecosystems become more complex, and traditional boundaries between organisations and systems become increasingly opaque.

In 2022 this theme rests on developments in three areas:

1. Regulators emphasising the role of cyber resilience to keep systems safe and secure.
2. A growth in the use of digital identity solutions.
3. Legislative and policy measures designed to raise the thresholds of privacy, sometimes with varying success.

Theme 5: Nations are preparing for a digital future

Policy makers around the world have focused on the importance of ensuring digital infrastructures are in place to support ambitions to become a truly digital nation and to capitalise on opportunities to deliver a more sustainable, equitable and prosperous digital future. Payments are the engine room of economic activity, so modernising payment systems is going to be important in the ambitions of countries as they seek to become world class digital nations.

In 2022 this theme rests on developments in three areas:

1. The development of policy and regulatory frameworks to support digital development and to prepare for an increasingly digital future.
2. Governments developing strategies to attract tech investment and to develop talent, and corporates creating solutions to support a more digital world.
3. The realisation digital transformation can be designed from a citizen-first perspective to help improve inclusion.

Theme 6: Financial services and payments regulation must navigate and respond to a broader and increasingly varied set of issues

In 2022, the regulatory perimeters continue to expand across the financial services and payments landscape, extending to a more varied set of issues including fairness and inclusion, climate and sustainability, cyber risk, digital assets and the conduct of institutions, as well as system stability and resilience.

In 2022 this theme rests on developments in four areas:

1. A focus on improving inclusion and protecting vulnerable consumers.
2. The regulation of digital assets.
3. Steps to stem the power and influence of global technology platforms.
4. Modernising regulatory structures.

Theme 1



Real-time payment systems are evolving to support national economies and real-time ecosystems

2022 theme conclusion

The impact of real-time payments continues to accelerate across the globe via increased smart phone adoption, widespread internet access and WiFi capabilities being accessible to an increasingly large group of end users. There is a strong drive to introduce faster payments in countries with significant underbanked and non-banked communities. Internationally, real-time ecosystems are beginning to mature, playing a greater role in supporting national economic activity and as a platform for competitive and interoperable value-added services.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. The prioritisation of real-time payments in supporting national economies.
2. Real-time platforms evolving into more substantive infrastructures.
3. Real-time infrastructures being used as a platform for value-added services.

Supporting national economies

- Governments around the globe that enable real-time schemes are driving economic growth and prosperity by providing consumers and businesses with cheaper, faster, and more efficient payment methods.³⁴

- According to FIS Global, only 17 countries had real-time payments in 2014. Now 72% of the countries examined have a live real-time payments infrastructure or are planning to launch one soon. FIS Global expects almost three-quarters of the world's population to have access to real-time payments by the end of 2022.³⁵
- According to ACI Worldwide, 118.3 billion real-time transactions were made globally in 2021, forecast to grow to 427.7 billion annually in 2026. If that growth rate is sustained, real-time payments would account for 25.6% of all global electronic payments in the next five years.³⁶
- In October 2021, when commenting on the significance of real-time payment systems to national economies, McKinsey pointed out that “in many cases these new clearing and settlement systems took some time to build momentum but are now delivering long promised volumes”.³⁷
- In a recent speech, the Head of the Payments Policy Department at the Reserve Bank of Australia (RBA) noted Australia's New Payments Platform (NPP) has been identified by the Australian government as a critical infrastructure asset. That reflects the growing importance of the NPP to the economy. The RBA is current working with the Australian government to apply new obligations to help bolster the reliability and security of critical infrastructure assets against cyber attacks and other threats to the operator of the central NPP infrastructure. On the potential for the NPP to improve the timeliness of cross-border payments, the RBA noted it would be worth exploring ways in which the NPP could connect to fast payment systems in other countries in the future.³⁸
- The Centre for Economics and Business Research (CEBR) recently examined the economic impact of real-time payment systems across 30 major economies. The study concluded that in 2021, \$78.4 billion of GDP was supported by real-time payments across the countries in the study. The CEBR estimated by 2026 \$173 billion of GDP will be supported by real-time payments across the

³⁴ <https://investor.aciworldwide.com/node/23521/pdf>

³⁵ <https://www.fisglobal.com/en/insights/what-we-think/2022/april/a-quick-low-down-on-real-time-payments>

³⁶ <https://www.aciworldwide.com/blog/real-time-payments-are-reshaping-economies-around-the-world>

³⁷ <https://www.mckinsey.com/industries/financial-services/our-insights/the-2021-mckinsey-global-payments-report>

³⁸ <https://www.rba.gov.au/speeches/2022/pdf/sp-so-2022-05-03.pdf>

30 countries examined. The leading five real-time markets in the study are India, Brazil, China, Thailand and South Korea. In China alone, real-time payments supported \$18.7 billion in economic output in 2021.³⁹

- In recognition of the opportunities for real-time payments to transfer value instantaneously, the Australian government used the NPP to provide support to households affected by bushfires and floods, including on weekends. More than \$12 billion of payments for COVID-related support and disaster relief were made via the NPP in the second half of 2021.⁴⁰
- In 2021, Australia recorded 970 million real-time transactions resulting in estimated efficiency savings of \$205 million for businesses and consumers, driven principally by a reduction in the payments float. This helped to unlock \$932 million of additional economic output, representing 0.06% of the country's GDP. But transaction volume growth remains constrained by Australia's reliance and preference for card-based schemes.⁴¹
- Digital payments in Southeast Asia are gaining momentum off the back of growing digital services and national real-time payment rails, such as FAST in Singapore and PromptPay in Thailand. Account to account payments have become an increasingly popular form of payment amongst banked populations. In Thailand, PromptPay recorded an approximately 80% transaction value growth in April 2021.⁴²
- Real-time payments have the potential to be key to improving the rates of financial inclusion in developing nations through the shift away from the status quo, with large shares of the population solely relying on cash. In Africa, the proportion of the population that is financially excluded but who also have access to a mobile phone represents a clear opportunity for instant payments to further boost financial inclusion in a relatively short timeframe. Across Africa, mobile penetration extends to approximately 66% of the population.⁴³

- In its September 2022 publication on the Future of Money and Payments, the Department of the Treasury recommended the government encourage the use of instant payment systems to, among other things, support a more inclusive US payment landscape.⁴⁴

Evolving into more substantive infrastructures

- To help accelerate Indonesia's digital economy and to bring millions of unbanked citizens into the formal financial sector, Indonesia's central bank launched the country's first real-time payments infrastructure, BI-FAST. BI-FAST is an integral part of Indonesia's ongoing digital modernisation initiative and central to its Payment System Blueprint, IPS 2025. IPS 2025 aims to transform the country's payment infrastructure, integrate its digital economy and finance sector, and respond to public demands for a fast, easy, safe, affordable, and reliable payment system.⁴⁵
- The Central Bank of the United Arab Emirates has announced Accenture will lead a consortium to help execute its National Payment Systems Strategy. The first milestone in that strategy is the National Instant Payment Platform (IPP). Described as a national infrastructure project to support the financial services ecosystem the IPP represents the beginning of the next generation of payment services in the region.⁴⁶
- The New Payments Architecture (NPA) is set to play a critical role in strengthening competition and supporting innovation by delivering the next generation of interbank payments infrastructure in the UK. Given its importance to the economy, in December 2021, the Payments System Regulator published its regulatory framework for the NPA Central Infrastructure Services (CIS). That framework is designed to minimise the risks to competition in the NPA ecosystem from a CIS provider's behaviour. The Payments Systems Regulator notes "our economy and society depend on interbank payments. Bacs and Faster Payments, which the NPA is intended to replace, accounted for nearly £7 trillion of payments in 2020 and are used by millions of us every day".⁴⁷

39 https://cebr.com/wp-content/uploads/2022/04/Real-Time-Report_v8.pdf

40 <https://www.rba.gov.au/speeches/2022/pdf/sp-so-2022-05-03.pdf>

41 <https://www.aciworldwide.com/real-time-payments-report>

42 https://services.google.com/fh/files/misc/e_economy_sea_2021_report.pdf

43 https://www.africanenda.org/uploads/files/211005_AfricaNenda-Instant-Payments-in-Africa-Report_vF-1.pdf

44 <https://home.treasury.gov/system/files/136/Future-of-Money-and-Payments.pdf>

45 <https://www.businesswire.com/news/home/20220125005932/en/Bank-Indonesia-Drives-Country-Real-Time-Payment-Ambitions-with-ACI-Worldwide>

46 <https://newsroom.accenture.com/news/accenture-to-develop-uae-national-instant-payment-platform.htm>

47 <https://www.psr.org.uk/media/yexfxyyn/psr-ps21-3-mpa-regulatory-framework-policy-statement-dec21.pdf>

- In the US, the Federal Reserve plans to launch its FedNow Service between May and July 2023 to provide choice in the market for clearing and settling instant payments as well as to promote resiliency through redundancy.⁴⁸ FedNow will exist independently of The Clearing House's RTP network, which was first launched in 2017. The pilot program for the service has commenced technical testing, and the signals are that instant payments will be offered in a broad-fashion, with the initial roster of organisations taking part in the program — 120 firms — including a wide array of enterprises beyond traditional banks.⁴⁹

Value-added services

- Real-time solutions are creating an ecosystem of contextual commerce where financial institutions, merchants and consumers can exchange information to boost efficiency, create value and do things differently.⁵⁰
- Value-added services (VAS) are helping to bolster the uptake of real-time payments. In some jurisdictions, VAS are provided by the central infrastructure. In other jurisdictions, industry associations have been instrumental in the provision of VAS. Independent third parties have also developed VAS to leverage the rails of the real-time system. Despite different market structures, most payments system operators offer at least some centralised VAS to their participants. Confirmation of payee, request-to-pay, and proxy databases are among the most popular. Other VAS include payment debulking, payment file validation, and more recently, instalment payments for subscription use cases.⁵¹
- VAS are taking off around the globe. An example can be seen in Singapore where customers of some financial institutions can make merchant payments using the fast payments system by scanning a QR code via a mobile application that is provided by the payment service provider.⁵²
- Also in Singapore, DBS has implemented a fully automated real-time payment system for drivers at ride hailing firm Gojek. Rather than waiting until the end of the week for payment (as with other taxi firms), Gojek's drivers can now transfer funds to their bank account after each trip. This feature is a strategic advantage for Gojek because it allows the firm to recruit drivers more easily than its competitors.⁵³
- In a 2022 speech on technology, innovation, and financial services a Federal Reserve Governor noted one of the central advantages of the upcoming FedNow service is that it will allow financial institutions and their service providers to offer value-added services to customers, ultimately enhancing competition in the market for payment services.⁵⁴
- In a 2021 commentary, Mastercard and ACI Worldwide noted VAS play a prominent role in real-time payment systems where those systems separate the core clearing and settlement functionality from a platform layer that can be used to develop innovative new products and services, utilising interoperable data standards.⁵⁵

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. A realisation of the macroeconomic benefits of real-time systems.
2. The natural evolution of payments infrastructure development to support real-time commerce.
3. The maturing of ecosystems globally which is leading to growth in VAS as jurisdictions leverage real-time capabilities.

