



paymentsnz

PAYMENTS DIRECTION

2019 Environmental Scan Report

Developments in the global
payments landscape

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Foreword

Welcome to our 2019 environmental scan. This is the third substantive scan we've released looking at global developments in the world of payments.

In the two years since our last scan, the global payments landscape has continued to transform at pace, and is showing no signs of slowing down. Payments innovation and developments are being shaped by wider global economic, social, and technological changes.

Our 2019 scan identifies the global trends and influences likely to impact the New Zealand payments ecosystem over the next decade. Most of what we're seeing continues to reinforce the themes identified in our 2017 scan, with some notable shifts in points of emphasis. For example, real-time payment capabilities are the new normal, rather than an emerging factor in payment innovation. Payment ecosystems have become far more open and inclusive, with a diverse number of voices seeking to have input into future payment system design. Policy makers around the world want consumers to have greater choice in how payments are made and received. And technology is enabling payments to be so integrated into our daily lives that the payment is now almost invisible from an end user perspective.

While payments are at the heart of much of the new innovation in fintech and banking, we've also seen a rise in concerns about payments security and, more broadly speaking, data security. There is a clear push for consumers to have greater control over their data and to have more say in who that data is shared with, and for what purpose.

Much of the work we facilitate, especially through our Payments Direction strategic initiative, is focused on identifying what needs to be done so industry can contribute to and prepare for the evolving future of payments. The findings in this scan reinforce that we're heading in the right direction. The recent launch of the Payments NZ API Centre™ puts the industry in step with worldwide trends for greater openness in banking and a more inclusive ecosystem.

We use these environmental scans to inform the work we do and the decisions we make. I hope you find this report as useful as we do, as you contemplate the future and what it means for your business.



Steve Wiggins

Chief Executive, Payments NZ



Introduction



Executive summary

This scan builds on our earlier work to identify the trends and influences likely to impact the New Zealand payment ecosystem over the next decade.

As in previous scans, we are seeing an ever-increasing pace of transformation across the payments industry. The transformation underway in payments is part of a much more general pattern of economic, social, and technological change evident in nearly all sectors of the economy. Consumers are increasingly mobile; they want their interactions and transactions to be completed seamlessly and instantaneously irrespective of the context. In many cases open systems and standardised frameworks and interfaces are critical to meeting those expectations.

This year's scan continues to support the themes we identified in our 2017 scan, with some notable shifts in points of emphasis:

- Meeting end user expectations for payments is now central to thinking about future payment system design.
- Faster, more mobile and more informative are now essential characteristics of payments.
- Real-time payment capabilities are the new norm.
- Invisible or autonomous payments are on the rise.
- Regulatory authorities, while still concerned about financial resilience, have a much wider set of touch points, in part because there are more regulatory and policy agencies with an interest in payments and related issues.

- Payment associations and allied bodies need to consider a widening group of issues, and an increasingly diverse group of interested end users, regulatory and policy stakeholders, as payments become ever more integrated into everyday interactions.
- Consumer experiences in domestic payments are increasingly setting expectations for how international payments should operate.
- There is a renewed appreciation of the debilitating impact cyber vulnerability could have on payment systems, instruments and end users.
- Finding the right balance between low friction user experiences and the safety and security of payments and payments data in an increasingly open ecosystem is now a more significant challenge.

The global picture in 2019 contains considerable nuance. There are marked regional differences in innovation pathways, payment preferences, infrastructure deployments, regulatory settings, and in the level of trust in financial institutions.

The trends which are playing out internationally are reflected in the following six themes which are central to our environmental scan.

2019 theme summary



Theme 1: Payments are increasingly continuous and international in orientation

The expectation payments will always be on, irrespective of payment scenario, geographic location, or the currency in question is central to thinking about future payment system design.

In 2019, this theme rests on developments in five key areas:

1. The continuing growth of 'the now economy' and the necessity to fulfil consumer need on a continuous basis has reinforced the importance of being able to make and receive payments any time, from anywhere and across borders.
2. Consumer experiences in domestic payments are increasingly setting expectations for how international payments should operate.
3. The use of common standards and solutions to democratise the payment experience.
4. Moves to integrate regional payment infrastructures to realise greater network effects.
5. Blockchain and distributed ledger use cases shifting from prototype to increasingly mainstream deployments.

Theme 2: Payments are increasingly faster, more mobile, more informative, less visible and better linked across the value chain

Faster, mobile and informative payments which are linked across the value chain are ever more regarded as essential future ecosystem characteristics. A new development in this theme for 2019 is the morphing of integrated payments into invisible or autonomous payments.

In 2019, this theme rests on developments in five key areas:

1. We are moving from integrated payments to a world where payments are almost 'invisible' from a consumer perspective because those payments are now autonomous or fully embedded in a broader sequence of activities or interactions.
2. The mass-movement towards real-time payment capabilities has rapidly gained momentum and is now central to consumer expectations about how payment systems should function.
3. A mobility ecosystem is beginning to emerge centred on increased consumer mobility and device availability.

4. Collaboration between ecosystem players to deliver greater impact along the value chain is taking place.
5. The ability to track payment flows end-to-end and in real time has become increasingly important.

Theme 3: Payments infrastructure refreshes and renewals are widespread

Global activity confirms the movement toward real time infrastructures and capabilities are a new norm as is a pattern of speeding up non-real-time payments. The adoption of the ISO 20022 messaging standard as part of legacy system replacements or new system developments is picking up pace.

In 2019, this theme rests on developments in three key areas:

1. An even greater focus on the need for real-time payment solutions.
2. Improvements to batch processing speeds and the timeliness of cross-border payments.
3. The integration of ISO 20022 messaging into payment infrastructure refreshes and renewals.

Theme 4: Financial services and payments regulation is expanding, and aiming to produce more inclusive and resilient systems

Following a period of intense focus on improving financial resilience, operational resilience is emerging as an area of focus among financial sector regulatory bodies. Additionally, the growth of the payment and fintech ecosystem and the potential impact of global technology platforms means a wider group of regulatory and policy agencies now have an interest in payments and related issues. These issues extend beyond competition and innovation mandates to inclusion, conduct, privacy and data rights. Regulation continues to have impacts across borders and jurisdictions. One frequently cited example is the European Union's General Data Protection Regulation. A senior US representative from PwC noted that "no legislation rivals the potential global impact of the EU's General Data Protection Regulation...the new law will usher in cascading privacy demands that will require a renewed focus on data privacy for US companies that offer goods and services to EU citizens."¹

¹ <https://www.pwc.com/us/en/press-releases/2017/pwc-gdpr-compliance-press-release.html>

In 2019, this theme rests on developments in six key areas:

1. Open banking policy development and implementation.
2. Managing privacy in a digital context.
3. Renewed thinking about the impact of cyber vulnerability.
4. The need to settle on an appropriate regulatory model for fintech and global technology platforms.
5. Using competition to achieve consumer and end user outcomes.
6. Responding to calls for greater scrutiny of conduct.

Theme 5: Payments security and authentication is a key concern

The way we make and receive payments is evolving rapidly, as are the sources of threat to the safety and security of those payments. Finding the right balance between low friction user experience and the safety and security of payments in an ecosystem which is increasingly characterised by open technologies, collaborative relationships and partner dependent offerings is now a more significant challenge.²

In 2019, this theme rests on developments in three key areas:

1. Stepping up to meet consumers' expectations for data security. While much of the narrative on payment innovation is cast in terms of convenience and personalisation, consumers very much expect security in payments.
2. More nuance and sophistication in the debate over digital identity. Much of that nuance and sophistication is driven by a growing awareness that identity in a digital context rests on complex online data sets from which algorithms can draw inferences.
3. Deploying new technology to resolve customer and compliance pain points, especially around authentication and security procedures.

Theme 6: Payments associations face rising expectations

To maintain a position of relevance in the payment ecosystem of the future, payment associations and allied bodies need to consider an ever-widening group of issues and an increasingly broad group of stakeholders.

In 2019, this theme rests on developments in three key areas:

1. A more diverse group of relevant voices that need to be heard.
2. The need to balance diverse interests in a more complex ecosystem, where calls for fast, data rich, and open payment systems are rising.
3. Payment associations broadening their reach beyond the boundaries that might have previously defined their operations.

Transforming the way we make and receive payments

The six themes set out above are transforming the way we make and receive payments in New Zealand. The same is also true across the Tasman. In its recent consultation document The Australian Payments Council notes "Australian payment trends are part of a broader global evolution".³

Stepping back from the detail of the research that underpins our environmental scan, we consider the following factors will be important in shaping the domestic payment ecosystem of the future:

- Calls to meet end user expectations for greater speed, mobility and convenience in payments.
- The global shift to real-time capabilities, and market practices.
- A drive for greater cross-border integration to produce more interoperable and seamless business and consumer experiences across regions.
- Greater calls for more collaborative action to advance interoperability and to leverage common standards and to develop common strategic assets.
- The use of artificial intelligence and other data analytic tools to achieve supremacy in the analysis and use of data.
- Regulatory emphasis on open and transparent ecosystem governance, access, and consumer control over data.
- A rapidly rising need to safeguard payment systems and critical digital infrastructures from cyber risks.
- Global technology platforms with the scale and functionality to offer a new payment experience.

In the following sections, we explore each of the six themes mentioned above, looking at global activity and the factors that drive our theme conclusions for 2019.

2 <https://www.capgemini.com/wp-content/uploads/2018/12/Top-10-Trends-in-Payments-2019.pdf>

3 https://australianpaymentscouncil.com.au/wp-content/uploads/2019/01/Australian_Payments_Council_2019_Consultation.pdf



2019 Themes



Theme 1



Payments are increasingly continuous and international in orientation

2019 theme conclusion

The expectation payments will always be on, irrespective of payment scenario, geographic location, or the currency in question is central to thinking about future payment system design.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in five areas:

1. The continued growth of 'the now economy' and the necessity to fulfil consumer need on a continuous basis has reinforced the importance of being able to make payments any time, from anywhere and across borders.
2. Consumer experiences in domestic payments are increasingly setting expectations for how international payments should operate.
3. The use of common standards and solutions to democratise the payments experience.
4. Moves to integrate regional payment infrastructures to realise greater network effects.
5. Blockchain and distributed ledger use cases shifting from prototype to increasingly mainstream deployments.

