



paymentsnz

**Consultation on
payments for the
next generation**



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Foreword



He pai te tirohanga ki ngā mahara mō ngā rā pahemo engari ka puta te māramatanga i runga i te titiro whakamua.

It's fine to have recollections of the past, but wisdom comes from being able to prepare opportunities for the future.

Payments NZ has a vision of world class payments for Aotearoa New Zealand, and a purpose to empower Aotearoa New Zealand's payments future. While we have a reliable core payment system that serves our economy and country well, we need to continue to look forward and prepare our systems to support digital payments infrastructure.

I am pleased to share this 'payments for the next generation' consultation paper with you. Based on extensive research and input from a range of industry stakeholders it sets out a proposed future strategy for digital payments infrastructure.

This speaks to a future that is fast, secure and flexible with a potential to unleash new opportunities for partnering, through an open ecosystem based on best practice and set up to serve the people and businesses of Aotearoa. It can create opportunities for our industry to spearhead the digital economy, within Aotearoa and across borders.

Our view is that next generation payments infrastructure should begin with a small, centralised core payments capability that can be built out over time in modules to bring next generation digital capabilities to all of Aotearoa. The document is grounded in this foundation and purposely builds a position to encourage challenge, debate and discussion.

There are many moving parts across the ecosystem, including the potential for a Central Bank Digital Currency, renewed discussions around digital identity, proposed changes to retail payments and the introduction of consumer data rights. With so many moving parts, our hope is that this paper is a strong discussion tool, allowing us all to come together to find common ground on the shape of this next generation ecosystem.

For us to succeed in this challenge, we need to hear from you. While our thinking has been formed over time and is advanced in key areas, this is the first opportunity for our industry, government and regulators and the wider community to view and respond to it. We ask that you engage with us during this consultation period, offer your views and alternative perspectives and let us know about opportunities to link other opportunities together. This will better shape our strategy for a digital payments ecosystem in Aotearoa and help build an ecosystem roadmap that industry and key stakeholders can get behind.

Finally, I'd like to thank our stakeholders across the payments industry whose support and expertise have brought us to this point, and to the Payments NZ team for their efforts in progressing this important work.

Ngā mihi



Steve Wiggins, Chief Executive, Payments NZ

Executive summary

This consultation paper outlines the work we have done to date exploring next generation (next gen) digital payments capability for Aotearoa in the future. A next gen payments system could provide a significant step in future readiness for the payments ecosystem by providing fast and data-rich payments capability, and a broad set of digital capabilities that, when combined with other initiatives like open banking, can be leveraged to:

- Strengthen the safety and security of payments, especially in relation to fraud and scam prevention.
- Create state-of-the-art customer experiences and services.
- Address pain points, improve customer certainty, control and comfort.
- Support higher economic growth and improved social outcomes.
- Empower the payments ecosystem in Aotearoa to adapt to new and emerging technologies and standards.

This work is about preparing Aotearoa for the future. It proposes a visionary, long-term enabling infrastructure focused on serving the customer of the future, grounded in digital capability and interoperability. Our current payment system is reliable; however, it is unable to effectively support a digitally native experience or to serve long-term digital economy and societal needs. It lacks rich data, the ability to support real-time digital interactions, immediate funds transfer, and broader connectivity.

Modern payments systems need to be fast, safe, resilient, and interoperable. They support inclusion, innovation and underpin increasingly digital and more diverse economies. A cornerstone of many modernisation efforts is the transition to real-time capabilities to support a broader range of functionality, including simple verification, payee identifiers, rich data, improved fraud prevention solutions, and greater payment choices.

We are uniquely positioned to learn from the efforts of other jurisdictions who have already delivered digital and real-time capability and other payments modernisation initiatives. Importantly, we have an opportunity to leverage insights from earlier generation deployments to consider and design a world-leading next gen ecosystem for Aotearoa. Our

research and review of other jurisdictions provides clear insight into how payments modernisation efforts have become increasingly sophisticated because the underlying digital and real-time infrastructure has become more modular and flexible.

Payments modernisation is not an end state but rather an ongoing journey. The evolutionary nature of payments modernisation has informed the next gen ecosystem proposed in this consultation paper. The proposed design and roadmap focus on incremental capabilities that digitise key areas of the existing payments ecosystem, and over time add further benefits and value-added functionality.

The consultation paper outlines a proposed strategy for the development of future payments infrastructure from which we can consult with the industry to test our thinking, possible alternatives, and more broadly to seek alignment across the industry on requirements for future payments infrastructure and capabilities. This document has a range of consultation questions embedded, and we would like to hear your views on these questions and any other observations you may have on the proposals set out in the consultation paper, including sharing new and unexplored possibilities or challenging the proposed strategy.

The consultation paper has been prepared in three chapters:

- Chapter 1 explores the broad benefits of payments modernisation. It also sets out regulatory oversight, governance, and management considerations as part of a model to build, maintain, and evolve the next gen framework.
- Chapter 2 proposes a modular foundational ecosystem design, meaning new capability can be added in stages as needed without rebuilding what's already in place.
- Chapter 3 presents our proposal for building the next gen framework as an industry, including the proposed sequencing of capabilities, beginning with a focus on safer payments, and then adding other capabilities iteratively.

Your organisation is invited to review the consultation paper, and to provide a written response to the questions set out in the companion consultation question document. For additional guidance, the questions have also been embedded into the consultation paper next to content relevant to answering the consultation questions.

Purpose of the consultation paper

The proposals set out in this consultation paper would require significant prolonged effort and investment in the future of payment capabilities for Aotearoa. There have not been any decisions or commitments made to deliver next gen capabilities and it is important to understand that the consultation paper is not intended to be a proposal designed to lock in industry commitment to implement.

The consultation paper provides a strategy to further discuss modernising payment capabilities for Aotearoa. It provides a comprehensive baseline from which we can engage and consult with the industry to test the levels of support for the proposed next gen design and roadmap and to align stakeholder views on the future of payments infrastructure for Aotearoa.

Payments NZ recognises that a substantial amount of work will need to be completed before any final industry commitment can be obtained. Developing this proposed infrastructure will require complex coordination across the payments industry, spanning multiple organisations and legacy systems, including joint decisions about how and what to progress, and when, and funding arrangements. The consultation phase is important to continue to shape and evolve the work we've done so far, identify priorities and preferences, including understanding impact on stakeholder internal systems and potential delivery timing, before work can move forward to the next stage.

To progress next gen beyond this consultation will require the broad support and commitment from a critical mass of Aotearoa payments stakeholders. Your organisation's responses to the consultation are an important step toward assessing any broad support and commitment to move forward together.

In this context, it is important to acknowledge that the consultation paper does not:

- Represent any commitment to implement any of the capabilities described.
- Provide costs.
- Provide timeframes; rather the roadmap sets out high-level sequencing order for consideration.
- Assess what would be required to operationally deliver the roadmap. This applies at both a next gen systems level and at a participating organisation level.
- Provide a detailed business case for respective organisations to use internally.
- Develop use cases; rather it focuses more on flexible infrastructure-based strategic capabilities.
- Describe requirements; rather it describes capabilities and features generally and illustratively.

The consultation provides the opportunity for stakeholders to articulate what they would like from the future of the payments ecosystem of Aotearoa. This is irrespective of whether their view is fully, partially, or not at all aligned with the direction set out in the consultation paper.

Benefits



Figure 1: Next gen benefits

The benefits of moving to a next gen payments ecosystem extend across Aotearoa, the payments ecosystem and its participants and users. In the diagram above, we illustrate eleven headline benefits that a next gen ecosystem can deliver for Aotearoa.

Ready for the digital now

Next gen aims to further digitise payments in Aotearoa, safely and appropriately, to ready our payments capabilities for a digital-first world.

- Aotearoa already has a highly digitalised payments system.

- We're in the age of the digital information economy. In this digital world, information and money are becoming tightly coupled.
- The digitally driven pace of change is further accelerating.
- We need to ready our payments capability, not to keep up with other jurisdictions, but to align with the highly digital and interconnected world we all live in, both now and into the future.
- Next gen provides a platform to deliver key capability now, and to more easily and flexibly extend into the future.

Promote the digital economy

Digital payments and their network capabilities underpin the velocity of money flowing through the economy in Aotearoa.

- Payment systems straddle both commercial drivers and provide a public digital infrastructure that the economy of Aotearoa depends on.
- As economies increasingly move online, a digital-first payments infrastructure is crucial for supporting Aotearoa and our digital economy.
- Many of our payments capabilities have constraints that stem from their paper-based instruments and legacy technology origins. Next gen promotes digital first payments capability – designed from the ground up to be digitally consumed.

Modernising account-to-account payments in Aotearoa

Next gen aims to uplift account-to-account payment capabilities in Aotearoa to be more capable of supporting a modern digital economy.

- Aotearoa has very good account-to-account based payments capabilities that are available 365 days a year. Our open banking payments work extends this capability further.
- However, our account-to-account payments capability will not be able to support the future digital economy long-term.
- Capability deficits exist, particularly around a lack of; real-time digital payments, fraud prevention, exchanging modern and rich data with payments, consumers having confidence as to who it is they are paying, and convenient tools to help consumers and businesses initiate payments. Some of these capabilities are in the process of being addressed by specific solutions; however, there is a need to provide long-term systemic capability.
- To prepare for the fast-evolving digital world that is upon us, next gen proposes modernisation of account-to-account payments, along with a new set of supporting capabilities.
- This is not a bespoke initiative for Aotearoa – this is commonplace around the world. The consultation paper proposes to leverage international best practice and standards such as ISO 20022, API connectivity and a flexible cloud-based infrastructure platform.

Support for innovation

Next gen fosters new innovations by providing enabling capabilities.

- Digital infrastructure that provides new enabling payments network capabilities for financial institutions and fintechs to develop and deliver new propositions to be offered to their customers and businesses.
- Next gen will not step into an organisation's user problem definitions, use cases or services. It will, however, deliver enabling capabilities to make it easier for organisations to address challenges and take advantage of opportunities in the design and delivery of products and services.
- Interconnectedness is critical to the digital information economy. Next gen's digital ecosystem reaches across the whole payments network, bringing scalability, reachability and efficiency in a way that no single organisation can do alone.
- Innovation is best fostered through partnering, community, and inter-connections. Such innovation is reliant on an open and accessible systems, with multiple layers and ways to participate underpinned by robust modern privacy and security standards.

Meet evolving customer expectations

Two generations already are digitally native. Next gen sets Aotearoa up for their future.

- As more New Zealanders and businesses become digitally native, they'll demand to manage their money and payments within their digital world. They expect immediacy, simplicity, and to be able to trust and control their digital activities. Their tolerance for outdated or "legacy" technology is low.
- Consumer preferences are rapidly shifting towards digital payment options.
- While Aotearoa has successfully innovated its payments ecosystem, its capabilities are not keeping pace with expectations and a gap is emerging. Without modernising our core payment systems, our ability to manage this gap via existing systems and infrastructure will be increasingly constrained over time.

Increase participation

Next gen will enable innovation through participation and partnership.

- Account servicing organisations such as banks, credit unions and building societies will always be fundamental to payment systems, as they are ultimately (in most cases) where the money used in payments comes from and goes to.
- Payments is no longer the exclusive domain of account servicing organisations. An ever-expanding pool of organisations are involved in making payments happen, with an ever-increasing need for rich information to accompany these payments.
- Next gen provides multiple layers and ways to participate and utilise its capabilities but will also feature balancing safeguards and controls.
- Increased participation allows customers to trust who you choose and choose who you trust.

Safer and secure payments

Next gen uplifts the safety and security of payments in Aotearoa, contributing to increased trust.

- Trust is paramount for a jurisdiction's payment systems.
- We have an opportunity to develop a strategic national approach to the protection of our customers and communities, supporting financial wellbeing, mental health, and their future, while building or sometimes rebuilding and securing trust.
- We recognise the current fraud and scams landscape. Next gen could deliver enhanced safety and security of payments in the medium-long term. Only a combination of short-, medium- and long-term focused action will be effective in lifting payments safety levels in Aotearoa. We contend that perpetual short-term focus will compound these types of crises over time.
- We also recognise that next gen is not a panacea for preventing scams and enhancing trust – but it can address issues that only action at a network level, and not one single organisation, can solve.
- There is opportunity to incorporate new security features, preventative tools and frameworks to ensure trust in payments remains intact into the future.
- Next gen is secure by design, including core capability that reduces the incidence and impact of

fraud on customers, financial institutions, and the economy.

Improve accessibility and inclusion

Next gen aims to empower services and capabilities, by providing a flexible digital platform offering a wide range of payments instruments and capabilities to suit different users' needs.

Growth, inclusion, and sustainability are connected, often complementing one another but sometimes pulling in different directions. Growth and innovation are essential to making progress toward bold goals. Addressing poverty can lead to growth. Improving inclusion can lead to growth.¹

- Access - a flexible digital platform can enable solutions developed by and for communities who currently face barriers when using the payments system.
- Accessibility - making sure all people, regardless of status or need, have the tools necessary to enjoy the same products and services.
- Inclusion – ensuring there are opportunities for all.

Deliver modern capabilities

- Our proposed capability roadmap delivers a combination of real-time digital interaction capabilities, tools that make payments safer, and supports the future enablement of real-time payments.
- Next gen proposes to bring emerging digital identity capabilities more directly into the payments ecosystem.
- The roadmap sees these capabilities delivered in logically sequenced tranches to manage delivery and ensure cost-effectiveness.
- These capabilities both deliver a modernised set of payments capabilities and provide a foundation from which to extend into the future.
- The adaptable nature of next gen better positions the payments industry to prepare and respond to global changes.

Meet increasing regulatory expectations

Regulatory expectations are becoming ever clearer and stronger.

- Regulators expect industry to deliver material investment in change, in a timely way.
- Experience in other countries shows that regulatory

¹ [Economic empowerment through sustainability & inclusion | McKinsey](#)

driven change of this type can result in weaker outcomes from a general lack of strategy for the future. A regulatory-driven approach risks a reduced focus on value delivery.

- The ecosystem has an opportunity to do this in a way that works for payments participants and user organisations and ensures those organisations can derive benefit in the best ways possible.

Adaptable and extendable

Next gen enhances our current payments capabilities – but just as importantly it provides a base to cost efficiently and quickly iterate from here into the future.

- Adaptability and extensibility are critical if we're to keep up with the velocity of technology change. One small leap in technology can render a previously safe or effective payments environment suddenly at risk, requiring the ability to evolve quickly to mitigate.
- Next gen not only springboards our payments capabilities up to a new level, it also provides a modern foundation, or a platform, so that new iterations and capabilities can be introduced more easily, quickly and cost-effectively.

While this is a significant list of benefits, we recognise that many of these are pitched at an aggregate or systematic level. The purpose of the consultation paper is for our key stakeholders within the ecosystem to understand what is being proposed by a next gen ecosystem, what it could enable, and what that means for their own businesses and customer offerings.

The design presented in the consultation paper makes an important distinction between 'real-time digital interactions', and 'real-time digital payments':

- **Real-time digital interactions** - are functional capabilities that facilitate the immediate exchange of information before, during or after a payment, but do not directly involve the processing of a payment. These payment-adjacent capabilities make the payments ecosystem safer and improve the functionality in the payments ecosystem. For example, payment fraud detection across the payments network, data-rich payments notifications, and the use of digital identity in payments scenarios.
- **Real-time digital payments** - transfer money between two bank accounts through a payments process that is initiated and cleared nearly instantaneously.

Our view is that next gen payments infrastructure should begin with a small, centralised core payments capability that can be built out over time in modules to bring next gen digital capabilities to all of Aotearoa. The document is grounded in this foundation and purposely builds a position to encourage challenge, debate and discussion. For us to succeed in this challenge, we need to hear from you.

To date, a significant level of industry time and commitment has gone into getting us to this stage, with stakeholders from our Participant, Member, API Centre and vendor communities sharing their time, expertise and resource with Payments NZ in order to produce this document.

We hope that the consultation paper enables your organisation to consider the opportunity that a next gen payments ecosystem could offer. We encourage you to engage with us during the consultation period. We would like to hear your views and alternative perspectives as well as opportunities to link other workstreams and activities together. This will help inform and shape our strategy for a digital payments ecosystem in Aotearoa and build an ecosystem roadmap that industry and key stakeholders can get behind.



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Consultation on payments for the next generation

Chapter 1: Setting the scene for next generation capability



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Introduction

This chapter sets out the broad ecosystem benefits of payments modernisation and the reasons why this is imperative for Aotearoa New Zealand. It also provides context for subsequent chapters of the consultation paper.

Our Payments Modernisation Plan (PMP) laid out the capability building blocks for payments modernisation in Aotearoa. It identified the introduction of next generation (next gen) real-time capability as a cornerstone of those modernisation efforts.

The implementation of a next gen payments ecosystem¹, grounded in real time digital interactions represents a material investment by the industry. That investment would take place against the backdrop of a range of new regulatory and policy developments, including some that are still very much in flight.² However, continuing to rely on the capabilities of today's ecosystem risks leaving us poorly placed to support an increasingly digital future.

If investment is not made in new capability, the payments system risks becoming out of step with customer and regulatory expectations by not delivering appropriate levels of speed, information, agility and adaptability required in an increasingly complex ecosystem. Aotearoa is also at risk of becoming out of step with our trading partners around the globe, particularly regarding the ability to support 24/7 commerce with feature and information-rich payment options aligned to global standards.

In the following sections you will find:

- An overview of payments modernisation initiatives around the world.
- A discussion of payments modernisation initiatives that have taken place in Aotearoa and the macro benefits of payments modernisation.
- An overview of the limitations of our current system and the risks of inaction.
- An overview of the proposed regulatory oversight, governance and management – the considerations included in the development of a model to build, maintain and evolve next gen.

¹ Ecosystem refers to all the elements that facilitate a payment. This includes the governance, systems, processes, security, and procedures used to support payments.

² These include, but are not limited to, designations made under the FMI Act, new access arrangements for ESAS, the Retail Payment System Act, the implementation of the Digital Identity Trust Framework legislation and the proposed Customer and Product Data legislation.

Payments modernisation – a global perspective

For the most part, payment systems are invisible – they are the rails that make the trusted transfer of value possible. While they might lack visibility, those rails are crucial to the effective functioning of our society and economy, enabling consumption, savings, investment, commerce, and trade to take place safely and efficiently. Payment systems are one of the most significant social infrastructures in any economy.³

In this section, based on a review of selected research material, we examine some of the developments and motivations underpinning payments.

Payments modernisation around the world

Given the critical role payment systems play in our daily lives, many countries are devoting considerable effort and investment to modernising their payments infrastructure and supporting regulatory and policy frameworks.⁴ There is widespread recognition that payment systems need to keep pace with the changing demands of the economy, reflect global trends in technology and regulation, and respond to the changing needs and expectations of consumers and businesses.

In recent years, we have seen:

- Governments and regulators recognising the role payment systems play in supporting world-class digital economies, serving vulnerable groups, and helping to create regional hubs to support trade and to create new payments corridors.
- Innovations in technology which have shaped an evolution of consumer expectations, boosting the adoption of digital financial services and increasing expectations that those services will be delivered with immediacy.
- Payments ecosystems are becoming larger and more diverse, with an increasing number of formal and informal participants, due to more open access.
- Payment infrastructure updates taking place in response to the continued rise of real-time payments, open banking requirements, developments in messaging standards and digital identity, and the deployment of cloud technology.

- New forms of money, including stablecoins and central bank digital currencies (CBDC), and new contexts for exchanging value, such as the metaverse.

Some of the modernisation efforts we have observed have been led by central banks, others by payment associations and industry consortiums working in concert with central banks and regulatory bodies.

Jurisdictions around the world have made significant investment in fast and data rich payment capability, and we have the opportunity to learn from these as we look to the introduction of a right-sized next gen capability for Aotearoa that strongly positions the ecosystem to respond to the fast-evolving needs of customers in an increasingly digital world.

Key observations

Taking a macro perspective on payments modernisation, our assessment is that:

1. Payment systems are increasingly viewed as an item of critical enabling infrastructure.
2. There is a greater awareness of the need to improve the safety and security of the payment experience, especially through coordinated industry action and using digital identity solutions to protect against fraud and scams.
3. Linking payment systems across jurisdictions can play an important role in supporting economic growth, trade, and inclusion.
4. Payment system modernisation needs to have an ecosystem perspective.
5. A decade of international learnings have led to an evolution of best practice for infrastructure design.

We elaborate on these points below.

1. Payment systems as critical enabling infrastructure

When payment systems are viewed as a significant national infrastructure asset, modernisation efforts are oriented towards using them as a gateway to new economic opportunities and a building block of future digital economies. We offer two examples to illustrate this point more fully.

³ [European Financial Review Feb2012.pdf \(bbweb-arena.com\)](#)

⁴ <https://www.bankofcanada.ca/wp-content/uploads/2021/12/swp2021-64.pdf>

The Central Bank of the UAE's National Payment Systems Strategy aims to modernise the financial services ecosystem by ensuring safe and convenient electronic payments that foster the transition to a cashless society.⁵

Central to the strategy was the launch in 2023 of the Instant Payments Platform (IPP), which is described as a national infrastructure project to support the financial services ecosystem. The IPP lays the groundwork to transform UAE's financial services ecosystem and digitise its economy.

In addition to real-time payments, it is expected the IPP will help "ease trade and transactions, enhance customer experience, and accelerate technological advancements for financial Institutions, large businesses, and small and medium-sized enterprises in the UAE and the region".⁶

In Singapore, the Smart National initiative is seen as integral to Singapore's next phase of nation-building, with its stated aim to "present opportunities for Singapore to enhance our strengths, overcome our national challenges and physical limits, and build new sources of comparative advantage".⁷

One of the foundations of the initiative is developing a next-generation digital infrastructure, with electronic payments as one of eight strategic projects to help achieve Singapore's Smart Nation vision. Singapore's goal is "to make financial transactions more seamless and efficient for all, working towards a simple and secure platform that operates across various systems". The electronic payments project has so far introduced the FAST and PayNow platforms, NETS payment solution, and QR code standards.⁸

While coming from a slightly different perspective, we note the recent consultation on strengthening the resilience of critical infrastructure within Aotearoa identifies payments as a service essential to the functioning of society. Across the Tasman, Australia's critical infrastructure legislation has moved to cover additional industry sectors beyond the original electricity, gas, water, and ports and now extends to financial market infrastructure assets that serve as payment systems.

2. Improving safety and security – a focus on fraud and scams

Globally, payments losses due to fraud and scams continue to increase at an alarming rate. According to the FIS Global Payment Fraud report, payment fraud losses have more than tripled since 2011 and are expected to exceed \$40 billion by 2027.⁹ The scope, scale and sophistication of payments fraud is a global problem, and the nature of that fraud is changing. Previously, unauthorised fraud, where money is taken from victims' bank accounts without their authorisation or knowledge, was dominant. There has been a shift towards authorised fraud, where victims are unwittingly pressed into authorising a payment. Well known examples of authorised payment fraud include retail scams, romance, and investment fraud.¹⁰

In the EU, EBA Clearing has begun piloting the pan-European Fraud Pattern and Anomaly Detection (FPAD) functionality which will provide participants with added fraud capabilities across STEP2 (bulk) and RT1 (instant) transactions. The FPAD leverages a centralised, system wide approach to payments fraud, in which participant data is fed through a centralised analytics and data store, providing a common infrastructure to participants which supports fraud prevention, detection, and intelligence measures. As a centralised tool, the FPAD feeds back into and complements the existing internal fraud capabilities of participant banks, while providing a holistic view of ecosystem fraud from a central infrastructure perspective.¹¹

In the context of Aotearoa, an industry-level response based on active collaboration to protect our payment systems is warranted. While the industry in Aotearoa is focused on efforts to improve the safety and security of the payments experience in the immediate term, there are inherent constraints in our current batch-based payment systems that may blunt the effectiveness of new initiatives.