48 <https://www.federalreserve.gov/newsevents/pressreleases/other20220829a.htm>

49 <https://www.pymnts.com/news/payment-methods/2022/real-time-payments-on-the-way-to-becoming-commonplace-with-fednow-pilot/>

50 <https://www.forbes.com/sites/boblegters/2022/02/10/why-all-the-fuss-about-real-time-payments>

51 <https://www.lipisadvisors.com/insight/value-added-services-for-real-time-payments-lessons-from-around-the-globe>

52 <https://www.rba.gov.au/speeches/2022/sp-so-2022-05-03.html>

53 <https://www.mckinsey.com/industries/financial-services/our-insights/the-2021-mckinsey-global-payments-report>

54 <https://www.federalreserve.gov/newsevents/speech/bowman20220817a.htm>

55 <https://www.centralbanking.com/fintech/7866816/real-time-payment-systems-for-the-real-world>

Theme 2



An evolution from open banking to open finance and embedded finance is underway

2022 theme conclusion

The world of open banking is beginning to extend into open finance, bringing open banking-like data sharing principles and third-party access to a wider range of financial sectors and products. The pivot to open finance is based on the awareness that consumers should both own and control the data they supply, and which is created on their behalf. Embedded finance offers the potential to deliver convenience and personalisation based on greater insights into consumer need, often at the point of sale.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. A progressive evolution of the open banking ecosystem.
2. Leveraging open banking to help create open finance.
3. Convenience and personalisation through embedded finance.

Open banking ecosystem evolution

- COVID-19 gave open banking in the UK considerable additional momentum. The user base in the UK doubled between April and September 2020 and research undertaken by the Open Banking Implementation Entity (OBIE) and Ipsos MORI showed that 50% of small and medium enterprises surveyed had been using open banking since the onset of the pandemic.⁵⁶

- Increased momentum in open banking adoption in the UK can also be explained by the move to variable recurring payments, akin to smart direct debits for moving money between accounts (and with the potential to support other use cases too), and HM Revenue & Customs becoming the first government department in the world to allow users to make open banking payments.⁵⁷
- Open banking has enabled more financial institutions to meet their customers' personal digital expectations and preferences and to facilitate consent to integrate with other third-party financial institutions. When utilising open banking, customers can easily authenticate payments via a mobile device. The user experience is seamless and fast. Nuapay's recent research found that 54% of UK consumers, and 64% of UK mobile banking users, would be willing to pay via open banking today if given the opportunity.⁵⁸
- UK regulatory and policy agencies have announced a staged transition in the governance of open banking, which will see a long-term regulatory framework put in place. The future governing entity, the OBIE's successor, will continue to develop open banking within this framework. The transition will be taken forward by a new regulatory oversight committee led jointly by the Financial Conduct Agency (FCA) and the Payment System Regulator, with HM Treasury and the Competition and Markets Authority (CMA) as the other members.⁵⁹
- Looking to learn from open banking experiences in other jurisdictions, Canada is now on the cusp of developing a "made-in-Canada" regime which will include common rules and an accreditation framework for open banking participants.⁶⁰ To some extent, open banking outcomes are already happening informally in Canada with as many as four million Canadians sharing their financial data with third-party providers, albeit using screen-scraping, which has the potential to put consumers at risk of being caught up in data breaches.⁶¹

56 <https://www.weforum.org/agenda/2021/04/open-banking-future-of-finance/>

57 <https://www.openbanking.org.uk/news/uk-open-banking-marks-fourth-year-milestone-with-over-4-million-users/>

58 <https://www.openbankingexcellence.org/blog/open-banking-is-transforming-retail/>

59 <https://www.gov.uk/government/publications/joint-statement-by-hm-treasury-the-cma-the-fca-and-the-psr-on-the-future-of-open-banking/joint-statement-by-hm-treasury-the-cma-the-fca-and-the-psr-on-the-future-of-open-banking>

60 <https://www.canada.ca/en/department-finance/news/2022/03/government-moves-forward-with-open-banking-and-names-a-lead.html>

61 <https://www.theglobeandmail.com/investing/personal-finance/household-finances/article-open-banking-canada/>

- In the US, the Consumer Financial Protection Bureau (CFPB) are making progress on rules to enable open banking solutions to be implemented. It is expected the CFPB will undertake a small business panel review in November 2022 before issuing the draft rules in early 2023.⁶²
- In a 2021 report on open banking, the Hong Kong Monetary Authority (HKMA) and Accenture concluded the implementation of open APIs in Hong Kong had been successful to date. A progressive implementation model is being deployed in that jurisdiction to allow the highest value solutions to be deployed in the market in a sequential, stable, and sustainable manner. As the open API journey unfolds the HKMA has commented on the importance of ensuring robust cybersecurity and proper risk management and fully addressing customer protection and data privacy requirements.⁶³
- The European Commission have completed a public consultation to gather evidence for the revised Payment Services Directive review and to inform its work on open finance. The revised Payment Services Directive is the basis for payment rules in the EU and allowed access to customers' payment accounts data, with their consent, enabling third-party providers to offer competing financial or information services and laying the ground for open banking. The consultation sought views on whether the Directive has achieved its objectives and whether amendments are needed to ensure that its rules remain relevant. The Commission also sought views on the broader concept of open finance, which could cover a range of financial services, such as investment in securities, pensions, and insurance. Data-driven finance is one of the priorities set out in the Commission's digital finance strategy.⁶⁷

Leveraging open banking to help create open finance

- In the UK, open finance stands ready to leverage the work that has already been undertaken in open banking to create personal financial ecosystems that consumers can tailor, enhance and manage seamlessly.⁶⁴ However, a regulatory framework will be required to clarify which types of entities, accounts and datasets would be in scope.⁶⁵
- The Queen's Speech opening the UK Parliament in May 2022 referred to reform of the UK's data protection regime. That reform appears to include the government's ability to mandate industry participation in smart data across the economy, providing the legislative foundations for open finance, open telco, open energy and beyond.⁶⁶
- Australia's Consumer Data Right (CDR) is a key aspect of Australia's Digital Economy Strategy 2030. In early 2022, the Australian government announced the next priority area for the economy-wide implementation of the CDR is expansion to open finance, building on banking data that is already available, and energy and telecommunications data which is being brought into the CDR. In August 2022, the Australian Treasury released their final report following a public consultation exercise to inform the sectoral assessment for applying the CDR to non-bank lending as part of phase one of open finance. The report recommended the designation of non-bank lending sector for the CDR and released a draft designation instrument. The Treasury is now consulting on the instrument before a final designation instrument is made.⁶⁸

62 <https://www.pymnts.com/news/regulation/2022/cfpb-to-seek-feedback-on-open-banking-rulemaking-in-november/>

63 https://www.hkma.gov.hk/media/eng/doc/key-functions/ifc/fintech/The_Next_Phase_of_the_Banking_Open_API_Journey.pdf

64 <https://www.ftadviser.com/your-industry/2022/07/13/open-banking-is-changing-the-face-of-personal-finance/?page=3>

65 <https://ukfinancialservicesinsights.deloitte.com/post/102hliis/open-finance-preparing-for-success>

66 https://www.altfi.com/article/9404_open-finance-has-taken-a-giant-leap-forward-in-the-uk

67 https://ec.europa.eu/info/consultations/finance-2022-open-finance_en

68 <https://treasury.gov.au/publication/p2022-300402>

Embedded finance

- Investment in embedded finance has been growing rapidly of late and is gaining momentum beyond the finance industry to other sectors such as travel and hospitality. Backed by APIs, embedded finance has the potential to provide one-stop-shop solutions, reaching out to underserved markets, and improving customer experience.⁶⁹
- Commenting on the North American market, McKinsey concluded embedded finance - particularly lending - is likely to become mainstream as software providers continue to integrate payments and banking services in their offerings.⁷⁰
- One visible example of the embedded finance trend is the growth in buy now pay later (BNPL) options available at point of sale (POS). The global BNPL market size was valued at US\$4.07 billion in 2020 and is expected to expand at a compound annual growth rate of 22.4% from 2021 to 2028.⁷¹
- As the e-commerce market continues to move at an accelerated pace, embedded payments are becoming central to commercial success across the globe. The embedded finance market is expected to exceed \$138 billion by 2026, led by BNPL embedded payment tools.⁷²
- The CFPB have published a report that summarises data from five lenders on their BNPL loans. The report found the number of loans issued by the five lenders had increased by 970% between 2019 and 2021. The report also identifies financial and operational benefits of BNPL loans over legacy credit products and potential consumer risks including consumer harms due to vague loan terms and processes for resolving disputes, data harvesting that may compromise consumers' privacy, and consumers being overextended from taking out numerous BNPL loans.⁷³ Since issuing the report, the CFPB have confirmed they plan to start regulating BNPL companies, aligning sector standards with the standards for credit card companies.⁷⁴
- According to research from PYMNTS and FIS, nine out of ten financial institutions are currently developing or plan to develop embedded finance experiences. Organisational size influences how that innovation is likely to take place. Community

banks and regional banks are the most likely to use embedded finance in the context of innovation in payment processing. Large banks, on the other hand, are more likely to cite loans and cash flow management as areas they are innovating or plan to innovate with embedded finance.⁷⁵

- Apple recently announced a move into the BNPL space with a service called Apple Pay Later. That service will allow users to pay for things over four equal instalments. One of the significant issues in the BNPL space is whether it is going to be subject to consolidation, given rising inflation, higher interest rates and slowing economic growth.⁷⁶
- A recent study from TransUnion examined the risk profiles of consumers who use BNPL and POS products and found that in comparison to the general credit population, consumers of these services tend to be younger and belong to below-prime risk tiers. Over time, BNPL and POS loan data could present an important financial inclusion opportunity by helping the millions of people in the US who have slim, damaged, or non-existent credit files build credit sensibly.⁷⁷
- The use of BNPL has accelerated digital lending in developing nations where there are large numbers of underbanked consumers, many of whom lack access to credit. Platforms that mediate payments between merchants and consumers have found a way to lend at the POS. Consumer search interest for BNPL has skyrocketed 16X in Southeast Asia, primarily in Indonesia.⁷⁸

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. Regulators are pushing for consumers to have more choice in financial services, the ability to obtain more and better information to make decisions, and to help consumers better manage their finances in a secure, consent-driven framework.
2. The need to increase customer engagement and to deliver a seamless digital consumer experience.
3. Technology which allows financial services to be delivered in context, meeting customers where they are at a particular time of need.