Commerce is increasingly transcending geographies, time zones and currencies. End users expect little difference in their domestic and cross-border payment experiences. Common standards are being used to streamline and to remove friction from payments and to increase interoperability.

Previously emerging technologies, like distributed ledgers, are beginning to step into the mainstream.

The now economy

- The now economy is characterised by instant and highly individualised interactions and is revolutionising the way people consume, communicate, collaborate and engage in both their personal and professional lives. "The on-demand expectations of customers is no longer solely about the purchase and delivery of products and services. These expectations have permeated throughout all touchpoints of customers' experiences with brands, in particular customer service."⁴
- The rapid growth in voice enabled digital assistants has spurred the financial services industry to start incorporating voice functionality to improve the customer experience by developing applications on platforms such as Alexa and Siri.⁵ Banks have used the voice banking function for account balance enquiries, credit card payments, utility bill payments, and P2P payments.⁶ PayPal offers customers the ability to send money through Alexa.⁷
- Increasingly personalised payment and related interactions are also possible through some legacy banks. For example, via the Bank of America's digital financial assistant – Erica. Using Erica, customers can instantly send payments through Zelle (a bank-owned digital payment solution), pay bills, view credit scores, retrieve account or routing numbers, close down lost cards, and perform a number of other functions, all instantly through tap, voice, or text commands. Erica also supports capabilities such as sending a warning to customers if current spending patterns may take balances below zero.⁸
- Alphabet Inc's drone subsidiary has received FAA approval as an airline; a precursor to beginning to drone deliveries to consumers in the United States.⁹ Australia's Civil Aviation Authority recently gave approval for drone deliveries to commence in certain areas of Canberra, following a series of trials.¹⁰

4 <https://www.forbes.com/sites/bradbirnbaum/2019/07/10/great-expectations-what-businesses-need-to-know-about-customer-service-in-the-on-demand-economy/#18883ce238b8>

5 <https://gomedici.com/usage-of-voice-enabled-digital-assistants-in-financial-services>

6 <https://www.capitalone.com/applications/alexa/>

7 <https://www.amazon.com/PayPal/dp/B075764QCX>

8 <https://www.fool.com/investing/2019/06/03/what-bank-of-americas-digital-assistant-tells-us-a.aspx>

9 <https://www.bloomberg.com/news/articles/2019-04-23/alphabet-s-drone-delivery-business-cleared-for-takeoff-by-faa>

10 <https://www.casa.gov.au/drones/industry-initiatives/drone-delivery-systems>

- Fitbit Pay can now be used across seven open and closed loop transit systems in locations across Canada, London, Taiwan, the United States and Australia. Fitbit recently confirmed that Fitbit Pay will be a part of the Metropolitan Transportation Authority's One Metro New York contactless fare payment pilot program.¹¹

Consumer experiences

- Improvements in domestic payments in terms of speed and availability are starting to shape expectations about how cross-border payments should operate. "If people value real-time payments experiences domestically, there is reason to believe they will value them in an international context as well."¹²
- Examples of the types of service expectations held by customers in cross-border payments include reliable payments delivery, access to preferred payments methods and the ability to schedule payments based on favourable exchange rates, which they can track.¹³
- Cross-border payments growth is likely to be driven by customer experience considerations, integration of global payment capabilities into user solutions and standardised or interoperable payment solutions across markets.

Common standards and solutions

- Common standards centred around SWIFT gpi, ISO 20022, Quick Response (QR) codes and Application Programming Interfaces (APIs) are being used to increase efficiency and improve interoperability. The emergence of QR code payment standards has been a strong trend, particularly in Asia where there is a significant body of work underway to standardise codes to support additional payment use cases and to remove friction for both consumers and merchants.

- Financial institutions around the world are converging around SWIFT's gpi. That solution has been adopted by over 3,500 financial institutions worldwide. More than half of SWIFT's cross-border flows are on SWIFT gpi, with universal adoption among SWIFT's 11,000 members expected at the end of 2020.¹⁴
- SWIFT recently announced plans to cease ongoing support of some categories of MT messages used in cross-border and correspondent banking payments. A transition plan will see applicable categories of MTs migrated to the ISO 20022 standard from November 2025.¹⁵
- The Hong Kong Monetary Authority has announced the Common QR Code Standard for Retail Payments together with the launch of an associated mobile application tool.¹⁶ Singapore has launched a single unified QR code that combines multiple e-payment solutions into one.¹⁷ Closer to home, Australia's New Payments Platform (NPP) announced they are developing a QR code standard for NPP payments.¹⁸
- The increasing speed of innovation is challenging standardisation mandates; this puts pressure on global infrastructure players to create connections across "various (external) infrastructures, communications standards and payment rails".¹⁹ APIs have an important role to play in this regard, as well as being deployed to broaden ecosystem participation.
- Seven of the largest Austrian banking groups are using APIs in the context of a common reporting platform developed with a regtech provider bank of Austria.²⁰ Australia's NPP has announced its own API framework to improve standardisation and interoperability and to expand its ecosystem to third parties.²¹
- Payments NZ recently launched its API Centre; enabling banks and third parties to access common payment related API standards.²²

11 <https://finance.yahoo.com/news/fitbit-users-now-fitbit-pay-130000112.html>

12 A vision for the future of cross border payments, McKinsey & Company, and SWIFT, October 2018, page 6

13 A vision for the future of cross border payments, McKinsey & Company, and SWIFT, October 2018, page 7

14 <https://www.instapay.today/insight/raising-the-bar-in-cross-border-payments/>

15 <https://www.finextra.com/newsarticle/33659/rba-consults-on-iso-20022-migration-plan>

16 <https://www.hkma.gov.hk/eng/key-information/press-5releases/2018/20180917-3.shtml>

17 <https://www.mas.gov.sg/news/media-releases/2018/singapore-introduces-worlds-first-unified-payment-qr-code>

18 https://www.nppa.com.au/wp-content/uploads/2019/05/NPP-Presentation_Stone-and-Chalk-Masterclass_Publish-Version.pdf

19 A vision for the future of cross border payments, McKinsey & Company, and SWIFT, October 2018, page 9

20 <https://www.esma.europa.eu/search/site/50-165-632>

21 <https://www.nppa.com.au/response-to-the-rbas-npp-functionality-and-access-consultation-conclusions-paper/>

22 <https://www.apicentre.paymentsnz.co.nz/about/>

Integration of regional payment infrastructures and allied systems and processes

- Regional arrangements, especially in ASEAN countries and Europe, are being pursued to improve the timeliness, convenience and information content of payments. These are highly developed and, in some instances, extend to the integration of payment infrastructures. In contrast New Zealand and Australia are at a much earlier stage of development in relation to improving trans-Tasman payment and related experiences.
- Countries in the ASEAN group have been assessing the merits of a harmonised interoperable regional payment system. Achieving such an outcome would overcome the problem that “the current ASEAN cross-border payments landscape is fragmented with numerous competitors (with distinct standards and systems) trying to capture transaction volume.”²³
- The link between PayNow in Singapore and PromptPay in Thailand provides real-time payment functionality between banks in both countries.²⁴
- Regulatory settings in the European Union have allowed approvals for money transfer offerings to be passported across EU countries. This feature has encouraged many cross-border payments start-ups, such as WorldRemit and TransferWise in the UK, to expand into neighbouring European countries.²⁵
- To facilitate trade growth and to improve payment experiences, Project 27 aims to enable national and cross-border real-time payments in all Nordic currencies for the 27 million people who live in that region.²⁶
- The Australian and New Zealand Prime Ministers have released a joint commitment to trans-Tasman cooperation on digital financial services, open banking and payment practices. Both Australia and New Zealand have been working on initiatives to support greater interoperability across a single digital economic market.²⁷

Blockchain & distributed ledgers

- Blockchain and distributed ledger technology is steadily supporting increasingly mainstream use cases. In parallel, some regulatory and policy making bodies have expressed a degree of disquiet about widespread use of this technology.²⁸
- BNY Mellon recently used blockchain technology to fulfil a business continuity use case for a backup solution for the settlement of US government bonds.²⁹ In mid-2018 Alipay and GCash launched an e-wallet cross-border real-time remittance service between Hong Kong and the Philippines, which applies blockchain technology to streamline the remittance process.³⁰
- IBM has combined APIs, distributed ledger technology and digital assets to launch World Wire. Branded as a new payment rail World Wire has the potential to simplify cross border transactions and to allow the integration of payment messages.³¹
- Facebook recently announced plans for a new decentralised blockchain, a low volatility cryptocurrency and a smart contract platform (Libra). Among other things, those plans are based on a belief that the global, open, instant and low-cost movement of money will create immense economic opportunity across the world.³²

Drivers of change

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

1. An increasingly connected system of global personal and commercial relationships.
2. A growing realisation of the benefits of using standards and integration to ensure interoperability and to leverage network effects.
3. The progressive shift towards the mainstream by what were previously emerging technologies, especially distributed ledgers.

23 <https://abs.org.sg/docs/library/asean-xbpin-public-report.pdf>

24 <https://www.opengovasia.com/singapore-striving-for-domestic-and-regional-e-payments-interconnectivity/>

25 Synergy and disruption: Ten trends shaping fintech, McKinsey & Company, December 2018, page 3

26 <https://www.project27.info/>

27 <https://www.nzbn.govt.nz/about-us/news/e-invoicing-moves-a-step-closer-for-new-zealand-businesses/>

28 <https://fortune.com/2019/07/16/facebook-libra-senate-banking-committee-hearing/>

29 <https://www.bnymellon.com/apac/en/our-thinking/leading-evolutionary-change-with-technology.jsp>

30 <https://www.businesswire.com/news/home/20180625005561/en/AlipayHK-GCash-Launch-Cross-Border-Remittance-Service-Powered>

31 <https://www.youtube.com/watch?v=fXgwpfvDm5E>

32 <https://libra.org/en-US/white-paper/>

Theme 2



Payments are increasingly faster, more mobile, more informative, less visible, and better linked across the value chain

2019 theme conclusion

Faster, mobile and informative payments which are linked across the value chain are ever more regarded as essential future ecosystem characteristics. A new development in this theme for 2019 is the morphing of integrated payments into invisible or autonomous payments.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in five areas:

1. We are moving from integrated payments to a world where payments are almost 'invisible' from a consumer perspective because those payments are now autonomous or fully embedded in a broader sequence of activities or interactions.
2. The mass-movement towards real-time payment capabilities has rapidly gained momentum and is now central to consumer expectations about how payment systems should function.
3. A mobility ecosystem is emerging and centres on increased consumer mobility and device availability.
4. Collaboration between ecosystem players to deliver greater impact along the value chain is taking place.
5. The ability to track payment flows end-to-end and in real time has become increasingly important.