An early and prioritised focus on consumer safety and protection in the design and delivery of a next gen ecosystem is likely to provide a more effective and adaptable platform for ecosystem fraud prevention in the long-term. Next gen capabilities will provide the industry with the ability to manage complex interactions, collaboratively, in real time. Customer protection could be improved, and fraud losses reduced through:

5 <https://www.centralbank.ae/media/gizhn4zk/cbuae-annual-report-2021.pdf>

6 [Accenture to Develop UAE National Instant Payment Platform](https://www.accenture.com/au-en/insights/consulting/develop-uae-national-instant-payment-platform)

7 <https://www.smartnation.gov.sg/files/publications/smart-nation-strategy-nov2018.pdf>

8 <https://www.smartnation.gov.sg/initiatives/e-payments/>

9 <https://www.fisglobal.com/en/global-payments-report>

10 [Tackling fraud and rebuilding trust \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/90111/tackling-fraud-and-rebuilding-trust.pdf)

11 <https://www.ebaclearing.eu/services/rt1/fraud-pattern-and-anomaly-detection-fpad/>

- Real-time digital fraud detection using centralised fraud intelligence and management, richer data, and comprehensive real-time tools.
- More effective management of consent and authentication of payments through proxy and enduring consent mechanisms.

The modular nature of a next gen ecosystem also presents opportunities to integrate in-flight activity at an appropriate time, such as the New Zealand Banking Association's (NZBA) Confirmation of Payee programme and digital identity initiatives. These have the potential to further strengthen identification and authentication mechanisms to prevent fraud and increase trust, as well as enhancing privacy mechanisms and the associated flow of potentially sensitive information. Adopting an integrated and strategic viewpoint, a next gen ecosystem could potentially act as a key catalyst for the deployment of digital identity solutions both within banking and payments use cases, as well as the opportunity to provide a bank-grade 'trust anchor' for broader applications of digital identity.

3. Linking payment systems to support economic growth, trade, and inclusion

Given the importance of cross-border trade flows and increasingly mobile populations, jurisdictions have begun to work together to:

- remove points of friction for cross-border payments,
- increase trade with key partners, and
- benefit segments of the population that are often heavily reliant on remittances and businesses sourcing material from international locations.

In 2020, the G20 made enhancing cross-border payments a priority, stating "faster, cheaper, more transparent and more inclusive cross-border payment services, including remittances, while maintaining their safety and security, would have widespread benefits for citizens and economies worldwide, supporting economic growth, international trade, global development and financial inclusion".¹²

Against that backdrop, the central banks of Indonesia, Malaysia, the Philippines, Singapore, and Thailand agreed to strengthen and enhance cooperation on payment connectivity to support faster, cheaper, more transparent, and more inclusive cross-border payments. That agreement was evidenced through a 2022 Memorandum of Understanding (MOU) on

Cooperation in Regional Payment Connectivity.¹³

In part fulfilment of that MOU, the Monetary Authority of Singapore and Bank Negara Malaysia have facilitated a cross-border QR code payment linkage to allow financial institutions to make retail payments, as well as online cross-border ecommerce transactions.¹⁴

A 2021 initiative between Singapore and Thailand, which predated the MOU, saw those countries decide to improve payment connectivity by linking their real-time retail payment systems – PayNow and PromptPay. This development addressed long standing pain points in cross-border transfers and remittances, including long transaction times and high costs, acting as a building block to strengthen financial integration across the Association of Southeast Asian Nations (ASEAN) region.¹⁵

Under this pioneering linkage, customers of the participating banks are now able to seamlessly transfer funds equivalent to roughly \$700 USD daily between the two countries, using their mobile phones. Singapore stands out as the most interoperable fast payments system in the world today having linked its PayNow to not only Thailand, but also Malaysia, and most recently India. India by the same token is set to expand its Unified Payments Interface (UPI) into the UAE, Mauritius and Indonesia, countries with a large Indian diaspora.

These seamless and instant cross-border connectivity initiatives reshape the way we perceive international transactions, ushering in a new era of convenience and accessibility for global financial interactions.

To help achieve greater coordination of efforts to connect real-time systems internationally, the Bank for International Settlements sponsored Project Nexus. In March 2023, the Nexus' prototype successfully completed connecting the International Payment System of Eurosystem, Malaysia and Singapore and allowed payments to be sent across the three regions using mobile numbers or the recipients' company registration numbers.¹⁶

"Our objective remains to accelerate regional financial inclusion as well as to implement faster, cheaper, more transparent and accessible cross border payment systems that will benefit our nations." Bank of Indonesia Governor, Perry Warjiyo.

¹² [Enhancing Cross-border Payments: Stage 3 roadmap](#)

¹³ <https://www.bnm.gov.my/-/5centralbanks-regional-payment-connectivity>

¹⁴ [QR Codes Link Singapore and Malaysia in Cross Border Payments](#)

¹⁵ [Maintenance](#)

¹⁶ [Project Nexus: enabling instant cross-border payments](#)

As a trading nation, Aotearoa would likely see significant benefits from being able to connect with overseas trading partners and their systems more easily, leveraging 24/7 connectivity and ISO 20022 messaging.

3. An ecosystem approach to modernisation

Policy makers have recognised that shifts in technology, consumer preferences and market dynamics require modernisation to pivot away from a singular focus on individual payment systems to a broader focus on the overarching ecosystem.

In late 2022, the Australian government announced a package of modernisation reforms that position the Australian economy to embrace new economic opportunities and respond to future challenges.¹⁷ The reform agenda is broad, reflecting an ecosystem perspective. The proposed reforms extend to:

- A strategic plan for the payments system developed in collaboration with regulators, the industry, consumer, and business representatives.
- Updating legislation to recognise the full suite of payment entities and systems that are in existence, including implementing a tiered licensing framework for payment service providers.
- Continuing the development of international interoperability through cross-border initiatives.
- Considering developments in the broader digital economy related to payments, such as digital wallets, buy now, pay later arrangements, stablecoins, crypto-assets, CBDCs, the consumer data right, and connecting with payment-related initiatives underway at the state level.

In the NGO space, the Bill and Melinda Gates Foundation's Level One Project takes an ecosystem approach to modernisation and inclusion. It works across public, private, and non-profit sectors to provide real-time digital payment system infrastructure at national and regional levels to help enable financial inclusion and bring low-income customers and merchants into the formal financial system.¹⁸

One example of an implementation with characteristics that align with the Level One Project is the Transfers Cleared on an Immediate Basis' (TCIB) scheme, developed by the Southern African Development Community (SADC). The SADC is a regional cooperative between 16 countries that aims to achieve sustainable

and collaborative development to help eradicate poverty. The TCIB scheme provides low-cost cross-border retail payments and the opportunity to support low-value remittances currently transferred through informal channels or formal channels at high costs.

4. Evolution of payments infrastructure

The ecosystem perspectives described above have led to an evolution in best practice for infrastructure design, reflecting more than a decade of international learnings. Modern 'generation 4' infrastructure represents significant improvements in platform design and participation leading to greater efficiency and cost savings when compared with older generation 'monolithic' systems.

In practice the different deployments discussed immediately below exist on a continuum rather than in a clearly delineated way. But there are some general conclusions that can be drawn from the evolution of efforts to modernise systems to allow transfers to take place in real time.

Early first-generation efforts were based on the ISO 8583 messaging standard and a simple cards switch paradigm, with the main intent to enable value transfers in real time. The UK's Faster Payments Service, launched in 2008, is an example of a first-generation deployment.

As the payment landscape and customer expectations evolved the constraints of those early deployments became more evident. These included limited support to develop overlay and value-add services to meet emerging user needs. Features such as a proxy database were constructed separately around the platform rather than being built into the core capabilities. The ISO 8583 schema also provided limited data payload compared to the ISO 20022 messaging standard, which enables enhanced international interoperability and richer payment data.

Second generation deployments moved beyond simple value transfers to incorporate multiple payment schemes such as request to pay and direct debit. These deployments used complex switches or distributed gateway models and the ISO 20022 messaging standard, with proxy services and mandates built into the core processing platform. They provided better support for overlay or value-add services. The initial Australian New Payments Platform release and the Saudi Arabian Immediate Payments System are examples of second-generation models.

¹⁷ [Modernising Australia's financial system | Treasury Ministers](#)

¹⁸ https://www.leveloneproject.org/wp-content/uploads/2020/07/L1P_Guide_2019_Final.pdf

Third and fourth generation deployments are now in operation. Some key features of the most recent deployments include ecommerce account-to-account payments, QR code standards, industry vertical focused overlay services, in-built systemic fraud detection and anti-money laundering monitoring. The Instant Payment Platform (IPP) in the UAE is one example. The IPP takes an ecosystem approach, unlocking network benefits and product developments, and utilises ISO 20022 capabilities.

The most recent infrastructure deployments are characterised by:

- A small core platform that is API and ISO 20022 enabled, with additional layers of functionality built on top.
- Basic payment schemes, such as credit transfers, mandate payments and request to pay, are built around the core, with commercial schemes following.
- Enhanced integration capability and modular architecture, which provides an opportunity for the platform to extend beyond value transfer to support new marketplaces and participants as the need arises.

The next gen ecosystem proposed for Aotearoa in Chapter 2 is considered a modern ‘generation 4’ system.

Every country and region have a unique set of issues to solve and have started their modernisation journeys from differing baselines. That said, it would be foolhardy for Aotearoa not to look for learnings and examples of best in class from those ahead of us in the journey and apply the learnings to Aotearoa appropriately to our unique landscape.

Economic impact of payments modernisation

The UK-based Centre for Economic and Business Research (CEBR) was commissioned to provide an analysis of the economic impact of payments modernisation initiatives (and specifically real-time deployments) around the world.¹⁹

They found three key areas of impact where economic gains were stimulated:

1. Improving the efficiency and reducing the costs of the payment infrastructure and wider financial system.
2. Unlocking working capital and reducing ‘float’ times.
3. Supporting the formalisation of economic activity that traditionally occurs beyond the jurisdiction of formal institutional frameworks, through reducing cash usage.

Specific country-level benefits are subject to both the ‘starting point’ in regard to payment capability and mix (for instance high-cash economies), as well as the specifics of each country’s modernisation efforts. As such, countries such as Aotearoa will see less impact relating to the formalised economy benefit (#3 above).

Initial CEBR modelling on the benefits to Aotearoa indicated a potential GDP uplift of up to 2.2%, however that figure is theoretical and must be subject to more detailed analysis based on a proposed scope, implementation approach and timeline. That said, there is clear evidence that tangible benefits will accrue from the reduction in failed and misdirected payments, as shown in the regional table below:

Cost of failed payments by region and cost component, \$ million and %								
Region	Labour costs		Customer attrition		Fees		Total	
	Cost	% of region	Cost	% of region	Cost	% of region	Cost	% of region
Asia-Pacific	\$12,673	29%	\$3,933	9%	\$27,094	62%	\$43,700	100%
Europe	\$12,954	34%	\$3,048	8%	\$22,098	58%	\$38,100	100%
Americas	\$9,099	27%	\$3,370	10%	\$21,231	63%	\$33,700	100%
MEA	\$510	17%	\$240	8%	\$2,250	75%	\$3,000	100%
Total	\$35,236	30%	\$10,591	9%	\$72,673	61%	\$118,500	100%

¹⁹ https://cebr.com/wp-content/uploads/2022/04/Real-Time-Report_v8.pdf

Payments modernisation in Aotearoa

Like other countries around the globe, Aotearoa has delivered a range of payments modernisation outcomes. Some of that modernisation has been facilitated by Payments NZ with industry support, such as the development of the PMP and this consultation paper for next generation real-time digital capabilities, while other efforts have been driven by alliances of industry players, such as the development and launch of Online EFTPOS.

Irrespective of who is leading the modernisation, it is clear there is considerable complexity, cost and time involved. Often that time extends to thousands of hours of work to upgrade and test systems, and to prepare support teams, all while delivering other significant change and compliance projects.

Below we comment on the aspects of payments modernisation where Payments NZ has worked alongside Participant and Member representatives, as well as initiatives from Te Pūtea Matua Reserve Bank of New Zealand (RBNZ), specifically:

- The closure of the Paper Clearing System (PCS).
- The launch and operation of the API Centre to provide industry leadership on open banking.
- Extending the processing of electronic payments through our Settlement Before Interchange (SBI) system to 365 days a year.
- Transitioning our High Value Clearing System (HVCS) to the ISO 20022 messaging standard.
- RBNZ's replacement of the Exchange Settlement Account System (ESAS) and NZClear, and its investigations into a CBDC.

These initiatives provide important context for the backdrop against which a next gen ecosystem is proposed. Our ongoing improvements to the ecosystem over time have continued to iterate and enhance the payments experience for New Zealanders. Notwithstanding, we are now at a point where a generational leap is required to support payments into the future in a way that continues to deliver on customer and regulatory expectations.

Payments modernisation initiatives in Aotearoa

Closure of the Paper Clearing System

Over the last few decades, the use of cheques declined significantly as more New Zealanders chose to make and receive payments electronically. This trend reflected a worldwide shift away from cheque use, which were increasingly a poor fit with the demands of the future digital economy.

With the decline in usage expected to accelerate given the ongoing transition to more accessible, low-cost, secure, and efficient electronic payment methods, the Participants in our PCS decided to cease issuing and accepting cheques. Accordingly, the PCS was decommissioned after the last Participant exited the system on 31 August 2021.

API Centre providing industry leadership on open banking

Open banking is a global trend that has been underway for several years now. While international approaches vary, a common feature is strengthening the control a consumer has over their banking information, sometimes enforced through legislation. Standardised APIs are the key enabling technology to deliver open banking outcomes.

Against that backdrop, and with the support of the industry, a decision was made in 2019 to launch the API Centre as a dedicated business unit within Payments NZ. The API Centre is primarily responsible for:

- Developing, maintaining, and publishing API standards.
- Promoting system efficiency, safety, and innovation through the use of those standards by API Standards Users on agreed terms and conditions.
- Facilitating API Standards Users entering partnerships to bring new innovations to market more simply and quicker.

The API Centre is providing instrumental leadership across the industry, including setting industry implementation plans, implementation of open banking standards, partnership frameworks, and focusing on an orderly transition into a regulated environment that makes use of industry progress, and is right sized for the context of Aotearoa.

SBI-365 implementation

Recognising consumers and businesses expect fast, accessible, and uninterrupted services across all industries and sectors, regardless of the day of week or time of year, the industry decided to move certain electronic payments and their settlement to 365 days a year with the SBI-365 project.

SBI-365 was a major industry initiative requiring significant system changes in all banks that are direct settlement Participants in our Bulk Electronic Clearing System (BECS). From 26 May 2023 those Participants have implemented 365-day payment capability for direct debits, automatic payments, bill payments and direct credits. This makes our core payment system more accessible and therefore speeds up the making and receiving of payments across Aotearoa.

HVCS ISO 20022 implementation

For the last three years, 13 financial institutions in Aotearoa have been involved in the migration to the ISO 20022 messaging standard in our HVCS.

ISO 20022 is being introduced in several phases. The first is the coexistence phase, which requires financial institutions to receive and process ISO 20022 payments while continuing to support the current MT message standard. Supporting two different messaging standards concurrently adds complexity and there has been considerable investment by the industry to ensure the two standards are interoperable.

From November 2025, all financial institutions will need to have the capability to send ISO 20022 messages and the MT standard will be retired. Over the next few years, financial institutions will be training staff to use the ISO 20022 standard. At the same time, they will be considering further innovation using ISO 20022, such as supporting extended character sets, which can be enabled to deliver exchange information using te reo Māori.

RBNZ ESAS and NZClear replacement and CBDC investigations

In 2020, the RBNZ completed a multi-year programme to modernise the payment settlement system, delivering a new real-time gross settlement system, ESAS 2.0, and central security depository, NZClear 2.0.

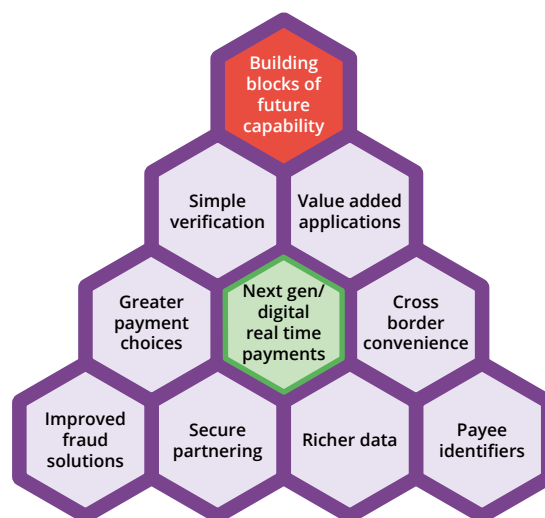
As well as positioning the RBNZ to leverage payment innovations, the new systems also ensured risk was managed more effectively. A separate database for each system reduces operational and cyber risks, and the enablement of future dated payments reduces credit and liquidity risks and helps to improve efficiencies.

The RBNZ commented at the time that the programme was “a massive exercise of good risk management and future-proofing the payment environment in New Zealand”.²⁰

Recently, and like many other central banks around the world, the RBNZ has been investigating whether a CBDC would be appropriate in Aotearoa given its potential contribution to achieving certain payment modernisation outcomes.

Payments Modernisation Plan

In Aotearoa, we continue to build on the work commenced with the industry as part of the 2020 Payments Modernisation Plan. This plan sets out an ecosystem approach to future capabilities by identifying nine capability building blocks. All of these building blocks can be enhanced or addressed by the establishment of a next gen payments infrastructure. This ecosystem approach to modernisation is an important hallmark of the work and recommendations outlined in the consultation paper, as it is central to driving investment efficiencies and leverages the self-reinforcing, network nature of payments capability.



20 [Payments and market infrastructure development – wholesale: Reserve Bank of New Zealand - Central Banking](#)

An example of this would be a next gen platform's capability to provide greater payment choices and rich data in conjunction with immediate messaging and value transfer. While Participants are best placed to assess how this could deliver the best value for their own customer channels, this ability to layer up complex capability is a key benefit of a modular next gen ecosystem.

Modernising regulatory and policy frameworks for Aotearoa

The above efforts have taken place at the same time as a growing number of regulatory and policy initiatives, which recognise Aotearoa is amid a transformation to become a world-class digital economy.

Some of these initiatives emphasise payments and allied activities. Specifically, in their 2024 Statement of Intent, the RBNZ commented that they continue to modernise regulatory frameworks in response to the constant evolution of financial and monetary systems, which present new risks and challenges, and that modernisation of the regulatory frameworks must keep pace to ensure confidence that payments within Aotearoa can be made safely and efficiently.²¹

Other initiatives extend to the development of frameworks for digital identity solutions, cyber security, consumer product and data and support for innovation and the design and delivery of industry and social policy.

While not a policy announcement, the RBNZ's letter to Payments NZ in June 2023 set out its expectations with respect to real-time payments in Aotearoa. The RBNZ's position is summarised as:

1. Real-time payments would contribute to a more efficient and reliable money and payments system that supports innovation and inclusion.
2. The private sector should lead this work.
3. RBNZ is focused on reliable, efficient, innovative and competition-enabling outcomes.
4. The future of New Zealand's payments ecosystem provides a unique opportunity where real-time account to account value transfer should form a foundation for other functionalities.
5. RBNZ does not see any critical dependency between a potential CBDC and a real-time account-to-account payment system.
6. Real-time payments capability will need to support financial stability consistent with Council of Financial Regulator's (CoFR) vision.

Refer to Chapter 1 - Regulatory oversight, governance, and management for further information on RBNZ position as outlined in letter to Payments NZ June 2023.

Payments modernisation in a dynamic environment in Aotearoa

A wide range of market, industry and regulatory actions are rapidly reshaping the payments landscape in Aotearoa. Any investment case will need to reflect this dynamic environment and be flexible enough to adjust to any new opportunities, priorities and regulatory obligations that emerge over time. Five themes are emerging from this changing payments landscape:

1. Current market and regulatory initiatives are focused on reducing losses in the ecosystem and finishing the delivery of open banking.
 - Banks are prioritising reducing financial harm and losses resulting from scams and fraud.
 - The industry via the API Centre, along with the Commerce Commission and MBIE are all focused on delivering industry standards and unlocking the benefits of open banking.
2. New regulatory levers over payment systems are actively being introduced.
 - Next gen's implementation, if it proceeds, will be delivered into an environment with significantly more regulatory cover than what exists today.
 - Most notably: the Consumer Product and Data legislation will likely be in place encompassing open banking; the Commerce Commission may have designated the account-to-account interbank payments network; and the RBNZ may have designated Payments NZ clearing systems(s) as Financial Market Infrastructures.
3. Regulatory expectations of payment system change are becoming more directive.
 - Historically, regulators in Aotearoa have provided little direction on the longer-term capabilities they expect from the payments ecosystem. This is changing.
 - Most notably: the RBNZ's expectations regarding real-time payments, the Commission's expectations on open banking, and the anticipated CoFR expectations to realise their

²¹ <https://www.rbnz.govt.nz/hub/-/media/project/sites/rbnz/files/publications/statements-of-intent/rbnz-soi-2022.pdf>

CoFR payments vision all share the theme of clearly setting out the changes they expect.

4. A major regulatory focus on payment systems is on enabling innovation and increasing competition.
 - Historically, regulatory payments policy work has focused on resilience, risk management and global compliance. A clear regulatory focus has emerged focusing on innovation and competition has emerged.
 - Notably, the Commission's potential designation of the retail payments network; MBIE's Consumer Product and Data Bill; and the RBNZ's ESAS access review, Digital Cash, and their expectations of real-time payments all share the policy focus of enabling innovation and increasing competition.
5. A degree of uncertainty will persist regarding the end shape of the payments landscape and the interconnections between market, industry and regulatory initiatives.
 - In the absence of a cohesive national payments plan that unifies the direction of public and private payment systems, a degree of uncertainty will remain. This particularly applies to the dependencies and interconnections between various public and private sector initiatives.
 - Digital Cash, like real-time payments, provides a means to exchange value between two parties in real time. It will take some years until we know whether Digital Cash will proceed or not.
 - Notably, both next gen itself and the anticipated CoFR expectations to realise their CoFR payments vision may provide the clearest view of the future payments landscape in Aotearoa.

The extent to which these themes directly impact next gen varies. Key developments expected in the short term that will most directly impact next gen are:

- the anticipated CoFR expectations to realise their CoFR payments vision, and
- should the Commission designate the interbank payments network, whether or not their designation encompasses all account-to-account payments, or just focuses on open banking.

We consider Digital Cash to be less relevant to next gen in the immediate term given its longer timeframes and uncertain status over the coming years, any next gen design considerations should take into account it's development.

Consultation question 1

Reflecting on the dynamic environment in which a next gen ecosystem and modernisation initiatives would need to take place.

In your view, what organisations are best placed to lead and contribute to a 'whole of system approach' and what outcomes would need to be achieved? How would you envisage this being brought together?

Macro benefits of payments modernisation in Aotearoa

While our current payments system meets the needs of the majority of New Zealanders today, Payments NZ recognise payments modernisation is an ongoing journey.

Payment systems operate as a network, but they are much more than a simple utility – they are also an enabler of competitive market activity because payments systems are at the heart of our economy.

The UK experience is relevant given they were an early mover in real time capability and implemented a "first generation" system. In its response to the Payments Landscape Review Call for Evidence, HM Treasury notes "the Faster Payments system has been a great UK success story. The UK was one of the first countries in the world to launch a 24/7 real-time payment system and speeding up payments has had wide benefits for the UK economy".²² While this system has delivered significant benefit for the UK, it has also had a number of challenges, particularly regarding fraud and misdirection of payments. As a result, there have been workarounds established which slow the speed of higher risk payments to provide time for additional fraud checking. The UK is now reinvesting in next generation payments capability through the build of their new payment system, which is more akin to our proposed next gen ecosystem.

With this new payments system, the UK seeks to realise six strategic objectives to support the UK economy:²³

1. Future proofing: maintaining a robust, resilient and scalable platform.
2. Faster: real-time capability while maintaining flexibility.
3. Helping to fight fraud: a safe and secure environment for all users.