69 <https://www.finextra.com/newsarticle/40581/vc-investment-in-embedded-finance-doubled-in-2021-across-eu-and-us>

70 <https://web-assets.bcg.com/58/30/e7773b6a4c29b79b3673ab21ef66/bcg-global-payments-2021-report-all-in-for-growth-oct-2021-r.pdf>

71 <https://www.fisglobal.com/en/insights/what-we-think/2022/august/embedded-finance-where-banking-services-converge>

72 <https://www.treasuryprime.com/blog/embedded-payments>

73 https://files.consumerfinance.gov/f/documents/cfpb_buy-now-pay-later-market-trends-consumer-impacts_report_2022-09.pdf

74 <https://financialpost.com/pmn/business-pmn/u-s-consumer-watchdog-plans-to-regulate-buy-now-pay-later-companies>

75 <https://www.pymnts.com/wp-content/uploads/2022/05/PYMNTS-Meeting-The-Challenge-Of-Payments-Modernization-May-2022.pdf>

76 <https://www.cnbc.com/2022/06/10/apples-latest-fintech-move-has-buy-now-pay-later-industry-on-edge.html>

77 <https://newsroom.transunion.com/transunion-study-examines-the-risk-profile-of-bnpl-applicants--and-the-financial-inclusion-opportunities-that-exist-for-both-consumers-and-lenders/>

78 https://services.google.com/fh/files/misc/e_economy_sea_2021_report.pdf

Theme 3



Emerging technologies and next generation payment methods are driving a new wave of digital disruption

2022 theme conclusion

Digital platforms and ecosystems are now ubiquitous, and, in some markets, super-apps have leveraged widespread access to the internet and smartphone adoption to occupy commanding positions. The potential for structural changes to ecosystems is now in play with the emergence of the metaverse and rising mainstream interest in stablecoins, cryptocurrencies and other digital assets. Work is underway on Central Bank Digital Currencies (CBDCs) in many economies around the world.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in four areas:

1. An extension of the technology frontier; notably into the metaverse.
2. Super-app ecosystems.
3. Developments in decentralised finance and cryptocurrencies.
4. Central bank digital currencies.

Extension of the tech frontier

- McKinsey reported more than US\$120 billion was invested in the metaverse in the first five months of 2022, compared to \$57 billion in all of 2021 with advances in technology powering the metaverse, marketplace readiness and brand engagement all driving investment.⁷⁹

- Financial services companies are also exploring potential opportunities in the metaverse. In February 2022, JP Morgan was the first US bank to launch in the metaverse, opening Onyx lounge in Decentraland, a blockchain-based virtual world.⁸⁰ JP Morgan also released a paper exploring the opportunities and key considerations for organisations entering the metaverse. JP Morgan will operate like a bank in the metaverse stating “we believe the existing virtual gaming landscape has elements that parallel the existing global economy. This is where our long-standing core competencies in cross-border payments, foreign exchange, financial assets creation, trading and safekeeping, in addition to our at-scale consumer foothold, can play a major role in the metaverse”.⁸¹
- The Union Bank of India have launched a metaverse virtual lounge of the bank in partnership with Tech Mahindra that allows customers to access information about bank deposits, loans, government welfare schemes and digital initiatives, and “aims to reduce the gap between physical and virtual branches”.⁸²
- Mastercard have filed 15 metaverse and crypto trademark applications indicating their plans to process e-commerce transactions and payments in the metaverse and offer marketplaces for digital goods and NFTs. American Express have filed similar trademark applications.⁸³
- London-based fintech Sokin will launch an e-commerce community in the metaverse that will bring together brands and retailers and enable “consumers to meet, communicate, transact, invest, and purchase in one all-encompassing ecosystem and virtual economy”. Purchases will be made within the metaverse using Sokin’s mobile app.⁸⁴
- Neobank Zelf is launching a banking integration with Discord that will enable gamers to do their banking using Discord and to facilitate real money transactions between gamers in the play-to-earn market.⁸⁵

79 <https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/value-creation-in-the-metaverse>

80 <https://www.nasdaq.com/articles/jpmorgan-jpm-enters-metaverse-unveils-virtual-onyx-lounge>

81 <https://www.jpmorgan.com/content/dam/jpm/treasury-services/documents/opportunities-in-the-metaverse.pdf>

82 <https://cio.economictimes.indiatimes.com/news/strategy-and-management/banks-future-success-directly-proportional-to-its-ability-to-adopt-new-technologies-cto-union-bank-of-india/93987838>

83 <https://www.pymnts.com/metaverse/2022/mastercard-seeking-metaverse-and-nft-trademarks/>

84 https://sokin.com/blog-article.html?id=31&_locale=en

85 https://www.wfmz.com/news/pr_newswire/pr_newswire_entertainment/gen-z-neobank-zelf-expands-into-gaming-launches-banking-in-discord-facilitating-real-money-transactions/article_fe73a977-825e-5d3d-a96e-29cede4f704e.html

Super-app ecosystems

- Geopolitical tensions are hampering super-app regional expansion plans. Sea Group, a Singaporean super-app, had its ambitions to expand into India curtailed, principally because Tencent, the Chinese internet giant, has a material shareholding in Sea Group and tensions between India and China continue to run high. The Indian government has imposed restrictions against hundreds of Chinese-owned and Chinese-linked apps.⁸⁶
- The Consumer Financial Protection Bureau acknowledged financial services superapps have considerable potential to be a valuable tool for consumers but expressed concerns that super-apps can be exploited to take advantage of consumers who are not fully aware of how their data might be used and by whom.⁸⁷
- Latin American super-app Mercado Libre, sometimes described as the Amazon of Latin America, has partnered with Mastercard to strengthen the security and transparency of its recently launched digital wallet crypto program in Brazil, allowing Mercado Libre to monitor, identify and understand risks, and to help the retailer manage regulatory and compliance obligations.⁸⁸
- A survey from PYMNTS and PayPal has found 72% of consumers in Australia, Germany, the UK, and the US are interested in using a super-app. The top two benefits of using a super-app were found to be reducing the risk of losing sensitive information (57%) and “the ability to coordinate and manage different parts of their lives through a single solution” (also 57%).⁸⁹
- In Australia, Commonwealth Bank have indicated their own super-app ambitions by integrating their mobile banking app with Little Birdie, a retail discovery platform that will enable Commonwealth Bank’s customers to “access exclusive and personalised shopping offers from Little Birdie from retailers”⁹⁰ and with CommSec, a digital stockbroker that enables customers to manage their investment accounts using the CommBank app.⁹¹

- ARK Invest found social commerce – the buying and selling of products within a social media platform – could “increase from roughly 7% to 17% of the US\$17 trillion projected global e-commerce market by the end of 2025” and is likely to accelerate the convergence of social media and e-commerce.⁹²
- Meta has launched a new ‘payments in chat’ feature for Instagram users in the US that will enable users to make purchases using Meta Pay⁹³ and track their orders through direct messaging with sellers. Meta are also launching JioMart on WhatsApp, which enables customers in India to browse, select and purchase groceries on WhatsApp, without leaving the app.⁹⁴

Developments in decentralised finance and cryptocurrencies

- In Singapore, Project Guardian will test the feasibility of applications in asset-tokenisation and decentralised finance (DeFi). The Monetary Authority of Singapore (MAS) aims to develop and pilot use cases in four main areas: i) open interoperable networks, ii) trust anchors, iii) asset tokenisation and iv) institutional grade DeFi protocols.⁹⁵
- The Economist notes that Ethereum, the leading DeFi platform, may be at risk of losing its near-monopoly due to a standards war that has broken out in other emerging technologies. More than anything this illustrates how DeFi technology is improving at considerable pace.⁹⁶
- While acknowledging the benefits of DeFi in terms of innovation, equitable participation in markets and financial inclusion, the OECD note DeFi applications also give rise to important risks and challenges for participants and the markets, which call for policy consideration and possible action. That said, DeFi has some characteristics which are not compatible with existing regulatory frameworks, particularly given that current frameworks are often designed for a system that has financial intermediaries at its core, which is contrary to the very essence of DeFi.⁹⁷

86 <https://www.economist.com/business/2022/02/26/sea-group-faces-choppier-waters>

87 https://files.consumerfinance.gov/f/documents/cfpb_convergence-payments-commerce-implications-consumers_report_2022-08.pdf

88 <https://www.mastercard.com/news/press/2022/june/mastercard-to-secure-mercado-libre-crypto-ecosystem-in-brazil/>

89 <https://www.pymnts.com/study/super-app-shift-consumer-finance-shopping-connected-economy/>

90 <https://www.cmo.com.au/article/693157/commbank-in-app-personalised-shopping-launch-heralds-new-age-super-apps/>

91 <https://www.commbank.com.au/articles/newsroom/2022/05/cba-reimagining-banking.html>

92 <https://ark-invest.com/articles/analyst-research/social-commerce-the-next-wave-in-online-shopping/>

93 <https://techcrunch.com/2022/07/18/instagrams-buy-products-directly-dms/>

94 <https://techcrunch.com/2022/08/29/meta-jiomart-whatsapp/>

95 <https://www.mas.gov.sg/news/media-releases/2022/mas-partners-the-industry-to-pilot-use-cases-in-digital-assets>

96 <https://www.economist.com/finance-and-economics/the-race-to-power-the-defi-ecosystem-is-on/21807229>

97 <https://www.oecd.org/daf/fin/financial-markets/Why-Decentralised-Finance-DeFi-Matters-and-the-Policy-Implications.pdf>