End users (both retail and corporate) want payment experiences which are fast, friction free and transparent that they can conclude wherever they happen to be. Increasingly ecosystem players are required to work collaboratively to deliver on these expectations. In some jurisdictions, that collaboration has required regulator input in order to get or keep the wheels turning.

Invisible payments

- Research from the Australian Payments Network and AT Kearney notes "the most recent payments era has been a shift towards context-based payments, where the payment becomes incidental or invisible to the broader customer experience and the service being provided".³³
- Invisible payments will increasingly support checkout-free, in-store shopping experiences. Amazon's Go check out free store is a leading example of 'just go technology'.³⁴ Other retailers are building on Amazon's move into checkout-free experiences. UK supermarket chain, Tesco, is reported as developing an artificial-intelligence powered network of cameras and sensors to support checkout free shopping.³⁵
- The move towards invisible payments in some use cases will require consumers to modify their behaviour and belief systems. Consumers have become conditioned to see and therefore to trust payments. Forrester Research note reconditioning the mass market to transact invisibly will not be frictionless but expect this will begin to happen at scale by 2022.³⁶

33 https://www.auspaynet.com.au/sites/default/files/2018-12/Towards-an-Internet-of-Payments_Dec-2018.pdf

34 <https://www.amazon.com/b?ie=UTF8&node=16008589011>

35 <https://www.telegraph.co.uk/technology/2019/06/26/tesco-turns-cashierless-stores-competition-amazon-heats/>

36 <https://go.forrester.com/wp-content/uploads/2018/09/Forrester-Future-Of-Payments.pdf>

Faster³⁷

- While the move to fast payments is undeniable, there is still scope for debate around whether this means real time or whether it is use case dependent. A Vice President from Fiserv noted that “faster payments can mean same day; faster payments can be real time. Increasingly, I think you know the expectation around faster payment is real time. And some of it is dependent on that activity you’re doing,” which in turn boils down to use cases.³⁸
- The authors of the 2018 Flavors of Fast Report comment “as we move from fast payments, to faster, factors like customer perception of real time, should be considered. Consequently, faster payments do not need to be strictly real-time, immediate nor instant.”³⁹ The report also notes the rapid growth in faster payments schemes around the world – in 2014 there were 14 countries with live schemes, by 2017 there were 25 countries with live schemes. In 2018, at least 40 countries were live with faster payments schemes.⁴⁰
- Industry is increasingly exploring how it can maximise the value from new real time solutions. The Reserve Bank of Australia (RBA), with support from the Australian Competition and Consumer Commission, has completed consultation on the functionality of and access arrangements for the New Payments Platform (NPP). The RBA concludes the NPP is enabling functionality that largely addresses the gaps identified in its Strategic Review of Innovation. However, “it highlights the slow and uneven roll-out of NPP services by the major banks has been disappointing and that this has likely slowed the development of new functionality and contributed to stakeholder concerns about access to the NPP”. The RBA notes it will closely consider the case for regulation via standards mandating functionality or an access regime should the recommendations that emerge from its consultation not be acted on.⁴¹
- The European Commission is looking at ways of increasing bank usage of its new Target Instant Payments System, introduced in November 2018. The Commission’s Vice-President in charge of financial services commented that “we are reflecting on whether a stronger regulatory push would be needed to speed up this process”.⁴²
- Banco Central do Brasil, the Brazilian central bank, has announced guidelines for the Brazilian instant payments ecosystem. The bank will play a key role in the development of instant payments in Brazil, with a focus on creating necessary conditions for the development of an efficient, competitive, secure and inclusive ecosystem, able to accommodate all use cases.⁴³
- The Federal Reserve note “the development of payment and settlement services that are essentially real time and always available is a worldwide phenomenon.”⁴⁴ The Federal Reserve is consulting on developing a 24x7x365 real-time interbank settlement service and liquidity management tool to enable transfers between Federal Reserve accounts to support the settlement of faster payments, irrespective of who provides those services.⁴⁵ Financial institutions who have already invested in real time system capabilities are pushing back against the Federal Reserve’s move into this space.⁴⁶
- Non-traditional payments services providers are increasingly focused on how to better support the cash flow and working capital requirements of SMEs. Last year PayPal announced its “Funds Now” services which provides SMEs in the PayPal ecosystem with instant access to funds from completed sales.⁴⁷

Mobile

- Previously notable for its infrastructure of cards and terminals, mobile devices, such as smart watches, phones and even IoT enabled cars are increasingly dominating the payments initiation and acceptance space.⁴⁸

37 In our research, we observed the terms faster, instant, immediate and real time are often used interchangeably. The authors of the 2018 Flavors of Fast Report use the following definition of a faster payment “inter-bank fully electronic payment systems in which irrevocable funds are transferred from one bank account to another, and where confirmation back to the originator and receiver of the payment is available in one minute or less”. (FIS Flavors of Fast Report 2018 – a definition of fast)

38 <https://www.pymnts.com/news/faster-payments/2019/real-time-payment-rail-same-day-ach-fiserv/>

39 FIS Flavors of Fast, 2018 - a definition of fast

40 FIS Flavors of Fast, 2018 - welcome

41 <https://www.rba.gov.au/payments-and-infrastructure/new-payments-platform/functionality-and-access-report.html>

42 <https://www.reuters.com/article/us-ecb-payments-dombrovskis/eu-weighs-new-payment-rules-in-challenge-to-u-s-companies-idUSKCN1QF0SH>

43 <https://www.bcb.gov.br/en/pressdetail/2263/nota>

44 Federal Register, Vol 83 No. 221 Thursday November 15, 2018 “Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments, Request for Comments”

45 Federal Register, Vol 83 No. 221 Thursday November 15, 2018 “Potential Federal Reserve Actions to Support Interbank Settlement of Faster Payments, Request for Comments”

46 <https://www.politico.com/story/2019/07/19/big-banks-prepare-battle-fed-faster-payments-1605935>

47 <https://techcrunch.com/2018/09/11/paypal-debuts-funds-now-instant-payouts-for-sellers-on-its-platform/>

48 <https://www.cappgemini.com/wp-content/uploads/2018/12/Top-10-Trends-in-Payments-2019.pdf>

- Transactions initiated on smartphones and tablets continue to grow. A representative from WorldPay Inc notes “the latest innovations in device hardware, from voice recognition to facial scanning, are helping make payments more seamless and secure than ever before, prompting consumers to ditch desktop in favour of their smartphone or tablet.” Mobile commerce is growing at 16 percent annually in the UK alone.⁴⁹
- Increasing focus is being given to the rise of the mobility ecosystem and mobility as a service plays and the role of payments in that e.g. VISA and Sirius XM have combined forces to integrate a new in-vehicle payment solution into the driving experience.⁵⁰
- Concern is growing around the consequences of using mobile technology. Almost half (48 percent) of consumers believe their financial institutions have full or joint responsibility for ensuring that mobile devices used for banking are secure.⁵¹

Collaboration

- As the value chain lengthens, ecosystem players are increasingly aware of the need to be able to connect across disparate systems and technologies. APIs are becoming a cornerstone for doing this. “APIs act as collaborative glue within the new payments ecosystem”.⁵²
- In the United States the Financial Data Exchange was launched in late 2018 with a goal of unifying the leading financial institutions, fintechs and others around a common API standard and technical frameworks for data sharing across the entire financial industry.⁵³
- NACHA and its Payments Innovation Alliance, have announced a collaboration with the U.S. Faster Payments Council to further develop the Faster Payments Playbook, a co-branded educational and online decisioning platform to assist banks, credit unions and businesses to develop a faster payments strategy.⁵⁴
- The Reserve Bank of Australia (RBA) has identified the development of faster payments networks and fraud protection as two examples where

collaboration is required for the wider ecosystem to realise the full suite of available benefits. The RBA notes that “competition is important in payments. It delivers better customer experiences, more convenience and innovative products. But as with all networks, collaboration is also often required.”⁵⁵

- The Australian Payments Council has identified a range of potential new ideas for industry collaboration which they believe will offer the greatest strategic value. These ideas range from research into the impact of the decline of cash to the role of the payments system in achieving greater financial and social inclusion, along with research into the global and domestic dimensions of payment interoperability.⁵⁶

Tracking

- There is an increasing emphasis on the benefits of providing payment users with the tools and capabilities to determine the status of payment flows. SWIFT’s gpi initiative is probably the best functional example. Gpi provides the ability to track payments in real time. This allows participating banks to let their customers know when a payment is sent, where it is, and when it reaches the end recipient.⁵⁷ The inability to track payments, especially in the cross-border context, is a significant pain point for both customers and banks.

Drivers of change

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

1. Irrespective of the use case scenario, end users of payments expect convenient, fast, seamless and transparent end-to-end payment experiences.
2. An increased emphasis on collaboration. While competition in payments is vital to ensuring innovation, lower costs and good consumer outcomes, there is a need for collaboration in some of the common strategic assets to ensure the full suite of network effects are realised across the ecosystem.

