

The Reserve Bank of New Zealand Information Release

Document title: CBDC Business Plan storyboard - Mapping the way forward

Presented to the Reserve Bank of New Zealand Board on 15 February 2024

Notes to the document:

- This was prepared as an internal document and presented to the Reserve Bank of New Zealand Board, in part, to update it on the Reserve Bank's progress on exploring digital cash.
- Digital cash is referred to in the storyboard as central bank digital currency, NZ CBDC, and digital dollar throughout the document.
- The material in this document is fully included in the Digital Cash in New Zealand Consultation paper and supporting Consultation Notes and reports by Accenture and GravitiasOPG.
- Some of the diagrams in this document were reformatted for the Digital Cash in New Zealand Consultation paper and supporting Consultation Notes. Therefore, some colours and formatting may look different.

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The Future of Money –
Central Bank Digital Currency (CBDC)
Te Moni Anamata – *Aparangi ā Te Pūtea Matua*

CBDC Business Plan storyboard
Mapping the way forward

December 2023

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1.0 Executive summary

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1.1 What this storyboard sets out

- This storyboard outlines the way forward for exploration by the Reserve Bank of New Zealand – Te Pūtea Matua of a Central Bank Digital Currency (CBDC) for Aotearoa (NZ CBDC).
- Good progress has been made over the past two years with exploring and shaping our thinking on a NZ CBDC.
- This work has confirmed that our intervention logic is sound and, in our view, that a NZ CBDC dollar, alongside cash, is only a matter of time.
- We have focused our scope to money that we would offer to the public and business (and not to wholesale markets). However, a NZ CBDC designed as a general-purpose CBDC would be available for wholesale use.
- The effort, cost and complexity required to deliver a NZ CBDC and to establish a market and ecosystem cannot be underestimated - RBNZ would need to substantially lift capability in several areas to deliver and operationally support a NZ CBDC.
- Our market research identified that that New Zealanders are likely to take a cautious approach to adopting a NZ CBDC – incentives from the wider public sector could play a key role in encouraging uptake.
- For these reasons, a NZ CBDC for New Zealand is likely to be a long-term but necessary prospect.
- We have not yet completed all the research and analysis that would be needed to gain Government support.
- The next phase of our work programme is to complete a comprehensive Indicative Business Case (IBC) for the Government's approval, after which we would move to 'Stage 3: Prepare' leading to a final decision by the Government to support the issuance of a NZ CBDC.
- We see ourselves, among other central banks, as part of the "mass majority" in terms of adoption pace. This allows us to learn from comparable countries, benefit from vendor capability maturity, decrease the cost of delivery, leverage a greater body of research, and gain assurance from other jurisdictions issuing first.
- Not proceeding with this work would mean we would not be in a position to protect the role of central bank money against emergent threats, nor to drive innovation, efficiency and financial stability in private money.



1.2 Where this storyboard fits into our NZ CBDC work

Over the past two years we have:

- ✓ Developed foundational policy for privacy, inclusion, innovation, and managed issuance of a NZ CBDC.
- ✓ Refined our CBDC policy principles that guide design.
- ✓ Commissioned qualitative market research to better understand the wants and needs that New Zealanders have from their money.
- ✓ Engaged our CBDC Forum, other external experts and the public sector to understand differing needs, and to explore potential use cases and benefits of a NZ CBDC.
- ✓ Collaborated with international experts (Accenture) to identify what is required to establish a sustainable ecosystem to support and distribute a NZ CBDC.
- ✓ Developed and assessed several ecosystem models that have the potential to meet our needs.
- ✓ Identified our favoured positioning for ecosystem models that provide rich functionality and less control by RBNZ to position a NZ CBDC to deliver innovative and encourage adoption.
- ✓ Engaged with other Central Banks to understand their CBDC work programmes.

To move forward, our next steps are to:

1. Consult and engage with the New Zealand public and key stakeholders, including Māori, on our work so far and next steps.
2. Confirm and further define our preferred NZ CBDC distribution model and design.
3. Develop a delivery approach and to understand the capabilities required to achieve it.
4. Complete an initial social and economic cost benefit analysis for NZ.
5. Confirm a compelling strategic and policy case on whether to issue a NZ CBDC.
6. Develop an Indicative Business Case supporting implementation of a NZ CBDC.

These activities will occur over the next ~30 months.

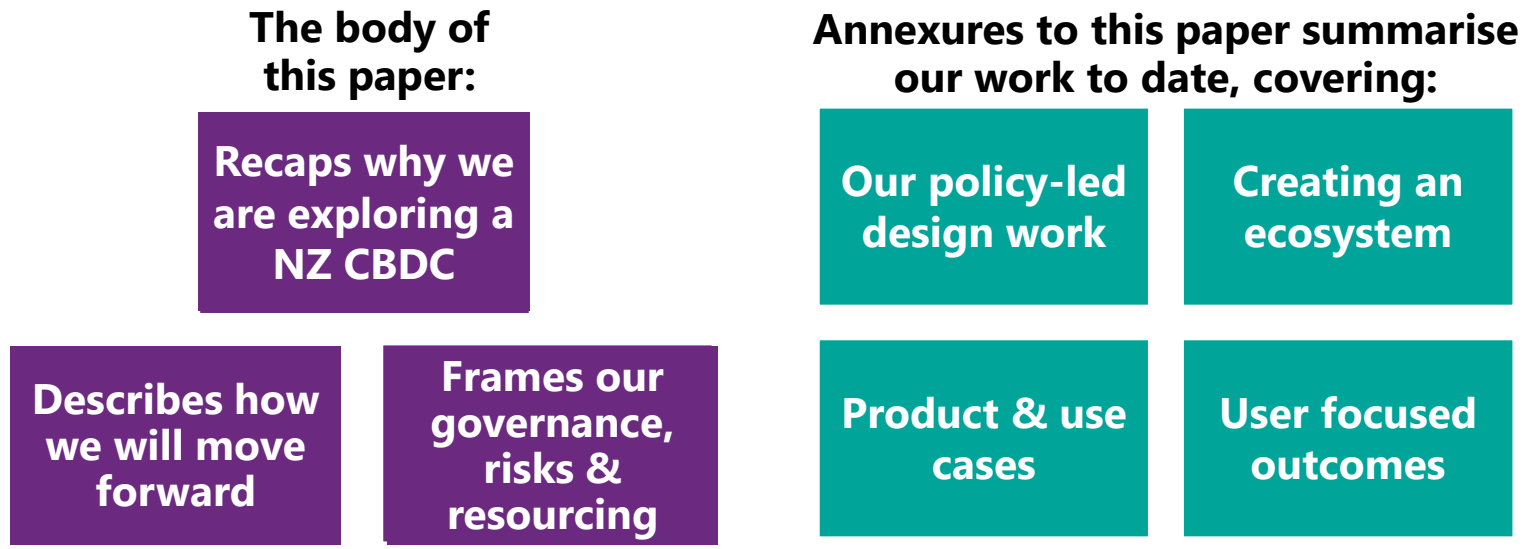


1.3 This is our high-level plan on how to move forward

This 'storyboard' captures our work to date and proposes a directional business plan for how to move forward and use our approved funding.

This paper draws a line under our work to date (to late 2023) & recalibrates our way forward. Its purpose is to:

1. Propose a way forward for the further exploration and design of a NZ CBDC.
2. Propose next steps, including consultation with the public in 2024.
3. Summarise the findings of 'Stage 2: Define' to date, including the NZ CBDC's case for change and describing the stylised design models we have identified.



1.4 A NZ CBDC would be a form of central bank money

What is central bank money, how is it different to private money, and why do we need it?

Private money is a claim on private entities, currently mainly regulated banks and non-bank deposit takers, against their own balance sheets with differing credit and liquidity risks, and accessible through electronic accounts.

Central bank money is a claim on the central bank, ultimately the State, currently in the form of physical cash and central bank reserves held in settlement accounts (used by major banks, institutions and us to provide instant and irrevocable payments to each other).

The role of central bank money is two-fold:

- 1:1 convertibility of all private money into central bank money supports public confidence in the value of NZD-denominated money, monetary transactions, and economic efficiency.
- As an alternative to private money, it contributes to social and financial inclusion, and ensures prices are set in NZD, which supports monetary policy effectiveness.

A NZ CBDC would be a new form of central bank money. A '**wholesale**' CBDC (which we are not investigating) would facilitate transactions between financial institutions. A '**retail**' CBDC would support transactions between individuals and businesses. A '**general purpose**' CBDC would be able to perform both roles, potentially with further add-ons to suit different uses.



2.0 Why are we exploring a NZ CBDC?

- 2.1 Our central bank money – principally cash – is under threat and there are serious risks that monetary sovereignty and financial inclusion could be undermined.
- 2.2 Globally, a new wave of digitalisation is rapidly changing the nature and use of money and payments.
- 2.3 Our key objective for a NZ CBDC is to ensure that our money is still available to New Zealanders and can be used digitally.
- 2.4 A NZ CBDC could contribute to the innovation, efficiency and resilience of New Zealand's money and payments ecosystem.

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2.1.1 The effectiveness of central bank money is under threat

As the steward of money and cash we have an objective that Aotearoa New Zealand has reliable and efficient money and payment systems that support innovation and inclusion.

- As steward, we take a longer-term view of the money and cash system, so that it meets New Zealanders' needs now and in the future.
- The context for the money and payment system is changing, the level of cash use is declining, the economy is increasingly digitalised, and new forms of money and payments are emerging.
- In this new context, the lack of public access to a digital form of central bank money increasingly limits our ability to meet changing needs and undermines the role of central bank money in the economy.
- Our CBDC work complements other work programmes in cash system redesign and the review of private innovation in money that address issues in other parts of the monetary system. It also dovetails with our work to modernise the payments system.



2.1.2 Central bank money continues to be important

The RBNZ needs to confirm what future role central bank money should play in an increasingly digitalised world, and whether a NZ CBDC might help deliver that role.

Money has evolved to enable people to exchange their goods and services, to plan, to save, and to pay for what they need later.

Issuing money is a longstanding function of central banks.

The need for money has not changed, nor has its importance as a public good.

However, money must adapt to a changing economy and society to remain relevant.

It is a matter of public interest that money remains reliable and efficient, but also innovative and inclusive.

Being clear on the role of central bank money into the future is critical and will shape money & payments for decades to come.

A NZ CBDC could preserve our influence over NZ's money systems and provide stabilising support for conventional and new forms of private money.

Much remains at stake:

- Preserving monetary sovereignty
- Ensuring monetary policy effectiveness & financial stability
- Providing choice and competition
- Addressing unintended barriers and collateral impact
- Supporting digital transformation and innovation.