²² <https://www.wearepay.uk/npa/about-the-mpa/>

²³ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1024174/HMT_Payments_Landscape_Review_-_The_Government_s_Response__October_2021_.pdf

4. Enhanced data: the adoption of global messaging standards (ISO 20022).
5. Fostering innovation: lower barriers to entry and flexibility of choice of access.
6. Driving efficiency: better productivity and lower costs for everyone in the payments ecosystem.

In Aotearoa, we have previously outlined the strategic benefits that investment in new next-generation real-time capabilities would unlock. Those benefits are set out in the discussion paper 'Payments for the next gen: real-time in Aotearoa New Zealand'. In summary those benefits include:

- Supporting immediacy in payments and associated notifications so they mirror the real-time digital experiences of consumers and businesses across the rest of the economy. Our 2024 consumer research shows that 24/7/365 real-time payments were the most appealing future payment method (76%), followed by receiving payment notifications via mobile or email (68%).
- Providing a centralised utility platform for ongoing payment innovation, particularly in areas that may not be well served by our current distributed systems. This includes supporting a wider range of 'overlay' service offerings and future scenarios, such as account-to-account payments at POS, and QR code enabled payments. Our 2022 consumer research revealed that 50% of those surveyed showed interest in QR code enabled payments.
- Playing a fundamental role in supporting national level plans to develop a vibrant digital economy. Messaging standards that support the exchange of 'rich data' and associated orchestration capability are likely to be key to the delivery of improved outcomes for consumers and businesses in the digital economy of the future. Of those participating in our 2022 consumer research, 68% expressed an interest in data rich payments.
- Achieving further improvements in payment speed and efficiency, contributing to one of the RBNZ's strategic objectives arising from the Financial Market Infrastructures (FMI) Act 2022.
- Providing a modern, efficient, and enduring core payments capability that can be leveraged over a long period of time. Feedback from the RBNZ to our 2022 Options Paper noted that real-time payments capability is a pre-condition for other modernisation efforts that could be undertaken.

In addition to the benefits above, there are a range of Environmental Social Governance (ESG) benefits a next gen payments ecosystem could feasibly deliver. These include:

- Enabling access to the financial system by implementing a platform to support both online and offline payments, as well as digital wallets and distribution of government aid to communities in need, for example, following a natural disaster.
- Utilising APIs and the rich data capability of the platform to:
 - Provide carbon footprint calculators and offset services that help educate customers on the environmental and social impacts of their transactions.
 - Support products and services that improve financial literacy and money management to help customers make informed financial decisions.
 - Track the ESG impacts of loans and investments.
 - Assist customers with risk management and ESG reporting and disclosures.

While our 2021 Market Information Gathering exercise outlined a range of use cases that could be enabled by real-time payments capability, it is clear from experiences in other industries that previously unimagined use cases and business models can also be realised by harnessing the power of digital innovation in a well-designed ecosystem. For example, peer-to-peer ride sharing would have been impossible without digital maps and geolocation technology to pinpoint exact locations. A shift to next gen infrastructure capabilities has the potential to reveal equivalent developments in the field of payments and allied activities.

Consultation question 2

Since our market gathering exercise and resulting real-time options paper, the ecosystem has continued to develop.

In your view, what future strategic capabilities should be prioritised in the design of a next gen ecosystem? What else should we be considering?

Risks of inaction

Addressing current limitations

Back in 2020 when working alongside the industry on the PMP, we identified the following seven limitations of our existing system:²⁴

1. Our inter-bank payment system is a batch system that does not support real-time payments.
2. The messaging standard (BACHO) used across our BECS limits the information carried from payer to payee.
3. Our inter-bank payment system is only available on a 5 day/15-hour basis.
4. Our inter-bank payment system only supports limited overlay service offerings which constrains the ability for the wider market to innovate.
5. Each party does its own identity verification and due diligence processes (KYC/CDD) which means customers must repeat complex activities and disclosures, and the industry duplicates costly compliance efforts to establish the legitimacy of the payer and payee.
6. The industry does not have a shared tool set to manage and monitor payments fraud.
7. There is a limited set of standardised APIs in the marketplace.

Since the PMP was finalised some of these limitations have been addressed or are in the process of being addressed. Specifically:

- SBI-365 now expands system availability to a 7/15-hour basis. If a decision was taken to move availability further towards 24/7/365 this would allow customers to send and receive interbank account-to-account payments at the time that best suits them.
- The introduction of ISO 20022 into our HVCS is a first step in the transition to the use of data rich and more modern payments messaging in Aotearoa.
- The API Centre is now firmly established as the home of open banking in Aotearoa and is making inroads to ensure that the ecosystem is more plug and play. The recently released exposure draft of the Customer and Product Data Bill has the potential to accelerate the positive impact the API Centre has on open banking.

While our existing interbank payments system meets the needs of the majority of New Zealanders and supports safe and secure payments, it is evident it is not suitable as a foundational platform which can:

- Deliver data rich value transfers in real time.
- Support enhanced functionality.
- Support a more open and diverse ecosystem.
- Support money neutral value transfers.
- Deliver improved cross-border payment experiences.

Consultation question 3

While next gen is focused on systemic payments modernisation, our most important consideration needs to be the people and organisations of Aotearoa.

What considerations would you suggest need to be incorporated into the work to better reflect the diverse needs and expectations of people and organisations who are served by the payments ecosystem? How would you like to see this evolve as we progress our discussions?

Consultation question 4

What is your assessment of the extent and impact of the limitations within the existing ecosystem?

In your view, how will these impact the delivery of digital payments services and experiences to users of the ecosystem in the future?

Immediately below we examine each of these points in more detail.

²⁴ https://www.paymentsnz.co.nz/documents/309/Payments_NZ_Payments_Modernisation_Plan.pdf

Deliver data rich value transfers in real time

Being able to deliver transfers of data and value in real time would bring Aotearoa into step with many international payments modernisation efforts.

ACI state that “next-generation payment schemes, underpinned by the real-time transfer of funds, have become commonplace around the world. Most major markets are now either live with national account-to-account instant payment capabilities or have them in development”.²⁵

The launch of SBI-365 marks another step forward on our modernisation journey. However, it does not deliver an ‘always on’ experience and we know real-time capability will soon be required to keep pace with end user expectations for immediacy and the need to conduct commerce in real-time.

In 2019, the Payments Direction Speeding Up workstream investigated how SBI could be made even faster, concluding there was a technical constraint of 15 minutes. Investigations found submitting files in less than 15-minute intervals would create pipeline risk as the system would hit capacity constraints and Participants might not complete file processing before the next file was submitted. So, while SBI can be made to go faster, it cannot be made real-time.

Provide enhanced functionality via richer messaging and modern architecture

Most next-generation systems feature open API design principles, ISO 20022 messaging and centralised fraud capabilities. This creates an opportunity to provide enhanced functionality and interoperability, benefiting users across the ecosystem.

The use of APIs allows for easier, standardised, integration for solution providers to connect to the system, helping foster competition and innovation and supporting a wide range of new services to be introduced over time.

The rich data capability of the ISO 20022 messaging standard enables parties in the payment chain to share more information about a transaction in the payments message, creating opportunities including:

- Improved operational efficiencies due to more structured and reliable payment information. This enables straight through processing and more automated reconciliation processes.
- Easier cross-border payments due to the use of a common standard.

- Enhanced compliance capability for anti-money laundering, KYC, and screening of transactions due to richer information about the payment, the originator and the reason for the payment being shared. This reduces internal compliance investigations, delays, and costs.
- Improved customer experiences through value added services, such as setting payment priorities and providing information rich bank account statements.

Centralised fraud management capabilities also ensure the ongoing safety of the platform, reducing systemic risk.

Support a more open and diverse ecosystem

Like other jurisdictions around the globe, payments in Aotearoa have historically been bank centric. However, driven by a combination of emerging technologies and rising customer expectations, the ecosystem has grown more diverse. New ways to make and receive payments are proliferating and a growing number of non-bank entities are involved in the process by offering or facilitating payments services. Developments like open banking will only accelerate this trend with increased emphasis on new payment offerings as customers share their financial data to access new and innovative data-rich experiences.

Our current core payments infrastructure remains heavily oriented towards direct settlement Participants (largely registered banks). Going forward, our modernisation efforts will need to ensure our next-generation capabilities act as a platform for innovation across the ecosystem, allowing both banks and non-bank entities to leverage those capabilities through appropriate access arrangements.

The centralised core of a next gen ecosystem supports a wider and more varied participation model, allowing organisations of different sizes and capabilities to join the ecosystem. Should participation in the ecosystem continue to grow on our current platform, the industry will begin to incur a significant bilateral testing burden, one which could in time become a barrier to entry.

Support money neutral value transfers

It is clear new forms of money are very much on the rise around the world. These new forms of money include privately issued digital money, such as stablecoins, and publicly issued digital money, such as CBDC. Increasingly, next-generation capabilities need to support money neutral value transfers.

²⁵ [How New Zealand's Banks Can Prepare for Upcoming Account-to-Account Real-Time Payments | ACI Worldwide](#)

Deliver improved cross-border payment experiences

The International Financial Stability Board's roadmap identifies the interlinking of real-time payments as a key building block for the future of the industry.²⁶

In the South Pacific, cross-border payments are critical to financial inclusion and the region's economic prosperity, enabling trade, foreign investment, and remittances, which are a key source of income for many citizens.²⁷ In Tonga, remittances as a share of GDP are approximately 40% while for Samoa it is 17%, with Aotearoa one of the main sources of these funds. The RBNZ is committed to ensuring remittances are cost effective, safe, and accessible, and in 2021 called on the industry to "make supporting Pacific Island countries and their economies a strategic priority", stating more could be done in this area.²⁸

Trans-Tasman interoperability, especially when implemented with the rich messaging standard, ISO 20022, would help to achieve the objectives of the Single Economic Market (SEM) agenda. The SEM agenda is a bilateral agreement between the Governments of Australia and New Zealand to create a seamless trans-Tasman business environment.²⁹ The trans-Tasman e-invoicing framework could also be supported by the linking of payment systems, which in 2018 was estimated to result in over \$30 billion in benefit to New Zealand's and Australia's economies over 10 years due to improved efficiencies and reduced error handling and processing costs.³⁰

Aotearoa – what if we do nothing?

The introduction of next-generation capability is a pre-condition for further modernisation efforts and for delivery of our modernisation roadmap. That is clear from the RBNZ's statement on the need for real-time payments capability in Aotearoa.³¹ If Aotearoa does not soon commit to a viable pathway to real-time capability, then we risk:

1. Failing to address productivity challenges within Aotearoa will impact our competitiveness and ambitions to become a world-leading digital nation. A next-generation payments platform is an enabling infrastructure for the future which, if configured correctly, has the capability to support a range of

digital initiatives that can boost productivity and contribute to GDP. NZIER research showed that businesses investing in digitisation could add almost \$8 billion per year to New Zealand's GDP through improved productivity.³²

2. A growing domestic gap between what customers and businesses require and what our traditional batch system can deliver. We risk being unable to close that gap in a timely manner because of the scale of the industry change exercise.
3. Progressively ceding the payments landscape to others. For example, to technology companies with social media and messaging-based solutions, which better reflect consumer preferences and behaviours. These solutions can also create risks for consumers as they lack KYC/AML checks and mechanisms to claim back losses due to fraudulent or incorrect payments. In Brazil, WhatsApp has enabled users to pay small businesses for goods and services. Consumers can complete their shopping journeys without leaving conversations with merchants within the app.³³
4. Being unable to fully harness the value of modern flexible payments messaging standards and the API assets already created by the API Centre.
5. Failing to meet regulatory expectations that have been clearly articulated by the RBNZ. Potentially stronger and more direct regulatory action could follow in the future.
6. A growing gap between Aotearoa and our major trading partners that do have real-time capabilities, especially given the trend to connect retail payment systems to improve the speed, security, and efficiency of cross-border transfers. Of the 38 OECD countries, Aotearoa is the only country to have not implemented, or committed to implementing, real-time capability.
7. A more fragmented payment market which puts interoperability goals at risk and sees traditional value chains break down.
8. Regulatory mandates that result in the ecosystem being tasked with implementing a regulatory-led and designed real-time capability, that may not focus on areas of priority for the industry.

²⁶ [G20 Roadmap for Enhancing Cross-border Payments: Consolidated progress report for 2022](#)

²⁷ [Central Banks committed to economic prosperity and wellbeing in South Pacific](#)

²⁸ [Keeping the bank door open for Pacific peoples](#)

²⁹ [New Zealand Ministry of Foreign Affairs and Trade](#)

³⁰ <https://www.mbie.govt.nz/assets/558a6203a8/discussion-paper-operational-governance-for-trans-tasman-e-invoicing-framework.pdf>

³¹ [Payments NZ welcomes the Council of Financial Regulators' vision statement for payments, and the Reserve Bank of New Zealand's statement about the importance of developing a real-time payments system for Aotearoa New Zealand.](#) | Payments NZ

³² [Aotearoa New Zealand's \\$7.8 billion digitalisation opportunity](#) | Xero Blog

³³ [WhatsApp Launches Business Payments Feature In Brazil](#)

While many of these could be solved through point solutions, or further development and investment in our existing SBI system, those solutions will not provide an enduring and enabling platform that the industry can leverage in the long-term. Making a start on the investment of a future platform now will ensure that our investment can provide forward momentum, support digital growth and futureproof the ecosystem. Investing in ageing, batch technology will add complexity, is no longer considered best practice and may:

- Result in further fragmentation of the payment landscape and customer without a centralised capability for the ecosystem to leverage.
- Result in sub-optimal customer outcomes in the medium-long term.
- Mean that the Aotearoa payments ecosystem misses an opportunity to leverage learnings and deliver benefits seen by other nations who have invested in modern payments capabilities.
- Disadvantage the economy of Aotearoa in the long term through missed efficiencies and opportunities that can be delivered by a modern payments infrastructure. CEBR has an international modelling framework that illustrates an uplift in GDP of nations following the go-live of real-time payments capabilities.

Consultation question 5

What is your assessment of the risk of inaction outlined in this section. Do you agree or disagree with these points, and why?

Are there other risk scenarios that should be considered?

Regulatory oversight, governance, and management

Introduction

This section addresses the governance and operational considerations of a next gen ecosystem. It is designed as a high-level summary setting out the key considerations and design elements that would need to be agreed in subsequent phases of work.

Strategic context

A key feature of the design and approach of a next gen platform is ensuring it makes its functionality and capabilities available safely, to a larger group of users on a well-managed basis. This approach necessitates broad considerations around who is able to participate in the ecosystem and on what basis.

During this initial phase of activity, there has not been deep exploration into the nuances of participation and engagement as this has been highlighted as an activity for a future, detailed design piece of work. Instead, we have opted for a principle-based approach which addresses governance from the working assumption that the governance of a next gen ecosystem would need to cater for a broader range of participants and stakeholders than traditional governance arrangements.

This broader range of participants and stakeholders emerges from the modular composition of the next gen platform architecture. Therefore, the next gen ecosystem is expected to include stakeholders who are closely involved in the detailed infrastructure capabilities provided by next gen, those who are involved in the delivery of the capabilities (schemes), and those who are simply consuming the capabilities of the ecosystem via APIs.

This would need to be supported by a layered approach to governance and more specifically, participation. While governance is outlined in this section, participation will be further developed as more detailed design activities progress.

The approach to governance can broadly be organised around three key requirements:

1. Governance of centralised infrastructure
2. Governance of schemes
3. Governance of APIs (API Centre)

Principles for Financial Market Infrastructure (PFMI)

Issued by the Bank for International Settlement (BIS) Committee on Payments and Market Infrastructure (CPMI) and the International Organisation of Securities Commissions (IOSCO), the PFMI³⁴ are part of a set of standards that the international community considers essential to strengthening and preserving financial stability.

As noted by the RBNZ, the Financial Markets Infrastructure Act 2021 (FMI Act) incorporates the principles laid out in the PFMI. Designation of a system under the FMI Act is determined by the RBNZ based on criteria including the systemic importance of the system in question. At launch, the proposed next gen platform would not meet the systemic criteria and as such would not be bound by the Act, however, over the long term the system is likely to meet those criteria.

Regardless of designation under the FMI Act, the PFMI is recognised as international best practice and as such it is prudent to design the next gen ecosystem in accordance with the principles from the outset. This will mitigate the risk of rework to meet FMI Act requirements in the future.

Infrastructure and scheme governance

Existing payment systems in Aotearoa governed by Payments NZ are organised into Clearing Systems. Payments NZ's constitution places a significant emphasis on interoperable, innovative, safe, open and efficient payments systems, as well as the creation and management of rules relevant to clearing systems and encouraging and facilitating new entrants into the payments landscape.

Clearing system Participants are bound by the rules, relevant to clearing systems in the form of multilateral contracts between Participants and between Payments NZ and Participants.

These rules reflect the PFMI principles aimed at strengthening and preserving the financial stability of payment, clearing, and settlement systems.

³⁴ <https://www.bis.org/cpmi/publ/d101.htm>

In addition to these arrangements, and to ensure the appropriate level of oversight in the deployment of open banking, the Payments NZ Board has established an API Council with delegated authority for the day-to-day governance of the API Centre. Members of the API Council must act in the best interests of the API Centre, and not in the interests of their own institution.

As the payments ecosystem has evolved, there has been an increasing need to acknowledge the wider range of organisations involved in payments. The membership programme and the API Centre are both areas where the company has leant into this wider ecosystem. The next gen ecosystem would evolve this further due to its establishment of centralised capability, open access model and focus on data and modularity.

Separating the governance of schemes and infrastructure

It is recommended that there is a separation of the governance roles and responsibilities of the schemes (for payment instruments and centralised services), from the governance roles and responsibilities of the provision and management of next gen's centralised infrastructure (platform technologies and operational capabilities). Separating the governance of schemes from infrastructure is considered important as they are conceptually very different, each with distinct capabilities and issues to manage. Other reasons for this separation include:

- Aligns with international best practice.
- Consistent with our history of separating rules from infrastructure (including the RBNZ's internal separation of payment system operations and their supervision).
- There are different levels of regulatory oversight required.
- Potential FMI designation of payment systems may necessitate separation.
- Some ecosystem participants would not be involved (or invested) in the entire value chain but will have a specific governance interest in a particular aspect or service within the ecosystem.
- Requiring all participating organisations to be involved in core infrastructure governance would likely be a barrier to entry for many potential participants.
- There needs to be governance arrangements where participants are able to connect to the ecosystem and provide a commercial service.

Data governance

Tō Mātou Haerenga

The introduction to Payments NZ's te ao Māori strategy; Tō Mātou Haerenga, provides important context to the governance of the ecosystem.

As a payments industry leader in Aotearoa, Payments NZ acknowledges we have a kaitiakitanga (guardianship) role to support Māori whānau to achieve financial wellbeing and equity through a world class payments system. We are committed to te ao Māori and upholding the articles of Te Tiriti o Waitangi, by ensuring the representation and rangatiratanga of Māori within the payments network. We believe payments that enable equity for Māori will enable equity for all.

The name of this strategy, Tō Mātou Haerenga, speaks to the journey we are on and committed to into the future to connect to te ao Māori. As we progress on our journey, we will enhance the name of our strategy to reflect where we are in our journey or to reflect a te ao Māori narrative or pūrakau (story), Tō Mātou Haerenga is the starting point.

This is an intergenerational strategy for Payments NZ. Our guiding whakataukī (proverb) for Tō Mātou Haerenga, was laid down by our Chief Executive to the industry in 2022 and encapsulates the overall challenge and aspirations of our vision for ourselves and our industry.

*Whāia te iti kahurangi, ki te tuohu koe,
me he maunga teitei*

*Seek the treasure that you value most dearly,
if you bow your head, let it be to a lofty mountain.*

This whakataukī speaks of perseverance and endurance, refusing to let obstacles get in your way while striving to reach your goals and pursuing your destiny.

Māori data governance

Considerations of Māori data governance relate directly to our aspirations and obligations under Tō Mātou Haerenga. Throughout 2023 Payments NZ partnered with Nicholson Consulting who are experts in supporting organisations to implement appropriate data governance and management considerations relating to Māori data governance and Māori data sovereignty.

The report draws on the work of Te Kāhui Raraunga,³⁵ who in May 2023 released the Māori Data Governance

³⁵ Te Kāhui Raraunga Charitable Trust (Te Kāhui Raraunga or TKR) is an independent body established in 2019 to lead the action required to realise the advocacy of the Data Iwi Leaders Group (Data ILG).

Model, which is intended to help guide the Aotearoa public service on implementing system-wide governance in a way which is grounded in Te Ao Māori, delivers on Māori aspirations and needs, and is in alignment with the Crown's responsibilities under Te Tiriti o Waitangi. Although Payments NZ and the API Centre are not Crown entities, the model demonstrates good data governance practices that are relevant to all organisations.

The model presents eight Māori data governance pou (pillars),³⁶ which represent the key priorities of action to establish Māori data governance.³⁷

Future phases of work will incorporate exploration of the collection, classification, standardisation, use, and sharing of Māori data in accordance with Māori data governance principles.

It is important to note that whilst the above considerations are specific to Māori data, the application of Māori data governance principles is generally recognised as having benefits to the entire population. For example, the same principles and mechanisms that can report on efforts to improve access for Māori can also be applied to other ethnic groups, for those excluded due to inaccessibility of systems (e.g. blind and low vision), or for any other vulnerable group or community facing barriers to participation. In that regard it is our intention to apply the principles of these eight pou to all aspects of data governance for the next gen platform.

Privacy

Privacy by Design is a concept whereby privacy considerations are addressed from the beginning of a design project, rather than being assessed 'after the fact'. There are seven commonly recognised principles of Privacy by Design, endorsed by the International Association of Privacy Professionals, the Office of the Privacy Commissioner.

1. **Proactive not reactive** – preventative not remedial

Anticipate, identify and prevent invasive events before they happen, this means taking action before the fact not afterward.

2. **Lead with privacy as the default setting**

Ensure personal data is automatically protected in all IT systems or business practices, with no added action required by any individual.

3. **Embed privacy into design**

Privacy measures should not be add-ons, but fully integrated components of the system.

4. **Retain full functionality** – positive-sum, not zero sum

Privacy by design employs a 'win-win' approach to all legitimate system design goals, that is both privacy and security are important, and no unnecessary trade-offs need to be made to achieve both.

5. **Ensure end-to-end security**

Data lifecycle security means all data should be securely retained as needed and destroyed when no longer needed.

6. **Maintain visibility and transparency** – keep it open

Assure stakeholders that business practices and technologies are operating according to objectives and subject to independent verification.

7. **Respect user privacy** – keep it user-centric

Keep things user-centric, individual privacy interests must be supported by strong privacy defaults, appropriate notice, and user-friendly options.

All aspects of a next gen ecosystem design would be developed in accordance with these principles.

Security

Security of data flowing through and stored in the ecosystem is fundamental to good governance and the protection of customer and participant information.

The fraud risks associated with any payments system are extreme, in particular, where systems can facilitate the real-time movement of funds.

Along with the privacy considerations detailed above, security of sensitive customer information is critical. Any store of personal information and credentials can be a 'honeypot' for bad actors and enable account takeover and identity theft. Design considerations include minimising the retention of potentially sensitive information, robust access protocols and the use of encryption and tokenisation techniques.

³⁶ Te Kāhui Raraunga (2022). *Iwi Data Needs Paper*.

³⁷ <https://www.paymentsnz.co.nz/resources/articles/our-journey-begins-a-new-dawn-for-data-governance/>

Platform data governance

Strong data governance across the next gen platform will be paramount and will be covered further in the data strategy exploration. Considerations include:

1. Security of data flowing through and/or stored in the platform.
2. Platform operational and performance data and metrics.
3. Usage statistics and resulting insights.
4. Billing data.
5. Secure data management of respective modular capabilities, e.g. payment processing, proxy identifier centralised registry.
6. Data access controls and usage rights, including considerations for organisations in the business of brokering data.
7. In any future interoperability with open banking data, managing use and disposal of such data in accordance with the associated consent parameters.
8. Operational data relates to the core processing functions of the platform and includes Payment processing (including the tracking status and exceptions), dispute management, fraud reporting and the management of registers to support proxy, confirmation of payee, bill payments etc.