49 <https://www.worldpay.com/global/about/media-centre/2018-11/global-m-commerce-to-take-over-desktop-shopping-by-2023>

50 <https://www.youtube.com/watch?v=8VDpqNh1FGQ&feature=youtu.be>

51 <https://home.kpmg/xx/en/home/insights/2019/03/trust-in-the-time-of-disruption.html>

52 <https://www.capgemini.com/wp-content/uploads/2018/12/Top-10-Trends-in-Payments-2019.pdf>

53 <https://financialdataexchange.org/blogs/news/financial-industry-unites-to-enhance-data-security-innovation-and-consumer-control>

54 <https://www.nacha.org/news/nachas-payments-innovation-alliance-and-us-faster-payments-council-collaborate-develop-faster>

55 <https://www.rba.gov.au/speeches/2019/sp-ag-2019-05-16.html>

56 Australian Payments Council 2019 Consultation, Payments in a global digital world, pages 17 to 19

57 <https://www.opengovasia.com/exclusive-moving-towards-faster-transparent-and-trackable-cross-border-payments/>

Theme 3



Payments infrastructure refreshes and renewals are widespread

2019 theme conclusion

Global activity confirms the movement toward real time infrastructures and capabilities is a new norm, as is a pattern of speeding up non-real-time payments. The adoption of ISO 20022 messaging standards as part of legacy system replacements or new system developments is picking up pace.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. An even greater focus on the need for real-time payment solutions.
2. Improvements to batch payment processing speeds and the timeliness of cross-border payments.
3. The integration of ISO 20022 messaging into payment infrastructure refreshes and renewals.

Technology has enabled an 'always on' environment where customers expect payments to be 24/7 and real-time. Payment system operators are looking for ways to respond; frequently through the deployment of new faster payment solutions. At the same time there is need to facilitate the transmission of richer, more comprehensive data. For this reason, ISO 20022 has gained in popularity as a messaging standard for payments due to its robust and flexible business model.

Real-time payment solutions

- Approaches to delivering real-time payment solutions vary as do their functional capabilities. The Reserve Bank of Australia played a significant role in establishing the broad direction of the industry's efforts in relation to the New Payments Platform (NPP). In the United States faster payment outcomes are being delivered by a mix of industry bodies and private sector operators (e.g. Zelle) against guidance set by the Federal Reserve's Faster Payments Task Force. In Hong Kong, the Faster Payment System (FPS) was introduced in 2018 by the Hong Kong Monetary Authority (HKMA) and is operated by Hong Kong Interbank Clearing Limited, a private company jointly owned by the HKMA and the Hong Kong Association of Banks.
- Australia's NPP went live in February 2018 and has been gradually increasing its volumes. While the volumes processed through the NPP are still small relative to the volumes in other retail payment systems, they are growing at least as quickly as some comparable overseas fast payment services when they were introduced, such as the UK's Faster Payments System and Sweden's SWISH. While many small financial institutions have participated in the NPP, the Reserve Bank of Australia has "been somewhat underwhelmed by the progress of some of the major banks. Some of them have been much slower to provide their customers with fast payment services. The majors have all taken different approaches to which functionality they will provide and which customers to bring on first."⁵⁸
- Hong Kong's FPS supports bank and stored value facility transactions, operates on 24x7 basis and supports payments in the Hong Kong dollar and the Renminbi.⁵⁹ The FPS is noteworthy as it also supports the use of mobile phone numbers, email addresses and QR codes.

⁵⁸ <https://www.rba.gov.au/speeches/2019/sp-ag-2019-05-16.html>

⁵⁹ <https://www.hkma.gov.hk/eng/key-information/press-releases/2018/20180917-3.shtml>

- In November 2018 The European Central Bank launched its Target Instant Payments Settlement (TIPS), a pan-eurozone instant payments system available to consumers and businesses across the 19 states in the eurozone. TIPS provides near real-time payments and aims to minimise the risk of fragmentation in the European retail payments market.⁶⁰
- In April 2018 InstaPay was launched in the Philippines. InstaPay is an electronic funds transfer service that allows customers to transfer funds almost instantly and supports a range of use cases, including P2P, P2B, B2B, G2P, and credit transfers in both mobile and internet banking environments.⁶¹
- In December 2018 Payments Canada revised aspects of its payments modernisation plan to reflect a clearer understanding of the scale and complexity of foundational program elements, and the time required for payment ecosystem members to participate in the modernisation journey. That revised plan shows the first release of Canada's new real-time payment system now scheduled to take place in 2020, with further releases in 2021 and 2022.⁶²
- In the United States, the Centre for Payments completed a 2019 survey of 700 financial institutions looking at how those institutions were implementing payments strategies and adopting faster payments. Eighty five percent of the respondents are either currently experiencing demand for faster payments or expect to within the next one to two years. Many of the survey respondents expressed concern they do not have the technology in place necessary to implement faster payments and that they are willing to look outside their core provider for products that will enable them to do so.⁶³

Speeding up batch payments

- NACHA's Same Day ACH builds upon existing next-day settlement functionality and provides a ubiquitous option for same-day processing and settlement of ACH transactions. Deployments so far have been a success. In the first quarter of 2019 there were 52.7 million Same Day ACH payments, up 24% from the same period in 2018. Further deployments are scheduled for later in 2019.⁶⁴

Timeliness of cross-border transactions

- While domestic payment networks have continued to benefit from considerable innovation and change, cross-border payments remain a point of considerable friction – despite being at the centre of enabling trade, investment and remittances. Commenting on a joint central bank study into new models for cross border payments, the Monetary Authority of Singapore notes “Payments infrastructure have rapidly improved over the last few years. Domestic transfers can now be completed almost instantly and at low cost. With this as an aspirational benchmark, there is a huge opportunity to improve cross-border payments. This collaborative effort by the central banks and financial institutions across the three jurisdictions helps us identify gaps and areas of improvements in cross-border payments and sets the foundation for further technical experimentation.”⁶⁵
- Using Australia's NPP, SWIFT and a group of banks from Australia, China, Singapore and Thailand successfully trialled the use of SWIFT's gpi solution to complete cross-border payments almost instantly, even when they involve a domestic settlement leg and non-gpi banks.⁶⁶
- In February 2019, at least 42% of cross-border payments using the SWIFT gpi solution involving a NZ bank and NZ bank account took end to end less than 30 minutes from the payer's account to the beneficiary's account.
- The Monetary Authority of Singapore, the Association of Banks in Singapore and the Thai Bankers Association have been jointly exploring the feasibility of a cross-border interoperability framework. That study showed that a pan-ASEAN regional payments rail is feasible and economically viable.⁶⁷

60 <https://www.ecb.europa.eu/paym/target/tips/html/index.en.html>

61 FIS Flavors of Fast, 2018, Live countries - Philippines

62 <https://modernization.payments.ca/the-plan/real-time-rail/>

63 <https://www.instapay.today/article/the-center-for-payments-announces-first-national-survey-results/>

64 <https://www.nacha.org/news/ach-network-continues-its-strong-growth-2019>

65 <https://www.mas.gov.sg/news/media-releases/2018/assessment-on-emerging-opportunities-for-digital-transformation-in-cross-border-payments>

66 <https://www.swift.com/news-events/press-releases/swift-trials-instant-cross-border-gpi-payments-through-tips>

67 <https://abs.org.sg/docs/library/asean-xbpin-public-report.pdf>

- The Bank of Canada and the Monetary Authority of Singapore have conducted a successful experiment on cross-border and cross-currency payments using central bank digital currencies. This was the first trial between two central banks and was designed to demonstrate the scope for efficiency and risk reduction in cross-border payments.⁶⁸
- Distributed ledger and allied technologies are being deployed to improve the speed of international remittance transactions. In 2018 Ripple announced financial institutions trialling the use of xRapid on the remittance corridor between the U.S. and Mexico, saw a savings of 40 to 70 percent. An average xRapid payment took just over two minutes, compared to today's average of two to three days when sending cross-border payments.⁶⁹
- In the United States the high value systems of Fedwire and CHIPS will begin migrating to ISO 20022 in 2020.⁷² This is a strategic initiative to adopt message formats based on a global standard to improve payment processing efficiency and to promote interoperability.
- The Eurosystem is consolidating the technical and functional aspects of TARGET2 (a RTGS system) and T2S (a securities settlement system). The new consolidated platform will be launched in November 2021, will operate on a RTGS basis, support the ISO 20022 message standard and will have the capacity to facilitate payments in several currencies, if so decided by the respective central bank.⁷³
- A study by the Association of Banks in Singapore and the Thai Bankers Association notes that to enable a new infrastructure to support cross border transactions in the ASEAN region a standard like ISO 20022 should be used to align with international standards and to allow for global connectivity.⁷⁴

ISO 20022 adoption

- Many of the expected benefits of ISO 20022 rest on uniform and universal adoption of the standard. Payment associations like NACHA, are providing tools and resources to assist with the transition to and implementation of the standard. The Australian Payments Council is working with the Reserve Bank of Australia on industry consultation efforts around a proposed transition to ISO 20022 in that jurisdiction.⁷⁰ Payments Canada has launched an ISO 20022 resource centre to assist with the transition to the new messaging standard. It has also heavily endorsed 20022 Labs as a vehicle for improving the understanding of and demand for ISO 20022 on which Payments Canada and its members can “build an innovative, world-leading payments value-chain”.⁷¹

Drivers of change

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

1. A clear demand for faster payment applications, with a bias towards real time systems and capabilities.
2. The need to ensure regional and global interoperability, centred around ISO 20022.

68 <http://www.mas.gov.sg/News-and-Publications/Media-Releases/2019/Central-Banks-of-Canada-and-Singapore-conduct-successful-experiment-for-cross-border-payments.aspx>

69 <https://www.ripple.com/insights/first-pilot-results-for-xrapid/>

70 <https://www.rba.gov.au/media-releases/2019/mr-19-09.html>

71 <https://20022labs.com/blog-post/iso-20022-a-global-movement-without-a-leader-until-now/>

72 https://www.theclearinghouse.org/advocacy/articles/2018/09/comment_letter_iso_20022_fedwire_09-04-2018

73 <https://www.ecb.europa.eu/paym/target/consolidation/html/index.en.html>

74 <https://abs.org.sg/docs/library/asean-xbpin-public-report.pdf>

Theme 4



Financial services and payments regulation is expanding, and aiming to produce more inclusive and resilient systems

2019 theme conclusion

Following a period of intense focus on improving financial resilience, operational resilience is emerging as an area of focus among financial sector regulatory bodies. Additionally, the growth of the payment and fintech ecosystem and the potential impact of global technology platforms means a wider group of regulatory and policy agencies now have an interest in payments and related issues. These issues extend beyond competition and innovation mandates to inclusion, conduct, privacy and data rights. Regulation continues to have impacts across borders and jurisdictions.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in six areas:

1. Open banking policy development and implementations.
2. Managing privacy in a digital context.
3. Renewed thinking about the impact of cyber vulnerability.
4. The need to settle on an appropriate regulatory model for fintech and global technology platforms.
5. Using competition to achieve consumer and end user outcomes.
6. Responding to calls for greater scrutiny of conduct.