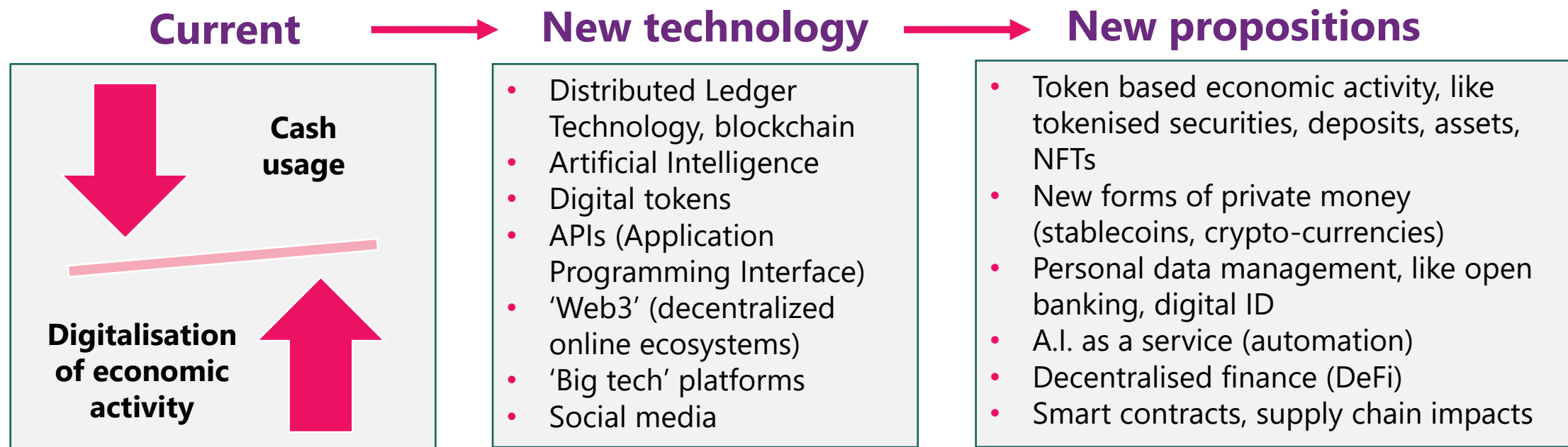


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2.2.1 Digitalisation has many impacts on money and payments

A new wave of digitalisation is changing the way people use their money and payments.



People have increasingly connected digital lives, including how they manage their money and payments. The pace of digitally-driven change continues to increase. New public policy opportunities and challenges present themselves. These change impacts are particularly acute in NZ, where cash usage is comparatively very low.



2.2.2 Central Banks are investing in digital currencies

CBDC investment and explorations have expanded rapidly and continue to increase. While many challenges remain, a sense of long-term inevitability is emerging.

- Almost all central banks are committed to exploring CBDCs, while few have committed to issuing a CBDC yet
- A sense of inevitability has emerged – global sentiment now seems to be ‘when’, not ‘if’
- While there is significant momentum, pace remains cautious
- While some countries will issue a retail CBDC, we consider that full scale issuance and wide user adoption is unlikely this decade, and a fully-scaled retail CBDC remains a long-term prospect
- Some significant key challenges remain to be met before widespread issuance will occur
- Each jurisdiction’s motivations, drivers and digital capabilities vary significantly
- Jurisdictions with major financial markets or which are trading hubs are more focused on wholesale CBDCs
- A convergence of features is emerging, including tokenisation, intermediation, offline capability
- A few key jurisdictions could sway global sentiment and change momentum and pace.

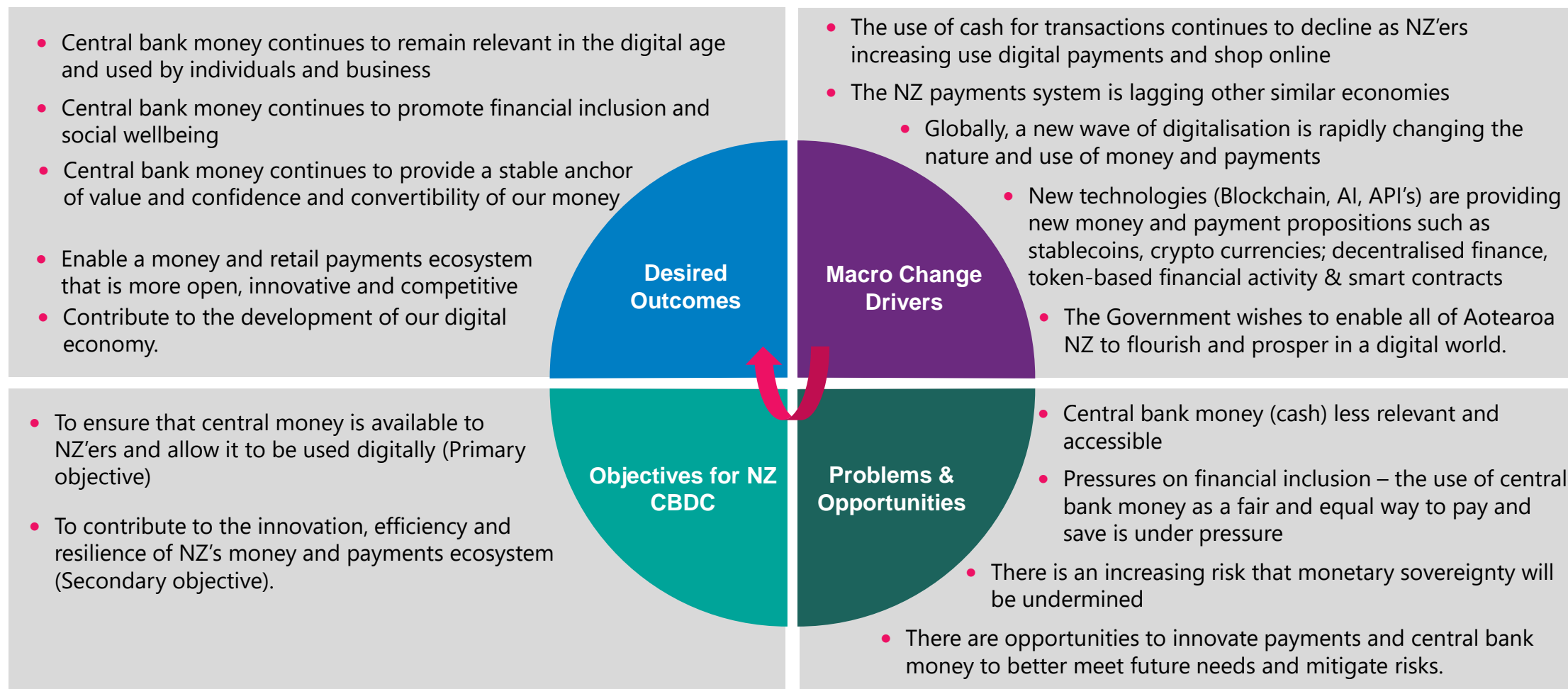


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2.3.1 Our intervention logic remains sound

We think the policy intervention logic is still fit for purpose.

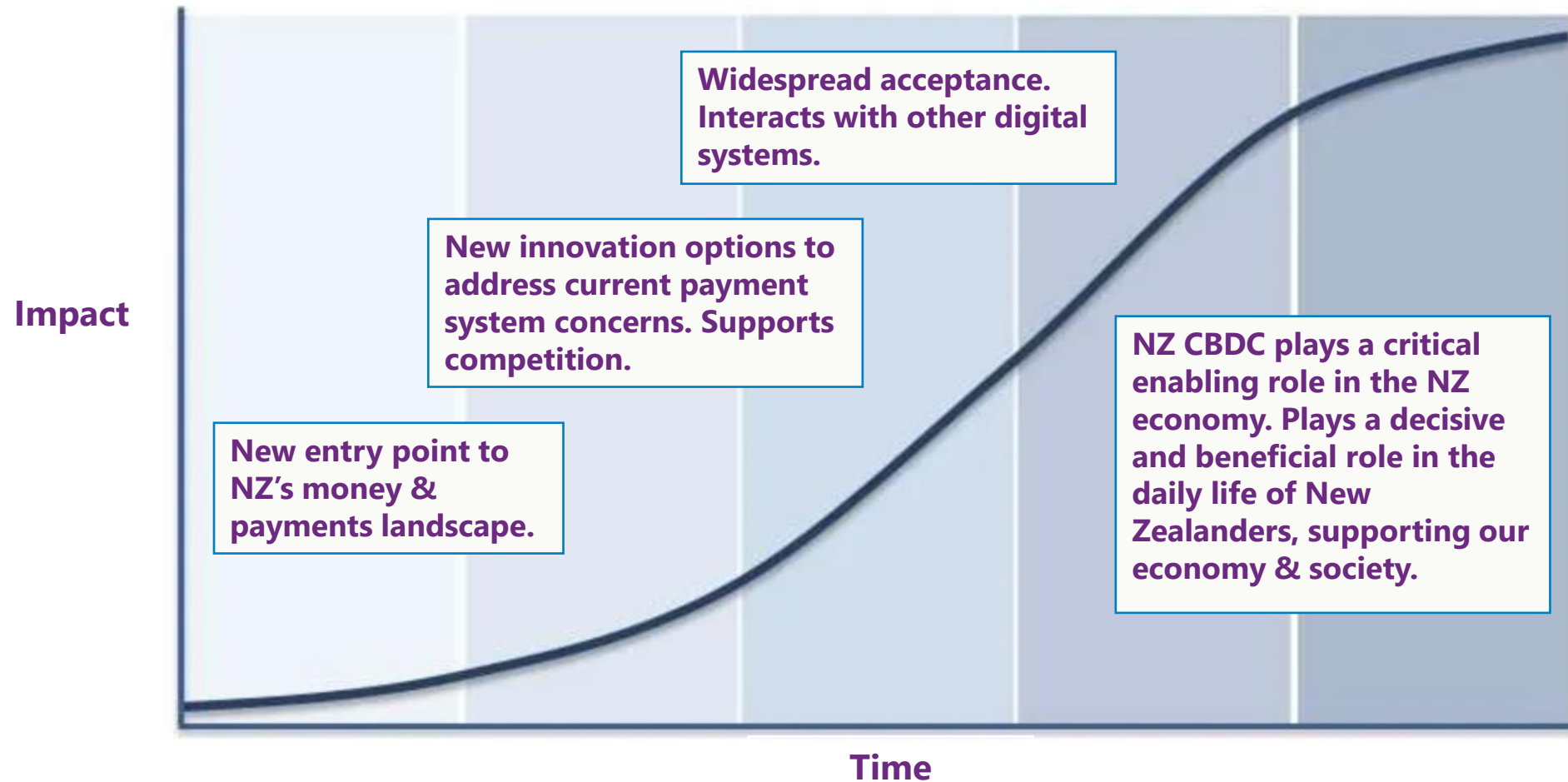


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2.4.1 A NZ CBDC would be transformational over the long term

Over the long term, a NZ CBDC would be transformational by catalysing innovation, while offering safety and stability, and sharing its benefits across society.