In addition to the essential operational data referenced above, a next gen platform can be utilised to provide a much richer store of data and metrics associated with the intended outcomes and impact of the ecosystem. This is particularly pertinent to objectives of financial inclusion, resilience, efficiency and choice. This is both an opportunity and a risk, as any data stored must be actively protected from fraud and potential misuse.

Proactive governance of access and use would be essential, and it will be necessary to ensure the integration of data governance in broader governance arrangements occurs.

Regulatory considerations

There are two key pieces of regulatory engagement that are relevant to the consideration of the consultation paper. More broadly, we encourage readers to familiarise themselves with the wider context in which this regulatory engagement is occurring.

Te Pūtea Matua Reserve Bank of New Zealand

In July 2023, RBNZ issued a letter titled 'Reserve Bank position on Aotearoa New Zealand's need for real-time payment capability'.³⁸ in response to a series of questions posed by the programme. The letter contains important guidance from the RBNZ which is summarised below.

The RBNZ identified the following six key messages:

1. Real-time payments can directly contribute to a more efficient and reliable money and payments system that supports innovation and inclusion.
2. RBNZ's preference is for the private sector to lead and make meaningful progress on developing and implementing New Zealand's real-time account-to-account payments capability.
3. RBNZ will, alongside other CoFR agencies, engage with industry on major design issues to keep a focus on delivering reliable, efficient, innovative and competition-enabling outcomes.
4. Despite payments capability falling behind global counterparts, the current consideration of key pillars of the future of New Zealand's payments ecosystem provides unique opportunity. The real-time account-to-account value transfer should form the basic foundation on top of which other functionalities can be built.
5. RBNZ does not see any critical dependency between a potential CBDC and a real-time account-to-account payment system.
6. Real-time payments capability would need to be delivered in a manner that is consistent with financial stability, and CoFR's vision for payment systems. The arrangements should observe the relevant international standards for payment systems, the Principles for Financial Market Infrastructures (PFMI).

The letter addresses several questions posed³⁹ by Payments NZ in relation to the proposed key design and governance principles, however, in summary, the RBNZ indicated they believe:

- An open access framework is critical to meet the needs of different segments in the payments market.
- It is vital to success that most if not all bank accounts in Aotearoa have real-time capability, interoperability between all participants of any real-time payments infrastructure would be crucial.
- Digital wallets would likely be a key future

³⁸ <https://www.rbnz.govt.nz/-/media/project/sites/rbnz/files/publications/information-releases/2023/letter-to-payments-nz-on-nzs-need-for-real-time-payments-10-july-2023.pdf>

- intersection point between financial services; account-based payments; digital identity; a CBDC; and other services.
- Resiliency, safety and protecting users should be core attributes of any payment system.
 - A strong focus on how Te Ao Māori and Māori Data Sovereignty principles are proactively reflected and built-in to the in design and development of any real-time payments infrastructure.

Commerce Commission | Te Komihana Tauhokohoko

Also in July 2023, the Commerce Commission | Te Komihana Tauhokohoko released a discussion paper on payments between bank accounts in Aotearoa. Specifically, the paper explores how new payment options that allow consumers to make payments between bank accounts will meet the purpose of the Retail Payment System Act 2022 to promote competition and efficiency in the retail payment system for the long-term benefit of businesses and consumers in Aotearoa.

Upon completion of initial consultation, the Commission issued an open letter to the industry summarising its views and outlining next steps.⁴⁰ The letter signals an intent to begin formal consultation on whether to recommend to the Minister the need to exercise powers that would enable it to ensure this innovation happens in a timely manner.

The letter acknowledges progress but raises concerns about the pace of change. Commission Chair Dr John Small states, “We acknowledge that the industry has demonstrated some progress in the payments space but are concerned about the length of time it’s taking to see this realised for the benefit of Kiwi consumers and businesses. Banks need to pick up the pace and we think a regulatory backstop would encourage them.”

Other key observations from the Commission’s discussion paper include:

- More efficient payments between bank accounts will reduce both merchant and consumer reliance on the likes of Visa, Mastercard, and American Express and the costs associated with these types of payment methods.
- An observed lack of innovation in payments between bank accounts, a method the Commission notes as ‘one of the cheapest payment methods available’ to New Zealanders.

- The fact that bank transfers are not new, and many consumers pay bills this way – but the Commission wants to see bank transfers used to support better ways to pay, including the use of QR codes and mobile applications that facilitate new in-person payments.
- The importance of a regulatory backstop to help create an environment where new entrants can innovate, and the enabling effect of freeing up payments between bank accounts.

In March 2024 the Commerce Commission further released their draft report from the Market Study Disruptive forces needed to drive change in NZ’s personal banking sector. Commerce Commissions Chair Dr John Small said “Many of the issues we’ve identified are systemic, so this isn’t about quick fixes, but we would expect to see sustained and enduring improvements in competition across personal banking services over time.”

Draft recommendations

The draft recommendations are grouped into four interdependent areas that reflect the regulatory, behavioural and strategic impediments that make it difficult for new and existing providers to enter and expand in the market.

Improve the capital position of smaller providers and Kiwibank

- Access to capital is one of the key constraints affecting the ability of smaller providers and Kiwibank to grow and compete.
- The report recommends that the RBNZ reviews its prudential capital settings to ensure they are competitively neutral and smaller players are better able to compete.
- It also suggests that Kiwibank’s owner considers increasing its access to capital, and converting it into a disruptive competitor.

⁴⁰ https://comcom.govt.nz/_data/assets/pdf_file/0017/344132/Retail-Payment-System-Update-on-our-Payments-Between-Bank-Accounts-work-22-February-2024.pdf

Accelerate progress on open banking

- Open banking has the potential to revolutionise banking over the medium to long-term. However, fintechs are facing severe barriers and are unable to provide disruptive innovation.
- The report recommends setting a clear deadline to have open banking fully operational by mid-2026 and having regulatory backstops available so that the minimum requirements are delivered to support the acceleration of open banking.
- It also recommends that the Government does more to reduce the barriers imposed by the Anti Money Laundering and Countering Financing of Terrorism regime on banks working with fintechs.

Ensure the regulatory environment better supports competition

- The report recommends that policy makers and regulators responsible for the personal banking sector explicitly and transparently consider the competitive effects of their decisions.
- The recommendations are intended to reduce unintended consequences of decisions on competition and ensure that any trade-offs with other policy goals (such as financial stability and consumer protection) are specifically considered.

Empower consumers to better access the benefits of competition

- The report sets out how consumers will directly benefit from reduced barriers to switching providers.
- The recommendations include the introduction of better tools and services to help consumers get the best deal, an enhanced switching service, and the introduction of a basic bank account service that is accessible to any New Zealander.

Consultation question 6

Do you agree with the positioning as set out in this section of the consultation paper regarding regulatory oversight, governance and management?

What else should we be considering in this space?

Consultation question 7

What role do you think regulators need to play to progress the programme and payments modernisation more broadly?



paymentsnz

Consultation on payments for the next generation

Chapter 2: Foundational
ecosystem design



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Introduction

This chapter presents an initial foundational ecosystem design (the design). It builds on Chapter 1 of the consultation paper which discusses payments modernisation developments globally and details the overarching benefits of a modern payments ecosystem for Aotearoa New Zealand.

Work to facilitate and drive payments forward as part of our Payments Modernisation Plan (PMP) has been under consideration since 2020. In addition to extensive industry engagement, we have had discussions with payment associations and solution providers around the world to learn from their payments modernisation journeys and experiences in implementing ecosystem-enabling payment capability. A key focus of these discussions has been about which services should be enabled and in what order to meet the most urgent needs, and how to ensure that a next generation (next gen) platform is viable and cost-effective in the long term. We also engaged the services of Accenture to provide strategic guidance and align with international best practice.

Industry feedback highlighted the need for a solid, safe and secure platform with fraud mitigation capabilities. As a result of this, the content included within Chapter 2 has been changed since its initial draft-release in 2023, to better reflect both the feedback from industry and our deepened understanding of how a modular design approach can be applied. The design outlined in this chapter aims to promote real-time digital interactions and other key capabilities revealed through collaborative engagement, while maintaining the guiding principles upon which the design is based, with the eventual end goal of enabling modern, data-rich and highly functional real-time digital payments for New Zealanders.

The design makes an important distinction between 'real-time digital interactions', and 'real-time digital payments':

- **Real-time digital interactions** - are functional capabilities that facilitate the immediate exchange of information before, during or after a payment, but do not directly involve the processing of a payment. These payment-adjacent capabilities make the payments ecosystem safer and improve the functionality in the payments ecosystem. For example, payment fraud detection across the payments network, data-rich payments notifications, and the use of digital identity in payments scenarios.
- **Real-time digital payments** - transfer money between two bank accounts through a payments process that is initiated and cleared nearly instantaneously.

The design prioritises the introduction of real-time digital interactions first, as this lays the foundation for the eventual safe introduction of real-time digital payments. Accordingly, the design reflects the following priorities and ambitions and is organised around:

- Prioritising safer payments capabilities from the beginning, for all interactions.
- Creating a resilient and scalable national infrastructure that can underpin the future digital economy of Aotearoa.
- Establishing an enduring, equitable and future-proofed payments ecosystem that is fit for future generations.
- Being well connected with, and leveraging, other payment capabilities including open banking and digital identity services.
- Delivery of real-time digital interactions that provide enabling benefits to market participants and support end users.
- And, at the appropriate time, delivering real-time digital payments in a safe and low risk manner.

Design considerations

Design principles

The design rests on five guiding principles, which we developed with the industry as part of our PMP. The intent was that these principles would be applied to all modernisation activities we undertook in the future.

The principles link back to an overarching ecosystem modernisation principle articulated in the PMP, that 'Payments modernisation should enable innovative and interoperable payments systems so Kiwi can pay who they want, when they want and how they want.'

To address the current industry challenge and focus on fraud prevention, the principle has been updated to highlight the imperative for payments to be safe: '*payments modernisation should enable innovative and interoperable payments solutions so Kiwi can safely pay who they want, when they want and how they want.*'

Design objectives

In addition to the design principles, several design objectives were developed with the industry as part of our early work to help ensure we can deliver a future-proofed ecosystem that balances competing considerations, such as safety and resilience, affordability, and the opportunity for stakeholders to innovate. They seek to reflect Payments NZ's constitutional objectives to promote interoperable, innovative, safe, open, and efficient payments systems.

- Ensure core technology is 'right sized' for the context of Aotearoa.
- Recognise critical requirements for resilience, availability, security, and performance.

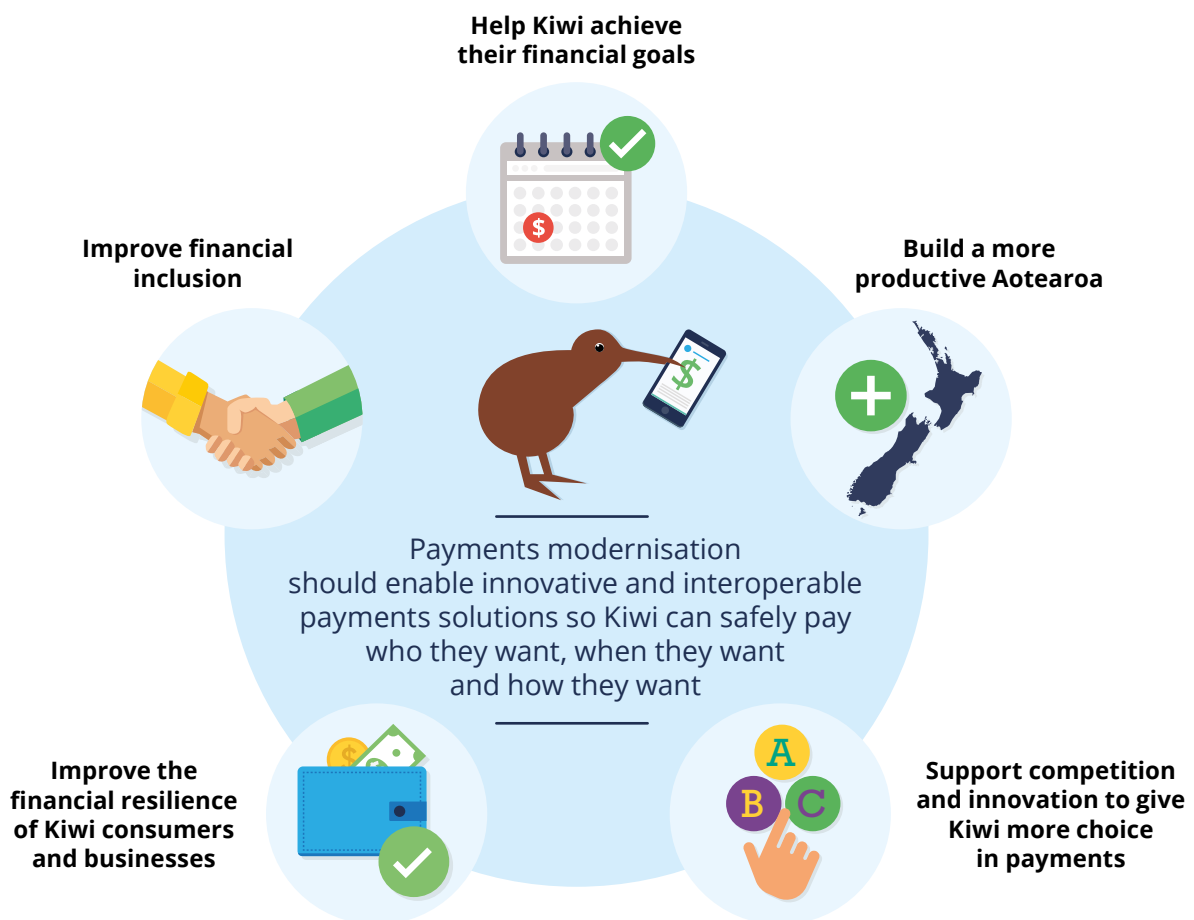


Figure 1: PMP guiding principles

- Create a building block approach that enables different payment types, payment notifications, payments data and services to be re-used and combined in ways to support new and innovative product development.
- Prioritise the introduction of capabilities that make payments safer.
- Ensure cost-effective methods of delivering capability at the platform level to allow services, such as real-time fraud detection, to be made available with low integration effort and economies of scale.
- Extensibility, so Participants and innovators will be able to connect to the core platform to develop overlay services that support a broader range of use cases and deliver innovative value add products and services.
- Provides opportunity to consolidate, simplify, remove or replace current legacy payment instruments and capabilities.

Consultation question 8

What is your view on the need to modernise the account-to-account payments network in Aotearoa, as envisaged by the consultation paper, to remain fit for purpose and enable digital capability into the future?

Conversely what is your assessment of the demand for digital payments infrastructure?

Consultation question 9

Where do you see your role or your organisations role in the forming of a next gen payment capability?

Consultation question 10

What alternative views of the trajectory for payments modernisation should we be considering?

Consultation question 11

What pieces of the ecosystem, or developments currently in-flight are critical to progressing payments modernisation activity (e.g. digital identity, tokenisation, regulation)?

Delivering the design objectives

To deliver the design objectives, the design should have the following six key features. These reflect our future where Aotearoa has a national digital infrastructure with a broad capability set.

1. Fast

A next gen payments ecosystem should enable real-time digital interactions and orchestration capabilities which can be widely used across current payment activities. In addition to delivering stand-alone enabling benefits, these capabilities should also lay the foundation for safe and secure real-time digital payments to be implemented in the future when appropriate.

Once introduced, the ability to interact with payment adjacent services at any time, and to carry extended data within payments, will support commerce at speed, GDP growth, and national plans to develop a world class digital economy.

The core platform infrastructure must be scalable, with the ability to add processing and storage capacity dynamically to maintain high availability and performance standards. The platform must be able to accommodate peak demand periods, which gives rise to the opportunity to consider utilising the available capacity for orchestration and payments services that are less time-sensitive (for instance, bulk and future-dated payments).

2. Efficient and cost effective

Our recommended architecture is modular and extensible. This means we can deliver a core platform that is 'right sized' for Aotearoa, which will underpin an ecosystem that can be delivered in a building block approach. This modular approach allows us to deliver value quickly and to add modules as new technology is introduced. Experience overseas has shown that rigid monolithic platforms are not fit for cost effective and efficient digital enablement. This approach also encapsulates the benefits of leveraging wider ecosystem capabilities such as the API Centre work on open banking, ISO 20022 rich data in the High Value Clearing System (HVCS) and the API Centre, and the digital identity work that is progressing with verifiable credentials.

A key element of this is the consideration of centralised services and orchestration, providing opportunities for Participants to share the costs of common components rather than having to develop and maintain capability individually, such as proxy services.

In addition, this approach creates the opportunity to simplify or replace legacy based payment instruments

or payment system capabilities that do not meet the needs of Aotearoa going forward. Identifying simplification opportunities will require careful industry consideration and engagement. Illustrative examples include using notifications to remove the need for same day cleared payments (SCPs); upgrading industry registers; or even using payment instruments like request to pay and open banking-initiated payments, and to develop alternatives to direct debits.

3. Interoperable

A broad payments ecosystem approach to design and implementation is required to ensure resulting infrastructure is adaptable and flexible. The design approach aims to make real-time digital interactions available to a wide range of payment types (not just real-time payments). The interoperability objective ensures that these capabilities are made available to the existing clearing systems and to the API Centre. This approach drives scalability and promotes wide-spread usage. This will also ensure rules, procedures and API standards are compatible across the wider ecosystem and that a common language is used across all systems.

Using international standards wherever possible will create an enduring, future-proofed ecosystem that is interoperable with payment systems in other jurisdictions and new payment instruments and technologies in the future, such as a central bank digital currency (CBDC).

4. Open and innovative

The intent is to maximise the opportunity for participation and utilisation by creating options for financial institutions, payment service providers and fintechs to participate in different areas or levels of the next gen ecosystem. This is done using open access principles, while ensuring participation reflects relative risk and meeting stringent security and integrity thresholds. By incorporating these factors, it is envisaged that a wider range of ecosystem actors will be able to connect directly to the platform. Enhanced modular capabilities support the ecosystem to develop innovative products and services, driving competition and innovation.

The modular approach also accommodates extensibility whereby new and emerging technologies and service offerings such as CBDCs and digital identity can be introduced without wholesale reengineering of the platform.

5. Safe and secure

A secure platform and ecosystem are critical for building the trust of both the public and participant organisations.

The platform must make existing payments safer, while preparing for the introduction of real-time digital payments. This includes introducing interbank payments network capabilities that enable information to be exchanged in a timely manner to assess payments and understand risk profiles.

The design objectives must also balance fraud management and prevention across the payments network, privacy, and data governance against our open access objective.

6. Inclusive

Improving financial inclusion is a key design principle but is also considered as a design objective, creating an ecosystem that allows all New Zealanders to participate freely irrespective of their personal circumstance.

Disability inclusion

Equitable access and usability are key aspects of financial inclusion. Identifying and addressing barriers to participation is paramount, be that associated with ethnicity, access to housing, location, vulnerability or those excluded due to disability.

When considering inclusion elements in the design, we propose to use the following definitions:

- **Accessible** - a person with a disability or vulnerability, which may be permanent or temporary, is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use.
- **Barriers** - these can be in the physical built environment, the digital/online environment, financial and payment systems, employment systems, attitudinal barriers, and cultural barriers to full inclusion.
- **Disability** - the social model of disability specifies that individuals do not have disability - it lies in society.

The experience of disability occurs when people with impairments are excluded from places and activities most of us take for granted. It happens when our infrastructure and systems do not accommodate the diverse abilities and needs of all citizens.

The experience of disability is influenced by the nature of a person's impairment. Gender, age, ethnicity, and culture can also have a profound and sometimes compounding effect on an individual's experience of disability.

- **Disabled people** - those citizens with impairments are disabled if society does not provide an environment that takes their impairments adequately into account. Consequently, they experience barriers preventing their participation in society.

Architecture options

Our earlier Market Information Gathering (MIG) exercise identified and assessed four architecture approach options. The modular approach is characterised as the most adaptive and flexible of the four approaches and was identified as being best suited to meet the future payments needs of Aotearoa, however, all four approaches have been discussed below:

- **Modular** – combining core real-time interactions and payments capability with an open, modular approach to connectivity and settlement functionality.
- **Decentralised using SBI** – reusing and extending the existing decentralised capability of SBI, in conjunction with APIs.
- **Centralised using card rails** – reusing and extending existing centralised card rails.
- **Dedicated real-time clearing system** – deployment of a specialised proprietary real-time payments engine.

1. Modular

The modular approach supports the delivery of modern real-time digital interactions and the eventual introduction of real-time digital payments capability that is flexible, adaptable, safe and cost effective in a way that maximises the opportunity for participation and utilisation. This approach is most strongly aligned with the PMP principles, the high-level use cases set out in the MIG, current and future regulatory objectives, and with the objectives of Payments NZ's constitution. The design described in the next section is based on this approach.

The alternative approaches that were assessed, but not preferred are summarised below.

2. Decentralised using SBI

The decentralised approach is an extension of existing batch-based bilateral mechanisms. There is substantial reuse of existing infrastructure that may reduce the cost to implement and maintain existing Management Committee structures.

However, the approach is limited in that it provides minimal overlay services, a lack of true real-time

settlement long-term (and associated risk) and may restrict the inclusion of new Participants. Importantly, its decentralised approach makes it difficult to introduce our desired solution for safer payments capabilities into the interbank payments network.

3. Centralised using card rails

The card rails approach offers a minimal change alternative, reusing existing connectivity infrastructure (although not all Participants have such infrastructure) and Management Committee structures and offering a direct path to cross border real-time payments.

The approach is constrained by its native use of ISO 8583 messaging (although ISO 20022 overlays are available) and associated rich data and dynamic notification capability. The core real-time clearing service is provided as a managed offshore service by the card scheme, and Participants will be subject to card scheme rules, fees and ongoing compliance maintenance. There is limited opportunity for new Participants.

4. Dedicated real-time clearing system

The dedicated real-time approach shares many of the core features of the modular approach. However, it is likely to be less flexible and adaptable to changing payment needs. The approach is more likely to lead to dependence on a single solution provider to manage the integration of overlay services or cross border capability.

Conclusion

The roadmap in Chapter 3 proposes real-time digital payments as the last capability module to be introduced. This allows real-time digital payments to draw from the earlier capability modules, which help ensure real-time digital payments are introduced safely. The preferred modular approach proposes an account-to-account real-time digital payments model via a centralised platform is adopted. However, closer to the time of implementation we will re-confirm that the modular approach is still preferred over other emerging developments where representations of money can also exchange value instantly, such as CBDC or a unified ledger that uses tokenisation to represent commercial bank deposits so that payments (liabilities) can be transferred between financial institutions on a real-time basis.

Foundational ecosystem design

What do we mean by ‘foundational ecosystem design’?

The design is our recommendation for the next stage of modernising the payment system capabilities of Aotearoa. The functionality described in this section sets out key platform capabilities. These capabilities are proposed to be implemented in stages as outlined in the roadmap set out in Chapter 3.

Conceptual representation

The next gen ecosystem is based on a modular, building block approach. A centralised operational platform provides the necessary technical payments services, information management and access management capabilities. The scheme framework provides the rules and standards for payment instruments and commercial overlay services to provide the user community with the certainty they

need so that they can provide products and services that meet customer needs.

The proposed modular approach means the platform and its capabilities will be delivered iteratively and will be adaptable over time. Figure 2 provides a conceptual representation of the modular digital ecosystem.

This conceptual representation is illustrated in more detail and explained step-by-step in the following section.

Consultation question 12

What are your views on the conceptual structure of the foundational ecosystem design?

What further information would your organisation require in order to support the further exploration of a modular next generation ecosystem for Aotearoa?