Since our last full scan in 2017, open banking has become a topic of considerable emphasis. At this stage, given the different deployments around the globe it is not clear whether 'open banking' is an aspirational vision, a regulatory regime, a new business model or some combination of all three. As the ecosystem has grown a greater focus is being given to matters like data privacy, cyber vulnerability, regulation of fintech and global technology platforms, conduct and inclusivity.

Open banking

- Globally, regulators are looking towards greater openness in banking, frequently though not exclusively under the banner of 'open banking'. Legislation is sometimes used to achieve that outcome. There appears to be "a growing consensus among regulators that they want to inject more competition into their retail banking sectors, and that liberating customers' data is a way to achieve this."⁷⁵
- Open banking is a common development across many jurisdictions, but regulatory settings around open banking differ greatly. The United Kingdom and China are cited as two of the jurisdictions best placed to take advantage of open banking but have almost diametrically opposite regulatory and market settings.⁷⁶
- The open banking initiatives in the European Union and the United Kingdom are well advanced. A review of open banking in the United Kingdom has recently been completed looking at, among other things, what that deployment has delivered and what more is required to ensure its success.⁷⁷

⁷⁵ <https://www.gtlaw.com.au/insights/open-banking-regimes-across-globe#Australia>

⁷⁶ https://www.ey.com/en_gl/banking-capital-markets/ey-open-banking-opportunity-index-where-open-banking-is-set-to-thrive

⁷⁷ <https://www.openbanking.org.uk/wp-content/uploads/open-banking-report-150719.pdf>

- Australia's open banking deployment is structured around a 'Consumer Data Right'. The Australian regime will now involve a phased implementation approach centred around a pilot program with the big four banks to test the performance, reliability and security of the open banking system.⁷⁸ The Consumer Data Right legislation was recently passed by the Australian Parliament.⁷⁹
- The United States and New Zealand each have 'open banking like' initiatives underway and in both jurisdictions, these are industry led.
- PSD2 related regulation and initiatives continue to be rolled out in the European Union. For example, In January 2019, the European Banking Authority established a working group on APIs under PSD2. The working group is tasked with facilitating industry preparedness for the Regulatory Technical Standard on Strong Customer Authentication and Common and Secure Communication and to support the development of high-performing and customer-focused APIs under PSD2.⁸⁰
- Open banking is generating new revenue opportunities for some long-standing payment ecosystem players. For example, Mastercard has launched a range of new services to support banks and third parties in the open banking environment which leverage its core competencies as a scheme operator and partnerships curator.⁸¹
- In the United States the Senate Committee on Banking, Housing, and Urban Affairs is conducting hearings on "Privacy Rights and Data Collection in a Digital Economy".⁸⁴ Those hearings are in response to concerns over how personal information is being used by social media platforms, data companies and others that monetise consumer information, as well as the security of sensitive information held by a broad range of entities, including banks.⁸⁵
- In New Zealand, a Privacy Bill, to modernise and improve New Zealand's privacy laws, is set to replace the current Privacy Act 1993. At least one submission on the Bill has noted that New Zealand businesses are often required to comply with multiple privacy regimes in several different jurisdictions.

Cyber vulnerability

- The increased rate of digital transformation and a more complex ecosystem has increased the points of vulnerability to cyber-attack, both in respect of data and the underlying systems. Commenting on cybersecurity in their survey on consumer expectations and digital trust, KPMG observe that "an additional challenge that financial institutions face is that financial information and the trust ecosystem for consumers often includes third parties — product and service providers who capture and pass financial information through to complete transactions — and the complexity of this ecosystem is growing as open banking and other initiatives become mainstream."⁸⁶
- An increase in both the severity and number of cyber-attacks has caused regulatory bodies to focus on digital vulnerability. The three European Supervisory Authorities concluded that "cyber risks have become a significant and highly escalating threat to investor protection, the financial markets and their stability worldwide. They threaten data integrity and business continuity and are particularly dangerous because of their risk multiplier effect."⁸⁷

Privacy

- Europe's General Data Protection Regulation (GDPR) marked a significant moment in data protection and has had global impact. The Managing Partner at Gartner notes that "GDPR compliance is really just the starting gun in this process, and not the finish line."⁸²
- The GDPR will be complimented by the ePrivacy Regulation, which will update and transform the 2002 EU ePrivacy Directive into Europe-wide legally binding regulations on electronic communications, confidentiality and data protection. Together the GDPR and the ePrivacy Regulation will ensure uniformity across the bloc's data protection framework.⁸³

78 <http://ministers.treasury.gov.au/ministers/josh-frydenberg-2018/media-releases/consumer-data-right-rules-standards-timeline>

79 <https://www.dentons.com/en/insights/alerts/2019/august/8/australian-government-passes-consumer-data-right-legislation-on-1-august-2019>

80 <https://eba.europa.eu/-/eba-publishes-clarifications-to-a-third-set-of-issues-raised-by-its-working-group-on-apis-under-psd2>

81 <https://newsroom.mastercard.com/eu/press-releases/mastercard-unveils-solutions-to-underpin-open-banking-transformation/>

82 <https://www.gartner.com/en/newsroom/press-releases/2019-04-11-gartner-survey-shows-accelerating-privacy-regulation-returns-as-the-top-emerging-risk-worrying-organizations-in-1q19>

83 <https://www.cpmagazine.com/data-protection/how-big-companies-should-behave-under-europes-new-cookie-regulations/>

84 <https://www.banking.senate.gov/hearings/privacy-rights-and-data-collection-in-a-digital-economy>

85 Submission to the Justice Select Committee on the Privacy Amendment Bill, Westpac NZ Limited, 31 May 2018

86 <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/03/consumer-loss-barometer-2019.pdf>

87 Joint Committee Report on Risks and Vulnerabilities in the EU Financial System, April 2018

- Central banks are increasingly concerned with the possibility of a major cyber-attack on a financial institution or market infrastructure, such as the payment system. The Bank of Canada has been working with major banks and financial market infrastructures to improve coordination and information sharing, which is crucial for improving resilience.⁸⁸ The City of Baltimore recently fell victim to a ransomware attack that took down voicemail, email, a parking fines database, and a system used to pay water bills, property taxes and vehicle citations.⁸⁹
- The European Central Bank released the first Europe-wide framework for controlled and bespoke tests against cyber-attacks in the financial market. That framework is known as TIBER-EU (Threat Intelligence-based Ethical Red Teaming – EU). It is designed to deliver a harmonised European approach to determining resilience to cyber-attacks. The scope of the entities that fall within the framework is very wide, ranging from payment systems to credit rating agencies.⁹⁰
- The Financial Policy Committee of the Bank of England has announced it will be undertaking a cyber stress test in a hypothetical scenario where firms' IT systems supporting their payments function become unavailable.⁹¹
- There is emerging policy debate about the role of cash as a payment instrument that would remain operable in the event of a cyberattack or wholesale failure of the electricity network or internet infrastructure.⁹²
- The Monetary Authority of Singapore has launched a US\$30 million Cybersecurity Capabilities Grant to co-fund financial institutions' establishment of global or regional cybersecurity centres of excellence in Singapore.⁹³
- Through its Partnerships in Innovation and Technology Program, the Bank of Canada is working with private sector innovators to experiment with digital tools and technologies to, among other things, help detect potential cyber security threats to the Bank.⁹⁴
- When speaking at the Annual Nordic Cyber in Finance Conference, the Deputy Governor of the Central Bank of Iceland noted "it is vital that all financial system entities work together on all fronts – within and between countries – to identify and address vulnerabilities."⁹⁵

Regulation of fintech and global technology platforms

- The European Commission appears to favour solutions which curb the tendency for regulatory divergence across Europe. The European Commission recently noted "we also need to crack down on regulatory barriers between Member States, to have a genuine single market for fintech in Europe."⁹⁶
- The Bank for International Settlements recently commented in relation to global technology platforms that "public policy needs to build on a more comprehensive approach that draws on financial regulation, competition policy and data privacy regulation."⁹⁷ The Australian Payments Network and AT Kearney note the "capabilities and reach of these platforms are affecting competitive advantage in the payments industry".⁹⁸
- In its digital platform inquiry, The Australian Competition and Consumer Commission made 23 recommendations spanning competition law, consumer protection, media regulation and privacy law, reflecting the intersection of issues arising from the growth of digital platforms across the Australian economy. The principal focus of that inquiry was on the role of those platforms in the media and advertising, but also extended to issues relating to consumer choice, harm from online scams and the collection of payment (and other) data.⁹⁹

88 <https://www.bankofcanada.ca/2019/05/opening-statement-160519/>

89 <https://www.nytimes.com/2019/05/22/us/baltimore-ransomware.html?searchResultPosition=1>

90 <https://www.ecb.europa.eu/press/pr/date/2018/html/ecb.pr180502.en.html>

91 <https://www.bankofengland.co.uk/speech/2019/nick-strange-operational-risk-europe-conference>

92 <https://www.accesstocash.org.uk/media/final-report-final-web.pdf>

93 <https://www.businesstimes.com.sg/banking-finance/mas-unveils-s30m-grant-to-boost-singapore-financial-sectors-cybersecurity>

94 <https://www.bankofcanada.ca/research/partnerships-in-innovation-and-technology-pivot-program/>

95 https://www.cb.is/library/Skraarsafn---EN/Speeches/RS_Intro_Nordic_Cyber.pdf

96 https://ec.europa.eu/commission/commissioners/2014-2019/dombrovskis/announcements/vp-dombrovskis-speech-opening-3rd-annual-afore-fintech-conference_en

97 <https://www.bis.org/press/p190623.htm>

98 https://www.auspaynet.com.au/sites/default/files/2018-12/Towards-an-Internet-of-Payments_Dec-2018.pdf