2.4.2 A future view of... (1 of 2)

A NZ CBDC is a long-term proposition to help New Zealand and New Zealanders thrive in a digital world. As there would be a multi-year lead-time to decide, build and launch a NZ CBDC, we need to anticipate what kind of a digital world a NZ CBDC would be launched into. While foreseeing the future is challenging and heavily caveated, here's our future view of...

2.4.2.1 ...Aotearoa New Zealand's digital economy:

- Economic activity is increasingly digital.
- There is an increased impact on those who are digitally and financially excluded.
- As a small trading nation, NZ's digital competitiveness is vital to our economic growth.

2.4.2.2 ...how global technology trends will influence NZ's payments landscape:

- Artificial Intelligence becomes embedded in normal digital economic activity, including payments.
- Securities, trade, carbon credits and bank deposits are increasingly represented by digital tokens.
- BigTech platform companies offer payment services to New Zealanders.
- Payments are increasingly real time and seamlessly embedded in digital activities.
- Stablecoins are offered by a range of entities to provide new services to customers.
- Biometric technologies are increasingly used to authenticate payments.
- Crypto assets increasingly available to more people, with limited usage in payments.



2.4.2 A future view of... (2 of 2)

2.4.2.3 ...Aotearoa New Zealand specific outcomes:

- Cash remains available into the future as long as it is valued by New Zealanders, but cash systems remain under pressure.
- Māori Data Sovereignty principles are increasingly embedded in digital economic activity, elevating NZ's best practices.
- Open banking becomes widely used by New Zealanders, supported by the Consumer Data and Products legislative framework and industry standards.
- NZ has real-time bank account to bank account payments and a modernised payments capabilities.
- An expanded range of businesses will access and provide money and payment services.
- Regulatory focus on the direction of NZ's payments and money systems continues to sharpen.

2.4.2.4 ...how New Zealanders digital and payment expectations will evolve:

- People increasingly use mobile device wallets to manage their money, payments, and digital identity.
- People learn to expect to be able to manage their consents and control their own digital data.
- People have a strong preference for cash to remain a viable payments option but use it less often.
- People safely use their digital identity in a wide range of digital activities.



Annex A: Policy-led design

Key points summarising our policy work

What we have done

- Foundational policy on privacy
- Foundational policy on inclusion
- Foundational analysis and policy on managed issuance
- Foundational policy on innovation, interoperability and resilience
- Developed the CBDC principles and supporting criteria

What we found

- NZ needs better prospects for long-term innovation and competition in its payments
- There are areas where digital financial inclusion is low. A CBDC can improve digital financial inclusion through accessible design and acting as an onramp to other services
- Issuance should be orderly
- Privacy by design requires more than data and transactional privacy, it also requires assurance

What we need to do next

- Consultation on policy findings
- Complete an analytical policy framework, including a socio-economic cost / benefit for NZ
- Develop policy positions on various topics including: wholesale CBDC, who can hold CBDC, remuneration, stability responses, cross border benefits, regulatory & compliance changes; and the legal basis for issuance

A.1 Our policy work continues to increase our understanding²³

We have successfully completed a foundational analysis and policy work programme to deepen our understanding of what a well-designed NZ CBDC should do to achieve its objectives.

We delivered substantive policy findings covering four key areas:

1. Defined a privacy ontology to guide privacy-centric design for a CBDC
2. Developed the issuance mechanisms and scenarios for a CBDC and considered the potential impacts on the Reserve Bank's balance sheet and commercial bank liquidity and profitability
3. Identified NZ's payments innovation, interoperability and reliability pain points and opportunities
4. Identified NZ's inclusion opportunities and design criteria for a universal CBDC to improve meaningful choice and act as an onramp to other parts of the financial system.

We also researched user attitudes toward digital money and payments, including a CBDC.

This work formed the basis of the development of the policy principles and provides analysis of the NZ context to inform ongoing work.

Other policy work will investigate a comprehensive policy analytical framework and cost benefit analysis, the legal basis for issuance, user needs and use cases, cross-border transactions, wholesale uses, designing a governance framework, and compliance and regulatory obligations.



A.2 Our outcomes-led approach continues to guide us

We are taking a top-down, policy and outcomes-led approach.

Our policy and outcomes-led approach

- Our top-down approach is anchored in RBNZ's mandate and purpose
- Focused on the different roles that publicly and privately issued money play in New Zealand's economy, and the resulting economic and social policy implications as these forms and availability of money evolve
- Our work programme is designed to drive and assess a potential NZ CBDC against a set of agreed public policy outcomes and objectives
- We tightly link our activities, milestones and process to our policy outcomes and objectives

Applying this approach in practice

- Initial focus on 'why' and then 'what'. We will focus more on the 'how' once we have clarity.
- We apply outcomes, policy and principles (our 'why') to a design process to identify what type of NZ CBDC model (our 'what') best aligns with this.
- At this stage our design process is high-level and it is not technical (our 'how').
- A series of stage-gates are used to unlock the next stage of activity. This provides the opportunities to adjust pace and scope.

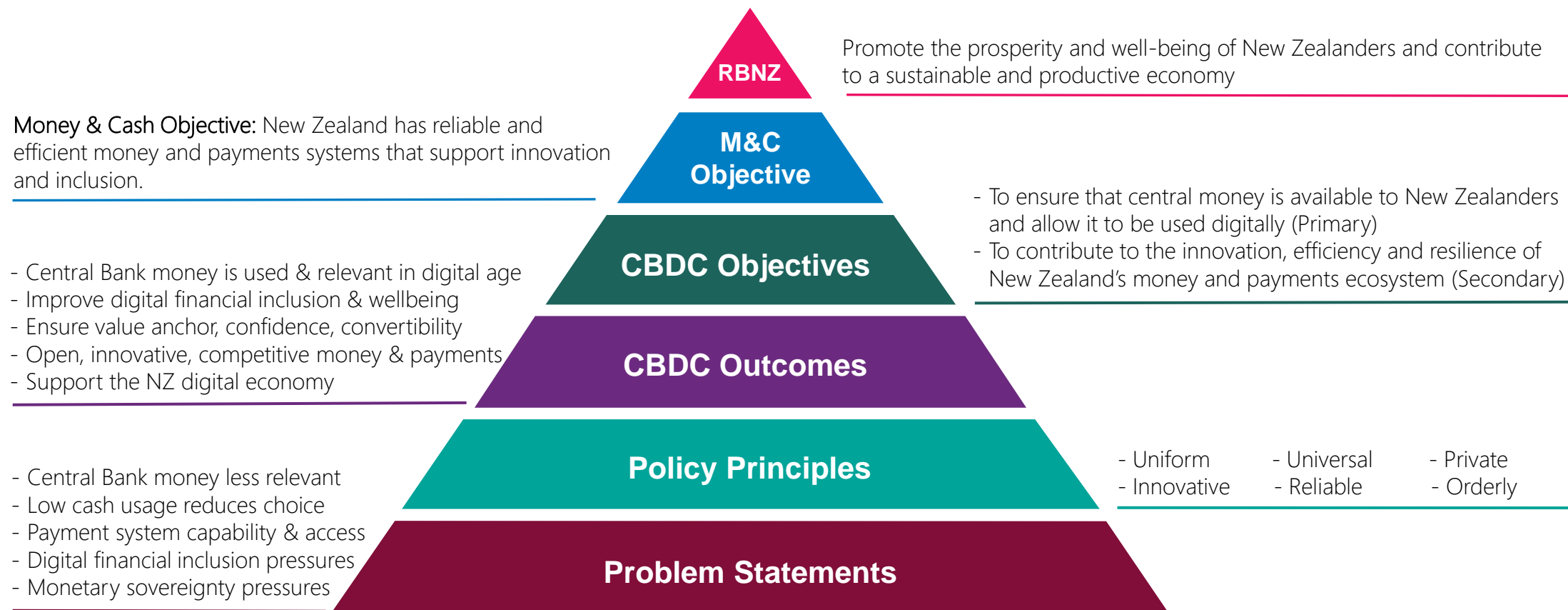
Implications of this approach

1. Very little technical work has been conducted yet. The digital nature of a NZ CBDC means that this approach defers consideration of key technical design questions and technical costs, benefits and capability implications.
 - Our view is we can leverage global technical research
 - Our level of resourcing does not yet support first-hand technical test-and-learn
2. Our iterative approach re-validates our assumptions and work as we learn more, with increasing levels of confidence
3. The pace of our measured approach currently positions RBNZ in the "mass majority". Other jurisdictions have significantly higher levels of investment in explorations.



A.3 Our role, objectives and work are closely linked

Our top-down policy lead approach ensures our activities align to our purpose and outcomes.



A.4 Our policy work helps focus our design...

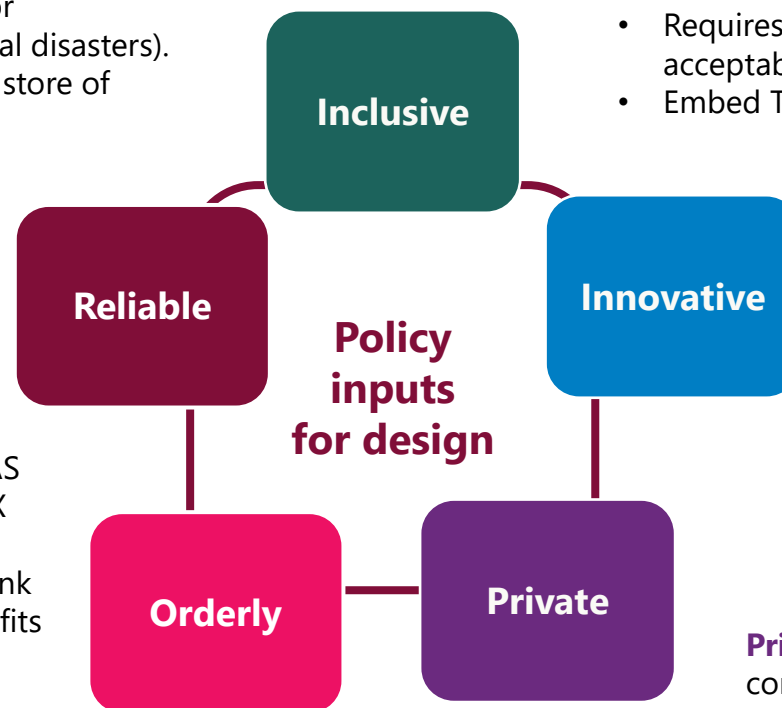
Policy outcomes help identify what we think is important for a NZ CBDC, unifying the needs of users, the needs of payment system stakeholders, and the needs of RBNZ.