- The crypto sector's total market capitalisation grew by 187.5% in 2021⁹⁸ and as of February 2022, the total market capitalisation of crypto assets in the EU had "increased eightfold over the last two years to around EUR 1.5 trillion" suggesting "crypto assets are gaining mainstream acceptability".⁹⁹ However, acknowledging the volatility of crypto assets, The Economist notes that in May 2022 \$200 billion was wiped off the value of crypto assets within several hours.¹⁰⁰
- In the US, the Department of Justice established a National Cryptocurrency Enforcement Team (NCET). The NCET is charged with undertaking complex investigations and prosecutions of criminal misuses of cryptocurrency, with a focus on virtual currency exchanges and money laundering infrastructures.¹⁰¹ The first Director of the NCET was appointed in February 2022.
- TESOBE's Open Banking Project released the results of their study 'Gauging Blockchain Readiness in Finance' that found "60% of respondents are looking forward to increased efficiencies and automated processes thanks to blockchain", 45% were "convinced blockchain would help banks create new streams of revenue" and "38% of respondents say they have developed a blockchain strategy and are implementing it".¹⁰²
- Banks' attitudes towards cryptocurrencies are also changing. Australia's Commonwealth Bank will offer the ability to buy, sell and hold crypto assets using the CommBank app¹⁰³, Citigroup have created 100 roles to focus on digital assets¹⁰⁴, and Citi have also joined with BNY Mellon and Wells Fargo to invest in Talos, a US developer of cryptocurrency trading technology.¹⁰⁵
- In their Annual Economic Report 2022, the Bank for International Settlements (BIS) commented on the structural flaws of crypto and the need for stablecoins to leverage the credibility of fiat money stating "only the central bank can provide the nominal anchor that crypto craves" as well as the function of money to work as a unit of account and medium of exchange. However, the BIS also discussed crypto's "galvanising role in debates on the shape of things to come", that "in spite of its well documented flaws, crypto offers a tantalising glimpse of potentially useful technical features that could enhance the capabilities of the current monetary system. Notable examples include composability and automatic execution, which represent features with a potential to deliver instantaneous settlement of transactions and transform the efficiency of economic arrangements".¹⁰⁶

Central bank digital currencies

- The number of countries exploring CBDCs have grown from 35 in 2020 to 110 in 2022. There are now 41 countries that are either developing or testing CBDCs and 11 countries that have launched a CBDC with the majority of those countries having launched a CBDC being members of the Eastern Caribbean Currency Union.¹⁰⁷
- The BIS shared their vision for the future monetary system in their 2022 Annual Economic Report, of which CBDCs were a key component. In the report, the BIS discussed the role of CBDCs in creating a more open system, leading to greater competition and unlocking innovation, and how retail CBDCs could perform a similar role to fast payment systems.¹⁰⁸
- The BIS have also released the results of their latest survey on CBDCs which found more than 70% of central banks investigating CBDCs were considering a two-tiered model. Central banks felt the role of private banks could be to provide onboarding services including KYC and AML checks, handling retail payments, and recording retail transactions. However, a quarter of all responding institutions who are looking into a retail CBDC said there may be no role for private banks.¹⁰⁹

98 <https://www.weforum.org/agenda/2022/01/top-cryptocurrencies-performance-2021/>

99 https://www.esma.europa.eu/sites/default/files/library/esma50-164-5533_keynote_speech_-_verena_ross_-_keeping_on_track_in_an_evolutionary_digital_world.pdf

100 <https://www.economist.com/graphic-detail/2022/05/20/why-the-crypto-crash-hit-black-americans-hard>

101 <https://www.justice.gov/opa/pr/deputy-attorney-general-lisa-o-monaco-announces-national-cryptocurrency-enforcement-team>

102 <https://www.openbankproject.com/reports/blockchain-in-finance-2022/>

103 <https://www.canstar.com.au/cryptocurrency/cba-app-crypto-trading/>

104 <https://www.reuters.com/markets/us/citigroup-create-100-roles-digital-asset-push-2021-11-23/>

105 <https://www.ft.com/content/2119ee69-e5d9-41ac-b443-3f74a14e73e8>

106 <https://www.bis.org/publ/arpdf/ar2022e.htm>

107 <https://www.atlanticcouncil.org/cbdctracker/>

108 <https://www.bis.org/publ/arpdf/ar2022e.htm>

109 <https://www.bis.org/publ/bppdf/bispap125.htm>

- The Reserve Bank of Australia have launched a joint project with the Digital Finance Cooperative Research Centre to explore CBDC use cases and economic benefits of a CBDC, stating little work has been done in the area for countries with modern payment systems and highly banked populations.¹¹⁰
- To help expand usage of its digital yuan, China's central bank has launched a pilot version of a digital wallet app available on China's Android app stores and Apple's app store.¹¹¹
- In January 2022, the US Federal Reserve released a consultation paper on CBDCs that sought feedback on the benefits and risks of a CBDC as well as design and policy considerations. Given the role of the US dollar as the world's reserve currency, a US dollar CBDC is an important development which the paper noted could "preserve the dominant international role of the US dollar".¹¹² In a recent report, the US Treasury has recommended advancing work on a CBDC and discussed potential design choices and policy considerations.¹¹³
- Also in the US, banking associations and organisations have shared their reservations in relation to CBDCs. The Clearing House noted a CBDC could damage the banking industry as well as the economy, that the benefits of a digital dollar could be provided by services that banks already provide or are working on, and that fears over sovereignty are unnecessary.¹¹⁴ The Bank Policy Institute also argued a CBDC could "undermine the commercial banking system in the US and severely constrict the availability of credit to the economy"¹¹⁵ and the American Banking Association stated a "CBDC is not necessary to "digitise the dollar," as the dollar is largely digital today" and that "the main policy obstacle to developing, deploying, and maintaining a CBDC in the real economy is the lack of compelling use cases where CBDC delivers benefits above those available from other existing options".¹¹⁶
- The Institute of International Finance responded to the European Commission's consultation on CBDCs. Caution was urged, noting that "before determinations are made about key design choices or on the larger question of whether to proceed with issuing a CBDC, there should be a quantitative and qualitative impact assessment by the European Commission and/or European Central Bank" and that the assessment should model "a range of possible designs for a retail CBDC; a range of mitigants against identified risks (including systemic risk); and the effects of those designs and mitigants on the financial system's ability to service the real economy".¹¹⁷
- Public sentiment towards CBDCs could also be a stumbling block for the European Commission in introducing a retail CBDC. Public feedback to their consultation found EU citizens are largely opposed to a digital euro, arguing privacy, government control and questioning demand if private organisations already offered digital alternatives as reasons not to proceed.¹¹⁸

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. Digital innovation is expanding the frontier of technological possibilities.
2. The paradigm shift to digital platforms which host an increasingly broad range of offerings are delivered in a way that achieves superior user experience and engagement.
3. Central banks' desire to remain relevant in a rapidly moving financial ecosystem, to improve financial inclusion and to maintain monetary sovereignty.

110 <https://www.itnews.com.au/news/digital-finance-cooperative-research-centre-officially-launches-584627>

111 <https://www.reuters.com/markets/currencies/china-cbank-launches-digital-yuan-wallet-apps-android-ios-2022-01-04/>

112 <https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf>

113 <https://home.treasury.gov/system/files/136/Future-of-Money-and-Payments.pdf>

114 <https://www.pymnts.com/cbdc/2022/the-clearing-house-digital-dollar-is-a-solution-in-search-of-a-problem/>

115 <https://bpi.com/wp-content/uploads/2022/05/BPI-Files-Comments-in-Response-to-Federal-Reserve-CBDC-Discussion-Paper.pdf>

116 <https://www.aba.com/advocacy/policy-analysis/aba-comments-on-fed-discussion-paper-money-and-payments#>

117 <https://www.iif.com/Publications/ID/4964/IIF-Responds-to-European-Commissions-Targeted-Consultation-on-a-Digital-Euro>

118 <https://coingeek.com/european-commission-receives-10000-comments-on-digital-euro-most-in-opposition/>

Theme 4



Security, privacy and trust are key issues

2022 theme conclusion

Security, privacy, and trust are increasingly the new pillars of the digital age. Successfully delivering these pillars is increasingly challenging as the number of connected devices and users grow, ecosystems become more complex, and traditional boundaries between organisations and systems become increasingly opaque.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. Regulators emphasising the role of cyber resilience to keep systems safe and secure.
2. A growth in the use of digital identity solutions.
3. Introduction of legislative and policy measures designed to raise the thresholds of privacy, sometimes with varying success.

Keeping systems safe and secure

- Digital interactions are surpassing physical ones at a growing rate. By 2024, it's predicted that just 39% of consumers globally expect their banking interactions to be with a human.¹¹⁹ The transition to a digital economy has put a focal point on trust and security for consumers and businesses equally. Movement restrictions introduced across the globe to combat the pandemic has led to an unprecedented increase in e-commerce, which has resulted in greater opportunities for and instances of fraud. According to statistic.com, e-commerce losses to online payment fraud were estimated at US\$20 billion globally in 2021. That is a growth of over 14% compared to the US\$17.5 billion recorded in the previous year.¹²⁰

- With an increase in technological innovation and adoption comes the rise of new risks. A report from TransUnion found that globally online fraud attempt rates for financial services rose 149% between Q4 of 2020 and Q1 of 2021 alone.¹²¹ Banks across the globe are actively exploring the use of artificial intelligence to enhance their anti-fraud systems to improve fraud detection by gaining a better understanding of customers' behaviours. Behaviour clarity allows banks to better identify and prevent fraudulent activity.¹²²
- Given the highly interconnected nature of the financial system, cyber threats are a significant structural vulnerability. In May 2021, South Africa's Cybercrimes and Cybersecurity Act was passed. The Act mandates electronic communications service providers and financial institutions to report cybersecurity violations to the South African Police Service within 72 hours of becoming aware of fraudulent activity. The Act also criminalises cyber fraud, extortion, forgery, the sending of harmful data messages and the unauthorised access of personal data, a data storage medium or computer system. Perpetrators face fines and prison sentences of up to 15 years.¹²³
- The need to deal with matters like security and trust highlights the need for increased collaboration among banks, payment providers and the public sector in preventing fraud and money laundering. Regrettably this is expected to involve trade-offs between cybersecurity measures and customer convenience.¹²⁴
- In June 2022, Canada's regulator of financial institutions, the Office of the Superintendent of Financial Institutions, moved the stakes forward with its final consultation response to Guideline B-13, "Technology and Cyber Risk Management". The development of Guideline B-13 responds to feedback received from its discussion paper on technology and related risks entitled Developing financial sector resilience in a digital world, published in 2020.¹²⁵

119 <https://www.csoonline.com/article/3659772/why-zero-trust-is-essential-for-protecting-financial-servicesorganisations- in-the-new-workforce.html>

120 <https://www.statista.com/statistics/1273177/e-commerce-payment-fraud-losses-globally/>