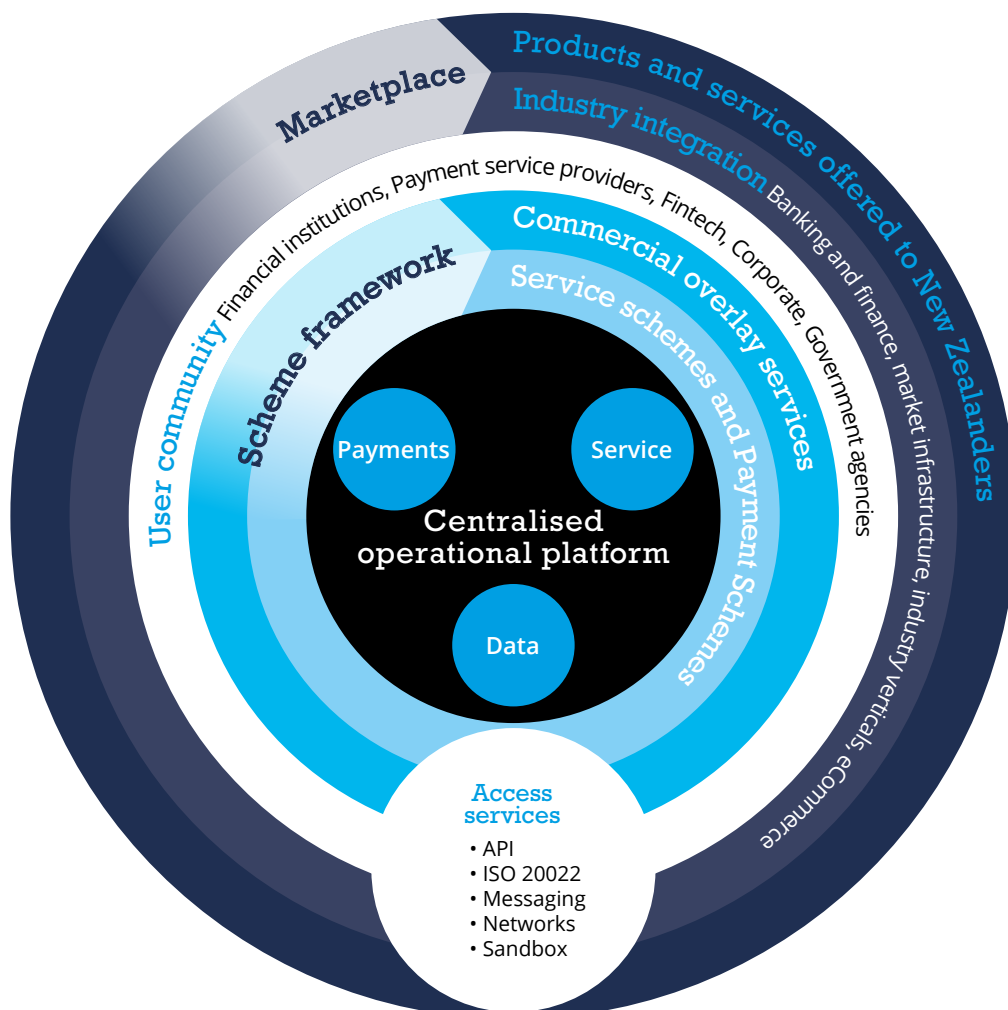


Figure 2: A next generation payments ecosystem - conceptual design

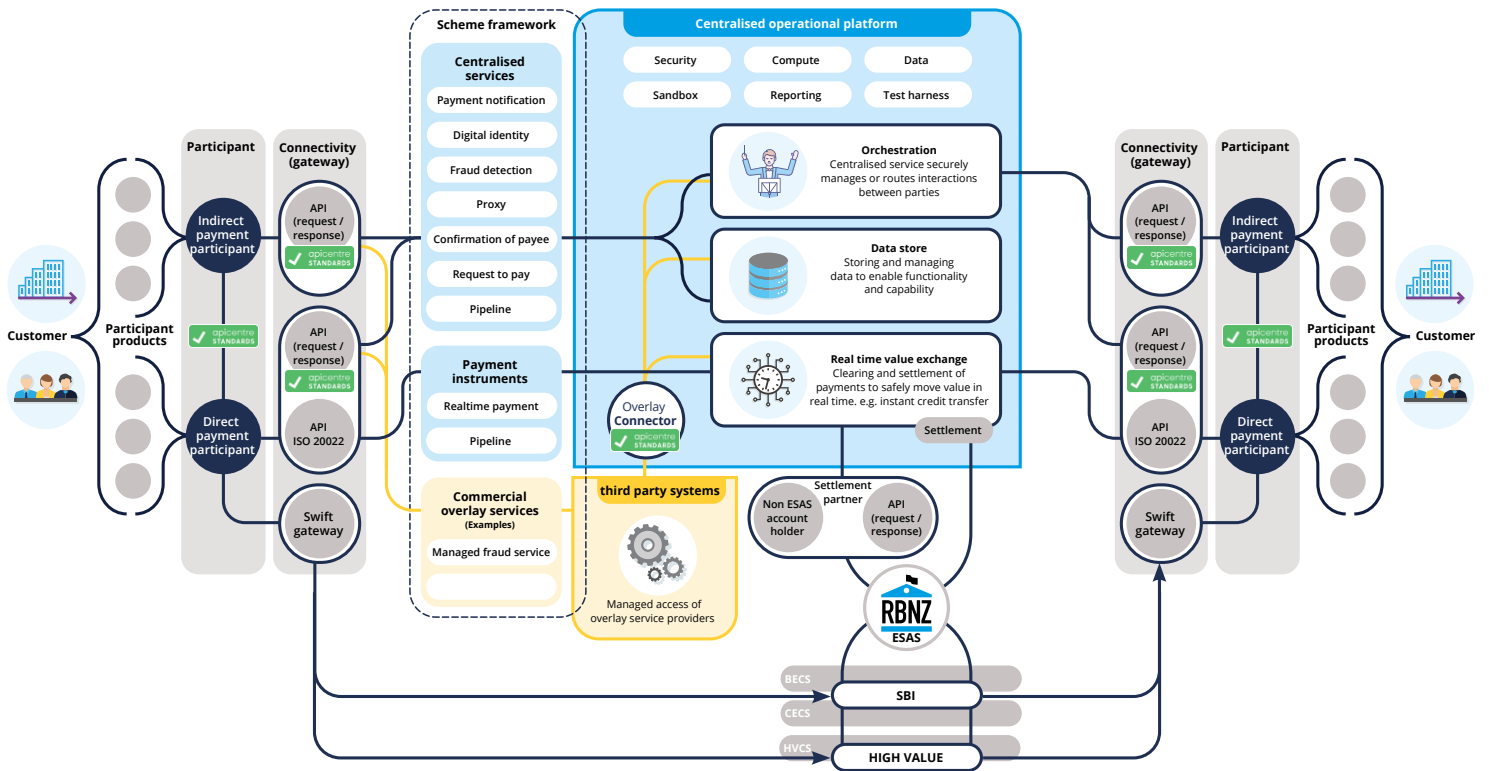


Figure 3: A next generation payments ecosystem – architectural design

The ecosystem design

All the component parts of the next gen ecosystem described above are represented architecturally in the figure above.

The next gen ecosystem is a broad, digital, interconnected system. It does not reflect any inheritance from the current clearing systems we have in Aotearoa today, which are solely and specifically focused on Participant-to-Participant money movements. The next gen ecosystem includes the ability for extended data to be accommodated both within real-time digital interactions, and real-time digital payment scenarios. The following sections describe different parts of the ecosystem.

Ecosystem description

1. The centralised operational platform

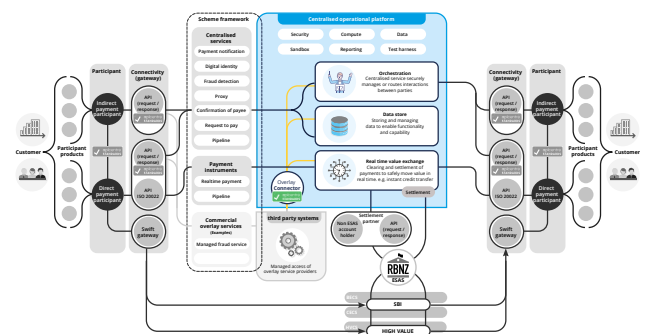


Figure 4: Centralised operational platform

The centralised operational platform (core):

- Is made up of separate components that can be orchestrated to meet desired business outcomes, including capabilities that enable real-time digital interactions.
- Contains a layer of extended functionality on top of the basic services residing in the core, which can be used or extended to support a particular function, such as fraud detection or customer identification.
- Has a well-regulated data store to hold and manage data. This will enable a wide range of functions and capabilities to grow as the ecosystem matures.

- Delivers ubiquitous real-time digital payments functionality as standard to all Participants in the ecosystem, whether directly or indirectly accessed.

Supplementary to the core is the scheme framework, which can be inherited and extended to support a particular functionality, such as fraud detection or customer identification. The scheme framework is expanded upon below.

Centralised operational platform technical design

The technical design of the proposed modular platform will follow current best practices for real-time digital interaction and payments solutions, leveraging a public cloud computing platform for the infrastructure. This will have centralised operations, monitoring, provisioning, telemetry, management, and governance. The design will also utilise distributed processing for scalability, resilience, performance, and efficiency, taking advantage of appropriate locality as and where necessary to support platform goals. The platform will have fault tolerant, self-diagnosis and self-healing capabilities to ensure continuous availability, while also enabling modularity and feature additions/changes to be made on demand.

Both core modules and extension modules will be supported using cloud-native features. To enable the broadest possible set of capabilities for components and modules, the platform will include elements from all three main categories of cloud computing Infrastructure-as-a-Service, Platform-as-a-Service, and Software-as-a-Service.

This creates flexibility for the platform itself, through making the appropriate choice to meet the functional and non-functional needs of next gen. It also enables a broad set of options for solution providers to deploy modules using their preferred approach and ensures that design alternatives are preserved as long as possible throughout the development and deployment process. To further enable providers, a multi-tenanted approach is used, enabling segregation of providers to protect IP and data and compartmentalise any run-time issues.

Security of the platform, access control, information security and identity management are key requirements of the platform and will be enabled through a combination of the cloud provider, design features, technical controls, service providers and implementation partners.

The technical design will enable the platform to support multiple types of interfaces, including APIs, event streams and notifications, messaging, and if appropriate, proprietary solutions. To enable inclusivity, openly specified APIs (like open banking)

will be the primary interface into the core services that operate on the platform, noting that any organisation seeking access must meet appropriate access and security criteria. This reduces that barrier to entry for those that wish to connect to the platform.

The cloud platform will be certified as meeting all relevant regulations and compliance requirements. Major cloud platforms generally certify to meet requirements in multiple jurisdictions, and it is expected that certifications will meet both current requirements such as NZ ISPC, and emerging such as NZ PCDC, along with international certifications as deemed applicable, e.g., PCI-DSS, GDPR, FIPS 140, FedRAMP, CSA STAR, CIS controls, ISO 27001.

Core services supported by the platform will include both payment instruments and information services, commercial overlay services, and fraud detection services as described in this chapter. It will also be extensible with additional services added as new modules into the future. It is anticipated that multiple models for additional services will be required to enable the maximum flexibility and longevity of the platform. For platform registry services, a potential candidate for reuse is the API Centre Register which will be assessed against requirements as these are identified.

A sandbox may be provided within the platform to support the design, development and testing of integrating parties. A potential candidate for reuse by extension is the API Centre sandbox, used in the API standards.

Data storage and data caching will use cloud-native capabilities that are offered by multiple cloud providers to preserve portability. Any data stored will be protected through access controls and data encryptions to ensure only authorised use of data. Data analytics will be enabled using cloud platform capabilities, to capture key platform usage and operation information to be used in the management and governance of the platform.

2. Access services (connectivity)

Any new infrastructure will utilise the ISO 20022 messaging standard with the data payload configured to maximise use cases and leverage the work of the API Centre to ensure our activity is aligned with their objectives, roadmap, and approach to initiatives, such as consent and request to pay. This will also ensure rules, procedures and API standards are compatible across the wider ecosystem and that a common language is used across all systems.

3. Orchestration

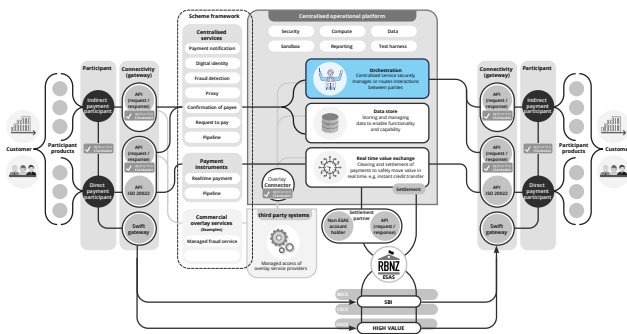


Figure 5: Orchestration
Centralised service securely manages or routes interactions between parties

The modular approach delivers a high degree of flexibility when combining the functional capabilities (or modules) that are made available to the ecosystem. This enables the design of products and services that can utilise a ‘pick and mix’ approach, commonly referred to as orchestration.

Orchestration draws on a range of information and registry services to facilitate safe real-time digital interactions and notifications. These real-time digital interactions are much more complex than simple real-time payments that transfer value. Each capability module in the ecosystem will have different characteristics with profiles of varying complexities, leading to a range of orchestration demands.

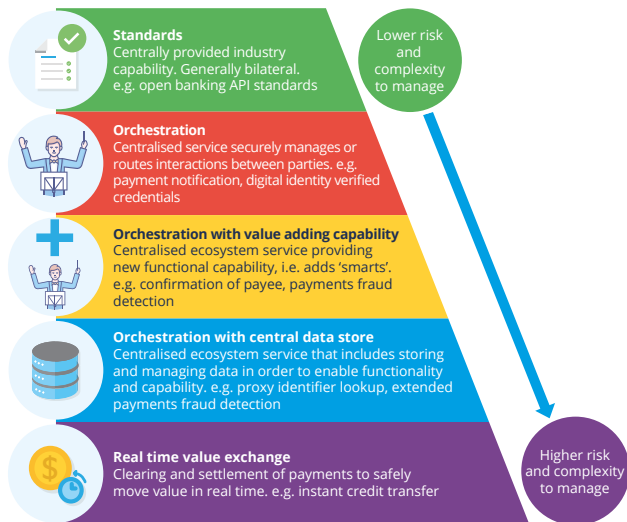


Figure 6: Capability and characteristics complexity

While powerful, the complexities of orchestration require an appropriate mechanism for the governance and management of interactions to ensure interoperability and consistency. The Scheme rules and standards framework described below is intended to deliver that management mechanism.

4. Data store

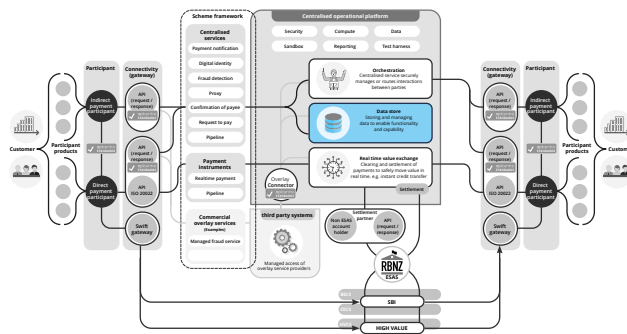


Figure 7: Data store
Storing and managing data to enable functionality and capability

The data store is expected to contain short-term operational data, and longer-term data for metrics analysis and reporting. This section briefly outlines the potential scope of the data store, while governance aspects including privacy and access are addressed in Chapter 1 - Regulatory oversight, governance, and management.

Operational data is the information flowing through the system to facilitate payments and information exchange, along with registry and routing information to support transaction flows. International standards such as ISO 20022 will be used to structure the data. Data will include:

- Payment processing data, including transactional status and exceptions.
- Fraud management and reporting.
- Dispute management and reporting.
- Registers to support proxy, service routing, registered bill payer information etc.

Subject to data governance considerations, the platform can also facilitate the collection, analysis and reporting on various aspects of ecosystem activity. A data repository can facilitate:

- The collation and reporting of payment and information service metrics.
- The classification, collation and reporting of fraud-related data.
- The collection and reporting of data related to outcomes, such as reporting on accessibility and participation in the payments ecosystem.

5. Real-time value exchange (real-time digital payments)

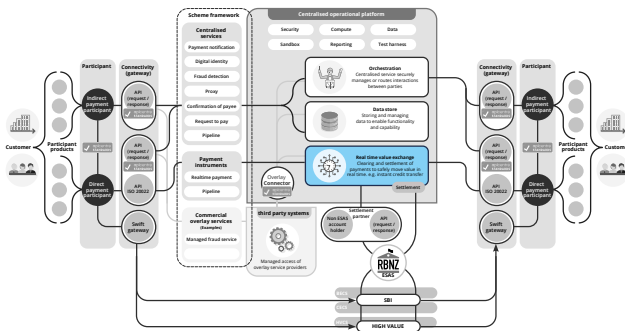


Figure 8: Real-time value exchange
Clearing and settlement of payments to safely move value in real-time e.g. instant credit transfer

The design will contain a payments engine that supports the real-time clearing and settlement of payments. This instantaneous value exchange is enabled by the introduction of a new payment instrument in the form of a real-time single credit transfer - a customer-initiated push payment from one account (or store of value) to another. Those payments can be initiated via a financial institution or a payment service provider:

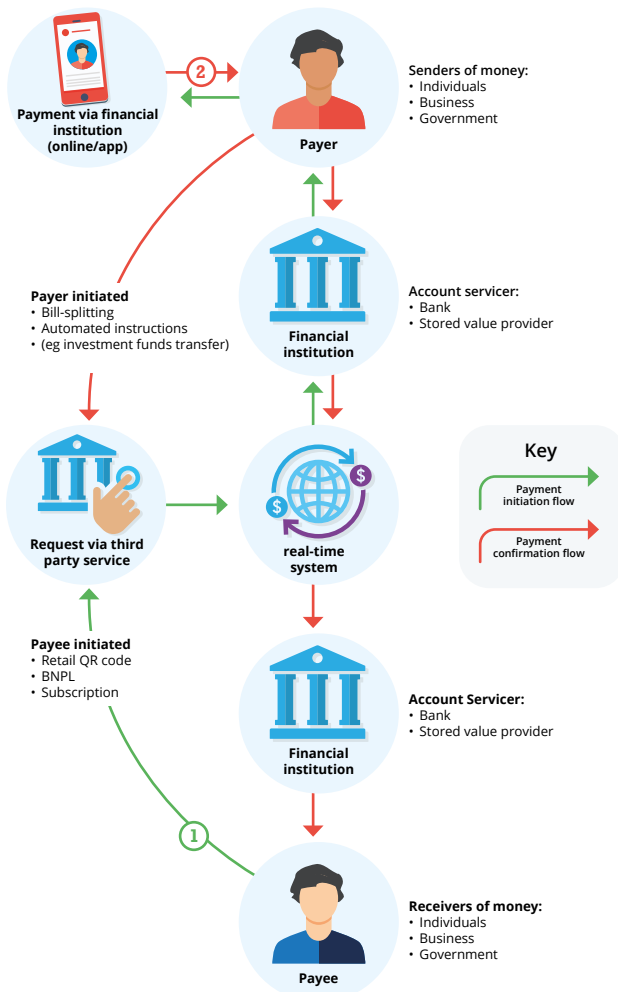


Figure 9: Real-time digital payments data flow

Additional payment instruments will be introduced over time to facilitate different service offerings, noting that some of these have equivalent functionality in existing clearing systems. Examples include:

- Bulk payments
- Future-dated payments
- Instalment payments
- Subscription payments
- Variable recurring payments
- Cross border payments

The payment value exchange process requires both clearing and settlement components. Settlement ultimately occurs via the Exchange Settlement Account System (ESAS), which is governed and operated by Te Pūtea Matua Reserve Bank of New Zealand (RBNZ).

Participants in the ecosystem will include organisations who meet ESAS access criteria and hold ESAS accounts (direct settlement), and those who must maintain a relationship with an ESAS participant to facilitate settlement on their behalf (indirect settlement). Settlement requires careful consideration. Regulators and Participants will be closely consulted with on the method and how the risks are managed as this work is further defined.

6. Scheme rules and standards

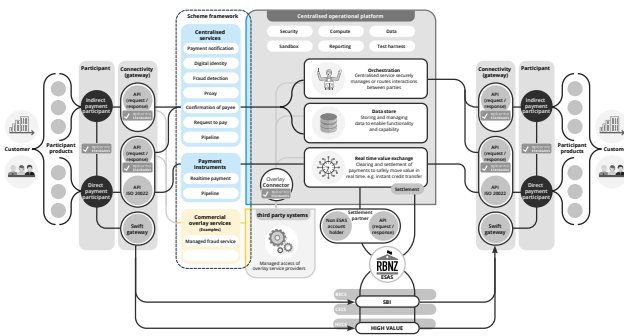


Figure 10: Scheme rules and standards framework

The modular capabilities of the design will be made available to Participants and user organisations via schemes, which set the rules and standards for how modular capabilities are consumed. Participants and user organisations will be able to utilise the platform's capabilities on a scheme-by-scheme basis.

The scheme rules and standards will manage the end-to-end operation of each modular capability, ensuring that all parties can trust the process and outcomes. User organisations must agree to the scheme's rules and standards, which define the expected outcome for that modular capability, including their minimum participant obligations. This will include the details on processing flows, message and data standards, participant processing behaviour, Service Level Agreements (SLAs), exception processing rules etc. It will also include access requirements, governance arrangements, and set out the financial obligations of participating in that scheme. For example, the business rules, service level agreements, technical standards and exception processes associated with proxy modular capability will be encapsulated in a proxy scheme. Similarly, a real-time digital payments scheme would specify the rules, technical standards and SLAs associated with utilising the single credit transfer payment instrument.

While the scheme may specify a key minimum end user experience to ensure end user trust, access, and inclusion, it is more likely that most customer experience matters will be left to the user organisations to define. This recognises that the scheme does not have the end-user customer relationship.

A scheme must also manage the inter-relationship with other payment clearing systems, the API Centre, other external systems (for example digital identity product providers), and regulatory frameworks such as the Customer Product and Data Bill.

It is envisaged that all next gen modular capabilities will share a common set of scheme obligations. The scheme framework will accommodate three categories of modular capabilities depicted in the diagram above:

- **Centralised service schemes** - such as notification of payments, digital identity (verifiable credentials); fraud detection, request to pay, proxy.
- **Payment instrument schemes** - These schemes provide the business rules and SLAs for different payment instruments available to the ecosystem. For example, a single credit transfer payment instrument may have a scheme designed to meet real-time digital payment needs, such as in a face-to-face retail environment.
- **Commercial overlay schemes** - The next gen ecosystem envisages and encourages the development of commercial overlay services that draw from the platform's capabilities. Such overlay services would develop their own commercial arrangements between groups of organisations to extend capabilities and offer products and services. The scheme rules and standards framework will need to accommodate the access of commercial overlay services and define any minimum obligations or standards required.

Participation and access model

The next gen ecosystem is intended to facilitate increased participation and innovation whilst ensuring the safety, security and integrity of the payments system.

The existing Bulk Electronic and High Value Clearing Systems are restricted to organisations who maintain an ESAS account with the RBNZ; current Participants include financial institutions (ESAS connected financial institution), along with NZX and ASX. The modular nature of the next gen ecosystem enables a wider range of both direct and indirect participation.

The next gen participation model supports a wider range of directly connected participants, including financial institutions with no settlement (ESAS) facilities and third party payment, overlay and information service providers.

User community

Participant

Participants are organisations that exchange payments and/or information with other participant organisations.

The participation model in next gen context is different from existing clearing systems such as the Bulk Electronic Clearing System (BECS), which is restricted to organisations holding an ESAS account with the RBNZ. The next gen participant community is made up of:

- **Account servicing providers** - financial institutions who provide account holding and/or wallet facilities for the sending and receiving of value and the provision of account information services.
- **Payment service providers** – organisations providing retail point of sale, e-commerce and other payment facilitation services.
- **Overlay service providers** - organisations providing value-add services to the ecosystem.
- **Service users** - organisations who utilise the API services made available in the ecosystem. This may include providers of account information and/or payment initiation services (generally recognised as fintechs), along with organisations who handle large volumes of payments who may benefit from direct access to the ecosystem (e.g., corporate billers, government agencies).