A NZ CBDC must be **reliable**:

- Providing an alternative national platform where payments can be conducted, including offline, in case of an outage in other payment infrastructures or connectivity unavailability (including in natural disasters).
- Being a low credit risk payment method and store of value for consumers.

A NZ CBDC will be issued in an **orderly** manner

- Digital NZ dollars issued in exchange for ESAS reserves, using normal market operations (FX swaps) to replenish reserves if needed.
- Medium to high levels of issuance reduce bank funding and would impact their liquidity, profits and/or lending.
- The level of impact depends on how banks might respond to loss of deposits, and the appetite of wholesale investors to provide funding.



A NZ CBDC could improve digital financial **inclusion**:

1. **As an additional payment choice**
2. **By acting as an onramp to other digital financial products**
3. **Providing new inclusion use cases.**

- Requires affordable, available, accessible, accommodative and acceptable design.
- Embed Te Ao Māori and other community perspectives.

A NZ CBDC could improve **innovation** by:

1. Provide a **safe asset** on a **trusted platform**, that can **be used by third parties** in a way that is not subject to rent-seeking or anti-competitive motivations.
2. Increasing competition which allows more innovation.
3. Embedding new functions into the CBDC platform.

Requires an intermediated design.

Privacy is not the same as anonymity. We are not considering issuing a CBDC that allows anonymous transactions.

To build a privacy-centric CBDC we will focus on **data governance** and customer **assurance**.



A.5 Our policy principles embed our objectives...

Our policy principles embody our policy findings and will guide the design of the NZ CBDC.

- The principles embed our CBDC objectives and desired outcomes into the design recommendations and assessment process.
- They demonstrate the multifaceted aspects of our CBDC objectives, considering the public policy opportunities and challenges that a CBDC could address in New Zealand. They have been written and updated taking into consideration our analysis, policy positions and stakeholder engagement.
- The principles are supported by more detailed criteria to further identify key areas to focus on within a given principle.
- The principles have been used to:
 1. Guide the selection of strategic CBDC design choices and options
 2. Evaluate the potential CBDC models.



A.6 ... and help guide work towards our desired outcomes

The principles are supported by a set of more detailed criteria, and this criteria helps refine wide ranging choices: in system design, in the ecosystem, and in user experience.

Principle	Supporting criteria (summarised)	
Uniform: The CBDC is exchanged 1:1 with cash and supports NZD as unit of account and our monetary sovereignty.		
Universal: The CBDC provides basic payments and saving to all.	Inclusive <ul style="list-style-type: none"> • Meaningful choice • Autonomy 	
Private: The CBDC ensures that users are free from observation and have full control over their information and their lives.	Data governance	Assurance
Innovative: The CBDC supports the development of value enhancing new or improved forms of money technologies, payment functionality and money and payments systems and services.	Efficient <ul style="list-style-type: none"> • Competition • Interoperability 	Feasible <ul style="list-style-type: none"> • Simple • Balance commercial incentives
Reliable: The CBDC is consistently good in quality and performance; able to be trusted.	Resilient	Safe <ul style="list-style-type: none"> • Final • Compliant
Orderly: The CBDC should be issued and governed by the Reserve Bank in a manner that avoids unnecessary disruption to the financial system and economy.	Stability	Controls



A.7 The policy principles guide our design explorations

They help us translate these policy needs into design & technology choices for a NZ CBDC

Uniform	Universal	Private
<ul style="list-style-type: none"> • RBNZ issues the NZ CBDC which is 1:1 convertible with cash and other forms of money • The NZ CBDC does not sit on any intermediary balance sheet • Any remuneration (if any) is charged on the balance of funds not on the unit itself. 	<ul style="list-style-type: none"> • The NZ CBDC provides a meaningful choice to all users and can be used in any situation and circumstance including offline • It is trusted & can be confidentially used • Must be available on a range of devices and media • Provided via a multi-tiered ecosystem to provide choice • High degree of interoperability to allow users to switch between cash and other forms of money. 	<ul style="list-style-type: none"> • Users are always in full control of their data & information and can consent to its use • Bare minimum data collection by RBNZ platform and fit for purpose data governance • Compliant with relevant legislation including Privacy Act and AML/CFT Act • Māori data sovereignty principles embedded • Other agencies (such as Police and IRD) must use legal mechanisms to access data • Users feel safe and confident in their freedoms and rights to use a NZ CBDC.
Reliable	Innovative	Orderly
<ul style="list-style-type: none"> • Is safe & secure - is highly resilient to cyber-attacks and double spending • Provides alternate payment mechanism in case of an outage of other payment methods • The NZ CBDC can always be freely used (i.e. does not have programmed constraints on how or where it can be used) • Has a clear and comprehensive governance framework including policies regarding issuance, data use, risk management & responsibilities. 	<ul style="list-style-type: none"> • New Zealanders and New Zealand business benefit from more innovative features & services in their money and payments • The ecosystem involves third parties and supports open access and competition to achieve innovation • The platform is flexible, adaptable, highly interoperable and supports instant payments • The platform is scalable, cost effective & sustainable over time. 	<ul style="list-style-type: none"> • The digital dollar supports monetary policy and financial stability objectives • Initial issuance is gradual and monitored for any stability impacts • Possible constraints placed on corporate and/or wholesale transactions if needed to manage issuance • NZ CBDC issued in exchange for ESAS reserves.



Annex B: Ecosystem development

Key points for developing a NZ CBDC ecosystem

What we have done

- Collaborated with external experts to explore what is required to create an ecosystem
- Identified the specific building blocks that make an ecosystem
- Developed a model assessment framework that applies our policy principles
- Agreed preferred shortlisted models
- Engaged stakeholders to understand their needs and potential mutual benefit, including the public sector

What we found

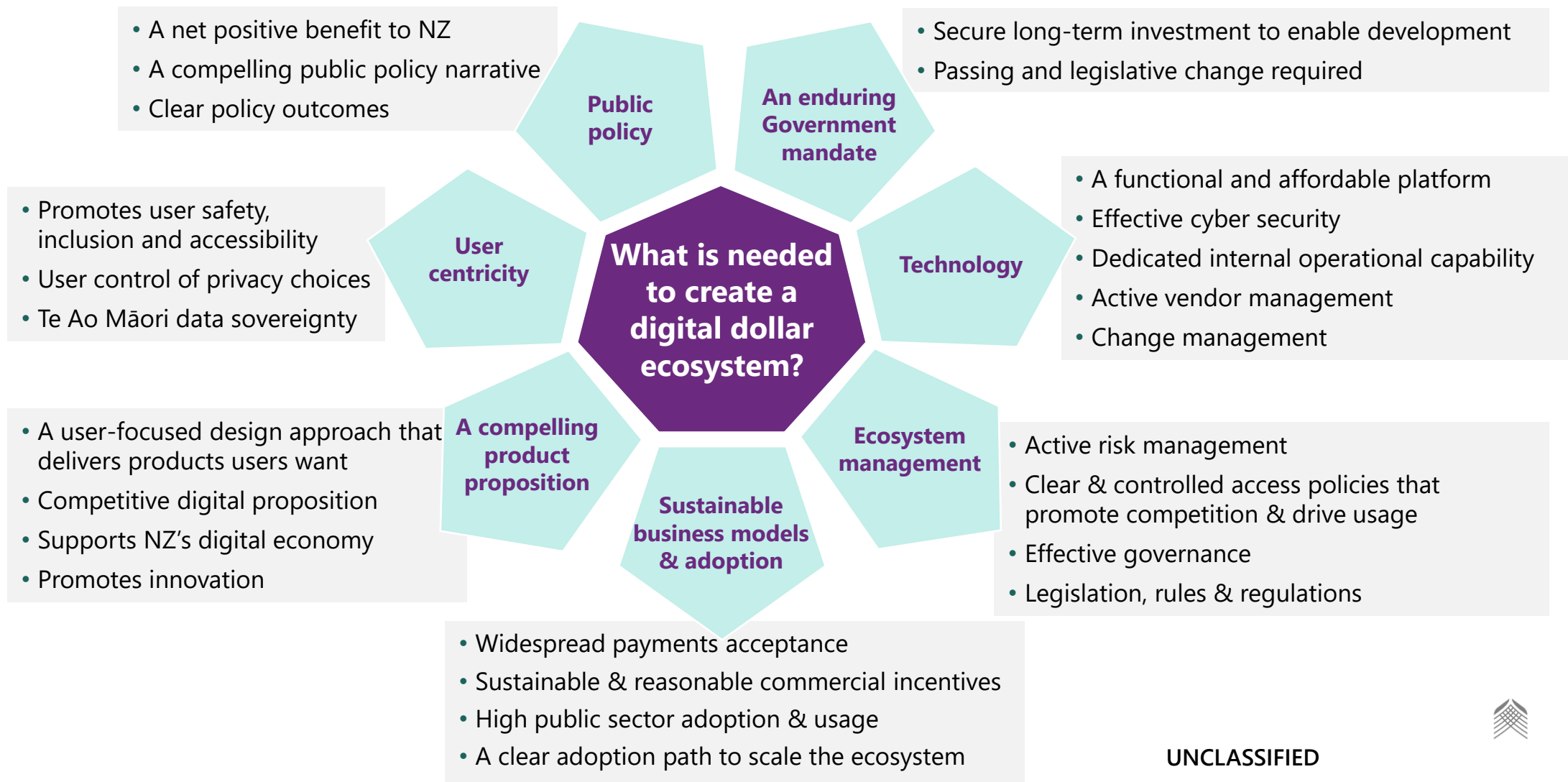
- Creating an ecosystem is complex and should not be underestimated
- Our preferred positioning enables an innovative and competitive market and supports NZs digital economy
- Our preferred delivery approach supports safe and well managed issuance, with a roadmap to add richer functionality
- Our approach aligns with the UK and Sweden

What we need to do next

- Define details of our preferred ecosystem and distribution model
- Develop details of our delivery approach, including plans for any pilots (if any)
- Legal work to test how the current legal framework can accommodate the preferred model and assess the need for law reform
- Define the roles & responsibilities of all ecosystem actors
- Develop a governance framework

B.1 Delivering a digital dollar ecosystem is complex

The effort, cost and complexity required to deliver a digital dollar and establish a market cannot be underestimated and will require extensive coordination and wide-ranging support.