121 <https://www.telusinternational.com/articles/ai-fraud-detection-in-banks>

122 <https://www.qentelli.com/thought-leadership/insights/ai-powered-fraud-detection-banking-industry>

123 <https://www.michalsons.com/focus-areas/cybercrime-law-around-the-world/cybercrimes-act-south-africa>

124 <https://www.pwc.com/gx/en/financial-services/fs-2025/pwc-future-of-payments.pdf>

125 <https://www.osfi-bsif.gc.ca/eng/osfi-bsif/med/Pages/b13-nr.aspx>

- Also in June 2022, the Canadian government introduced Bill C-26, An Act Respecting Cyber Security (ARCS). ARCS would enact the Critical Cyber Systems Protection Act to address long-standing gaps in the Government's ability to protect the vital services and systems Canadians depend on. Banking and clearing and settlement systems fall within the ambit of the new regulatory regime.¹²⁶
- The European Commission has released proposed legislation for the European Cyber Resilience Act. The Act seeks to establish common cybersecurity rules for digital products and associated services that are placed on the market across the European Union. The Commission believes the focus on cybersecurity is justified due to the cross-border nature of the risks and the negative impact that a fragmented or purely Member-State-driven approach would have on the internal market.¹²⁷
- In 2021, the MAS and the US Treasury signed a memorandum of understanding on cyber security cooperation reflecting their common goals of maintaining strength and stability, as well as operational and cyber resilience in each country's economy and financial system.¹²⁸
- Strong and all-encompassing digital identity solutions that meet the needs of both organisations and consumers should underpin any digital strategy. This was reinforced by Gartner who named Citizen Digital Identity as a top ten government technology trend for 2021. Nordic countries have a high uptake across the population of citizens using digital identity to access online public services. Gartner says adoption of digital identity needs to be built around governance, technology, and user experience to ensure an effective working model.¹³³
- In June 2021, the European Commission recommended the development of a digital identity wallet that can be used across the EU by more than 80% of the EU population by 2030.¹³⁴ This is intended for all citizens, residents, and businesses in the EU. Citizens will be able to prove their identity and to share electronic documents with the click of a button on their phone, as well as have access to online services with their national digital identification.¹³⁵
- The European Commission intends to launch identity verification as part of its greater mission to achieve an Open Finance/Open Data economy.¹³⁶ In Denmark, NemID (now called MitID), the domestic digital identity system, is now reaching 100% adoption, which has enabled the government to make online access mandatory to public services in the country.¹³⁷

Growth in digital identity

- In today's modern, digitally connected era, digital identity is a prominent tool for remote identification and authentication.¹²⁹ Juniper Research believes mobile single-sign-on will be a large part of several digital identity platforms, with over 1 billion users by 2023; generating over \$5 billion in revenues that year.¹³⁰ According to McKinsey, solving the problem of digital identity could lead to a 3% increase in GDP by 2030.¹³¹ Governments worldwide have had to embrace this changing landscape and accept that robust digital identity is needed to boost security and foster trust.¹³²
- Canada's federal government has announced it is preparing for a public consultation on a framework for digital identity as part of its Digital Ambition 2022. The Digital Ambition sets out a strategic vision for the government of Canada to advance digital service delivery, cyber security, talent recruitment, and privacy. A federal digital identity program which integrates with pre-existing provincial platforms is an important part of advancing digital service delivery.¹³⁸

126 <https://www.canada.ca/en/public-safety-canada/news/2022/06/protecting-critical-cyber-systems.html>

127 https://ec.europa.eu/commission/presscorner/detail/en/IP_22_5374

128 <https://home.treasury.gov/news/press-releases/jy0331>

129 <https://www.paymentscardsandmobile.com/digital-id-infrastructure-is-key-as-payments-become-transparent/>

130 <https://www.juniperresearch.com/press/digital-id-platforms-to-be-used-by-5bn-people-2024>

131 <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Digital%20Identification%20A%20key%20to%20inclusive%20growth/MGI-Digital-identification-In-brief.pdf>

132 <https://www.version1.com/blog-the-rise-of-digital-identity-the-changing-landscape-of-digital-identity/>

133 <https://www.version1.com/blog-the-rise-of-digital-identity-the-changing-landscape-of-digital-identity/>

134 <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/identity/digital-identity-services/trends>

135 https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2663

136 <https://thepayers.com/interviews/the-growing-importance-of-digital-identity-verification-interview-withmark-heyman--1250126>

137 <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/identity/digital-identity-services/trends>

138 <https://www.canada.ca/en/government/system/digital-government/government-canada-digital-operations-strategic-plans/canada-digital-ambition.html>

- Integrated and shared digital identity initiatives are expected to accelerate to enable the payments industry to combat fraud on a global scale. Not only will this simplify the identity process and broaden the market to new and enhanced consumer experiences, but such initiatives will allow banks to further regulate data use by establishing KYC functions, and in turn boost consumer trust.¹³⁹
- Biometric multifactor authentication is an expanding area in the field of financial technology. Progress in this space has led to varying biometric automated recognition methods as well as developments in devising ways to fool these methods.¹⁴⁰ The global market for biometrics for banking and financial services estimated at US\$4.4 billion in the year 2020, is projected to reach a revised size of US\$8.9 billion by 2026, growing at a CAGR of 12.8% over the analysis period.¹⁴¹

Legislative and policy measures

- In Australia, the Attorney-General announced a review of the Privacy Act 1988 to ensure privacy settings empower consumers, protect their data and best serve the Australian economy. The review was announced as part of the government's response to the Australian Competition and Consumer Commission's Digital Platforms Inquiry. Simultaneously, the Privacy Legislation Amendment (Enhancing Online Privacy and Other Measures) Bill 2021 (the Online Privacy Bill) will give effect to the Australian government's commitment to strengthen the Privacy Act 1988. It enables the introduction of a binding Online Privacy Code for social media and certain other online platforms and increases penalties and enforcement measures.¹⁴²
- In late 2021, China's Personal Information Protection Law (PIPL) came into effect. The PIPL establishes the general principles of personal information processing and lays out a comprehensive set of rules regulating the full personal information processing life cycle. It applies to personal information processing not only in but also outside of China. The PIPL further provides a legal framework and high-level guidance for many specific personal information processing scenarios, such as exceptional processing without consent, cross-border data sharing, protective processing requirements for minors, and algorithm-based

decision-making. The PIPL innovatively offers rights for protecting the personal information of the deceased.¹⁴³

- India's long awaited Personal Data Protection Bill sought to empower Indian citizens with rights relating to their data. The Indian government withdrew the Bill following scrutiny from several privacy advocates and tech giants who feared the legislation could restrict how they managed sensitive information while giving government broad powers to access it. A new bill is expected to be tabled in its place, following a lengthy consultation period.¹⁴⁴ Given India is the world's second-largest digital market, a modern legislative framework relating to data and privacy is essential.
- The US Department of Commerce (National Telecommunications and Information Administration (NTIA)) hosted a range of consultations on personal data: privacy, equity, and civil rights. NTIA will also be soliciting written comments on the topics discussed in these sessions through a forthcoming Request for Comment. The data gathered through this process will be used to inform a report on the ways in which commercial data flows of personal information can lead to disparate impact and outcomes for marginalised or disadvantaged communities.¹⁴⁵

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. The proliferation of unprecedented cyber threats with the potential to undermine economic growth and public trust in the systems and technologies that are fundamental to the functioning of modern societies.
2. The need to deliver open, global, highly interoperable, reliable, and secure digital ecosystems to support future economic and social prosperity.

¹³⁹ <https://www.paymentscardsandmobile.com/digital-id-infrastructure-is-key-as-payments-become-transparent/>

¹⁴⁰ <https://q5id.com/blog/how-and-why-financial-institutions-are-using-biometric-authentication>

¹⁴¹ <https://www.prnewswire.com/news-releases/global-biometrics-for-banking-and-financial-services-market-report-2022-2026-regulatory-mandates-promote-adoption-biometrics-technology-in-banking-sector-301513133.html>

¹⁴² <https://www.ag.gov.au/rights-and-protections/privacy>

¹⁴³ <https://practiceguides.chambers.com/practice-guides/data-protection-privacy-2022/china/trends-and-developments>

¹⁴⁴ <https://techcrunch.com/2022/08/03/india-government-to-withdraw-personal-data-protection-bill/>

¹⁴⁵ <https://www.ntia.doc.gov/other-publication/2022/ntia-virtual-listening-sessions-personal-data-privacy-equity-and-civil-rights>

Theme 5



Nations are preparing for a digital future

2022 theme conclusion

Policy makers around the world have focused on the importance of ensuring digital infrastructures are in place to support ambitions to become a truly digital nation and to capitalise on opportunities to deliver a more sustainable, equitable and prosperous digital future. Payments are the engine room of economic activity, so modernising payment systems is going to be important in the ambitions of countries as they seek to become world class digital nations.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. The development of policy and regulatory frameworks to support digital development and to prepare for an increasingly digital future.
2. Governments developing strategies to attract tech investment and to develop talent, and corporates creating solutions to support a more digital world.
3. The realisation digital transformation can be designed from a citizen-first perspective to help improve inclusion.