99 <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>

- The People's Bank of China has been testing new regulations on five financial holding companies, including e-commerce giant Alibaba's fintech affiliate Ant Financial Services. This is part of a programme of increased supervision in recognition of the systemic risks these holding companies now pose.¹⁰⁰
- In January 2019, the UK Financial Conduct Authority launched its Global Financial Innovation Network (GFIN), in collaboration with a wide range of regulatory bodies from other jurisdictions as varied as Australia, Bermuda, Singapore and the United States. The GFIN is a collaborative knowledge sharing initiative with three primary functions. First, to act as a network of regulators to collaborate and share experience of innovation in respective markets, including emerging technologies and business models, and to provide accessible regulatory contact information for firms. Second to provide a forum for joint regtech work and collaborative knowledge sharing and lessons learned. Third to provide firms with an environment in which to trial cross-border solutions.¹⁰¹
- In June 2019 the UK Chancellor announced a "Treasury-led review of the payments landscape bringing together policymakers and regulators to make sure that our regulation and infrastructure keeps pace with the dizzying array of new payments models" and a major, long-term review into the future of the regulatory framework for financial services.¹⁰²
- Several US federal and state bodies have launched initiatives in support of fintech activities. In 2018 Arizona became the first state to create a regulatory sandbox to facilitate fintech innovation. The Commodity Futures Trading Commission (CFTC) created LabCFTC to encourage innovation and to become a more effective regulatory agency.¹⁰³
- In Australia, Volt Bank has become the first digital challenger bank to be granted a full banking licence by regulatory authorities. Volt has also launched a "digital co-creation community" known as Volt Labs, to allow customers to provide feedback and ideas about banking products.¹⁰⁴ The Monetary Authority of Singapore recently announced it planned to issue new digital bank licences with those licences available to non-bank entities.¹⁰⁵

Competition and consumer and end user outcomes

- For the past decade financial sector regulators have been heavily focused on issues of financial stability as a result of the disruptive impact of the GFC. Latterly they have also turned their focus to competition and inclusion. Additional regulatory and policy bodies have entered the policy debate about payments and related issues.
- The Reserve Bank of Australia has raised several points about competition in the debit card market in Australia. There are several issues in play. The first issue concerns any future proposals to remove eftpos from dual-network cards, meaning the card acceptance would be processed through the international schemes. The second issue concerns the movement towards payments using different form factors (such as wearables) and whether those new form factors were configured in a way to remove network choice.¹⁰⁶
- The Australian Productivity Commission was tasked with reviewing competition in the Australian Financial System. The Commission concluded, among other things, that the New Payments Platform requires a formal access regime. "This is an opportunity — before incumbency becomes cemented — to set up regulatory arrangements that will support substantial competition in services that all Australians use every day."¹⁰⁷ The Commission also recommended the ACCC should be tasked with promoting competition to ensure the interests of consumers are properly considered.
- In New Zealand, the Minister of Commerce and Consumer Affairs has clearly outlined his expectations on interchange fees or merchant service fees for credit cards and debit cards. The Minister acknowledges "...that interchange fees and merchant service fees have their place. However, I do not think further increases are in the interests of consumers or the wider economy. I have chosen not to go down the route of Australia or the European Union in respect of regulating interchange fees. However, that option remains very much on the table, particularly if I were to see fees increase again."¹⁰⁸

100 <https://www.reuters.com/article/us-china-cenbank-regulation/china-central-bank-tests-new-regulations-on-ant-financial-suning-com-idUSKCN1NA0TO>

101 <https://www.fca.org.uk/firms/global-financial-innovation-network>

102 <https://gov.uk/government/speeches/mansion-house-dinner-speech-2019-philip-hammond>

103 Practical Law Global Guide 2018: Fintech in the United States: Overview

104 <https://www.smh.com.au/business/banking-and-finance/volt-bank-first-neo-bank-to-get-full-banking-licence-20190122-p50sta.html>

105 MAS to Issue up to Five Digital Bank Licences, June 28, 2019

106 <https://www.rba.gov.au/speeches/2019/pdf/sp-ag-2019-05-16.pdf>

107 <https://www.pc.gov.au/inquiries/completed/financial-system/report>

108 <https://www.beehive.govt.nz/speech/speech-payments-nz-conference-26-june>

Conduct

- Conduct has become an issue for both technology platforms who are making inroads into financial services and for traditional financial services providers.
- Legislative, regulatory and policy bodies in mature markets are showing an increased interest in the behaviour of and incentives on technology platforms in the new digital economy; an economy where non-traditional payment platforms are on the rise.
- In its 2019 Annual Report the Bank for International Settlement's comments the idea "people's preferences are malleable and are subject to influence for commercial gain is not new. But the scope for such actions may be greater in the case of big techs, due to their command over much richer customer information and their integration into their customers' everyday life. Anecdotal evidence indeed suggests that big techs may be able to influence users' sentiment without the users themselves being aware of it".¹⁰⁹
- In Australia the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry released a series of wide-ranging recommendations to improve the conduct of banks and other significant financial sector entities. Some of the recommendations go directly to remuneration, governance and culture e.g. the Australian Prudential Regulatory Authority should aim to ensure sound management of misconduct, compliance and other non-financial risks in its supervision of bank remuneration systems.¹¹⁰
- Deloitte's 2018 work on consumer trust revealed 36% of the 2000+ Australian banking customers surveyed believe their bank has their best interests at heart, whereas only 21% believe banks in general have their customers' best interests at heart.¹¹¹ A recent Consumer NZ survey concluded that just 35% of respondents thought banks had their customers' best interests at heart.¹¹²

Drivers of change

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

1. A global push to give consumers greater control over their banking data.
2. A renewed appreciation for how cyber vulnerability could pose systemic risks.
3. The need to balance the regulation of fintechs with an enabling environment that facilitates their success.
4. The role of global technology platforms in payments and related issues and the awareness their activities span regulatory perimeters and geographic borders.
5. A renewed focus on the importance of achieving good consumer outcomes.

¹⁰⁹ <https://www.bis.org/publ/arpdf/ar2019e3.htm>

¹¹⁰ <https://www.afr.com/business/banking-and-finance/banking-royal-commission-key-recommendations-20190203-h1at2v>

¹¹¹ <https://www2.deloitte.com/au/en/pages/media-releases/articles/the-way-forward-rebuild-reputation-trust-291018.html>

¹¹² <https://www.newstalkzb.co.nz/on-air/heather-du-plessis-allan-drive/audio/roger-beaumont-banking-industry-dismisses-critical-survey/>

Theme 5



Payments security and authentication is a key concern

2019 theme conclusion

The way we make and receive payments is evolving rapidly, as are the sources of threat to the safety and security of those payments. Finding the right balance between a low friction user experience and the safety and security of payments in an ecosystem which is increasingly characterised by open technologies, collaborative relationships and partner dependent offerings is now a more significant challenge.

Scan of global activity and change trends

Introduction

A scan of global activity reveals developments in three areas:

1. Stepping up to meet consumers' expectations for data security. While much of the narrative on payments innovation is cast in terms of convenience and personalisation, consumers very much expect security in their payments experience.
2. More nuance and sophistication in the debate over digital identity.
3. Deploying new technology to resolve customer and compliance pain points.

While the payments modernisation debate has focused on the undeniable benefits from fast, low friction, and more convenient ways to make and receive payments through a wider range of providers, it is also critical payments remain safe and secure, especially given the new sources of threat that have emerged.

New technologies are being deployed to see if they can remove known pain points while ensuring the integrity of the payment and related processes. The debate over digital identity is rapidly evolving. "The ability to prove we are who we say we are will increasingly determine our opportunities to establish trust with each other and to carry out meaningful interactions in a digital economy."¹¹³

Data security & consumer expectations

- An increasingly sophisticated network of bad actors and advanced persistent threat groups have evolved cybercrime¹¹⁴ from attacks on credit cards, to attacks on-line banking to attacks on core bank payment and bank systems and now to interbank payment systems.¹¹⁵
- Data breaches at third party organisations remain a major source of information for fraudulent criminal activity in financial services and payments. Fraud is a persistent global problem. In the United Kingdom alone unauthorised financial fraud losses across payment cards, remote banking and cheques totalled £844.8 million in 2018, an increase of 16 per cent compared to 2017.¹¹⁶
- The broadening of the payment ecosystem and greater consumer uptake of third-party apps have increased the focus on data security. According to 2018 research by The Clearing House one-third of U.S. banking consumers use at least one fintech app. Nearly nine in ten consumers (89%) said they are concerned about data privacy and data sharing—and more than two-thirds (67%) are very or extremely concerned.¹¹⁷

¹¹³ http://www3.weforum.org/docs/WEF_INSIGHT_REPORT_Digital%20Identity.pdf

¹¹⁴ There is an international treaty on cybercrime (the Budapest Convention). That convention seeks to harmonise the domestic criminal substantive law elements in the area of cyber-crime via the internet. The treaty defines the following acts as offences - illegal access, illegal interception, data interference, system interference, misuse of devices, computer-related forgery, computer-related fraud, offences related to child pornography, and offences related to copyright and neighbouring rights

¹¹⁵ <https://carnegieendowment.org/2019/03/25/cyber-threat-landscape-confronting-challenges-to-financial-system-pub-78506>

¹¹⁶ Fraud the Facts 2019, UK Finance, page 5

¹¹⁷ Fintech Apps and Data Privacy: New Insights from Consumer Research, August 2018, The Clearing House

- While consumers expect a personalised, convenient and low friction online experience, they expect it will also be safe and secure. In a 2019 study Experian noted that 71 percent of surveyed consumers cited security as the most important aspect of their online experience – well ahead of convenience and personalisation.¹¹⁸
- Despite the rise of fintechs and non-bank organisations in payment ecosystems, banks appear to be viewed as having primary responsibility for the security of customer data. In a survey of 2,000 U.S. banking consumers, more than half of those who did use fintech apps (56%) and those who did not (59%) said they hold the bank(s) with which these consumers have a relationship accountable for the security of their data.¹¹⁹
- The use of common payments related APIs and technical standards are seen as playing a major role in providing guardrails to govern the access, collection, use, storage and sharing of consumer data in the financial services ecosystem.
- The use of smartphones as a preferred mobile device for many commerce and banking use cases has led to the growth in biometrics to support safe and secure payment and money transfer authorisations. However, KPMG note that financial institutions have a large base of users across all age groups who are not comfortable with digital enablers, such as mobile phones (28%) and biometric authentication (26%).¹²⁴
- The Royal Bank of Scotland has trialled behaviour biometrics to monitor visitors to their websites and determine access to applications and products.¹²⁵ With behaviour biometrics set to be part of the next generation of authentication and security for banks, gaining buy-in to passively monitor behaviours may take some time.
- In Sweden a public private partnership led to the creation of BankID – an electronic identification solution that allows companies, banks, organisations and government agencies to authenticate and conclude agreements with individuals over the Internet.¹²⁶