B.2 A NZ CBDC requires a supporting ecosystem

A NZ CBDC will require the establishment of a new ecosystem, supported by four well-governed and interrelated main components.

NZ CBDC Platform

RBNZ would develop and operate the core Platform that securely issues NZ CBDCs, manages intermediary access, processing payments, and ensures overall financial stability and management.

NZ CBDC Intermediaries

Intermediaries connect to the Platform to distribute NZ CBDCs, through their digital dollar products and services, to their customers. Intermediaries will manage the customer relationship.

Funding Institutions

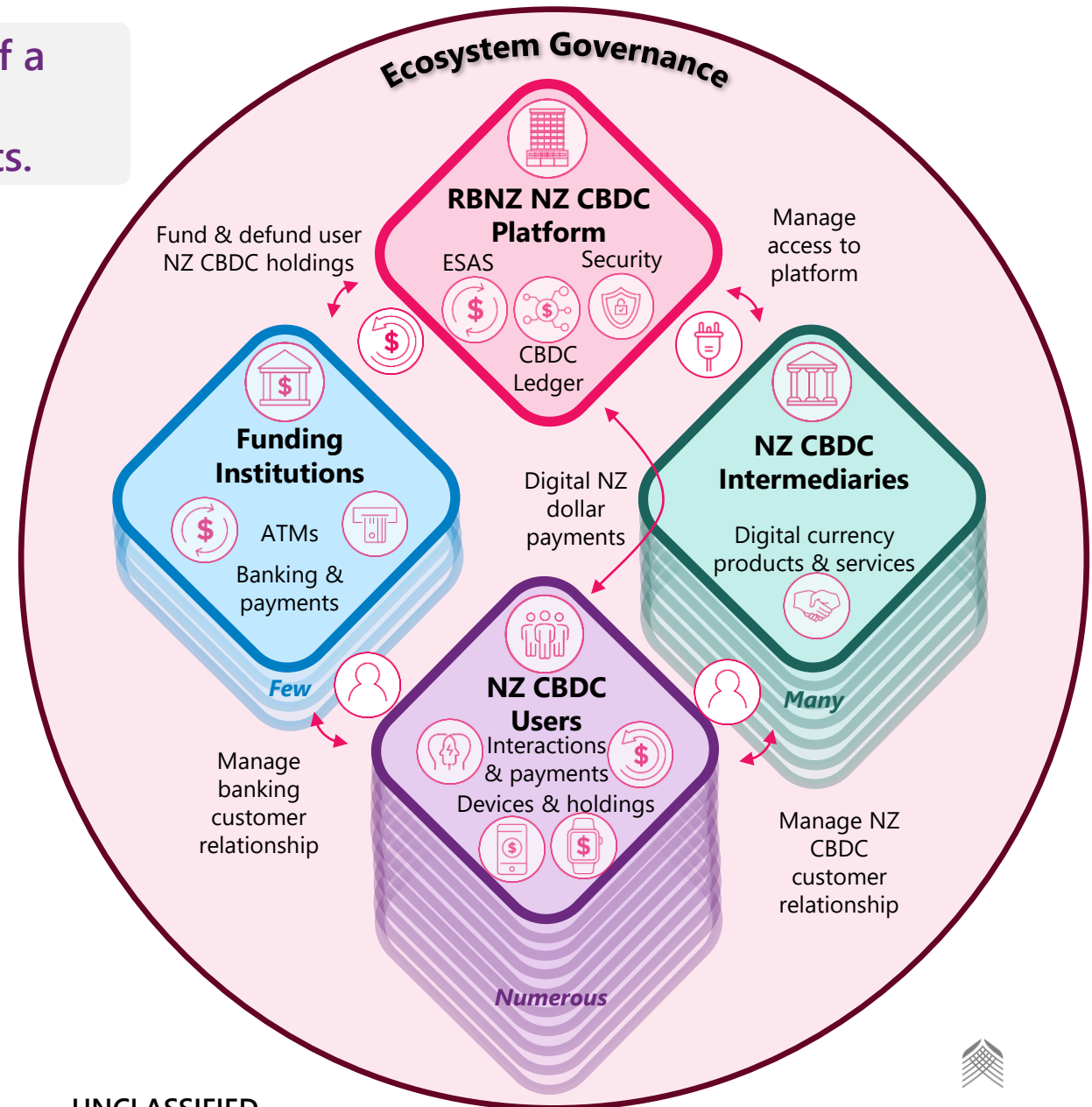
Users will fund their digital dollars to/from their bank accounts or via cash at ATMs. Payment system interoperability and ESAS settlements will enable digital dollar issuance

NZ CBDC Users

Users are at the heart of the ecosystem. They will expect easy and inclusive ways to store and spend their NZ CBDCs anywhere, anytime, and have control over their privacy and information.

Ecosystem Governance

The entire ecosystem will need to be well governed, managed and regulated. A mix of legislation, regulation, policies, rules, technical standards, user safeguards, monitoring and reporting will all need to be in place. Existing laws such as AML/CFT and the Privacy Act will need to be clearly applied. Engagement and governance structures will need to support a NZ CBDC's evolution over time.



B.3 We understand the ecosystem design choices

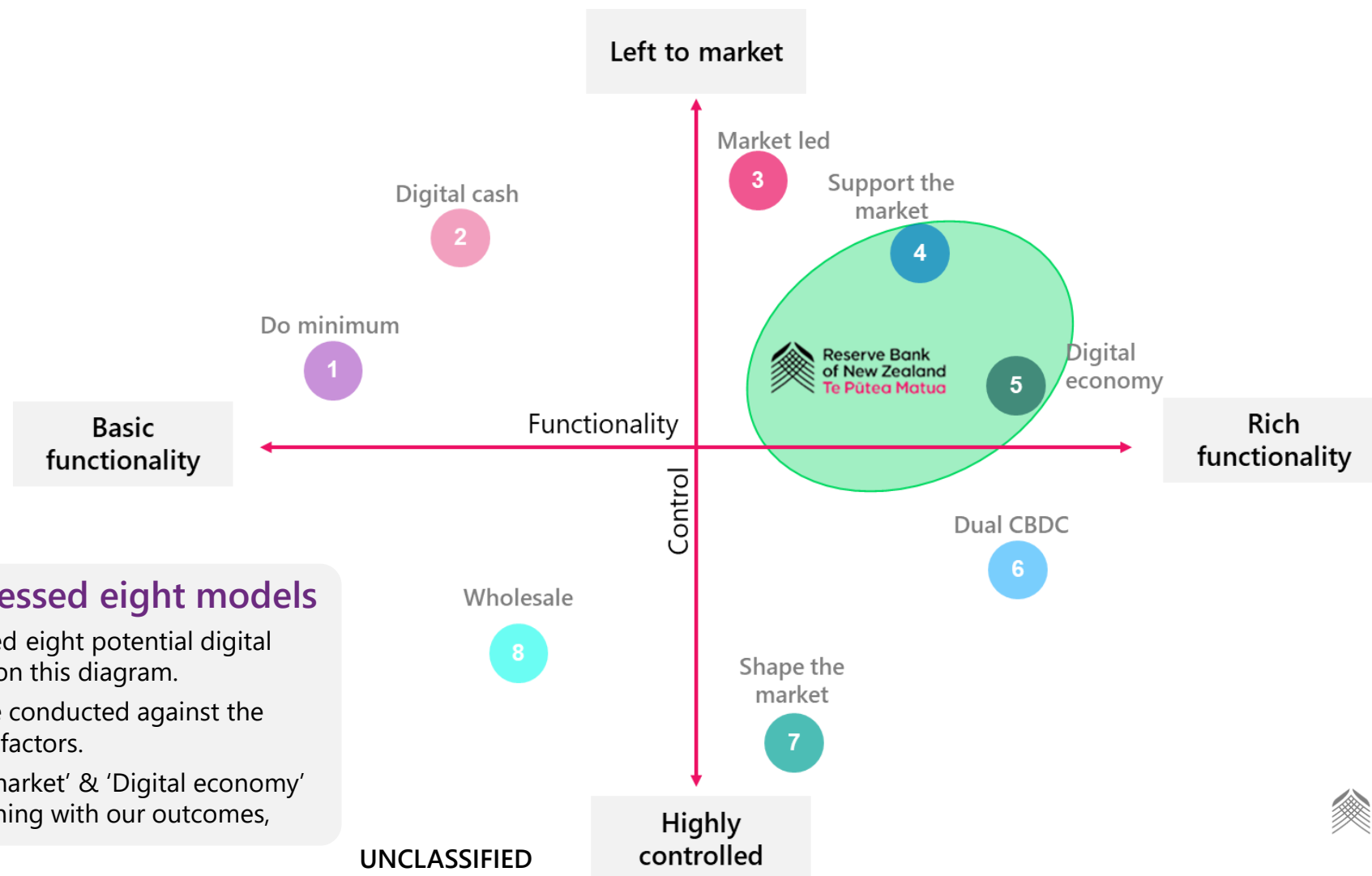
We have completed foundational design work to better understand what is involved in designing a NZ CBDC, and what the key design choices are.

- To understand the various component parts of the full ecosystem, we researched and developed a 'building block anatomy'. This defined 57 'building blocks' and organised them into a structured framework. This provided the foundation to understand the range of design choices and the breadth of issues that will need consideration when creating a NZ CBDC ecosystem.
- We also collaborated with Accenture's experts to identify the most important design choices, and work through the trade-off considerations to design a NZ CBDC. We workshopped starting positions for each of these design choices, although no design decisions have been made yet.
- These activities, alongside drawing from other central banks and research papers, informed the development and definition of a range of representative models that we could assess against our policy principles and critical success factors.
- Our future work to define our preferred NZ CBDC ecosystem and model, and its costings, will continue to draw from this foundational work.



B.4 We have identified preferred ecosystem positioning

At this time (late 2023), our preferred 'centre of gravity' target position encompasses our shortlisted models 'Support the market' & 'Digital economy'.