Policy and regulatory frameworks

- The UK government have consulted on their Plan for Digital Regulation, which sets out how they will govern digital technologies as well as improve growth and innovation across the digital economy. The plan proposes three principles that should be considered when designing digital regulation. The principles are that: i) regulation should encourage innovation and minimise unnecessary burdens through an outcomes-focused approach, ii) minimise overlaps and gaps and consider links with existing frameworks, and iii) consider international obligations as well as the impact of regulations from other countries.¹⁴⁶
- Malaysia's national ambitions to be a digitally driven, high income nation and a regional leader in digital economy are set out in the Malaysia Digital Economy Blueprint. The Blueprint charts the trajectory of the digital economy's contribution to the Malaysian economy and builds the foundation to drive digitalisation across Malaysia including bridging the digital divide. Moving to digital payments and leveraging the role of data and data infrastructures in the country feature in the initiatives.¹⁴⁷
- Australia has launched its Digital Economy Strategy to ensure Australia remains on track to be a world-leading digital economy and society by 2030. Its ambition is for Australia to be characterised by thriving high growth industries, all businesses being digital businesses, all Australians having access to digital skills and technology, frictionless government service delivery, fit-for-purpose regulation building trust, and integrated data and technologies that make life easier. Accelerating the adoption of electronic invoicing and the roll out of the Consumer Data Right are two initiatives which provide foundations for the digital economy of the future.¹⁴⁸
- Singapore has signed a Digital Economy Agreement (DEA) with the UK. The DEA will open digital markets, including guaranteed tariff-free flow of digital content, provide guaranteed protections for personal data and intellectual property and cheaper trade through the adoption of digital trading systems. Among other things, the DEA will extend to cross-border electronic payments, cross-border data

¹⁴⁶ <https://www.gov.uk/government/publications/digital-regulation-driving-growth-and-unlocking-innovation/plan-for-digital-regulation-developing-an-outcomes-monitoring-framework#e-call-for-evidence-and-our-next-steps>

¹⁴⁷ <https://www.epu.gov.my/sites/default/files/2021-02/malaysia-digital-economy-blueprint.pdf>

¹⁴⁸ <https://digitaleconomy.pmc.gov.au/strategy/foreword.html>

flows, digital inclusion, digital identity cooperation, cyber security and a roadmap for HM Treasury and the MAS to revitalise the UK Singapore Fintech Bridge that was first established in 2016.¹⁴⁹

- To assist policy makers, the World Bank recently released a publication examining the opportunities and challenges related to digitalising the economies, societies and governments of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The report noted, among other things, that digital financial services could improve financial inclusion in South Asia, which accounts for more than 20% of the world's unbanked adults, and that regional cooperation on cross-border payment systems can enable greater access to markets, capital and innovation and help countries achieve development goals.¹⁵⁰

Investment in digital transformation

- Dubai have launched the Dubai Metaverse Strategy which aims to add \$4 billion to GDP and create over 40,000 jobs within five years by supporting metaverse education to develop talent and future skills.¹⁵¹
- The Ireland for Finance Strategy identifies technology and innovation as a key theme. Their Action Plan 2022 records the following five actions under the fintech and digital finance theme: i) implement the second phase of the Department of Finance's Fintech Steering Group, ii) develop educational resources to support consumers to engage with fintech, iii) develop the instech.ie insurtech hub, iv) deliver a programme of activities to support Irish-owned fintech companies' growth in international markets, and v) develop a coordinated programme of activities to raise Ireland's global visibility as a hub for fintech.¹⁵²

- In their series on European bank transformation, PwC raised investment in tech innovation as a key area for European banks to address to compete with big tech and fintechs. PwC suggested banks focus on developing digital platforms that are scalable and offer personalised digital services to customers¹⁵³ and warned big techs and fintechs are "enticing long-standing customers with the superior ease, convenience and functionality of their preference-based digital experiences".¹⁵⁴
- Recognising the global government cloud market could reach US\$71.2 billion by 2027¹⁵⁵, Microsoft and Google announced new products that will initially be offered in Europe to enable public sector data sovereignty. The Microsoft Cloud for Sovereignty will support "public sector customers to build and digitally transform workloads in the Microsoft Cloud while meeting their compliance, security and policy requirements". Microsoft is also working with other local partners to provide tailor-made clouds for local governments.¹⁵⁶ Meanwhile, Google's Sovereign Controls for Google Workspace provides "digital sovereignty capabilities for organisations, both in the public and private sector, to control, limit, and monitor transfers of data".¹⁵⁷

Improving inclusion by design

- In April 2022, The Aspen Institute and its partners wrote to the US Treasury to request a national financial inclusion strategy and Presidential Commission "to ensure that emerging technologies are designed in an inclusive and equitable manner with proper consumer protections in place". The Institute argued "as our economy becomes increasingly digitised, it is even more imperative that the new, technology-driven ways of storing, lending, saving, sending, and investing money are designed for inclusion from the start to address these persistent divides". Signatories include the American Fintech Council, the Bank Policy Institute, Citi, Mastercard, Visa, and Wells Fargo amongst others.¹⁵⁸

149 <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements/UKSDEA>

150 <https://openknowledge.worldbank.org/handle/10986/37230>

151 <https://www.prnewswire.com/il/news-releases/munich-based-metaverse-company-metayo-will-participate-in-dubais-metaverse-strategy-which-is-expected-to-bring-40-000-jobs-and-4-billion-to-the-economy-within-5-years-301594256.html>

152 <https://www.gov.ie/en/publication/8eac2-ireland-for-finance-action-plan-2022/>

153 <https://www.strategyand.pwc.com/de/en/industries/financial-services/transforming-eu-banks.html>

154 <https://www.strategyand.pwc.com/de/en/industries/financial-services/transforming-eu-banks/tech.html>

155 <https://www.imarcgroup.com/government-cloud-market>

156 <https://blogs.microsoft.com/blog/2022/07/19/microsoft-cloud-for-sovereignty-the-most-flexible-and-comprehensive-solution-for-digital-sovereignty/>

157 <https://cloud.google.com/blog/products/workspace/announcing-sovereign-controls-for-google-workspace>

158 <https://www.aspeninstitute.org/of-interest/aspen-and-partners-call-for-national-financial-inclusion-strategy/>

- In July, the United Nations Development Programme published their policy brief – Inclusive by Design – which emphasised the importance of approaching digital transformation in a whole-of-society way stating, “to build a more open, transparent and sustainable society, digital transformation must be intentionally inclusive, thoughtfully designed and implemented with people and human rights at the centre of all aspects”. The brief goes on to share ten practices to accelerate inclusive digital transformation which are divided into four categories: i) setting up for success, ii) investing in infrastructure, iii) investing in people, and iv) delivering human-centred services.¹⁵⁹
- Launched in 2022 under the umbrella of the EDISON Alliance, the Digital Inclusion Navigator is a new tool to share best practices in expanding digital inclusion. Its initial focus is on the role of digital services in healthcare, financial services, and education as well as expanding access to and use of digital connectivity and technologies. The Digital Inclusion Navigator resulted from a collaboration of the World Economic Forum, the UN Development Programme, and the Boston Consulting Group.¹⁶⁰
- A recent paper from the BIS interviewed nine central banks that are exploring retail CBDCs and found they view CBDCs as a “tool to promote financial inclusion if designed for this goal”. The nine central banks agreed two-tiered payment systems; facilitating enrolment and education on CBDCs; ensuring integration with existing payment instruments and interoperability with cross-border CBDC systems and government payment systems; and providing inexpensive CBDC payment services and API interfaces were critical design features to address barriers to financial inclusion.¹⁶¹ This thinking aligns with the RBNZ who noted they plan to “prioritise further work on how a CBDC can support inclusion and innovation” in the summary of responses to their three Future of Money issues papers.¹⁶²
- A 2022 joint project between Fair By Design and the University of Bristol examined the premium people on low incomes and in poverty pay for essential products and services. Examples of the poverty premium include using prepayment meters for gas and electricity and the use of non-standard billing methods. The project’s recommendations included the FCA having a new cross-cutting ‘must have regard’ to financial inclusion as part of its Regulatory Framework Review to ensure it considers financial inclusion across all its activities and the Payment Systems Regulator requiring inclusive payment methods, such as Request to Pay, to be available at an affordable price to utility providers.¹⁶³

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. A growing realisation of the economic benefits digital sectors can provide.
2. The drive towards a more sustainable, efficient, and productive economy that generates high-value employment, and which supports growth and inclusion.
3. A realisation by governments and innovators that digital technology can help improve the outcomes for marginalised communities.
4. An increasing reliance on digital technology as it becomes more entwined into our everyday lives.

¹⁵⁹ <https://www.undp.org/publications/inclusive-design-accelerating-digital-transformation-global-goals>

¹⁶⁰ <https://www.weforum.org/agenda/2022/05/digital-inclusion-navigator-help-close-digital-divide/>

¹⁶¹ <https://www.bis.org/fsi/publ/insights41.pdf>

¹⁶² <https://www.rbnz.govt.nz/-/media/project/sites/rbnz/files/consultations/future-of-money/future-of-money-summary-of-responses.pdf>

¹⁶³ https://fairbydesign.com/wp-content/uploads/2022/06/Local-poverty-premium-summary-report_v07-1.pdf

Theme 6



Financial services and payments regulation must navigate and respond to a broader and increasingly varied set of issues

2022 theme conclusion

In 2022, the regulatory perimeters continue to expand across the financial services and payments landscape, extending to a more varied set of issues including fairness and inclusion, climate and sustainability, cyber risk, digital assets and the conduct of institutions, as well as system stability and resilience.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in four areas:

1. A focus on improving inclusion and protecting vulnerable consumers.
2. The regulation of digital assets.
3. Steps to stem the power and influence of global technology platforms.
4. Modernising regulatory structures.

A focus on improving inclusion and protecting vulnerable consumers

- Many central banks are exploring retail CBDC design features that tackle specific barriers to financial inclusion, for instance through novel interfaces and offline payments. For instance, the Bank of Canada has researched the potential for dedicated universal access devices that individuals could use to securely store and transfer a CBDC. The Bank of Ghana has explored the use of existing mobile money agent networks and wearable devices. Through tiered CBDC wallets with simplified due diligence for users transacting in smaller values, central banks can reduce the cost of payment services to the

unbanked, thus fostering greater access to digital payments and financial services. By allowing new (non-bank) entities to offer CBDC wallets, they can also overcome the lack of trust in financial institutions that holds back many individuals in today's system.¹⁶⁴

- In their 2022-2025 Strategy, the FCA stated “a diverse and inclusive industry is central to achieving the outcomes we expect from financial services”, explaining sufficient diversity was needed for financial services firms to understand customer needs, deliver better customer outcomes, and reduce the risk of ‘groupthink’, which could lead to consumer harm.¹⁶⁵ Moving forward, the FCA plans to continue working with the industry to make financial services firms more diverse and inclusive, building on rules issued in April 2022 which require listed companies to meet diversity targets and disclose the representation of ethnic minorities and women on their boards and within executive management teams.¹⁶⁶
- The FCA has also confirmed it will bring in a new Consumer Duty that “will set higher and clearer standards of consumer protection across financial services and require firms to put their customers’ needs first”.¹⁶⁷ This followed communications from the FCA to Chief Executives to ensure the financial services sector serves customers, especially those who might struggle with their finances, given the rising cost of living in the UK. The FCA note that while the headline average inflation rate is at 9% and rising, the Institute of Fiscal Studies estimates that the poorest households may face average inflation rates as high as 14%. This is in the context of 27% of the population having low financial resilience, a figure likely to increase over the coming months.¹⁶⁸
- In the US, the CFPB has issued a report on the challenges faced by Americans in rural communities. The report highlights that many of these communities lack access to physical bank branches, are more likely to seek credit from non-banks, and face higher costs for credit as a result. Many rural consumers who have difficulty accessing traditional sources of credit may turn to pawnshops and