More nuance and sophistication

- According to the World Economic Forum, digital identity is evolving away from a focus on authentication to encompass a continuum which includes profile, history and inferences (the judgements or decisions made based on authentication processes, profiles and histories). Two significant challenges in the digital identity space are first delivering user value and sustaining trust and second avoiding fragmentation and harmonising standards.¹²⁰
- More sophisticated forms of digital identity are being deployed.¹²¹ National ID schemes are growing. Singapore's government is planning to trial, in the second half of 2019, a National Digital Identity Facial Biometric System, which could enable banks and healthcare facilities to identify users.¹²² A group of Canadian banks have deployed a blockchain solution to allow customers to make trusted and reliable digital identity claims in a secure and private manner.¹²³
- Payment platforms in China have extended their payment propositions into the digital identity space to develop identity documentation which can be used to access certain government services and to board domestic flights.¹²⁷
- Digital Identity NZ's survey results showed that 79 percent of survey respondents were concerned about the protection of their identity and use of personal data by organisations.¹²⁸ Digital Identity NZ is helping shape the New Zealand digital identity agenda and, among other things, is giving input to the Government's Digital Identity Trust Framework. In December 2018, the Government committed funding of \$5.15 million towards a two-year Digital Identity programme to be led by the Department of Internal Affairs. A secure digital nation is one of the initiative areas in the 2019 New Zealand Government's Wellbeing Budget.¹²⁹

118 http://www.experian.in/wp-content/uploads/2019/04/APAC_IDFR-2019.pdf

119 Fintech Apps and Data Privacy: New Insights from Consumer Research, August 2018, The Clearing House

120 http://www3.weforum.org/docs/WEF_INSIGHT_REPORT_Digital%20Identity.pdf

121 <https://www.capgemini.com/wp-content/uploads/2018/12/Top-10-Trends-in-Payments-2019.pdf>

122 <https://www.biometricupdate.com/201811/singapore-to-extend-national-biometric-id-system-to-banking-and-healthcare-sectors-expand-facial-recognition-at-borders>

123 <https://www.bloomberg.com/news/articles/2019-05-01/blockchain-adopted-by-canadian-banks-to-verify-client-identities>

124 <https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/03/consumer-loss-barometer-2019.pdf>

125 <http://futurescot.com/behavioural-biometrics-rbs/>

126 Identity in a Digital World A new chapter in the social contract, September 2018

127 https://www.auspaynet.com.au/sites/default/files/2018-12/Towards-an-Internet-of-Payments_Dec-2018.pdf

128 <https://digitalidentity.nz/wp-content/uploads/sites/25/2019/05/Digital-Identity-Yabble-Benchmark-Research-Infographic-May-2019.pdf>

129 <https://www.budget.govt.nz/budget/2019/wellbeing/productive-nation/initiatives-secure-digital-nation.htm>

Resolution of customer and compliance pain points

- The role of the Financial Action Task Force (FATF) as the global standard policy body concerned with AML and CFT has been reaffirmed by the G20. While the FATF has developed AML/CFT frameworks which balance compliance, innovation and financial inclusion objectives. From a user perspective giving effect to these frameworks can be time-consuming and labour-intensive. Yet they remain an essential component of efforts to prevent money laundering and to combat the financing of terrorism around the world.
- In 2018 IBM announced the successful conclusion of its proof of concept project for a shared KYC blockchain for corporate customers. The proof of concept involved large financial institutions, including Deutsche Bank, and HSBC.¹³⁰
- NatWest is reported as launching biometric payment approval technology for business and commercial customers. The system will enable its customers to make payments, via an app, using Apple's Face ID or Touch ID.¹³¹
- In 2018 27 Member States and Norway agreed to sign a Declaration creating the European Blockchain Partnership and to cooperate in the establishment of a European Blockchain Services Infrastructure to support the delivery of cross-border digital public services.¹³²
- The Financial Conduct Authority's recently launched Global Financial Innovation Network is considering whether to conduct cross border trials on a proposition to allow consumers to securely control their verified identity digital ID and to transfer that verified identity across financial services organisations for the purposes of KYC checks.¹³³

Drivers of change

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

1. A blurring of the differences between physical and digital payment channels, driven increasingly by IoT enabled devices.
2. The growth of faster payment solutions which put pressure on fraud detection and meeting compliance obligations.
3. A growing realisation of the benefits of coordinated national and pan national action in respect of digital identity.

¹³⁰ <http://fintechnews.sg/14420/blockchain/ibm-completes-poc-blockchain-based-shared-kyc-deutsche-bank-hsbc-mufg-cargill-ibm-treasures/>

¹³¹ <https://www.cnbc.com/2019/04/17/natwest-unveils-biometric-payment-system-for-businesses.html>

¹³² <https://ec.europa.eu/digital-single-market/en/news/european-countries-join-blockchain-partnership>

¹³³ <https://www.fca.org.uk/firms/gfin-cross-border-testing-pilot-next-steps>

Theme 6



Payments associations face rising expectations

2019 theme conclusion

To maintain a position of relevance in the payment ecosystem of the future, payment associations and allied bodies need to consider an ever-widening group of issues and an increasingly broad group of stakeholders.

Scan of global activity and change trends

Introduction

A scan of global activity revealed payment associations and allied bodies are:

1. Having to respond to a more diverse group of relevant voices that need to be heard.
2. Having to balance diverse interests in a more complex ecosystem, where calls for fast, data rich, and open payment systems are rising.
3. Broadening their reach beyond the boundaries that might have previously defined their operations.

The rapid growth in the payment and fintech ecosystem and calls from regulators and decision-making bodies for greater inclusion have caused payment associations and allied bodies to reframe their value propositions and to become more outward looking.

More diverse voices

- While regulators have a significant impact on payment association priorities, there are other voices which also need to be heard. Some of these voices come from sectors that have not featured prominently in payments modernisation to date. The move towards an increasingly digital payments network has given rise to concerns about what happens to those who are unable to use digital payments. In the UK the Access to Cash initiative has made recommendations including a redesigned cash

infrastructure to make it tenable for the banks to provide free consumer access to cash for longer and a greater focus on digital inclusion.¹³⁴ The Reserve Bank of New Zealand is currently consulting on the role of cash in New Zealand given that transactional demand for cash is falling.¹³⁵ In the United States, San Francisco is requiring brick-and-mortar stores to take cash as payment, joining Philadelphia and New Jersey who already have this requirement. Critics say refusing cash payments harms low-income people and the homeless. According to the Federal Deposit Insurance Corporation, 17 percent of African American households and 15 percent of Latino households had no bank account. Additionally, some people also prefer to use cash because it does not leave a digital trail of where they have been and what they have bought.¹³⁶

- Payment associations also remain focused on responding to or participating in key strategic decisions being considered by regulators and policy makers.
- In Australia, the Payments System Board has identified migration to ISO 20022 as a key strategic issue for the Australian payments system. Accordingly, the Reserve Bank of Australia (RBA) and the Australian Payments Council have been consulting with industry to come to an agreement on key strategic decisions for an ISO 20022 migration project.¹³⁷
- The Australian Payments Network has responded to the Council of Financial Regulators (CFR) issues paper on the regulation of stored-value facilities. The CFR is the coordinating body for Australia's main financial regulatory agencies. AusPayNet noted the trend towards the uptake of digital payments and fintech solutions mean SVFs could become ubiquitous and have a variety of purposes.¹³⁸
- Also in Australia the RBA has been reviewing the functionality of, and access to, the NPP and AusPayNet has been involved in that process. That review has recently concluded.¹³⁹

¹³⁴ <https://www.accesstocash.org.uk/media/1087/final-report-final-web.pdf>

¹³⁵ <https://www.rbnz.govt.nz/notes-and-coins/future-of-cash/issues-paper-the-future-of-cash>

¹³⁶ <https://www.cbsnews.com/news/san-francisco-to-ban-cashless-stores-saying-refusing-cash-harms-the-poor/>

¹³⁷ <https://www.rba.gov.au/media-releases/2019/mr-19-09.html>

¹³⁸ <https://www.auspaynet.com.au/insights/Submissions/Stored-value-Facilities>

¹³⁹ <https://www.rba.gov.au/payments-and-infrastructure/new-payments-platform/functionality-and-access-report.html>

- The European Payments Council has been involved in planning for the withdrawal of the United Kingdom (UK) from the European Union and determining how UK Payment Service Providers in the SEPA schemes would be impacted by a no-deal withdrawal from the European Union.
- In November 2018, Pay.UK and the Bank of England announced the creation of the 'Standards Advisory Panel' to act as a focal point for strategic cross-industry advice on implementing and adopting ISO 20022 in the UK. Membership of the panel is expected to comprise diverse representation from payment service providers, technology firms and end-users.¹⁴⁰
- UK Finance, along with a range of other stakeholders, contributed to a wide-ranging report on the outlook for the UK financial system and what it means for the Bank of England. That report, among other things, recommended the Bank of England play a substantive role in shaping and delivering the payment system of the future.