A direct participant is an organisation which maintains a connection with the ecosystem via API or gateway access, meeting the necessary access criteria to ensure the safety and integrity of the ecosystem.

Indirect participants are organisations who enter arrangements with direct participants to facilitate access to the ecosystem. Examples include:

- Financial institutions who have an agency relationship with another financial institution for the provision of account hosting and/or settlement services.
- Payment gateway service providers who utilise the services of direct participant payment service provider.
- Organisations who utilise the information broking or payment initiation services of a payment service provider or an overlay service provider.

The following diagram illustrates the participant landscape:

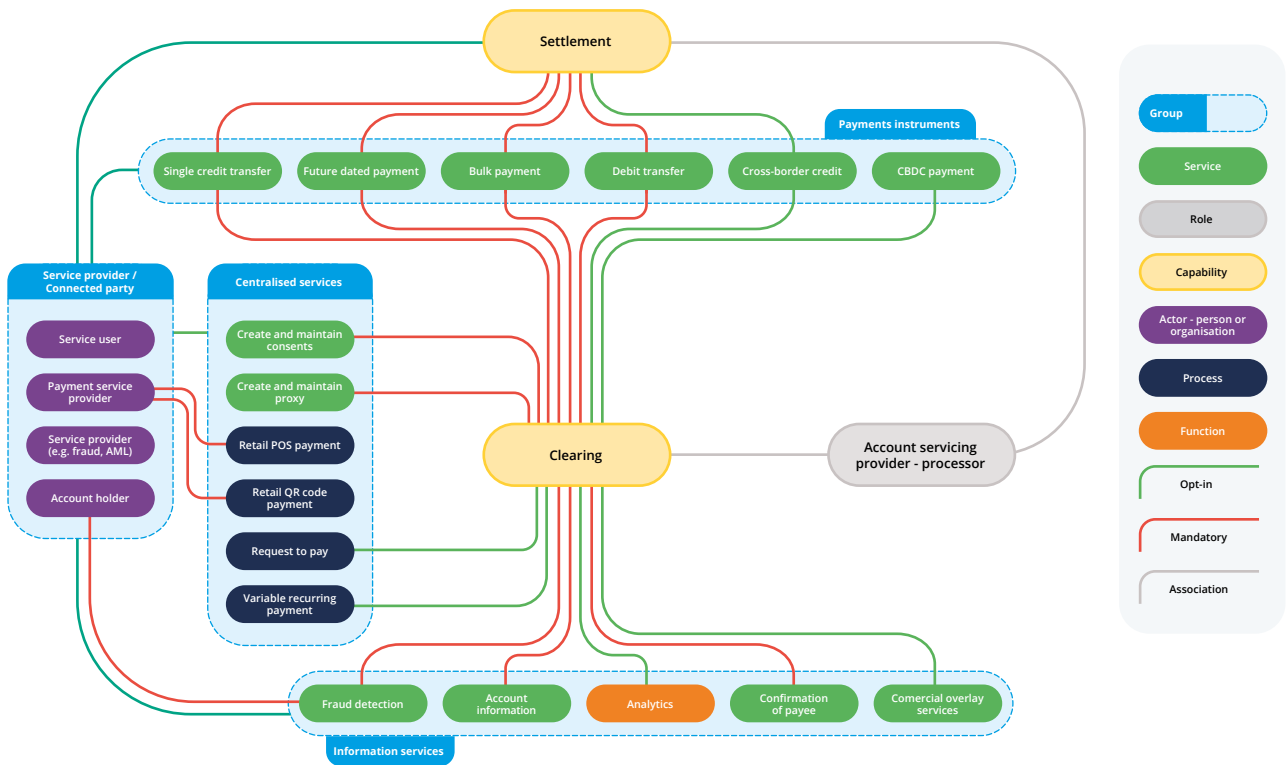


Figure 11: Participation landscape

4.2 Participation matrix

Account servicing provider

Account servicing providers include financial institutions that maintain accounts on behalf of their customers. These can be traditional bank accounts

or other facilities such as prepaid accounts, wallets, decentralised finance or buy now pay later services.

Account servicing		
Scenario	Clearing	Settlement
Financial institution with ESAS account	Direct	Direct
Financial institution without ESAS account (bank account or stored value)	Direct	Indirect
Financial institution under an agency arrangement with own app and digital channels	Indirect	Indirect

Third party service providers

Organisations providing commercial products and services to the ecosystem, broadly categorised as fintechs. Payment service providers are a key category of third party service providers.

Commercial overlay service providers are another key category of third party service providers. They would provide their services on a competitive basis (i.e., not directly by the platform) to deliver unique innovation, value-added services or to address a specific use case. Examples include e-commerce, programmable instruments, e-invoicing, embedded payments, and payments using QR codes. Commercial overlay services could:

- Use functionality available in the core platform to integrate existing products and services, such as fraud detection and management or customer onboarding (including AML/CFT compliance) and provide them to participants who do not have equivalent internal systems in place.
- Add new functionality over and above the platform to enable their services. This provides an extra element of extensibility to the platform and gives flexibility in how new functions are delivered and who is responsible for that.

Service provision				
Participant type	Scenario	Account information	Payment initiation	Additional services
Payment service provider	Directly connected payment service provider	N/A	Direct	N/A
	Payment gateway provider	N/A	Indirect	N/A
Overlay service provider	A provider of value-add services such as fraud scoring or authentication	N/A	N/A	Direct
	A provider of orchestration, information and/or payment initiation services	Direct	Direct	N/A

Service users

Service users can include organisations with high-volume payment processing needs such as utility service providers (telcos, energy providers, insurance etc.) and government agencies and crown entities (e.g., MSD, ACC, IRD).

In many cases account servicing, payment servicing and overlay servicing organisations will also be users of API services. For instance, a bank utilising mobile channels to facilitate a request to pay transaction.

Service utilisation			
Example scenario	Account information	Payment initiation	Value-add service
High volume payer	N/A	Direct	N/A
Information broker	Direct	N/A	N/A
Payment service provider	N/A	Direct	N/A



paymentsnz

Consultation on payments for the next generation

Chapter 3: Capability sequencing roadmap



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Introduction

This chapter presents the capability sequencing roadmap (the roadmap) for delivery of a next generation (next gen) payments ecosystem. It describes how we can ensure right-sized, right-timed delivery of capabilities for Aotearoa New Zealand.

The roadmap recognises the growing impact of fraud and scams in Aotearoa for consumers, businesses and financial institutions and reflects feedback from industry that capabilities that deliver safer payments should be prioritised. The recommended capabilities would be available through modules that can be utilised by both current and future participants.

This chapter provides information on each of the capabilities and sets a logical delivery sequence to provide a basis for consultation and further feedback. The design of capabilities will be addressed in future phases of activity.

Payments NZ recognises that there is a need for the wider industry, including regulators, to collaborate and align on recommendations that stem from the consultation paper to achieve meaningful progress for payments modernisation in Aotearoa.

It is recommended that readers review Chapters 1 and 2 of the consultation paper prior to reading Chapter 3 to understand the background and context upon which the roadmap has been developed.

The proposed roadmap approach is centred on enhancing the safety and efficiency of payments today, while cautiously introducing digital infrastructure and real time (near-instantaneous) digital payments in the future.

The roadmap sequence reflects stakeholder demand, prioritising safer payments and real-time digital interaction capabilities that unlocks new business value for participants and their customers. The introduction of real-time payments instruments is planned for later stages, drawing on previously introduced capabilities to ensure a smooth transition and integration. This approach ensures that a next gen system can deliver immediate value and ensure the most critical needs are addressed first, while minimising risk and complexity.

Capabilities are introduced in a logical sequence where each module delivers value independently while also preparing for subsequent deployments. Importantly, as the prioritised capabilities are designed to be extendable, the recommended next gen system provides an ecosystem into which future enhancements and adaptations can be added based on lessons learned, evolving demands and new technical developments.

The approach also leverages the industry's existing capabilities and strengths, such as API capabilities, seven-day payments and low settlement risk.

Finally, this approach aims to transform the payments landscape from electronic to digital infrastructure, drive digital innovation and competition for consumers, and deliver significant business value to all industry participants while balancing system integrity and resilience, industry investment and resource capacity.

Developing the roadmap

Key inputs

The roadmap has been shaped by four key inputs that reflect global and local best practice in technology architecture, security, incremental delivery and payments ecosystem enablement. Further refinements, especially in regard to sequencing, have been made based on feedback received to date from industry working groups and stakeholder workshops. The inputs are described below.

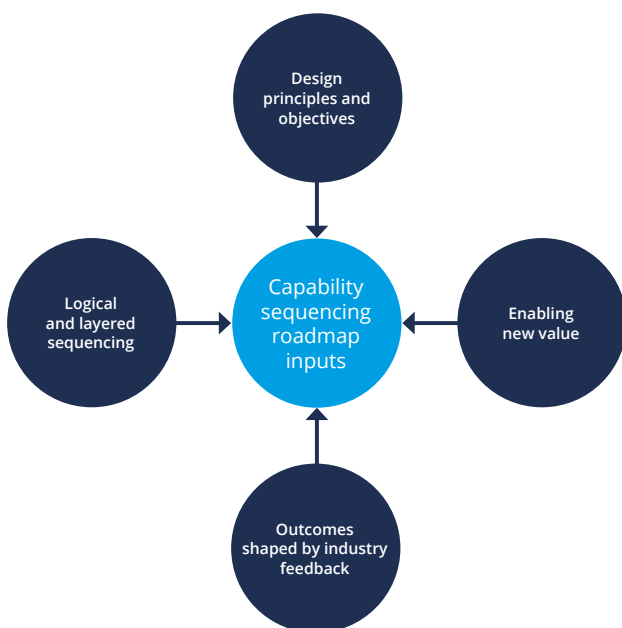


Figure 1: Roadmap inputs

- 1. Design principles and design objectives** - as described in Chapter 2, the design principles underpin and are reflected in all capabilities in the roadmap. The design objectives speak to the outcomes intended by the next gen objectives and key architectural recommendation as outlined in Chapter 2 - Design considerations. The design principles and design objectives have been developed in conjunction with industry working groups.
- 2. Enabling new value** - new capability should create tangible value across the payments ecosystem and be prioritised accordingly. New value can take many forms, such as making payments safer to reduce financial harm, supporting and enabling new innovative products and services, allowing access for new entrants and greater competition and providing macro-economic benefits by improving the velocity

of money in the economy. This approach is in line with a regulatory focus on innovation and greater customer choice as reflected in the Consumer and Product Data Bill and the Commerce Commission interbank payment system market study.

- 3. Outcomes shaped by industry feedback** - four key outcomes (described below) have been identified through engagement with industry and wider market developments.
- 4. Logical and layered sequencing** - sequencing the phased introduction of modular capabilities must consider:
 - The relative demand for a capability.
 - Its deliverability, i.e. complexity, risk, cost, ease of adoption, modular, right sized.
 - Inter-dependencies and relationships between different modular capabilities.
 - The logical sequencing and layering of system functionality to avoid rework and/or temporary workarounds, and to ensure that ecosystem resiliency and risk management is proactively addressed.

Outcomes driving the roadmap

The four outcomes, outlined below, have been prioritised based on industry feedback to drive sequencing of the roadmap:

- 1. Develop foundational pillars of the next gen ecosystem** - focuses on ensuring the fundamentals of the next gen system (data, scheme and platform) are well designed up front.
- 2. Make current payments safer and prepare for the safe introduction of real-time digital payments** - ensures the first capabilities delivered make a material impact on improving the safety of current payments and can be leveraged in the future to improve the safety of real-time enabled payments. This outcome aims to strengthen ecosystem security and integrity to reduce the impact of bad actors (perpetrators of fraud and scams), keeping fraud out of the system and as a result reducing customer and industry losses and increasing trust in the payments system.

3. Real-time digital interactions with rich data that unlock new business value - prioritises richer

payments and transaction data and new modular capabilities that enable significant business value to participants (and by extension to their customers). This outcome aims to solve existing problems in new ways.

4. Payments moving money, safely, in real-time -

introduces real-time digital payments in a way that draws from the previous capabilities to ensure the safe and feature-rich introduction of real-time digital account-to-account payments into Aotearoa. This outcome aims to advance the digital economy and underpin trade and commerce for Aotearoa locally and internationally.

The sequencing of the roadmap described in the following sections explores these factors in more detail.

The building block approach to modernisation

The modular design recommended in Chapter 2 establishes a platform that can be extended and adapted over time. The extensibility of the platform allows for capabilities to be introduced that each provide new value and lay the foundation for subsequent deployments.

In future iterations, the flexibility of the design allows for new capabilities to be deployed and new services to be offered. In some cases, this will leverage existing capabilities of the platform to provide synergies.

The flexible and extensible nature of the platform allows the industry to determine the order in which new capabilities are deployed, based on lessons learned, demand and consideration of complexity, risk and capacity.

Roadmap sequencing

The proposed roadmap sequences capability delivery in tranches that align with the prioritised outcomes through a stage-gated process.

Key considerations in developing the roadmap are:

- It prioritises the early delivery of foundational pillars that are prerequisites for subsequent capabilities to be delivered.
- It then suggests six priority capabilities are delivered in three tranches.
- In some cases, a capability may support more than one of the outcomes, and this is reflected in the roadmap illustrated below.
- A 'tranche' is a set of capabilities that are concurrently developed and deployed as a group but may feature staggered testing and go-live timing for practical, technical, or capacity reasons.
- Capability modules provide agility and flexibility in when and how new capabilities are introduced to the market.

Consultation question 13

What specific capabilities and functionality do you consider priorities for a modernised account-to-account payments network?

How do these align with the proposed capabilities in the consultation paper?

Consultation question 14

What is your view on using a sequencing approach over time to deliver capabilities? Which capabilities do you think should be sequenced for earlier delivery, and which should be delivered later or delivered together?

How do these align with the proposed delivery sequencing and roadmap in the consultation paper?

Consultation question 15

Should a decision to proceed with delivery be made, what in your view is a realistic timeframe to commence design work on the foundational pillars (scheme framework, centralised platform and data strategy)?

Consultation question 16

The roadmap sets out a potential deployment pathway. What are your thoughts on how this roadmap should interact with initiatives either planned or in flight within the industry? Examples of these include:

- a) Reserve Bank of New Zealand Digital Cash initiative
- b) New Zealand Banking Association Fraud and Scam centre and confirmation of payee implementation
- c) Customer and Product Data Bill
- d) Designation of Retail Payments System and open banking

Below, each of the capabilities are described at a high level and any detailed design and deliverable specificity would be developed in future stages.

Sequencing the roadmap

The roadmap below sets out illustratively how the proposed foundational elements and capabilities could be best delivered:

- 1. Foundational pillars** - includes design and prerequisite activities to better define the scheme framework, centralised platform and the data strategy.
- 2. Tranche 1: Make payments safer** - includes the delivery of a centralised payment fraud detection service, payments notifications, and the use of digital identity (verifiable credentials) in payment scenarios.
- 3. Tranche 2: Unlock new business value** - includes the delivery of proxy identifiers and request to pay services.
- 4. Tranche 3: Payments moving money, safely in real time** - safe delivery of real-time digital payments.

The following begins to illustrate the roadmap:

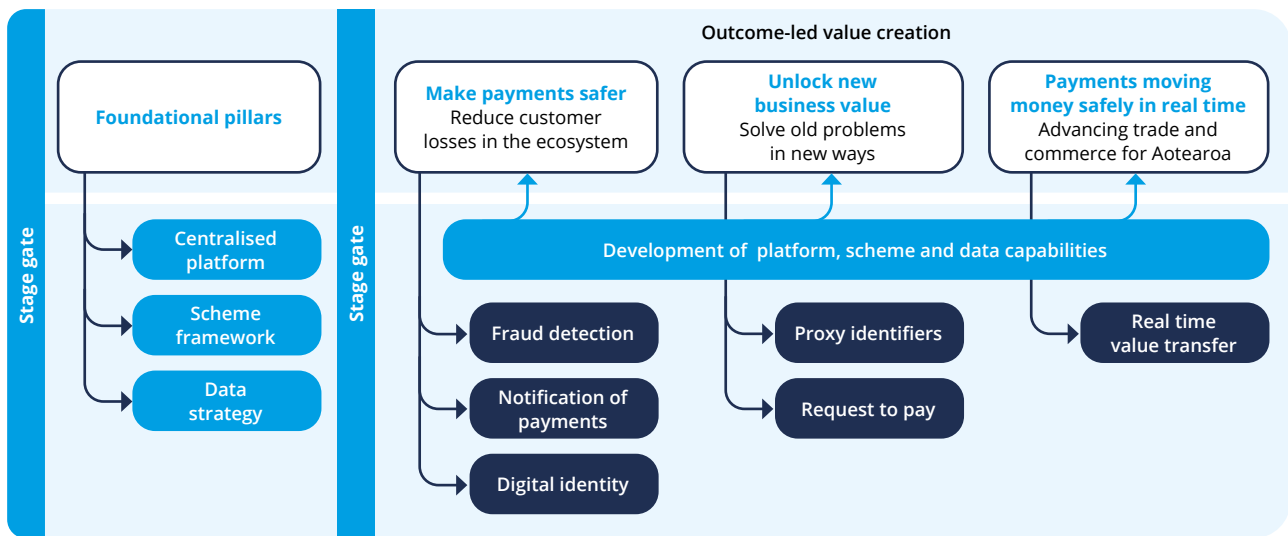


Figure 2: Roadmap

Foundational pillars

The roadmap proposes that initial focus on the next gen ecosystem design is on the outcome of ‘Developing foundational pillars of the next gen ecosystem’ which are pre-requisite requirements for any future capabilities. The three foundational pillars explorations include:

1. The centralised operational platform (technology),
2. A scheme framework (business), and
3. A payments system data strategy and statistical insights framework (rich and open data).

Any modular capabilities introduced will need to draw from next gen’s approach regarding technology, managing business arrangements and data. The roadmap focuses on exploring and determining the best approach to take in each of these three pre-requisite areas. Getting this approach right, early, will be critical for all that follows in the roadmap.

It is envisaged that ongoing development and delivery work will be needed in each of these three pillars throughout the rest of the roadmap. The roadmap’s early focus on these foundational pillars is to work with industry to set the approach and it is not necessarily about implementing the technology environment, scheme framework or data models.

Foundational pillar - Centralised platform (technology)

A centralised operational platform is a critical foundational capability for the proposed next gen ecosystem. Many of the modular capabilities have dependencies on a centralised operational platform to facilitate real-time digital interactions as outlined in Chapter 2 and the following diagram.

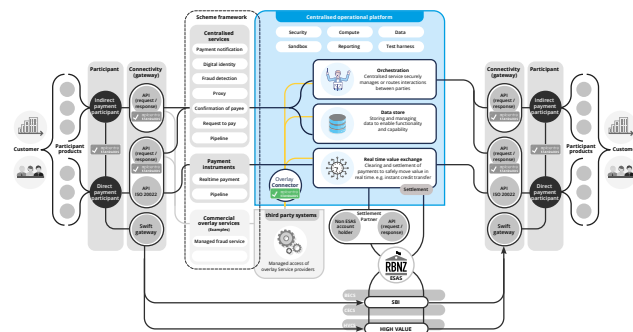


Figure 3: Centralised operational platform

High level benefits

Aotearoa payments network

- Creates a national-level digital infrastructure platform to house modernised payments capability that can support:
 - greater levels of system efficiency - cost effective and scalable.
 - Interoperability (resilient with digital connectivity).
 - Innovation (quicker speed to market)
 - Safety (responsive to risks and issues in near real-time).
 - Open (supports more participation by more financial institutions and service providers in the system).
- Establishes a flexible, safe and cost-effective platform to support current and future needs that:
 - Leverages economies of scale of public cloud providers to ensure cost-effective operation.
 - Highly secure and resilient.
 - Readily scalable.

Participant and user organisations

- One safe and secure access point to a range of enabling digital interactions and payments capabilities.
- Platform operational dashboards provide visibility of system activity.
- Provides the opportunity to simplify and consolidate systems.
- Resilient, adaptable and scalable to accommodate growth and new propositions.

End-users

- Secure and safe, contributes to consumer protection.
- Enables new ways to make managing payments easier.

Developing the approach for this foundational pillar includes exploration of the technology approach, model requirements, assumptions and the delivery approach as input into an infrastructure investment case.

Consultation question 17

To what extent do you agree/disagree with the benefits of a centralised operational platform?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Foundational pillar - Scheme framework (business)

As described in Chapter 2, schemes are used as the governance and operating model construct for the proposed next gen ecosystem.

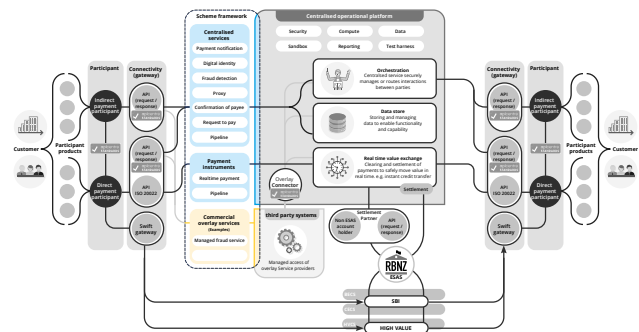


Figure 4: Scheme rules and standards framework

Many modular capabilities would require robust governance structures to be in place to:

- manage the business and technical arrangements between all user organisations; and
- manage the arrangements and obligations between user organisations and the centralised services and payment instruments.

The scheme framework would draw extensively from the design of payments associations and payment system operators from around the globe including the best practice from what Payments NZ does today through its management of clearing system rules and standards, and the API Centre's trust and standards management frameworks. It would provide a structure for how the ecosystem will manage its rules, standards and obligations. It is envisaged there could be an overarching scheme, and then each service (or groups of services) or payment instrument (or groups of instruments) could add its own tailored scheme rules, standards and participation options as needed. A well-designed framework will be adaptable to new and emerging models and best practice over time, for instance, the accommodation of tokenised forms of deposits or emerging developments related to authentication.

Developing the approach for this foundational pillar includes exploration of global best practice, developing and assessing scheme framework options, and identifying how to best leverage the current capabilities of Aotearoa.

Consultation question 18

To what extent do you agree/disagree with our assessment of a scheme framework?

What changes, if any, should be made to further develop the approach?

Potential benefits of a scheme framework

The benefits of the scheme framework described below are indicative and would require further industry review and input to validate and determine their strength.

Aotearoa payments network

- Adheres to principles of financial market infrastructures and regulatory expectations by enabling fair and open access arrangements for broad participation and competition.
- Provides a baseline set of rules and standards by which all schemes must abide to ensure consistency across the ecosystem and regulation of modular capabilities.
- Sets up an access framework where different organisations could participate in different layers of the ecosystem.
- Ensures common language, messaging, and data governance for all ecosystem schemes.

Participant and user organisations

- Creates a clear set of obligations and expectations in relation to participation.
- Provides certainty to user organisations on how the scheme operates.

End users

- Ensures base consistency across the offerings of Participants and user organisations, improving customer certainty and trust.
- Ensures certain standards of speed, accuracy, and security of ecosystem offerings.

Consultation question 19

To what extent do you agree/disagree with the benefits of a scheme framework?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Foundational pillar - Payments data strategy and statistical insights

Information rich and well-structured payments data is a vital feature of modern payments and open data ecosystems. A coherent and future proofed payments system data strategy would underpin and support the development of all next gen ecosystem capabilities and services, as well as provide a mechanism to transition from current payments messaging and data standards to a modern framework. It is proposed that the next gen's approach to data would align with implementing global standards (such as ISO 200022 and open data standards) and best practice principles (such as Māori data sovereignty principles). This would provide a longer-term integrated industry plan to transition from current practices and messaging/ data standards, taking into account data requirements for existing clearing systems, the API Centre and next gen.