We developed & assessed eight models

- We developed and assessed eight potential digital dollar models, as labelled on this diagram.
- Detailed assessments were conducted against the principles and key success factors.
- The models 'Support the market' & 'Digital economy' were assessed as best aligning with our outcomes,



B.5 Two shortlisted models are candidates for further work

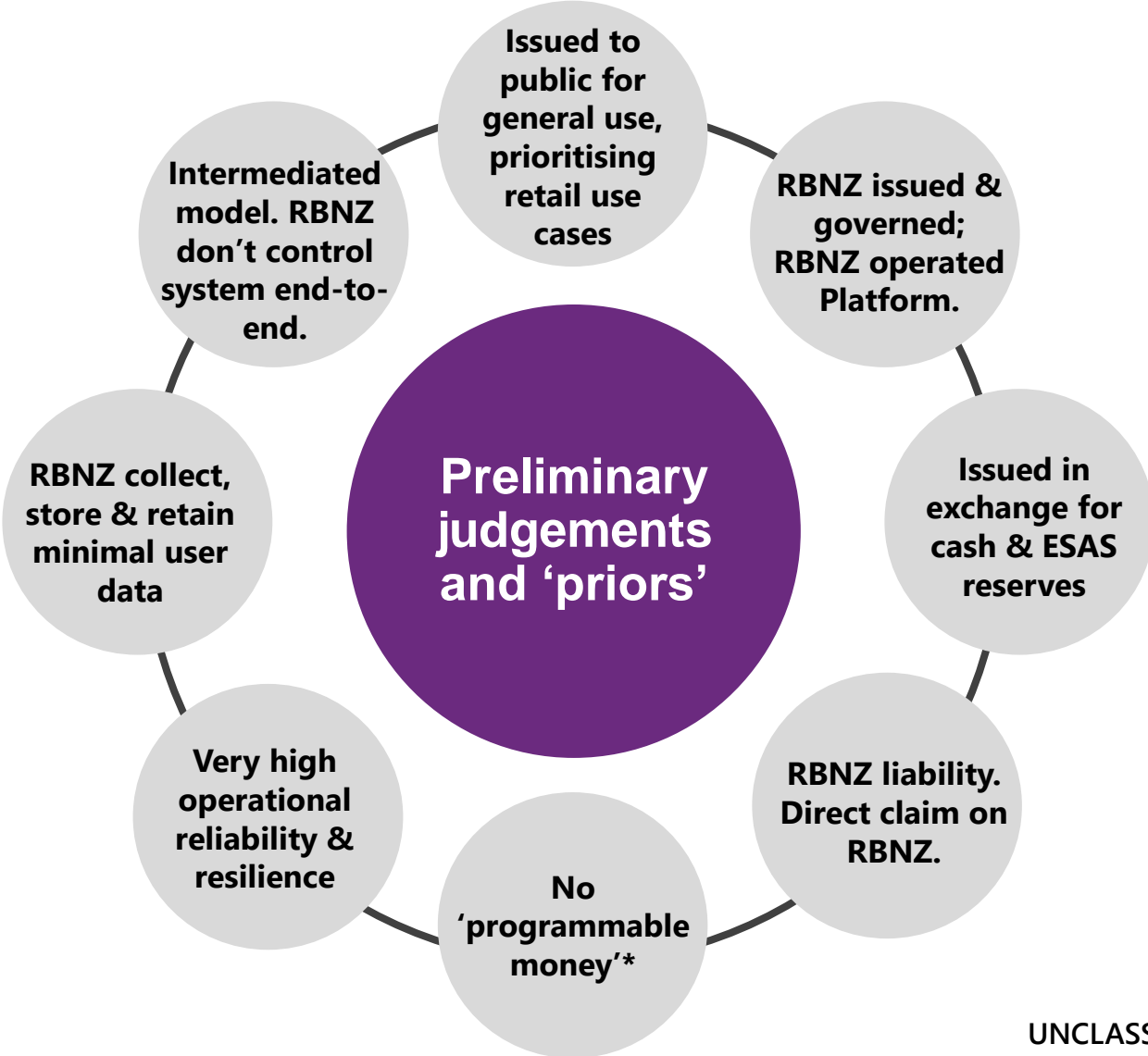
Two models were assessed as best aligning with our policy objectives and outcomes.

		Support the market model	Digital economy model
Model key features		Wide market access to a feature-rich Platform that provides functions designed to support and accelerate innovative products and services.	Wide market access to a feature-rich Platform that is highly integrated with other digital economy systems and stakeholders.
Model assessment		Good all-round model scoring against all principles. Blends best of market-led with some RBNZ control over key areas where the market is not well positioned. Likely deliverable, achievable, affordable.	An ambitious controlled model with a good feature set, meeting principles. More integrations could make it more complex to fund and deliver.
Strategic implications		Most likely to create network effects and have faster usage adoption. Supports ease of product development and a competitive market. High supplier capability.	Part of a wider digital economy strategy. Would require RBNZ to be active in digital economy policy and strategy. Higher dependency on external actors and systems.
RBNZ motivations		Motivated by wanting to incentivise market innovation and encourage competition and wanting faster uptake and seeing network effects quickly.	Motivated by ambitions to deliver a highly connected digital dollar aiming to underpin NZ's future digital economy.



B.6 Key design judgements apply to all NZ CBDC models

Our policy work has developed preliminary judgements to provide design direction.



Notes

- * "Programable money" is where the digital currency itself features limits or constraints as to how it can be used, e.g.; expiry dates; constraints on where it can be spent; etc. Our preliminary judgement is to align with most countries and rule this out early, as it undermines the uniformity of money.
- While an intermediated model – preferences are to design a model that has low or acceptable levels of dependency on incumbent market actors.



B.7 Private sector intermediaries will play a key role

The private sector's products and services will be used to distribute NZ CBDC to end users. Reasonable commercial incentives and will need to be balanced with other outcomes.

- A wide range of private sector intermediaries could access and connect to the CBDC Platform.
- Potential intermediaries also include public sector agencies and purpose driven entities such as Iwi, charities, etc.
- Intermediaries will develop products and services that use NZ CBDC. These may be integrated into their other product offerings.
- Intermediaries will manage their customer relationship lifecycle (which may include utilising Digital ID systems).
- Intermediaries would be responsible for complying with all necessary Anti-Money Laundering / Combating the Financing of Terrorism (AML/CFT) checks.
- Intermediaries will not 'hold' the user's money on their balance sheet.
- Intermediaries will facilitate users making payments / transfers using NZ CBDC.
- The CBDC Platform and governance framework will need to enable a vibrant innovative market.



B.8 A flexible and pragmatic approach can mature over time

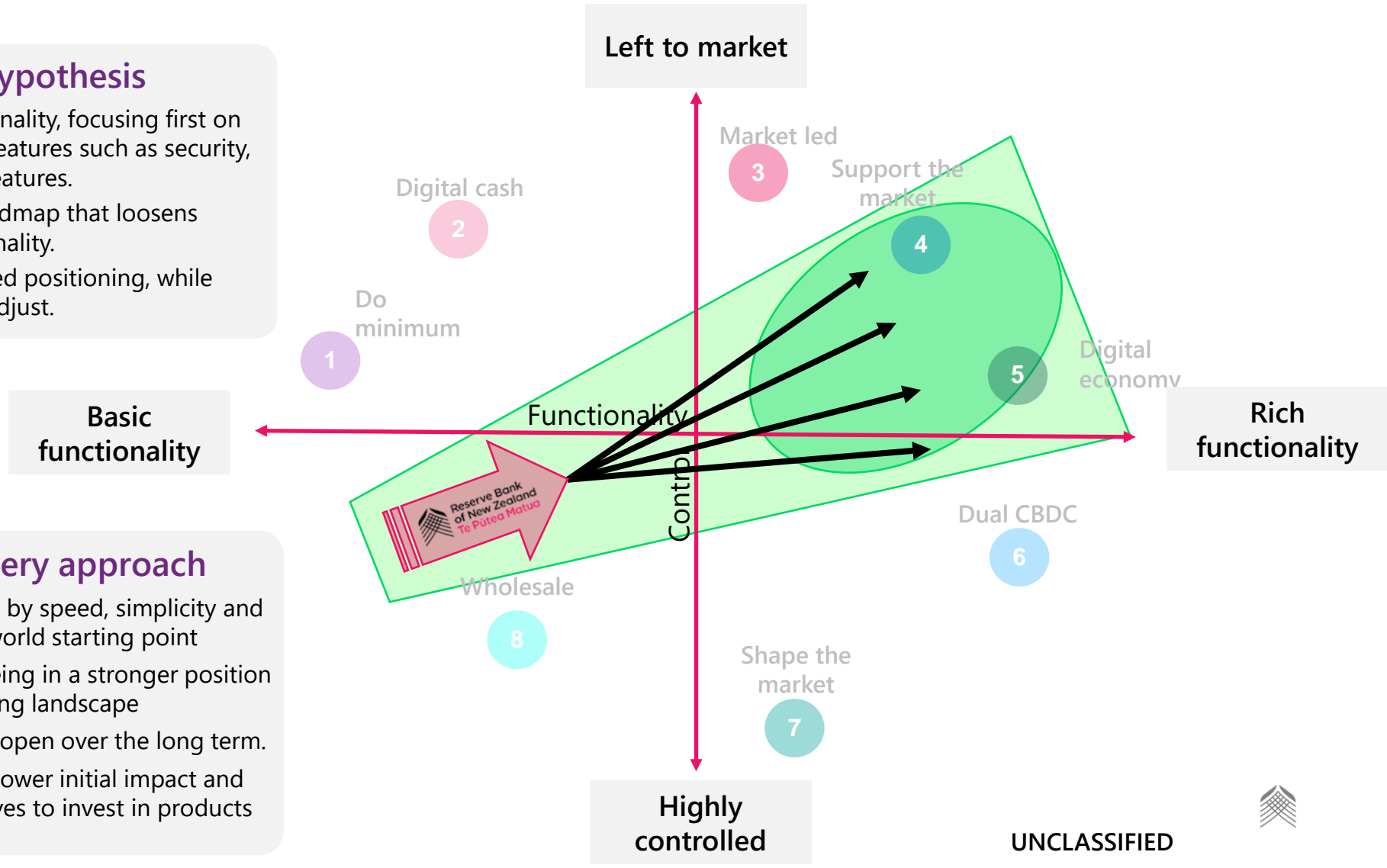
We start safe, simple and controlled, then add functionality and relax controls over time.

Delivery approach hypothesis

1. Begin with simpler functionality, focusing first on developing conservative features such as security, controls and user safety features.
2. Develop a progressive roadmap that loosens controls and adds functionality.
3. Work towards our preferred positioning, while keeping the flexibility to adjust.

Motivations for delivery approach

- Opening gambit motivated by speed, simplicity and carefully delivering a real-world starting point
- Prioritises readiness and being in a stronger position to react to a rapidly changing landscape
- Prioritises keeping options open over the long term.
- Comfortable with its likely lower initial impact and lower initial market incentives to invest in products and services.