¹⁶⁴ <https://www.bis.org/publ/arpdf/ar2022e.htm>

¹⁶⁵ <https://www.fca.org.uk/publication/corporate/our-strategy-2022-25.pdf>

¹⁶⁶ <https://www.fca.org.uk/news/press-releases/fca-finalises-proposals-boost-disclosure-diversity-listed-company-boards-executive-committees>

¹⁶⁷ <https://www.fca.org.uk/news/press-releases/fca-consumer-duty-major-shift-financial-services>

¹⁶⁸ <https://www.fca.org.uk/publication/correspondence/dear-ceo-letter-rising-cost-of-living-acting-now-support-consumers.pdf>

payday lenders, whose extensions of credit are often costlier and can quickly put consumers on treadmills of increasing debt.¹⁶⁹

- The CFPB has also recently stressed the importance of financial companies safeguarding consumer data to prevent their customers from the risk of identity theft, fraud, and abuse. The CFPB is increasing its focus on potential misuse and abuse of personal financial data.¹⁷⁰

Regulating digital assets

- In September 2021, the People's Bank of China banned all cryptocurrency transactions, which has seen the prohibition of bitcoin and other cryptocurrencies.¹⁷¹ China unveiled trials of its CBDC, the e-CNY at the end of 2021. The e-CNY, still in its pilot stages, is currently being used in more than 20 cities throughout China. The e-CNY is a government sanctioned and controlled digital currency alternative, in an effort to mitigate fraud and money laundering.¹⁷²
- The EU have also moved to regulate crypto assets, reaching a provisional agreement on the Markets in Crypto-Assets (MiCA) Regulation in June 2022. The regulation applies across the EU, to crypto assets, crypto asset issuers and crypto asset service providers and aims to protect investors, maintain financial stability and address environmental concerns.¹⁷³
- In their 2022 Annual Economic Report, the BIS outlined four regulatory approaches they felt were needed to address risks crypto posed to the monetary system including that: i) crypto and DeFi should be regulated in a similar way to comparable financial activities, based on the principle "same activity, same risk, same rules", ii) crypto should comply with KYC and Financial Action Task Force (FATF) requirements, iii) digital asset advertising should be regulated to ensure adequate disclosures and to protect consumers from risky assets, and iv) regulators and central banks should have the ability to control the exposure of banks and non-banks in the crypto space to manage any risks to financial stability.¹⁷⁴

- In July, the BIS' Committee on Payments and Market Infrastructures and the International Organization of Securities Commissions also issued final guidance on stablecoin arrangements. The guidance confirmed "the Principles for Financial Market Infrastructures apply to systemically important stablecoin arrangements that transfer stablecoins" and "extends the international standards for payment, clearing and settlement systems to cover systemically important stablecoin arrangements".¹⁷⁵
- In October 2021, the FATF issued updated guidance for virtual assets (VAs) and virtual asset service providers (VASPs) intended to help countries and VASPs understand their AML/CFT obligations and how they can effectively comply with these requirements. The update provides additional guidance on six key areas including: i) the definition of VAs and VASPs, ii) applying the standards to stablecoins, iii) tools available to address ML/TF risks, iv) licensing and registration of VASPs, v) implementation of the travel rule, and vi) principles of information sharing amongst VASP supervisors.¹⁷⁶
- In August 2022, the United Nations Conference on Trade and Development released three policy briefs that discuss the risks cryptocurrencies present for developing countries and make recommendations to resolve those risks. Among others, recommendations include the implementation of a CBDC or fast payment system in order to fulfil the 'public good' aspect of cryptocurrencies without the threat to financial stability, banning regulated financial institutions from holding cryptocurrencies, and regulation including a global tax regulation and regulating advertising.¹⁷⁷
- GBBC Digital Finance, an industry association for the blockchain technology and digital assets sector, have called for further engagement with regulators and a co-regulatory model for risk mitigation and the implementation of DeFi regulation in their report "DeFi: Moving the Dialogue on Standards and Regulation Forward". The association confirmed their members support proportional and balanced regulation and raised the need for a standardised global regulatory and policy approach.¹⁷⁸

169 <https://www.consumerfinance.gov/about-us/newsroom/cfpb-releases-report-on-financial-challenges-facing-rural-communities/>

170 <https://www.consumerfinance.gov/about-us/newsroom/cfpb-takes-action-to-protect-the-public-from-shoddy-data-security-practices/>

171 <https://www.weforum.org/agenda/2022/01/what-s-behind-china-s-cryptocurrency-ban/>

172 <https://fortune.com/2022/01/04/crypto-banned-china-other-countries>

173 <https://www.cnbc.com/2022/06/30/eu-agrees-to-deal-on-landmark-mica-cryptocurrency-regulation.html>

174 <https://www.bis.org/publ/arpdf/ar2022e.htm>

175 <https://www.bis.org/press/p220713.htm>

176 <https://www.fatf-gafi.org/publications/fatfrecommendations/documents/guidance-rba-virtual-assets-2021.html>

177 <https://unctad.org/news/unctad-spells-out-actions-curb-cryptocurrencies-developing-countries>

178 https://www.gdf.io/wp-content/uploads/2022/07/DeFi-Report_26.07.22.pdf

- In the US, President Biden issued an Executive Order in March outlining a whole-of-government approach to managing the risks and opportunities presented by digital assets. Nine reports have been produced by government agencies that outline frameworks and policy recommendations to address the six key policy priorities for digital assets discussed in the Executive Order including: i) protecting consumers, investors and businesses, ii) mitigating risks to financial stability including developing a policy to address gaps in legislation, iii) mitigating risks caused by the unlawful use of digital assets, including working with allies in other jurisdictions to align frameworks and capabilities, iv) promoting leadership in digital asset technologies, v) promoting safe and accessible financial services, and vi) exploring opportunities to responsibly implement digital assets and CBDCs.¹⁷⁹
- In a recent blog post, economists from the Bank of England argued that if an open and decentralised metaverse grows, existing risks from cryptoassets may scale to have systemic financial stability consequences. They conclude an important step is for regulators to address risks from cryptoassets' use in the metaverse before they reach systemic status.¹⁸⁰
- Recognising the systemic risk posed by cryptocurrencies, the Financial Stability Board announced they will report to the G20 in October 2022 on regulatory and supervisory approaches to stablecoins and other crypto assets.¹⁸¹ In the UK HM Treasury has also consulted on a proposed approach to managing the failure of a systemic digital settlement asset firm.¹⁸²
- by the DMU as having “substantial and entrenched market power, in at least one digital activity” will be designated with Strategic Market Status and subject to an enforceable code of conduct.¹⁸³
- In Europe, the European Commission have agreed to adopt two acts – the Digital Markets Act (DMA) and the Digital Services Act (DSA) – as part of their digital strategy ‘A Europe Fit for the Digital Age’. The DMA aims to restrict the power of large tech platforms by establishing criteria to define them as ‘gatekeepers’ and, once defined, to force them to comply with ‘dos and don’ts to regulate their services or risk a fine. One requirement of the DMA will be for ‘gatekeeper’ platforms to be interoperable with smaller messaging platforms if requested so users of either platform could share messages and data.¹⁸⁴ Alternatively, the DSA establishes new consumer protection rules and introduces requirements for large tech platforms that provide services in the EU to remove illegal and harmful content, to trace businesses using their platforms to sell goods, and to prohibit any behaviours that manipulate users and their online behaviour.¹⁸⁵
- Also in Europe, telecommunications companies are seeking the support of policymakers to make big tech and video streaming companies contribute towards the cost of maintaining and upgrading network infrastructure and shared a statement from the European Commission that declared “all market players benefiting from the digital transformation [should] make a fair and proportionate contribution to the costs of public goods, services and infrastructures”. A similar case in South Korea recently ordered Netflix to pay for surges in traffic.¹⁸⁶

Stemming the power and influence of global technology platforms

- In May 2022, the FCA published the outcome of their joint consultation with the CMA on a new regulatory framework that aims to improve competition and unlock the growth potential of digital markets. Respondents supported the proposed role of the Digital Markets Unit (DMU) in promoting competition and introducing interventions to address “both the sources of market power and the economic harms that result from the exercise of market power”. The FCA also confirmed companies that are assessed
- In the UK, the Online Safety Bill has the potential to usher in a series of sweeping new obligations on search engines, social-media sites, forums, and video sites. The bill is designed to make Britain “the safest place in the world in which to use the internet”. If passed by Parliament the bill will impose a “duty of care” on tech firms, a concept that began in health-and-safety legislation for the workplace. The bill would confer new powers on the Office of Communications enabling them to act as the online safety regulator. This role will include overseeing and enforcing the new regulatory regime.¹⁸⁷

179 <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/16/fact-sheet-white-house-releases-first-ever-comprehensive-framework-for-responsible-development-of-digital-assets/>

180 <https://bankunderground.co.uk/2022/08/09/cryptoassets-the-metaverse-and-systemic-risk/>

181 <https://www.reuters.com/technology/global-financial-watchdog-step-up-crypto-regulation-2022-07-11/>

182 <https://www.gov.uk/government/consultations/managing-the-failure-of-systemic-digital-settlement-asset-including-stablecoin-firms>

183 <https://www.gov.uk/government/consultations/a-new-pro-competition-regime-for-digital-markets/outcome/a-new-pro-competition-regime-for-digital-markets-government-response-to-consultation#part-3-strategic-market-status>

184 <https://www.consilium.europa.eu/en/press/press-releases/2022/03/25/council-and-european-parliament-reach-agreement-on-the-digital-markets-act/>

185 https://ec.europa.eu/commission/presscorner/detail/en/IP_22_2545

186 <https://www.ft.com/content/2004d2df-c9c1-4876-bb56-4c42f80f4093>

187 <https://www.gov.uk/government/publications/online-safety-bill-supporting-documents/online-safety-bill-factsheet>

- In late 2021, the CFPB ordered six technology platforms offering payment services to turn over information about their products, plans and practices when it comes to payments. The orders were issued to Google, Apple, Facebook, Amazon, Square, and PayPal. The CFPB will also study the practices of Chinese platforms that offer payments services, such as WeChat Pay and Alipay. The investigation is part of CFPB's role in monitoring risks to consumers and to publish aggregated findings that are in the public interest.¹⁸⁸