Payments innovation and modernisation must balance diverse interests

- It is increasingly evident payment associations need to represent a diverse range of stakeholders to help guide payments innovation and modernisation goals. AT Kearney and the Australian Payments Network note that "with their central role in the payments ecosystem, governance bodies such as industry associations must continue to create dialogue and action among other ecosystem members to drive collective responsibility for policy, system efficiency and innovation".¹⁴¹
- Earlier this year, 11 payment associations representing over 10,000 financial institution members, businesses and stakeholders with an interest in the US payment system sponsored the Centre for Payments. This is a cooperative program to help its membership prepare for the continued evolution in US payment systems.¹⁴²
- In Europe, the Dutch Payments Association has noted an increase in the number of stakeholders it needs to engage with as a result of regulatory change and technology trends. Their 2018 annual report notes "non-traditional, often technology-driven and data-driven companies are entering the payment market with new applications. It has never

been easier to create a large international customer base using new technology – without any physical presence – and to offer a smooth digital customer journey. PSD2 offers new opportunities."¹⁴³

- In its consultation paper 'Payments in a global digital world' the Australian Payments Council (APC) has specifically called for responses of what sub-groupings of payment systems users have special needs or requirements that they should consider in their payment modernisation plans. The APC notes "the payments system must support a diverse range of users".¹⁴⁴

Broadening reach and new boundaries

- In the United States the Business Payments Directory Association will become an independent, member-led, self-governed group under the NACHA organisation. This arrangement will align the efforts of both organisations to facilitate business-to-business (B2B) payments through development and deployment of a B2B payments and remittance directory.¹⁴⁵
- The Association of Banks in Singapore and the Thai Bankers Association have been evaluating the feasibility of a regional interoperable cross border payment network across all ASEAN countries.¹⁴⁶
- In New Zealand Payments NZ recently launched its API Centre, to facilitate banks and third parties to work together as standards users in a new ecosystem for standardised payments related APIs.

Drivers of change

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

1. The rapid evolution of a more open and technologically advanced ecosystem. Research by AT Kearney and the Australian Payments Network notes that "the payments landscape is shifting across many dimensions from being transaction-centric, closed and proprietary towards accessible, open architecture that easily enables context-based transactions."¹⁴⁷
2. Regulatory and stakeholder expectations that payment associations and allied bodies will consult and engage widely across the ecosystem as part of their planning and decision-making processes.

140 <https://www.bankofengland.co.uk/news/2018/november/standards-advisory-panel-call-for-interest>

141 https://www.auspaynet.com.au/sites/default/files/2018-12/Towards-an-Internet-of-Payments_Dec-2018.pdf

142 <https://www.cuinsight.com/press-release/payments-associations-launch-center-for-payments>

143 <https://www.betalvereniging.nl/wp-content/uploads/Annual-Report-Dutch-Payments-Association-2018.pdf>

144 Australian Payments Council 2019 Consultation, Payments in a global digital world, page 11

145 <https://www.pymnts.com/news/b2b-payments/2018/nacha-bpda-blockchain-ach/>

146 <https://abs.org.sg/docs/library/asean-xbpin-public-report.pdf>

147 https://www.auspaynet.com.au/sites/default/files/2018-12/Towards-an-Internet-of-Payments_Dec-2018.pdf



Conclusion

Conclusion

It is clear from our environmental scan that the transformation in the way we make and receive payments continues at pace. Fuelled by the growth of the internet and related technologies, ubiquitous and relatively low-cost mobile devices and an increasingly mobile and interconnected community, payment preferences are continuing to evolve. Increasingly the way we make and receive payments is interwoven into everyday interactions.

The globalisation of commerce means goods and services are moving and being delivered over greater distances between a greater number of countries and currencies. There is increasing pressure for the exchange of value for those goods and services to be completed in a way that is both seamless and fast.

New entrants in the payment ecosystem run the full gamut from small fintechs to global technology platforms with massive reach and scale. Incumbent financial institutions have been faced with the significant challenges of having substantial investments in legacy systems, networks and applications, having to cope with the demands of a more open ecosystem and having to ensure payments remain safe and secure.

Regulation has become more complex and pervasive with an increasing number of regulatory and policy making bodies taking an interest in payments and related matters. The policy issues in payments have moved well beyond the safety and efficiency of payment, clearing, and settlement systems and now have competition, innovation, data privacy, and financial inclusion dimensions. How to sensibly apply regulatory frameworks to global technology platforms has become a point of significant interest.

Going forward it appears there will be a continued emphasis on open and standardised frameworks to allow transactions and interactions to be completed 'on the go' and in real time and which support more and better information about the transaction or interaction. Openness can be explained by the growth in the number of ecosystem players and the rise of open data. Standardisation helps ensure interoperability which in turn builds ubiquity, scale and network effects.

Looking ahead we consider the following factors will be important in shaping the domestic payment ecosystem of the future:

- Calls to meet end user expectations for greater speed, mobility and convenience in payments.
- The global shift to real-time capabilities, and market practices.
- A drive for greater regional integration to produce more interoperable and seamless business and consumer experiences.
- Greater calls for more collaborative action to advance interoperability and to leverage common standards and to develop common strategic assets.
- The use of artificial intelligence and other data analytic tools to achieve supremacy in the analysis and use of data.
- Regulatory emphasis on open and transparent ecosystem governance, access, and consumer control over data.
- A rapidly rising need to safeguard payment systems and critical digital infrastructures from cyber risks.
- Global technology platforms with the scale and functionality to offer a new payment experience.

Glossary

AML/CFT – Anti-Money Laundering/Combating the Financing of Terrorism. New Zealand has specific legislation, the Anti-Money Laundering and Countering Financing of Terrorism Act 2009. This Act places obligations on New Zealand’s financial institutions to detect and deter money laundering and the financing of terrorism.

ASEAN – The Association of Southeast Asian Nations.

Australian Competition and Consumer Commission (ACCC) – an independent Commonwealth statutory authority whose role is to enforce the Competition and Consumer Act 2010 and a range of additional legislation, promoting competition, fair trading and regulating national infrastructure for the benefit of Australians.

Australian Payments Network (AusPayNet) – a membership body set up by the payment industry to improve the safety, reliability, equity, convenience and efficiency of payments.

Australian Payments Council – the strategic coordination body for the Australian payments industry.

Australian Productivity Commission – an advisory body that provides independent advice and information to governments across all sectors of the economy, and on key policy or regulatory issues bearing on Australia’s economic performance and community wellbeing.

Australian Prudential Regulatory Authority (APRA) – an independent statutory authority that supervises institutions across the banking, insurance and superannuation industries and promotes financial system stability in Australia.

Bank of Canada – the central bank of Canada.

Bank of England – the central bank of the United Kingdom.

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.

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.

Clearing House Interbank Payments System (CHIPS) – the largest private sector USD clearing system in the world, clearing and settling \$1.5 trillion in domestic and international payments per day. This large value payment system has approximately 50 direct participants and is the private-sector counterpart to Fedwire.

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.

Council of Financial Regulators – the non-statutory coordinating body for Australia’s main financial regulatory agencies. There are four members – the Australian Prudential Regulation Authority, the Australian Securities and Investments Commission, the Reserve Bank of Australia and The Treasury.

Digital Identity NZ – a membership-based organisation with a focus on the opportunities that digital identity can offer New Zealanders.

ePrivacy Directive – the Directive on Privacy and Electronic Communications, known as the ePrivacy Directive, sets out rules on how providers of electronic communication services, such as telecoms companies and Internet Service Providers, should manage their subscribers’ data.

ePrivacy Regulation – the Regulation of Privacy and Electronic Communications. A proposal to update current rules for technical developments and to adapt them to the General Data Protection Regulation. The ePrivacy Regulation will protect the confidentiality of electronic communications and the device (and covers both personal and non-personal data). In contrast the General Data Protection Regulation protects personal data.

European Banking Authority (EBA) – an independent EU Authority which works to ensure financial stability in the EU and to safeguard the integrity, efficiency and orderly functioning of the banking sector.

European Central Bank – the central bank of the 19 European Union countries which have adopted the euro.

European Commission – the executive of the European Union.

European Payments Council (EPC) – is an international not-for-profit association formed to support and promote the integration and development of European payments. The EPC is not part of the European Union institutional framework.

Eurosystem – the ECB and the national central banks of those countries that have adopted the euro.

Federal Reserve – the central bank of the United States.

Fedwire – a real-time gross settlement (RTGS) system through which participants are able to initiate electronic funds transfers that are processed individually in real time as the funds transfer instructions are received by the Reserve Banks.

Financial Action Task Force (FATF) – an inter-governmental 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 United Kingdom 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.

Group of Twenty (G20) – an international forum for governments and central bank governors from 19 countries and the European Union.

General Data Protection Regulation (GDPR) – a regulation which strengthen individuals' fundamental rights over personal data and clarifies rules for companies and public bodies about, among other things, the collection and processing of personal data.

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

ISO 20022 – a financial services messaging standard developed within the International Organisation for Standardisation. ISO 20022 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).

Members – Members are organisations that have joined the Payments NZ membership programme. There are three different kinds of membership: Infrastructure, Standards and Industry membership – which reflect the different kinds of organisations in the payment ecosystem.

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

MT message – a SWIFT message type based on a non-XML proprietary message format.

NACHA (previously the National Automated Clearing House Association) – among other things creates broadly adopted payment and financial messaging rules and standards and administers the ACH network,

New Payments Platform – The New Payments Platform (NPP) is 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.

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

Payments associations – are those organisations which have a role in the management, governance or self-regulation and oversight of a payments system.

Payment 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, 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.

Payment System Board – a Board of the Reserve Bank of Australia with specific responsibility for the Bank's payments system policy.

Payment Service Directive (PSD) – Is a directive of the European Commission that provides the legal foundation for the creation of a single, Europe-wide market for payments. PSD was introduced to establish a set of rules applicable to all payment services in the European Union. PSD also provides the legal platform for the Single European Payments Area (SEPA).

Payment Services Directive (PSD2) – is a revised directive on payment services, adopted on 23 July 2013.

Payments value chain – the full range of activities and processes organisations undertake to bring payments products and services and related service offerings from conception to delivery.

Regulatory technology (regtech) – the management of regulatory processes within the financial industry through technology. The main functions of regtech include regulatory monitoring, reporting, and compliance.

Real-time gross settlement (RTGS) – continuous process of settling payments on an individual order basis rather than through a batch payment process. These payments are irrevocable.

Settlement Before Interchange (SBI) – is New Zealand's batch retail financial payment system, administered by Payments NZ, through which SBI Participants bilaterally interchange and settle transaction files multiple times throughout each business day.

Single Euro Payments Area (SEPA) – is a European banking industry initiative to create a European Single Market for retail payments.

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.

The Clearing House – a banking association and payments company that is owned by the largest commercial banks operating in the United States.

World Economic Forum – an independent international organization with no ties to political, partisan or national interests. The Forum was incorporated as a not-for-profit foundation in 1971, and is headquartered in Geneva, Switzerland.

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