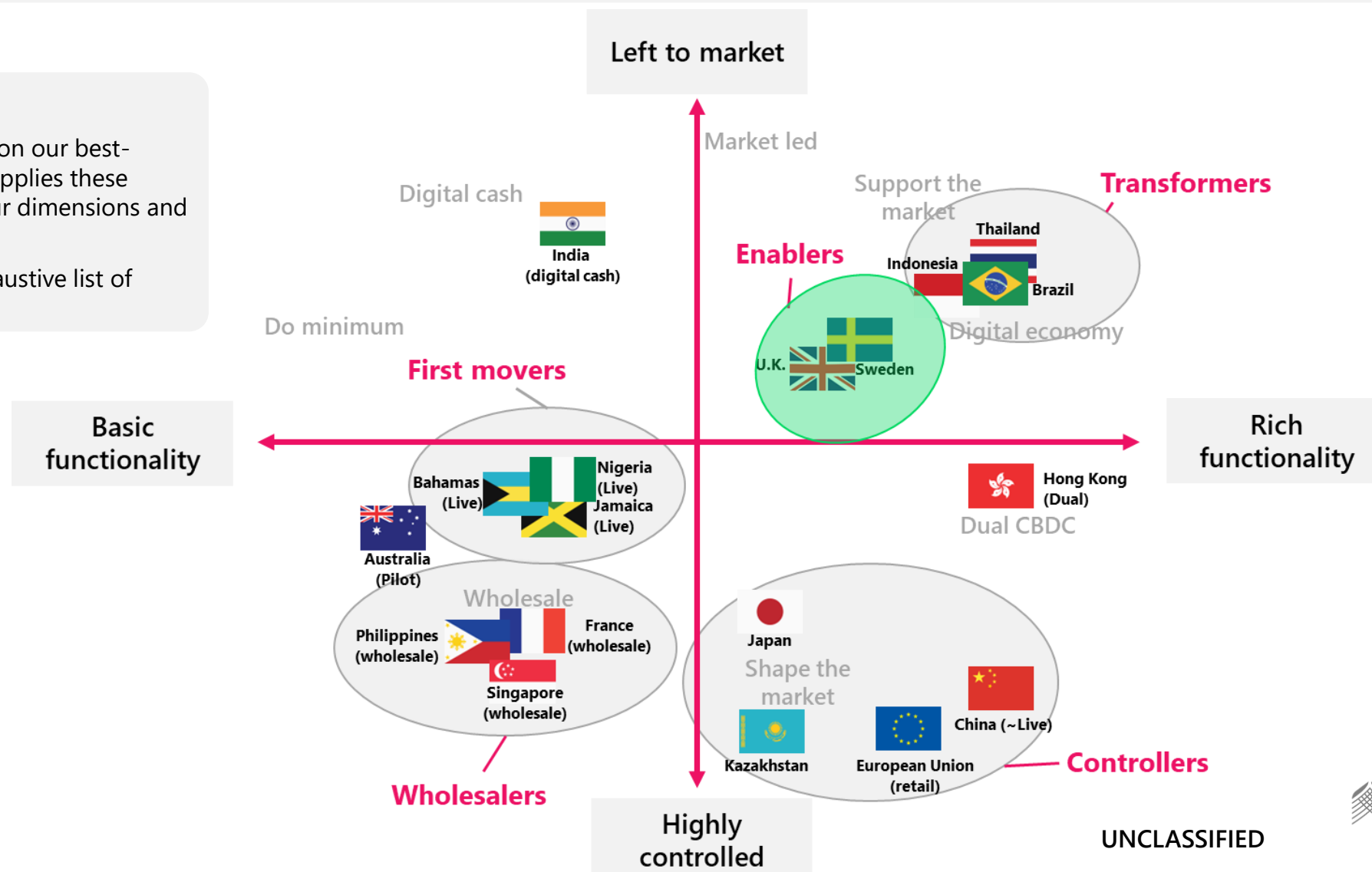


B.9 Our approach aligns with other 'enabler' jurisdictions

Our preferred positioning aligns NZ with peer 'enablers' in the UK and Sweden.

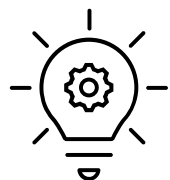
Notes

- This is our based on our best-judgement, and applies these judgements to our dimensions and quadrants
- This is a non-exhaustive list of countries.



B.10 Our preference aligns with our objectives & outcomes

Our 'centre of gravity' target position allow us to fully meet our objectives, achieve our desired outcomes, and meet our policy principles by:



- Prioritising innovation, open competition and enabling a dynamic market that supports the digital economy.



- Seeking widespread adoption and use across the digital economy, supporting sustainable business models and wide accessibility.



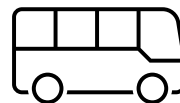
- Defining RBNZ's role to provide an enabling platform and set guardrail parameters, rather than looking to control or define the market's delivery of products and services to end users.



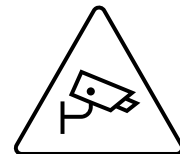
- Providing sufficient market incentives and flexibility to improve likelihood of achieving scale and fast progression through the user adoption curve.



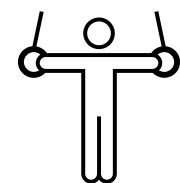
- Increasing the likelihood that a digital dollar is deliverable, achievable, sustainable and affordable for New Zealand.



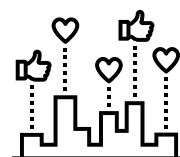
- Allowing the wider public sector to directly provide services to end users, e.g. MSD could act as an 'intermediary' focused on targeted inclusion outcomes.



- Focusing on the Platform's privacy by design practices and allowing privacy practices to be agreed between intermediaries and users in line with the Privacy Act minimums.



- Being flexible, with fewer constraints and limits on how the digital dollar is used in the market so that it can be interwoven into a wide range of products and services, thereby supporting NZ's digital and economic future.



- Providing rich base functionality while leaving room and flexibility for purpose driven intermediaries to develop their own targeted propositions, for example Iwi or disability focused propositions.



B.11 Stakeholder input is crucial to developing an ecosystem¹

We have consulted extensively across a range of stakeholders to understand their initial perspectives, and this has informed our approach. Our engagement will need to increase over time.

Continue engagement with digital ecosystem agencies, payment generator agencies, regulatory & enforcement agencies to develop a public sector coordination and usage strategy.



Continue our market research into end user needs. Provide the opportunity to hear user views in our 2024 consultation.

Continue our CBDC Forum with multi-disciplinary representatives to inform RBNZ's approach.



Continue our engagement with potential intermediaries, payment service providers, financial institutions - both directly and via representative bodies. Particularly through our 2024 consultation.

Engagement with Iwi chair forum, Māori bankers rōpū & targeted stakeholders on early design choices and approach and embedding the principles for Māori Data Sovereignty into design.



Continue our bilateral and multilateral engagement to learn from other central banks and the Bank of International Settlement.

Continue our workshops and research with civil society organisations and representative bodies to ensure CBDC is designed to meet wide range of needs.



B.12 We also need to collaborate across the public sector

The wider public sector will play a pivotal role in enabling adoption of a NZ CBDC. It is imperative that front-line public sector agencies accept and initiate NZ CBDC payments.

- As publicly issued money, a well-coordinated public sector strategy will be vital to success.
- We have actively engaged the public sector including payments front line agencies (IRD, MSD, Waka Kotahi); agencies with a role in the digital ecosystem (DIA for digital ID, MBIE for consumer data rights, ComCom for payments, Office of Privacy Commissioner); MFAT for South Pacific and the Pacific Realm; and the Police for user safety and law enforcement.
- NZ CBDC customer-to-government payments acceptance will be a critical minimum requirement. Front line agencies initiating NZ CBDC payments could underpin a 'push' strategy and help generate scale. Creating mutual benefit through defining valuable government agency use cases will play a key role.
- A NZ CBDC could become a future pillar of the Digital Strategy for Aotearoa, which aims to secure New Zealand's place as a world-leading, trusted, thriving digital nation.
- A key future focus area will be public sector engagement, planning, coordination and collaboration.



Annex C: Product & use cases

Key points for developing a NZ CBDC product and priority use cases

What we have done

- Collaborated with external experts and our CBDC Forum to explore and develop use cases and user journeys
- Engaged external organisations and our CBDC Forum to better understand potential propositions and demand

What we found

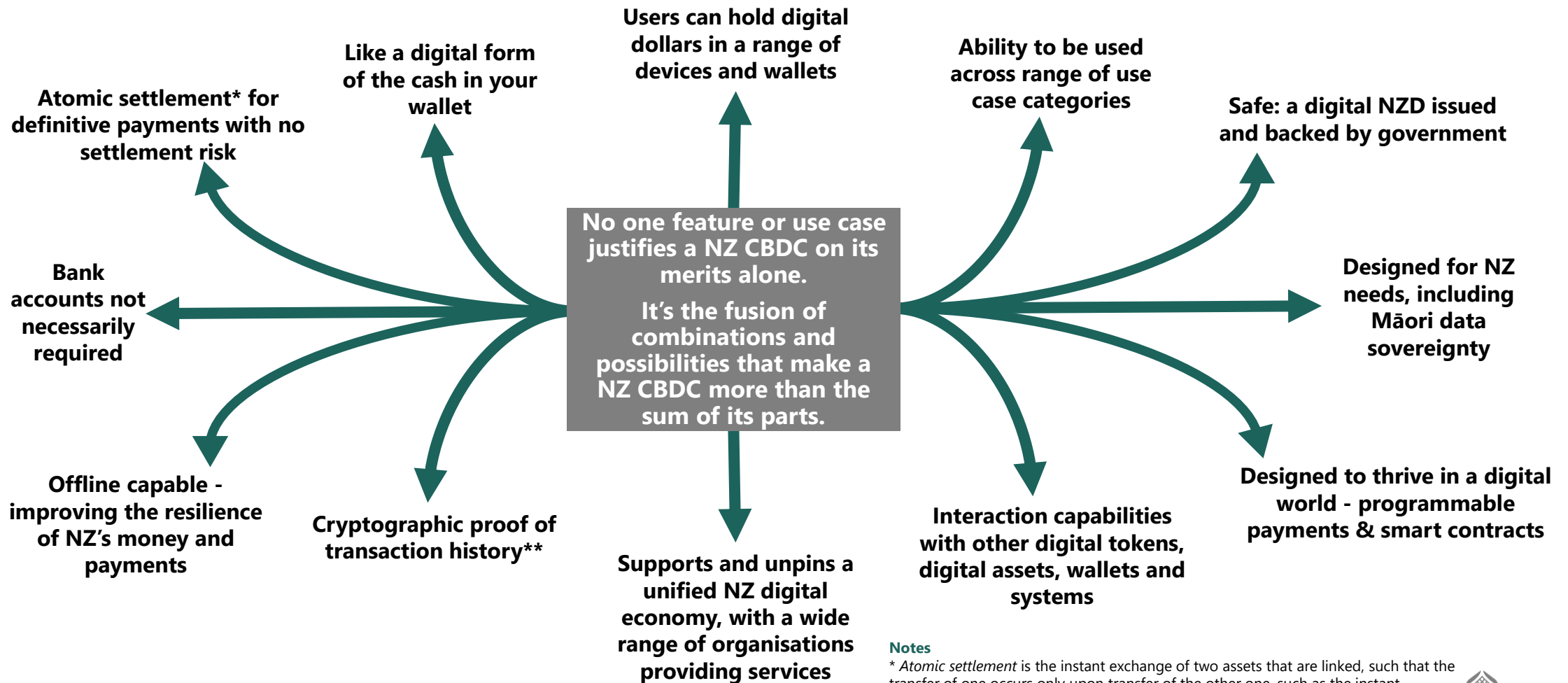
- A NZ CBDC, in totality, has a compelling proposition
- We should prioritise retail-focused use cases as these best align with our policy objectives and support widespread usage and adoption
- The public sector needs to play a key active role
- The adoption strategy will need to be carefully formulated and bring key partners on the develop and launch journey