The information rich exchange of data provides an opportunity to derive statistical insights across the payments ecosystem. Information on usage and payments behaviours would provide value to user organisations and inform ongoing direction and decision making.

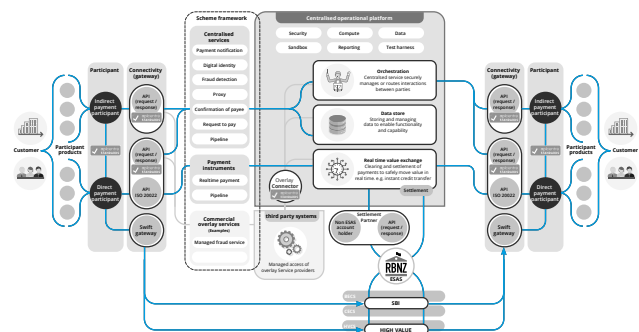


Figure 5: Payments data strategy and statistical insights

Developing the approach for this foundational pillar involves exploring and developing a data strategy that supports the establishment and direction of next gen, including the likes of data management principles, data governance, alignment with global standards (interoperability), an agreed approach to gathering statistics and generating insights, and

recommendations on how to best leverage current data and insight capabilities.

Consultation question 20

To what extent do you agree/disagree with our assessment of a payments data strategy? What changes, if any, should be made to further develop the approach?

Potential benefits of payments data strategy and statistics

The benefits of the payments data strategy and statistics described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Consistent data strategy and data and payments messaging formats (i.e. ISO 20022) across the ecosystem.
- Alignment with global standards (including upstream technology standards), reducing standards development and standards management overheads, ensuring architecture and systems alignment as well enabling cross-border interoperability.
- Ensures data models introduced through the ecosystem development and modular digital capabilities are suitable for the later delivery of real-time digital payments requirements.
- Utilisation of existing API Centre's API standards and open data trust framework model.
- Initial steps to shaping direction of long-term payments messaging for domestic payments, including consideration of Settlement Before Interchange's (SBI) BACHO file format.

Participant and user organisations

- Leverage investment and effort in the High Value Clearing System (HVCS) ISO 20022 standards work.
- Informs internal investment roadmaps of future data and standards requirements.
- Alignment with global standards.
- Improved internal payments reporting and analytics capabilities.
- Data governance structures to ensure the safety and security of participant and customer data.

End users

- Contributes to increased security of end-user data.
- Increased payments security through data-rich interactions and the adoption of new fraud capabilities including prevention, detection, and mitigation.
- Ultimately, benefit from use cases that rely on richer information.
- Meeting customer expectations relating to richer payments functionality, as illustrated by Payments NZ's regular consumer studies and informed by current and future iterations of the Payments Modernisation Plan.

Consultation question 21

To what extent do you agree/disagree with the benefits of a payments data strategy?

What changes, if any, should be made to further develop the benefit statement? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Tranche 1: Make payments safer

The proposed roadmap sets out three major tranches of activity once the foundational pillars are in place (or as they are being developed). Tranche 1 is focused on three capability modules for delivery, driven by the outcome of 'Make current payments safer and prepare for the safe introduction of real-time digital payments'. The Tranche 1 proposed capabilities are:

- 1. Payment notification service** - a service-based capability that orchestrates real-time participant-to-participant messaging to notify the receiving participant of a payment. The receiving participant can utilise the notification internally, for instance in proactive assessment of fraud or AML risk, whilst also having the ability to notify customers of incoming funds, should that be desired.
- 2. Centralised fraud detection service** - a service-based capability that links to the payment notification service to provide real-time fraud detection across the ecosystem.
- 3. Digital identity** - consumption of government issued digital identity verifiable credentials (VC) through a scheme to manage usage arrangements. It is proposed the centralised operational platform would connect to a government issued VC system,

such as that provided by Te Tari Taiwhenua the Department of Internal Affairs (DIA).

The payment notification service and the VCs also advance the outcome of 'Real-time digital interactions that unlock new business value'.

Payment notification service

A payment notification for information purposes does not constitute payment clearing and settlement. An opportunity to leverage the centralised platform and scheme platform to deliver early value by providing real-time notifications is proposed for the Bulk Electronic Clearing System (BECS) electronic credits.

The same notification approach could be applied across a range of current and future payment instruments. It is proposed that notifications could be leveraged initially for BECS electronic credit payments. The same notifications capability would then be reused and extended as further modules and schemes are added to the ecosystem over time.

Payment notifications would also be leveraged to provide a live payments feed to the centralised fraud detection service.

More information on the payment notifications service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Problem definition

Many customer use cases rely on a 'need to know now' capability, where they need certainty of an upcoming payment. This is distinct to the 'need the money now' use cases which some open banking API use cases and future real-time digital payments can address. Currently, from a payments network perspective, the receiving customer only knows they have the money once it is posted as received in their account. In addition, the information that can be carried in the payments record is very limited. These constraints around the speed and richness of information across the inter-participant payments network limit the types of innovative services that can be offered to customers.

Consultation question 22

To what extent do you agree/disagree with the problem definition attached to payment notification services?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of a payment notification service

The benefits of the payment notification service described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Notification technical capability and methods would be able to be leveraged across next gen capabilities, such as request to pay, proxy identifiers and real-time digital payments.
- Provides real-time transactional feed into the fraud detection service, enabling quicker response times for safer electronic credits (post-payment for sending Participant, pre-payment for receiving Participant).
- Notification service offers HVCS new options to consolidate existing payment instruments that rely on notifications, e.g. provide capabilities needed to potentially replace same day cleared payments.
- Starting point to adopt ISO 20022 for domestic payments - if notifications carry data elements from a new domestic payment account-to-account ISO 20022 schema – builds out from the foundational data pillar.

Participant and user organisations

- Supports 'customer needs to know now' payment use cases, enabling new or enhanced innovative services to their customers.
- Option to extend some existing payment notification services offered to customers for on-us payments, to all inter-Participant payments.
- More time for fraud checks as receiving Participant has new options to assess a BECS electronic credit transaction for fraud before the transaction is received through the SBI system.
- The notification could carry rich information in a modern format, enabling new innovations that rely on the exchange of richer payments data.
- By being the future messaging rails for future real-time digital payments this means much of the technical capabilities for real-time digital payments would be in place and in use, improving the cost-effectiveness of deploying real-time digital payments.

End users

- Increases certainty by having confirmation that a payment is coming, and the end user can then act with confidence.
- More consistent experience as able to receive notifications irrespective of which Participant originated the payment (on-us and inter-Participant payments).

Consultation question 23

To what extent do you agree/disagree with the benefits of a payment notification service?

What changes, if any, should be made to further develop the benefit statement? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Centralised fraud detection service

The centralised real-time fraud detection service would deliver near real-time fraud detection across the account-to-account payments network, leveraging the payment notification capability referenced above. It would play a key role in ensuring safer payments, for both current payment instruments and, later, the safe introduction of next gen capabilities and eventually real-time digital payments. The service will align with the work of Payments NZ's Fraud Strategy Group and the New Zealand Banking Association's (NZBA) Anti-scam Centre and confirmation of payee capability.

The title 'fraud detection' has a broad meaning in this consultation paper and covers both fraud and scams such as authorised push payments. The fraud detection service uses a standardised risk scoring model to provide both the sending and receiving Participants with a real-time risk score for each payment going through the next gen platform. The payments risk score is calculated based on a wide range of risk markers and past behaviors across the whole payments network.

More information on a centralised fraud detection service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Problem definition

While many Participants have their own highly capable payment fraud detection and prevention capabilities, they can each only consider information inputs from

the payment activities that they are a party to. This divides the information needed to better detect payments fraud in the interbank channels into silos. Fraud actors can take advantage of this by washing payments through a series of accounts at different institutions, as no single institution can easily see the wider pattern across multiple institutions.

Other jurisdictions are having to reactively add centralised fraud detection capabilities into their live real-time payment systems to help address real-time payments fraud. Some jurisdictions also have modern fraud detection capabilities in their real-time clearing systems, but not across their traditional batch-based systems, which creates weak links in the jurisdiction's payment systems. Next gen's proposed approach aims to avoid these pitfalls.

Consultation question 24

To what extent do you agree/disagree with the problem definition attached to the centralised fraud service?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of a centralised fraud detection service

The benefits of the centralised fraud detection service described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Introduces new safer payments network capability with a system wide view of transactions made across the payment ecosystem.
- Existing BECS electronic credit payments included to improve fraud detection.
- Lays foundation for safe introduction of next gen capabilities and real-time digital payments.
- Can interoperate with other next gen modules, enabling them to leverage the enhanced fraud detection capability.
- Would contribute to reducing societal harm from payment fraud.
- Applies AI tools to large pools of industry data for enhanced fraud detection methods over time.

Participant and user organisations

- Addresses the gap of detecting multi-institution fraud patterns, such as mule-based money laundering.
- Participants alerted of potential payments fraud, while retaining full optionality and control over what they choose to do or act on.
- Potential to reduce financial losses resulting from fraud.
- Receiving Participant's fraud engines gain time by receiving risk score for BECS electronic credits before they receive the payments file through SBI.
- Internally apply insights from analysis of industry wide trends, using fraud data pools and machine learning capabilities.

End users

- Reduce harm, including financial losses, from payments fraud and scams.
- Increase user trust in making payments.

Consultation question 25

To what extent do you agree/disagree with the benefits of the centralised fraud service?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Digital identity

Digital identity is a key component in creating a secure payments ecosystem. As we increasingly rely on digital transactions, it's crucial to verify the identities of all parties involved. Digital identity will play a critical role in ensuring a safe and secure payments ecosystem in the future. Next gen aims to facilitate this by securely sharing identity claims.

It is proposed that the next gen ecosystem enables this by connecting to the government platform that issues digital identity VCs for the purposes of both facilitating payment participants being able to access those VCs and use them for their own purposes, and have the next gen ecosystem use VCs, as and where appropriate, to ensure safe payments processing. The use of VCs has the advantage of focusing on the outcome instead of the underlying information required to inform that

outcome (e.g. confirming a person is over 18, instead of providing their date of birth).

More information on the VCs service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Problem definition

The digital world is rapidly evolving, and with it, the need for secure and reliable identity verification methods. The current system of identity verification in Aotearoa is fragmented and often relies on physical documents, unsecured digital data or sharing information beyond what is strictly needed. This lack of reliable identity verification can lead to uncertainty and risk in digital transactions.

New digital identity legislation, regulations and systems are being introduced, but there is no clear industry wide view as to how this opportunity could be utilised by payment systems.

In a payments context, there is limited ability for participants, payers and payees to have confidence in the identity of all parties to a transaction. As digital interactions and the transfer of value is accelerated, this limited ability will have growing ramifications.

Consultation question 26

To what extent do you agree/disagree with the problem definition attached to digital identity?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of the verifiable credentials service

The benefits of the VCs service described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Safety and security of payment processing is improved by including identity end-to-end.
- Identity assured wherever VCs are used.
- Greater confidence in payments system.

Participant and user organisations

- Ability to access and use VCs in internal use cases.
- Efficiency gains achieved because VCs carry information needed that would otherwise need to be obtained elsewhere.
- Reduced likelihood of fraudulent activity.
- Improved customer protection.
- Greater assurance of value transfer to correct identities.
- Audit trails that can assist in advanced fraud detection or dispute resolution.
- Granular decisions on payment handling since VCs contain information about the party to which they are issued.

End users

- Reduced likelihood of fraud and financial harm.
- Higher confidence of who it is you are digitally interacting with.
- Better visibility of who is receiving the payment.
- Protection of privacy.
- Control over how digital identity is used, and who by.

Consultation question 27

To what extent do you agree/disagree with the benefits of the verifiable credentials service?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Confirmation of payee

Confirmation of payee capability is where the paying customer can request validation that the account number and name of the account holder both match who they intend to pay. This reduces the likelihood of payments fraud where the destination account does not belong to who the payer expects. It also helps reduce misdirected payments and improves customer trust and confidence.

The NZBA is leading the delivery of confirmation of payee capabilities as a part of their wider anti-scams work program. Accordingly, confirmation of payee is not included in any detail in the next gen roadmap at this stage.

Payments NZ will continue to engage and work with NZBA towards the outcome of any new confirmation of payee capability being interoperable with the wider payments ecosystem and makes efficient use of existing and future payment system capabilities and practices.

Tranche 2: Unlock new business value

The roadmap proposes that two capability modules are delivered in Tranche 2, focusing on the outcome 'Real-time digital interactions that unlock new business value'. The two capabilities are:

- 1. Request to pay** - facilitates real-time digital interactions between payers and payees, where the payee can send a payment request to the payer who can then reject or authorise the payment.
- 2. Proxy identifier** - links a payee's transaction account information with an identifier that is easy to remember, allowing payers to easily transact without needing to input the payee's bank account details.

The proxy identifier service also advances, to a lesser degree, the outcome of 'Make current payments safer and prepare for the safe introduction of real-time digital payments'.

Request to pay

Request to pay is a messaging service that can sit on top of existing and future payment instruments and clearing systems. The process involves a payee initiating a request for a specific transaction from a payer. The payer receives the digital request and can decide whether to accept or reject the request. Customer authentication and payment authorisation processes are then no different to other payment experiences. A range of potential payment initiation choices could be facilitated by a request to pay process.

While the consultation paper does not provide design solutions, it is envisaged that the request to pay service would draw extensively from the API Centre's payments initiation standards. It is also envisaged that the request to pay service would provide participation options to third party payment service providers.

More information on the request to pay service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Potential request to pay payment initiation choices

Pay right now
<ul style="list-style-type: none">Real-time payment.
Pay today
<ul style="list-style-type: none">BECS direct credit.BECS bill payment.
Pay later
<ul style="list-style-type: none">Future dated BECS direct credit or bill payment.Instalment arrangement - Series of future dated BECS direct credit or bill payments.

Problem definition

In the current payments landscape, payers initiate payments based on invoices received, which can lead to inefficiencies and inflexibility. Payers often must remember due dates, manually enter payment details, and deal with the inconvenience of late or missed payments. On the other hand, payees have little control over when they will receive payments, leading to uncertainties in cash flow management. Additionally, the process lacks interactivity, limiting the ability for payers and payees to communicate and resolve issues promptly.

Consultation question 28

To what extent do you agree/disagree with the problem definition attached to request to pay service?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of the request to pay service

The benefits of the request to pay service described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Helps drive real-time digital payments uptake and usage.
- Draws on real-time notification and API capabilities to enable new innovative payment capabilities across the payments ecosystem.
- Offerings across multiple payments types, including existing payments rails (BECS through SBI).
- Lays foundation for future account-to-account real-time digital payments at point of sale.

Participant and user organisations

- Establish a greater offering of payments services to customers across new and existing payments rails, particularly for business customers.
- Leverage existing ecosystem capabilities and real-time notification to broaden payment offerings.
- Align with other next gen services such as digital identity to ensure safe and secure payments.
- Extended open banking functionality available to third parties.

End users

- New convenient payment options, for both requesting and paying.
- Providing businesses the opportunity to incorporate richer invoicing and payment instruction data into their accounts receivable functions, including the potential to automate the reconciliation of receivables and payments.
- Provide New Zealanders with greater control over their payments (i.e. compared to direct debits).

Consultation question 29

To what extent do you agree/disagree with the benefits of the request to pay service?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Proxy identifiers

Proxy identifiers, or aliases, link a customer's transaction account information with an identifier that is easy to remember, allowing parties to transact in a seamless manner without needing to input the payee's bank account details.

More information on the proxy identifier service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Problem definition

Currently, most account-based payments require customers to be supplied with, and then accurately enter a string of 15 or 16 digits to make a payment to the correct destination account. This raises several challenges:

- **Complexity** - supplying and entering account number strings can be unwieldy and lacks assurance and certainty.
- **Accessibility** - entering account numbers can be a barrier for people accessing payments where they do not have the capability to correctly enter a sequence of numbers.
- **Fraud risk** - customers have limited ability to verify that an account number belongs to the person they think they're paying. Using an already familiar identifier such as mobile number or email address can provide additional assurance.
- **Operational impacts** - manual input of account numbers can result in some payments being misdirected to non-existent or incorrect accounts, requiring complex manual processes to correct.

Consultation question 30

To what extent do you agree/disagree with the problem definition attached to the proxy identifier service?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of the proxy identifier service

The benefits of the proxy identifier service described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Scalability through making the service available to all payments types, including BECS (i.e. does not restrict its use to real-time digital payments, limit adoption and discourage participant creation of value-add services).
- Integration and mutual reinforcement with request to pay service and VCs.
- Support customers switching banks by routing of proxy-initiated payments to the customer's new bank (e.g., customer changes their proxy registration to their new bank).

Participant and user organisations

- For some Participants, extend current 'pay-to-mobile' service across the entire payments ecosystem.
- Offer innovative and convenient payment solutions to customers that leverage modern technology solutions and customer identification methods.
- Safer payments methods by verifying account details through registered proxy identifiers.
- Reduced mis-directed payments.

End users

- Increased certainty regarding who the payment is destined to.
- Improved and simplified experience through convenient and simple addressing of payments.
- Businesses can offer their customer's new convenient means to address account-based payments.
- Improved inclusion outcomes.

Consultation question 31

To what extent do you agree/disagree with the benefits of the proxy identifier service?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Tranche 3: Payments moving money, safely in real time

The roadmap proposes that just one capability module is included in Tranche 3, focusing on the safe introduction of real-time digital payments. This would be done in a way that draws from the previous capabilities to ensure the safe and feature-rich introduction of real-time account-to-account payments into Aotearoa.

Real-time digital payments

Real-time digital payments enable the near-instantaneous transfer of value between any two transactional accounts or stores of value. Introducing real-time digital payments capability is a key deliverable of the next gen roadmap and will achieve the outcome of 'Payments moving money, safely, in real time'. Real-time digital payments capability would be a key part of the Tranche 3, delivered concurrently with proxy identifiers and request to pay, although exact timings and go-live might be staggered for practical, technical or capacity reasons.

More information on the real-time digital payments service can be found in the Appendix, including a further description of the capability and key features, delivery inputs, capability outputs made available to Participants and its value proposition.

Problem definition

Customers enjoy the benefits of immediacy and certainty of real-time payments today – but only if both the payer and payee hold accounts at the same financial institution. However, most account-to-account payments between different parties are transacted through BECS. While clearing speeds are now within the hour every day, industry assessments have confirmed that the batch-based nature of inter-participant payments have effectively hit its speed limit – a limit that a Participant acting alone will never be able to overcome.

In today's real-time, always on, digital world, the lack of inter-participant real-time digital payments is a capability gap that does not meet the immediacy expectations of consumers and businesses, let alone the future, when people's expectations of immediacy in their digital interactions will grow even further. Payments NZ's 2024 consumer research shows that 76% of respondents considered 24/7/365 real-time payments were the most appealing future payment feature.

New Zealand's real-time digital payments capability gap will increasingly stand out. Many cross border payments are cleared faster than domestic inter-participant payments.¹ The Te Pūtea Matua Reserve Bank of New Zealand (RBNZ) are on record citing the benefits of real-time payments and their expectations of industry delivery.² Aotearoa is now in a consistently shrinking minority by not having account-to-account real-time capability – while comparison is not a reason to implement real-time digital payments, it will increasingly attract political attention.

While the use of open banking APIs and the proposed payments notification capability can meet 'need to know now' use cases by knowing that a payment that will be received, the 'need the money now' use cases cannot be universally met by the current payments landscape.

Consultation question 32

To what extent do you agree/disagree with the problem definition attached to real-time digital payments?

What changes, if any, should be made to further develop the problem definitions?

Potential benefits of the real-time digital payments service

The benefits of the real-time digital payments described below are indicative and will require future industry review and input to validate and determine their strength.

Aotearoa payments network

- Carry extended data within payment transactions.
- Support the digital economy of Aotearoa by enabling commerce through account-to-account payments at speed.
- Creates an enduring, future-proofed ecosystem that is interoperable with real-time payment systems in other jurisdictions.
- Bring Aotearoa into line with many international payments modernisation efforts.

¹ According to SWIFT, nearly 50% of gpi payments are credited to end beneficiaries within 30 minutes, 40% in under 5 minutes. <https://www.swift.com/our-solutions/swift-gpi/about-swift-gpi/fast-transparent-and-trackable-payments>

² RBNZ letter 10 July 2023 'Reserve Bank position on Aotearoa New Zealand's need for real-time payment capability', RBNZ website.

Participant and user organisations

- Extend current on-us real-time capability to inter-Participant account-to-account payments.
- Serve customers for who immediacy of payment is key for time sensitive transactions.
- Can be used to develop delivery versus payment use cases.
- Offer customers more options on how value is transferred, e.g., faster payments or outside of SBI operating hours.
- Future option for interoperability with other jurisdictions to offer real-time cross border value exchange.
- Option to extend current payments initiation open banking standards to 'pay now' use cases.

End users

- Provides immediacy of payments that are time sensitive.
- Supports the increasingly real-time expectations of citizens (76% of respondents in our 2024 consumer study were interested in 24/7/365 real-time digital payments) and businesses.
- Builds on the foundational capabilities to ensure speed does not compromise safety.
- Businesses benefit from improved auto-reconciliation and information about the payments (ISO 20022).

Consultation question 33

To what extent do you agree/disagree with the benefits of real-time digital payments?

What changes, if any, should be made to further develop the benefit statements? And what impacts do you foresee for the people and businesses of Aotearoa as a result?

Transition to 'BAU' enduring operating model

The delivery of the next gen programme is intended to:

1. Establish a centralised infrastructure platform and associated infrastructure operations.
2. Deliver foundational capability as a pre-requisite to the delivery of new services.
3. Deliver an initial deployment of services to improve the safety of payments in Aotearoa.
4. Deliver two tranches of high priority value-add functional capability supporting:
 - the orchestration of real-time digital interactions,
 - real-time digital payments capability in the form of a single credit transfer payment instrument.

These components would aim to provide the enabling, enduring, adaptable and extensible infrastructure platform upon which further innovation and services can be delivered.

Continuous improvement pipeline

As referenced in Chapter 2, there are numerous capability modules that could add value to the ecosystem. New developments and innovations continually add to the 'candidate pool' of new capabilities and services available that could be added into the ecosystem. Collectively, these capabilities would form a pipeline for continuous improvement, with prioritisation and delivery overseen by the governance arrangements put in place as part of the next gen implementation.

The following is an un-prioritised list of candidate capability. Given the likely delivery timeframe for the initial programme, it is proposed that the programme does not prioritise the delivery of any of these potential capabilities.

New digital public infrastructure capability

- Bank and other non-government issued VCs.
- Support for digital identity wallet (holder) interactions.
- QR code payment standards and orchestration.
- Centralised consent management.
- Centralised mandate management.
- Orchestration of security and asset exchange (e.g. transfer of ownership).

New payment-related capability

- Payments bridge to support the funding and defunding of a user's CBDC holdings.
- Support for stablecoin and other decentralised value stores.
- Real-time bulk payments.
- Instalment and/or subscription payments.
- Variable recurring payments.
- Offline payments.

Improved and extended capability

- Enhanced settlement capability.
- Extended request to pay functionality.
- Extended proxy services.
- Enhanced fraud detection and management capability.
- Potential hosting of confirmation of payee capability.

Cross-border corridors

Inter-linking with other real-time jurisdiction's payment or multi-lateral hubs, including Australia's NPP and Pacific Island countries (particularly for remittances).

Next steps

The next phase of the journey for payments modernisation in Aotearoa will be focused on extensive engagement with the industry to enable a deep understanding of the foundational ecosystem design and roadmap outlined in Chapters 2 and 3. This will give the industry an opportunity to provide input and feedback and consider the opportunities a modern and modular payments ecosystem provides.

A set of consultation questions are set out in the companion consultation questions document. These questions are also embedded throughout the consultation paper's chapters. We invite your organisation to consider and respond to the consultation questions.