Modernising regulatory structures

- The UK's FCA has, for the first time, published outcomes and performance metrics which they will use to measure progress and hold themselves more accountable. The FCA consider two types of outcomes - topline outcomes will enable the FCA to measure how they deliver their statutory objectives, and commitment outcomes will measure progress towards achieving the commitments detailed in their business plan. Each type of outcome will have three metrics that will be monitored and reported on.¹⁸⁹
- The post Brexit UK regulatory framework for financial services is starting to become clear in the new Financial Services and Markets Bill which aims to tailor the regulatory framework and rules to the UK, and to update the powers of the regulators. Among other things, the bill will bring stablecoins into the scope of regulation when used as a form of payment, enable technological innovation in financial services by allowing financial market infrastructure firms to explore new technologies in temporary pilot schemes, introduce measures that support financial inclusion by ensuring people across the UK can continue to access cash with ease and enhance protection for victims of authorised push payment scams.¹⁹⁰
- In July 2022, the UK Law Commission released a consultation that proposes several key areas where the law could be reformed to recognise and protect the rights of users and to maximise the potential of digital assets. The government requested the review to ensure legislation is dynamic, competitive, and flexible to accommodate digital assets as they evolve and aligns with goals for the UK to become a hub for cryptocurrency and digital assets.¹⁹¹

- In late 2021, the Australian Government released its response to the Review of the Australian Payments System led by Scott Farrell. The Australian Government response can be summarised under four pillars: i) enhancing governance and leadership; ii) production of a five year forward looking strategic plan; iii) modernising regulations and licensing framework for payments and iv) empowering consumers and businesses to deal with the evolving payments landscape and methods.¹⁹²
- Recognising the sharp acceleration in concerns over climate change in recent years, the Federal Reserve has begun to set out the financial stability risks arising from climate change, and how these risks can emerge as either shocks or vulnerabilities in the Federal Reserve's financial stability monitoring framework. The Federal Reserve has signalled that deeper analysis of the specific channels by which climate-related risks create hidden vulnerabilities in the financial sector will be an especially important topic for exploration and that over time these investments will increase policymakers' ability to monitor the relationship between climate change and financial stability.¹⁹³

Drivers of change

Our theme conclusion is underpinned by the following drivers of change:

1. A shift in societal norms with respect to regulation.
2. An awareness of the economic and societal benefits of improving financial inclusion.
3. Digital innovation necessitating new models of regulation and enabling legislation.
4. Growing calls for digital assets and global technology platforms to be controlled.

188 <https://www.consumerfinance.gov/about-us/newsroom/statement-regarding-the-cfpbs-inquiry-into-big-tech-payment-platforms/>

189 <https://www.fca.org.uk/data/fca-outcomes-metrics>

190 <https://bills.parliament.uk/bills/3326/publications>

191 <https://www.lawcom.gov.uk/project/digital-assets/>

192 <https://www2.deloitte.com/au/en/blog/financial-advisory-financial-services-blog/2022/payments-regulations-around-corner.html>

193 <https://www.federalreserve.gov/econres/notes/feds-notes/climate-change-and-financial-stability-20210319.htm>



Conclusion

Conclusion

It's now more than two years since the onset of a global pandemic fundamentally reshaped many aspects of our lives, certainly with respect to how we use digital technology. Changes to the way we send and receive payments has been an essential part of that reshaping. In our 2022 scan we have seen:

- A continued growth in real-time capabilities to the point where many jurisdictions are beginning to consider either replacing or modernising their established real-time services and real-time rails are being leveraged to enable innovations and value-added services. Real-time payments, and the use of rich data as part of the payment experience, have drastically altered consumer and business expectations.
- The rise of a consumer-centric open data ecosystem where the consumer is the gatekeeper of their own data.
- The extension of the technology frontier opening new contexts for payments and related services.
- A growing emphasis on the need for security, privacy, and trust in all aspects of our digital lives.
- More emphasis on the groundwork required to establish world-class digital nations with the objective of producing more inclusive, sustainable, and equitable societies.
- An expansion of the regulatory and policy perimeter to focus on matters of fairness and inclusion in addition to more conventional policy considerations like the resilience and stability of the financial system.

At a regional level there are some notable variations in how changes to the payment ecosystem are unfolding which reflect jurisdiction or region-specific considerations. For example, the super-app ecosystem is most developed in Asia and particularly China. Regulators and policy makers in higher income markets have stronger competition and consumer protection remits and are perhaps more likely to attempt to curb super-app growth in those markets.

Looking ahead, we expect Aotearoa's payments ecosystem will be influenced by the following factors:

- Stakeholder engagement on how best to introduce real-time capabilities and when that should occur. This has the potential to result in a more diverse range of organisations involved in payments and for a more open and increasingly competitive payments market to result.
- Steps to ensure digital transformation, markets and legislation are developed in an inclusive way to serve consumers that are currently underserved or excluded.
- Growing calls for global technology platforms and digital assets to be regulated as more regulation crosses borders and becomes extra-territorial.
- Legislation to empower consumers to determine how digital data about them is used.
- More digitally savvy consumers that embrace digital transformation and new payment methods at an accelerated pace.
- The development of digital infrastructures and policies to support ambitions to become a world-class digital nation.

Glossary

Bank for International Settlements (BIS) – established in 1930 the BIS is owned by 60 central banks and is headquartered in Basel, Switzerland. Its mission is to assist central banks in their pursuit of monetary and financial stability, to foster international cooperation in those areas and to act as a bank for central banks.

Bitcoin – a decentralised cryptocurrency without a central administrator.

Blockchain – a transaction ledger database that is shared by all parties participating in an established, distributed network of computers. It records and stores every transaction that occurs in the network, essentially eliminating the need for trusted third parties.

Buy Now Pay Later (BNPL) – a financing agreement that enables customers to make a purchase from a participating merchant and pay it off in instalments.

Central Bank Digital Currencies (CBDCs) - the digital form of a country's fiat currency. A CBDC is issued and regulated by a nation's monetary authority or central bank.

Centre for Economics and Business Research (CEBR) – UK economics consultancy that supplies independent economic forecasting and analysis to private firms and public organisations.

Consumer Financial Protection Bureau (CFPB) - an agency of the US government responsible for consumer protection in the financial sector.

Compound Annual Growth Rate (CAGR) - the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each period of the investment's life span.

Competition and Markets Authority (CMA) - the competition regulator in the UK. It is a non-ministerial government department, responsible for strengthening business competition and preventing and reducing anti-competitive activities.

Consumer Data Right (CDR) - a system that requires data holders to share data safely and securely with third parties following consent from the customer.

Cryptocurrencies – are digital currencies that use cryptography to secure the transactions and control the creation of new units. Cryptocurrencies are a subset of alternative currencies, or specifically of digital currencies.

Decentralised Finance (DeFi) - an emerging financial technology based on secure distributed ledgers like those used by cryptocurrencies.

European Commission – the executive of the European Union.

Financial Action Task Force (FATF) – an intergovernmental body established in 1989 to set standards and promote effective implementation of legal, regulatory and operational measures for combating money laundering, terrorist financing and other related threats to the integrity of the international financial system.

Financial Conduct Authority (FCA) – is the conduct regulator for 59,000 financial services firms and financial markets in the UK and the prudential regulator for over 18,000 of those firms.

Fintech – an abbreviation of financial technology. Fintech is a term which describes the intersection of financial services and technology and especially the use of technology to deliver innovation in financial services.

High Value Clearing System (HVCS) – governs large payments that cannot be reversed. The HVCS is commonly used for large value payments between corporate institutions and property settlements. The HVCS rules, standards and procedures set out how these types of transactions are made, including what payment information is required and the timeframes for completing the transaction. HVCS Participants use a dedicated SWIFT-based system between banks to settle these payments and interchange payment information between them.

Hong Kong Monetary Authority (HKMA) – the government authority in Hong Kong responsible for maintaining monetary and banking stability.

Ipsos MORI - was the name of a market research company based in London, England which is now known as Ipsos and continues as the UK arm of the global Ipsos group. It was formed by a merger of Ipsos UK and MORI in October 2005.

International Monetary Fund (IMF) - works to achieve sustainable growth and prosperity for all its 190 member countries, supporting economic policies that promote financial stability and monetary cooperation.

ISO20022 – a financial services messaging standard developed within the International Organisation for Standardisation. ISO20022 is a single common language for financial communications whatever the business domain, the communication network and the counterparty (other financial institutions, clients, suppliers and market infrastructures).

Monetary Authority of Singapore (MAS) – Singapore’s central bank and integrated financial regulator.

National Telecommunications and Information Administration (NTIA) – positioned within the US Department of Commerce, the NTIA is the executive branch agency responsible by law for advising the President on telecommunications and information policy issues.

New Payments Architecture (NPA) - the UK's new industry program of organising interbank payments.

New Payments Platform (NPP) - new infrastructure for Australia’s low- value payments. It provides Australian businesses and consumers with a fast, versatile, data-rich payments system for making their everyday payments.

Open Banking Implementation Entity (OBIE) - was created by the Competition and Markets Authority (CMA) to deliver the Application Programming Interfaces, data structures and security architectures that will enable developers to harness technology, making it easy and safe for individuals and small and medium enterprises to share the financial information held by their banks with third parties.

Participant - a Participant exchanges payments directly with other Participants in one or more of the four clearing systems run by Payments NZ.

Payments ecosystem – includes payment systems, payments products and people and organisations that make and receive payments and those people and organisations that are involved in payment adjacent activities.

Payments industry – refers to Participants, Members, API Standards Users, the Reserve Bank of New Zealand and other relevant stakeholders in the business of payments which will vary from time to time.

Payments NZ – includes the Company, Governance Committees and Management (officers and employees) Payments system – a payments system consists of the mechanisms – including the institutions, people, rules and technologies – that make the exchange of monetary value possible.

Payments System Regulator – regulator of the payments system in the UK.

Quick response (QR) codes – a type of two-dimensional barcode often used to provide access to information through a mobile phone.

Real-time payments (RTP) – payments that are initiated and settled almost instantly. Real-time payment systems typically allow 24x7x365 access, enabling consumers to make and receive payments every day of the year.

SWIFT – the Society for the Worldwide Interbank Financial Telecommunication is a co-operative organisation dedicated to the promotion and development of standardised global interactivity for financial transactions.

SWIFT gpi – a standard from SWIFT for handling cross-border payments that improves speed, traceability and transparency.

United Nations Conference on Trade and Development (UNCTAD) - an intergovernmental body established by the United Nations General Assembly to promote the interests of developing countries in world trade.

Virtual Asset Service Providers (VASP) – categorised by the Financial Action Task Force (FATF) as any institution that exchanges, holds, converts or sells virtual assets.

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