The outcome of this consultation will help develop an industry recommendation for how we proceed with next gen payments capability for Aotearoa. We expect this will include:

- Refined roadmap and sequencing.
- Refined problem statements and benefits.
- Updated position on governance and the entities responsible.
- A view on areas that may require regulatory support.

Appendix

The appendix is optional reading that has been developed to provide additional information to readers who have a good knowledge of payments. For each of the six capabilities, it provides additional information on:

- Key features
- Delivery inputs
- Conceptual capability description
- Capability outputs to participants
- Value proposition

Tranche 1: Make payments safer

Payment notification service

Key features

Key features of the notification of payment service would include:

- Centralised capability.
- Being available 24/7 with high throughput.
- Real-time notification messaging to participants.
- Leverages existing API standards.
- Could use 'event sourcing' technologies where applicable, utilising applicable data elements of an ISO 20022 domestic payments schema.
- Extendable to other payment types.
- Operating in a highly secure environment.
- Ability to interoperate with and support other next gen capabilities.
- Have its business arrangements and standards managed via a scheme.

Technically, the payment notification service would likely use a publish and subscribe model as this can enable several important and scalable technical capabilities (more information on technical aspects is available on request).

Delivery inputs

Initial views on the inputs required to prepare for the notification of payment service are listed below. This list provides a starting point for industry to consider during future prepare and design activities.

- Extensive collaboration and consultation with participants.

- Determine payment types/instruments that use payments notifications.
- Select the information exchange method (i.e. APIs).
- Develop the information model, ideally using ISO 20022.
- Define what data is provided to the centralised fraud detection service.
- Consider risk scenarios and payments policy issues.
- Information gathering from potential vendors/suppliers.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

After a customer authorises a payment and that payment has been approved to be sent for clearing and settlement, the sending Participant could send a standardised message (batch based or single) to the payment notification service's centralised hub. The hub would provide a real-time message routing service to the receiving Participant to notify them of a forthcoming payment. The centralised model is proposed over other alternatives such as a decentralised bilateral network as it could enable a wider range of orchestration abilities for numerous platform services, and allow for value enhancing capabilities and services to be provided by the platform, most notably:

- Providing the transactional feed to the centralised fraud detection service.
- Providing the messaging 'rails' for the future introduction of real-time digital payments.
- Provides extendable real-time messaging capabilities that could be used on other real-time digital interaction services such as request to pay.

Key future considerations include ensuring the notification service does not undermine the case for real-time digital payments or slow any future migration of payments into real-time. The payment notification scheme would need to consider the expectations, if any, on what receiving Participants must, should or could do if they receive a payment notification – particularly from a consistent customer experience and liability perspective.

Capability outputs to participants

Receiving participants would receive real-time notifications of an authorised payment that will soon be sent to it via SBI, enabling them to create new customer service offerings where their customer 'needs to know' with certainty that a payment will be received soon. In addition, as richer data is exchanged, both the sending and receiving participants and their customers could unlock benefits from richer payments data, without needing disrupt or make significant changes to the SBI and BECS clearing and settlement processes.

Value proposition

The exchange of payments information on a real-time basis unlocks benefits without conducting real-time digital payments, enabling significant value across the inter-participant payments network. Richer payments information would be exchanged in a format consistent with international best practice (ISO 20022), without disrupting current payment clearing and settlement processes in SBI. The real-time notification of service would provide the input feed into the centralised fraud detection service. The messaging practices for notification of payment service could be extended in the future to provide the rails for digital real-time payments.

Centralised fraud detection

Key features

Key features of the fraud detection service would include:

- Centralised capability.
- A transactional data store to help conduct payment risk scoring.
- Being available 24/7 with high throughput.
- Real-time standardised risk scoring.
- Real-time notification messaging to participants.
- Leverages existing API standards and ISO 20022 where practical.
- Can adapt to new fraud and scams patterns and trends.
- Applies artificial intelligence tools.
- Is extendable to other payment types.
- Operates in a highly secure environment.
- Is capable of drawing insights from its data and activities; and have its business arrangements and standards managed via a scheme.

Delivery inputs

Initial views on the inputs required to prepare for the delivery of a centralised fraud detection service are listed below. This list provides a starting point for industry to consider during future prepare and design activities.

- Extensive collaboration and consultation with participants.
- Define the data model for payment notification and risk profiling feeds sent to the centralised fraud detection service by the sending participant (and possibly the receiving participants risk profiling information to create a full end to end risk profile of the payment).
- Define the parameters and functionality of the real-time fraud risk detection assessments (note this will likely draw from artificial intelligence tools).
- Define the transactional and informational data store of historical payments information used to inform payment risk scoring.
- Define the standardised payment risk scoring model that is returned to participants.
- Information gathering from potential fraud detection vendors/suppliers.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

- The fraud detection service is an information-only service that would notify, in real time, both sending and receiving Participants of a payment's likelihood of fraud and scams using a standardised risk scoring approach. The sending and receiving Participants would be free to act on the payment's risk score as they see fit, which may include ingesting the payment's risk score into their own risk management systems where they can consider it alongside other analytics. The service itself would not intervene in payments processing and would not be liable for any outcomes regarding a risk-scored payment.
- Any centralised fraud detection service needs to be fed transactional information to perform its risk scoring. It is proposed that the fraud detection service gets its transactional feed in real-time directly from the notification of payments service for both BECS electronic credits, and future real-time digital payments. This approach not only delivers a greater impact in the shorter term by covering

existing payment instruments, but it also ensures that an already-used fraud detection service is in place and operating to ensure the safe introduction of real-time digital payments. Payment risk scores would be included in the real-time digital payment clearing messages, whereas for BECS payments, the payment risk scores are returned via the notification service (separate to BECS clearing and settlement processes).

- The centralised fraud prevention service could also interact with other modular capabilities, such as request to pay and proxy identifiers. Depending on the use case and appropriate consents being in place, the use of VCs could also play a reinforcing role in the fraud detection service's capabilities.

Capability outputs to participants

Both sending and receiving participants would receive real-time risk scoring for each account-to-account inter-bank payments, in real time while that payment is being processed. For BECS payment types, in most instances the risk scoring will be received before the payment is processed through SBI, giving participants time in advance of receiving the payment to consider payment intervention options.

The standardised risk scoring is based on the risk profile of both the sending and receiving accounts and historical payments data. Each participant would be free to ingest the risk score and make their own decisions with respect to the payment.

Value proposition

The centralised fraud detection service's point of difference is that it could use its ability to see payments and payment chains end-to-end to detect likely payment fraud patterns across all institutions in the wider payments network, in real time, and alert participants while the payment is being processed.

Digital Identity

Key features

Key features of the Digital Identity service would include:

- Centralised capability.
- Being available 24/7 with high throughput.
- Connectivity with Government VC issuance systems.
- Have its business arrangements and standards managed via a scheme.

Delivery inputs

Initial views on the types of next gen programme inputs required to prepare for the VC service are listed

below. This list provides a starting point for industry to consider during future prepare and design activities.

- Extensive collaboration and consultation with participants.
- Determine the need for Payments NZ (or its supplier) to become a licenced entity under the Digital Identity Services Trust Framework.
- Ascertain requirements to access the government's VC platform.
- Develop the model, participation requirements and the scheme design for the 'pass-through' and 'processed' next gen services.
- Consider data privacy and security requirements.
- Develop a trust framework for utilising government issued VCs.
- Consider what user consent and privacy protection requirements are needed.
- Information gathering from potential vendors / suppliers.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

While digital identity standards can be used in many contexts, the capability roadmap prioritises focusing initially on consuming government issued VCs. The New Zealand Government, specifically, the DIA, currently has a live pilot as part of their plans to issue W3C VCs to citizens, which can be relied upon to ensure interacting parties are securely identified. While the government issued VCs would be the first consumed, in the future, the platform has the potential to be extended to facilitate banks or other entities issuing VCs within the Digital Identity Services Trust Framework. The use of digital identity will play a critical role in enabling safe and trusted digital payment interactions in the future.

Next gen proposes establishing a scheme to manage arrangements where the platform technically consumes VCs issued by the government. The scheme would serve two main enabling purposes:

1. **Pass-through** - VCs are received and transmitted via the platform to ecosystem participants. The platform provides a means for user organisations to technically access and consume VCs through the scheme, so that those organisations can incorporate VCs into their own internal use cases. Pass-through enables participants to share identity information

with each other in a secure way that also respects user privacy and security considerations. VCs that are pass-through are not read, interpreted, or used by the next gen platform, but rather are treated as opaque content for use by participants. While the next gen platform would be neutral to how user organisations might use the VCs. Some illustrative examples include:

- Account servicing institutions using VCs to ensure that value transfer is between the expected parties.
- For fraud detection or anti-money laundering.
- For onboarding/off-boarding of customers.

2. Processed - processed VCs are used as part of a next gen scheme, service or payment instrument where a modular capability on the platform reads and makes use of the VCs as a part of its processing functions. Once identity is known by the platform, access to additional features within the platform's modular capabilities can then be appropriately handled, focusing on safer payments and digital interactions. Examples of this could include:

- **Proxy identifiers** - the establishment, maintenance and use (resolution) of proxy could use VC to increase assurance that the proxy identifier is associated with the requesting entity.
- **Request to pay** - VCs could be used to ensure the identities of the payer and payee within a request-to-pay scheme.
- **Identify real-time payment counterparty** - VCs could be used to ensure the identities of the payer and payee.
- **Audit trail** - where a scheme requires an audit trail to be maintained, actions recorded could be associated with VCs, to ensure accurate records of activity.
- **Consents/mandates** - in the future, the creation, maintenance and use of consents/mandates could use VCs to ensure the correct association between party and mandate.

The proposed capability does have a dependency on the government offering and making available VC capabilities. Should this dependency delay its delivery, there is no consequential impact on other capabilities described in this roadmap.

Capability outputs to participants

Participants would be able to use next gen's 'pass through' service to access government issues VCs and integrate them into their own business practices. While it will be up to each participant to use VCs as they see

fit, use cases focusing on AML/CFT checks, know your customer (KYC), customer onboarding, authentication, etc.

Participants would be able to benefit from VCs being included and embedded in other next gen capabilities, such as request to pay proxy identifiers. Note that the exact scenarios where VCs would be embedded in next gen processing would be developed and agreed with industry and would ensure appropriate customer consents are in place.

Value proposition

Digital identity VCs can enhance the payment experience by reducing friction and enhancing security. Different types of VCs can be utilised to improve specific payment use cases, such as facilitating the purchase of restricted goods or providing accurate address information for delivery.

Facilitating market participants' use of government issued VCs in their own business will uplift certainty levels that payments are being sent to and from known and expected counterparties.

By facilitating the use of government-issued VCs, the platform will increase the certainty that payments are being sent to and from the intended parties. This will create a safer payments ecosystem and enable trusted digital payment interactions. This is a foundational feature of our vision for the future of digital payments.

Tranche 2: Unlock new business value

Request to pay

Key features

Key features of the request to pay orchestration service would include:

- Centralised capability.
- Being available 24/7 with high throughput.
- Real-time notification messaging to participants.
- Leverages existing API standards where practical.
- ISO 20022 based data model including potential e-invoicing data, including be extendable to other payment types.
- Operate in a highly secure environment.
- Ability to ensure payment requests can only originate from legitimate sources.
- Manage the request to pay lifecycle including pending requests, cancelled complete requests (reject/authorise), payer's blocking requestors, etc.
- Have its business arrangements and standards managed via a scheme.

Delivery inputs

Initial views on the types of next gen programme inputs required to prepare for the delivery of a request to pay are listed below. This list provides a starting point for industry to consider during future prepare and design activities.

- Extensive collaboration and consultation with participants and open banking third parties.
- Define the request to pay use cases to be focused on.
- Develop the preferred request to pay model, particularly in relation to:
 - the role of the centralised platform and its related modular capabilities (fraud detection, digital identity, proxy identifiers, real-time digital payments),
 - the role of open banking API standards and third party payment service providers, and
 - how the same request to pay flow can initiate BECS electronic credit payment instruments and future real-time payment instruments.
- Define the request to pay process flow.
- Define requirements to ensure only trusted entities can send payment requests.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

The request to pay service proposes to orchestrate real-time digital interactions by facilitating payment requests and payment authorisations through a centralised service. The service would draw extensively from standardised APIs and leverage the messaging capabilities inherent in the notifications of payments service. Request to pay would also be a key enabling catalyst that supports the uptake and usage of real-time digital payments.

The request to pay service would leverage other capabilities across the ecosystem. To help ensure the payer's confidence that the requestor is who they expect them to be, the service would be tightly coupled with the proxy identifier service, and potentially any confirmation of payee capability. Overseas experience, especially in the UK, has demonstrated that request to pay can become a target for fraudulent activity if adequate controls are not in place from the launch of the service. To help ensure payment requests do

not become a new vector for payments fraud, the requests and any resulting payment can be assessed by the centralised fraud detection service. To further ensure safe payments, the use of digital identity could add additional confidence that the requestor is who the payer expects them to be. The inter-woven next gen capabilities supporting request to pay is why the proposed request to pay approach uses a centralised model over a bilateral decentralised approach.

Bill presentation and payment use cases can be supported by request to pay by being able to carry rich structured data about the bill in the payment request, using global ISO 20022 standards. This data can be used by the requesting organisation to provide invoicing and reference data that can be used to automate accounts receivable reconciliations, leading to reduced operational costs and improved customer experience. The service is also interoperable with the current industry bill payments register to ensure payments are destined to the right biller account and reference information.

Participants would be able to utilise the service to develop new propositions for their account holders. In addition, there are strong synergies that exist with the open banking ecosystem. It is envisaged that the API Centre's accredited Third Parties would be able to access the request to pay service to develop service offerings to support billers and payee's to conveniently make payment requests.

Providing account-to-account real-time digital payment options, via request to pay, can increase the payment options for merchants at point of sale. Request to pay provides a key foundation for how retail merchants could offer these payments at their point of sale in the future. Using the request to pay process flow and 'pay now' capability, the merchant's payment terminal could present a request for payment to their customer. The presentation of the request to the customer's device could potentially use QR codes, or other proximity-based technologies.

Capability outputs to participants

Participants will be able to safely and securely send and receive, as applicable, request for payments.

Request to pay value proposition

Request to pay puts the paying customer in control, while benefiting from improved convenience by not having to enter payment details.

As payee's initiating the request, payees can improve cashflow; better predict when they will receive the payment; provide improved customer engagement and

convenience; and improve payment straight through processing by pre-populating invoice details in the payment request.

Request to pay extends the utility and reach of the account-to-account payments network. It also ensures the safety and security of the payment request by leveraging other next gen capabilities and by being able to verify the authenticity and origin of the payment request.

Proxy identifiers

Key features

Key features of the proxy identification service would include:

- Centralised data storage capability.
- A highly secure environment with access controls.
- Secure cryptographic data storing and data communications techniques; be available 24/7 with high throughput.
- Use of existing API standards and ISO 20022 where practical.
- Be extendable to other proxy identifier types.
- Separation of access rights based on who can 'write' changes to the data store and who can only poll, or 'read', registered proxies and linked account numbers.
- Have its business arrangements and standards managed via a scheme.

Delivery inputs

Initial views on the types of next gen programme inputs required to prepare for the delivery of proxy identifiers are listed below. This list provides a starting point for industry to consider during future prepare and design activities.

- Extensive collaboration and consultation with participants and open banking third parties.
- Define the request to pay use cases to be focused on.
- Develop the preferred request to pay model, particularly in relation to:
 - the role of the centralised platform and its related modular capabilities (fraud detection, digital identity, proxy identifiers, real-time digital payments),
 - the role of open banking API standards and third party payment service providers, and
 - how the same request to pay flow can initiate BECS electronic credit payment instruments and future real-time digital payment instruments.

- Define the request to pay process flow.
- Define requirements to ensure only trusted entities can send payment requests.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

Using proxy identifiers to conveniently address payments is a mature payments functionality that is widely used around the world. Many Participants within Aotearoa already provide similar services between two customers of the same institution, but this is not extendable across all customers of all account servicing institutions.

The proxy identifier capability could provide an orchestration service with a centralised secure data store of registered proxy identifiers and account numbers. Like most jurisdictions, a centralised model is proposed by next gen over decentralised models, as it is considered more efficient in real time transaction execution and removes proxy conflicts with a customer registering the same proxy identifier at a different Participant. When acting on the customer's instruction, the customer's account providing institution can register, edit or remove a proxy identifier linkage to an account number. Participants with access rights can then securely look-up a proxy identifier to obtain the destination account number so that they can populate the payee's account information for the payer to authorise. Anti-phishing controls would be in place to ensure no malicious access. The proxy identifier service would be neutral to what payment type is being used, meaning the service could be used for any account-to-account payment including BECS, real-time digital payments and potentially other payment instruments.

Three proxy identifiers are proposed initially, with the potential to extend the set of identifiers in the future:

1. account holder's mobile phone number(s),
2. account holder's email address(s), and
3. the account holder's New Zealand business number (if a business entity).

In most instances the customer's account providing institution would have already verified these data points, thereby adding confidence and safety.

The proxy identifier service would form an integral part of the next gen ecosystem, where it is expected to be a key catalyst for the uptake and usage of real-time digital payments. Further, user organisations

would be able to mix-and-match proxy usage with different next gen capabilities, such as request to pay, to support different payment flows and use cases. The customer consented linking of VCs with registered proxy identifiers and account numbers also has the potential to provide high levels of certainty, safety and confidence.

Capability outputs to participants

Participants will be able to safely and securely send and receive, as applicable, request for payments.

Proxy identifier Value proposition

Proxy identifiers introduce new real-time digital interaction capabilities that enhance security, convenience, and efficiency. By replacing sensitive account details with unique identifiers, they significantly reduce the risk of fraud and data breaches. The use of proxy identifiers simplifies transactions, eliminating the need for users to remember or share complex account details. This leads to a smoother, more user-friendly transaction experience. Furthermore, proxy identifiers streamline the transaction process, reducing errors and increasing the speed of transactions. This results in operational efficiencies for businesses and a seamless experience for consumers.

Tranche 3: Payments moving money, safely in real time

Real-time digital payments

Key features

Real-time digital payment capability would be tightly coupled with the proxy identifier service, request to pay, and potentially any confirmation of payee capability, to help ensure the payer's confidence that funds are going to the correct account. Leveraging the rich data capability of the ISO 20022 messaging standard would enable parties in the real-time digital payments value transfer to share more information about a transaction in the payments message, creating opportunities, including:

- Improved operational efficiencies due to more structured and reliable payment information. This enables straight through processing and more automated reconciliation processes.
- Enhanced compliance capability for anti-money laundering, KYC, and screening of transactions due to richer information about the payment, the originator and the reason for the payment being shared. This reduces internal compliance investigations, delays, and costs.

- Aligning our account-to-account payments with international standards.

Key features of the real-time digital payments value transfer would include:

- A highly secure environment with access controls.
- Centralised model, where payment messaging is routed centrally.
- Centralised fraud detection service risk-scores payments in real time as a part of centralised payment processing.
- Secure cryptographic data storing and data communications techniques.
- Processing payments 24/7 with high throughput. Our 2024 consumer study indicated that 76% of respondents were interested in 24/7/365 real-time digital payments.
- Leverages existing API standards and payments notification messaging capability where practical.
- Uses an ISO 20022 based schema for domestic account-to-account payments, aligned to global standards.
- Tightly coupled with proxy identifier and request to pay capabilities.
- Options to attach VCs to increase trust and safety of payments.
- Provides a range of participation options, including direct and indirect settlement.
- Has access criteria, business rules, settlement and technical standards managed under schemes built upon the scheme framework.

Delivery inputs

Initial views on the types of next gen programme inputs required to prepare for the delivery of a real-time digital payments are listed below. This list provides a starting point for industry to consider during future prepare and design activities.

- Develop with industry the preferred real-time digital payments model, including confirmation of the ISO 20022 messaging based clearing orchestrated by a centralised platform.
- Messaging flows and the strategy for standards formats.
- The strategy regarding the provision of technology, e.g. vendor approach.
- Defining the access and participation model.
- Defining non-functional requirements including reporting and analytics.

- Ensuring reuse of Tranche 1 capabilities (payments notifications, digital identity and centralised fraud detection).
- Development of payment instruments – proposed single credit transfer as the starting point.
- Defining the preferred settlement model and ensuring, with RBNZ, that it does not introduce system risk.
- Complete design requirements.
- Develop the participation and liability management framework.
- Business case development.

Conceptual capability description

The cost-efficient delivery of real-time digital payments capability would be achieved by leveraging the modular capabilities already delivered by the programme. This includes the safer payments capabilities, real-time digital interaction capabilities, the scheme framework, and the centralised operational platform.

The hypothesis model is using ISO 20022 standardised messaging orchestrated through a centralised platform. However, as real-time digital payments capability is to be implemented later in the roadmap, it will be appropriate to revalidate that this hypothesis is still the preferred way to transfer value from one bank account to another. Notable emerging alternatives that may need consideration include:

- Participants using tokens to represent their deposit liabilities and using a unified ledger to settle the real-time transfer of tokenised commercial bank deposits as the means of achieving the real-time clearing and settlement of deposits.
- Using a CBDC as the means to conduct real-time settlement. This would require Participants to purchase and redeem CBDCs and having some means of ensuring the payment clearing information is exchanged.
- Other options to achieve the real-time exchange of value between bank accounts that may emerge between now and the commencement of the Tranche 3 delivery.

The proposed approach targets the introduction of one real-time digital payment instrument first, which provides the foundation for other real-time digital payment instruments to be added in the future. The proposed initial payment instrument is a single credit transfer, which is an instruction exchanged between two financial institutions to move money from the payer's account, who is the initiator of the credit transfer - to the payee's account, the receiver

of the credit transfer. In a real-time environment, this instruction is a clearing message resulting in the payee having instant availability of funds. A single credit transfer could be used across a range of scenarios, including peer-to-peer payments, customer-to-business, business-to-business, and retail point of sale.

Direct participants would connect to the real-time value exchange processing engine in the centralised operational platform, which would process the 'clearing' and 'settlement' components of the exchange as per scheme rules. Settlement ultimately occurs via the Exchange Settlement Account System (ESAS), which is governed and operated by RBNZ.

It is proposed that settlement does not occur payment-by-payment in real time through ESAS. A deferred settlement model is preferred, with the detailed design and approaches to managing settlement risk yet to be defined. Preferred settlement characteristics would include:

- Reusing existing connectivity and settlement systems with ESAS.
- Using the centralised capability to determine individual participant settlement positions on a multilateral basis.
- Frequent settlement cycles every day, including any desired limits and triggers.
- Manage settlement risk using pre-funded accounts and/or collateral.

Additional payment instruments would be introduced over time to facilitate different service offerings but are not proposed in this capability roadmap. Some of the following examples of other real-time digital payment instruments have equivalent functionality in existing clearing systems:

- Refunds (restoration of money to the payer following a successful initial payment).
- Bulk payments, future-dated payments.
- Instalment payments.
- Subscription payments.
- Variable recurring payments.
- Cross-border payments through interlinking with other real-time payment systems around the world.

Capability outputs to participants

Participants would be able to provide new payment products and services to their retail and commercial customers that rely on the safe and secure real-time transfer of money from one bank account to another.

Value proposition

A range of value propositions for real-time digital payments include:

- Real-time digital payments, by increasing the velocity of money, serve as a crucial bridge between the financial system and a modern digital economy.
- Pairing real-time digital payments with other next gen capabilities opens opportunities for financial institutions and payment service providers to develop innovative product propositions.
- The sequenced introduction of real-time digital payments ensures the capabilities that ensure safe real-time digital payments are already in place.
- Real-time digital payments enable the market to cater to use cases that require the immediate transfer of money.
- The increased speed of payments can enhance cash flow management for both individuals and businesses. Real-time digital payments make financial planning more predictable and reliable, contributing to better financial health.
- Real-time digital payments help maintain the transactional bank account as the focal point of the customer's financial relationship over time. This is particularly important as other means of real-time value transfer continue to emerge.

In summary, real-time digital payments offer speed, efficiency, enhanced user experience, increased security, and cost savings across the economy.

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