What we need to do next

- Further develop priority use cases and user journeys
- Closely engage public sector agencies to formulate a cohesive public sector strategy
- Develop a launch and adoption strategy
- Identify and develop key strategic partnerships to support the adoption strategy

C.1 A NZ CBDC has a strong comparative value proposition ⁴⁴

While some NZ CBDC features resemble other digital offerings, it's the combining of its attributes, capabilities and use cases together create a compelling value proposition that supports innovation.



Notes

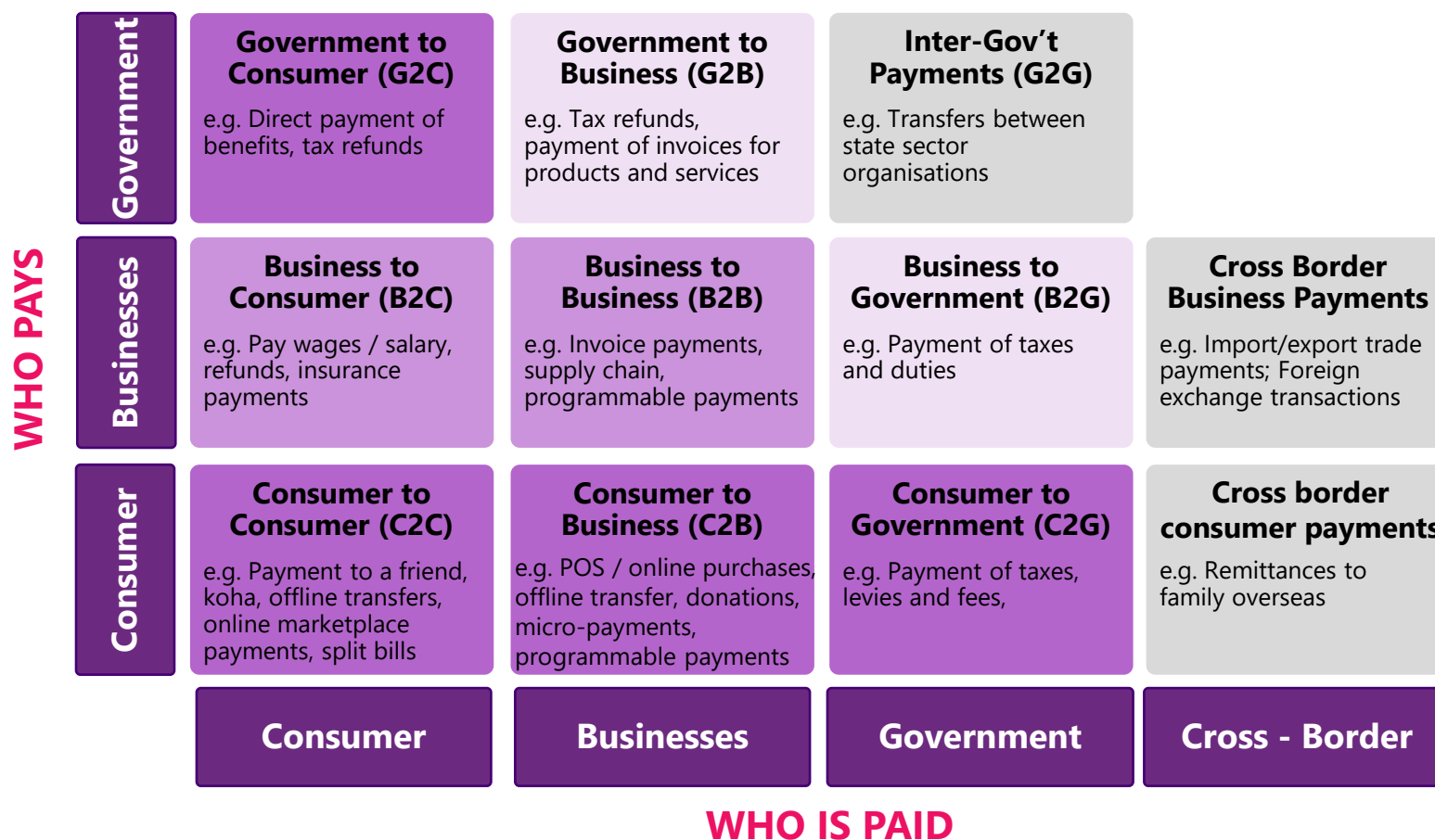
* Atomic settlement is the instant exchange of two assets that are linked, such that the transfer of one occurs only upon transfer of the other one, such as the instant settlement of a security transaction

** Cryptographic proof of transaction history is a method of ensuring the accuracy, integrity, provenance and authenticity of a financial transaction data.



C.2 We identified versatile general-purpose use-cases

A NZ CBDC could be widely used across many use case categories. Prioritised use cases aim to achieve scaled adoption and widespread usage, and best alignment to our policy goals.



Colour key:

- Highest priority**
Consumer usage priority focus
- Important priority**
Business focused use cases
- Lower priority**
Higher \$ transfers - more complex
- Not priority**
Not discounted, but not core drivers

Why is this important?

- Identifying higher priority use-case categories will help focus stage 3
- It helps align use-case categories with a user uptake and adoption strategy
- Higher priority use-cases can be delivered sooner, although over time all use cases could be supported

What about wholesale?

- Wholesale use cases between financial institutions are not included in this diagram.
- Financial institutions may use a 'general purpose' CBDC, but wholesale specific use cases are not a priority focus as based on the current policy outcomes desired.



C.3 We developed illustrative use cases

Four sampler uses cases and user journeys were developed, with support from Accenture, to demonstrate versatility and how a NZ CBDC can deliver a range of policy outcomes.

Resilience through offline payments

P2P
P2B

- **Description:** Payment option when other online types of payment are not available.
- **Outcome:** Improved resilience.
- **Supporting Functionality:** Offline payments.
- **Persona:** Digitally savvy. Digital payments when outage or there is no internet access. Low value payments in certain social settings.

New payment options for SMEs & small orgs

P2B

- **Description:** New payment options to small orgs that support their unique needs.
- **Outcomes:** Efficiency. Competition. Te Ao Māori sovereignty.
- **Supporting Functionality:** Real time payments. Proxy/Alias. PoS acceptance.
- **Persona:** Māori SME. Remote area. Challenges accessing payment & banking services.

Making digital payments more accessible

P2P

- **Description:** New digital payment support options from friends, family or services.
- **Outcome:** Financial inclusion. Meaningful choice. Enhanced autonomy.
- **Supporting Functionality:** Consent/permissions. Joint control options. Cash/CBDC Interaction
- **Persona:** Banked but not confident making digital payments.

Improved cashflow from supply chain

B2B

- **Description:** Conditional payment linked to delivery and inspection of sold goods.
- **Outcome:** Supporting innovation. Efficiency & productivity gains. Cashflow benefits.
- **Supporting Functionality:** Conditional (programmable) payments. Smart contracts.
- **Persona:** Small agricultural manufacturer. Cashflow constraints/risks from payment timeliness.

Key: P2P = person to person, P2B = person to business, B2B = business to business



Annex D: User-focused outcomes

Key points for understanding and designing for user focused outcomes

What we have done

- Developed a policy framework for understanding and designing for user privacy needs
- Qualitative research to develop user personas and better understand user wants and needs
- Initial consideration of a user adoption approach
- Policy work on how a NZ CBDC could support inclusive outcomes
- Preparatory Te Ao Māori work

What we found

- Most consumers felt their money needs are being met today, except for scams and fees
- We found three main user challenges facing a NZ CBDC launch
- There are six consumer personas that depict the range of motivations and barriers people have regarding a CBDC
- NZ has an opportunity to design a NZ CBDC that supports Te Ao Māori data sovereignty and Māori user needs

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What we need to do next

- Conduct further research to quantify the size of each user persona type to support the adoption strategy and modelling
- Consult and collaborate on how the design of a NZ CBDC to apply principles of Māori data sovereignty
- Convert policy principles, including on privacy and inclusion, into detailed design activities
- Investigate who should be eligible to hold a NZ CBDC

D.1 Consumer needs & adoption challenges are complex

Qualitative research found that most consumers felt their money management needs are met, highlighting adoption challenges. Sole traders and Charities have more pronounced pain points.

Research helped us understand user wants and needs in relation to money and payment methods today and investigated how users reacted to a NZ CBDC concept. Key findings were:

- They sought more information about a CBDC but connected with the idea of ensuring the stability of the system and RBNZ's role.
- Māori participants respond similarly to others but are interested in control of the CBDC and how they can participate in its development.
- For vulnerable people money is a constant source of stress - changing systems posed a barrier for them.
- Sole trader pain points include transparency, speed and cost of changing bank arrangements.
- Charities are cautious and thorough in their approach to money but seek efficiencies and cost savings.

The research identified three challenges to launching a digital dollar

#1 Attitude challenge

When it comes to money, a large portion of people are cautious and don't like change

Potential Response – Position as online cash, emphasise the values driven, societal benefits for NZ; and accept that uptake will take time

#2 - Consumer perception challenge

The Reserve Bank may have negative or uncertain associations for a significant proportion of people

Potential Response - Create awareness of the Reserve Bank's purpose and collective benefits

#3 Functionality challenge

The product offer tested isn't notably better than anything in the market.

Potential Response - At least match similar market offerings at launch



D.2 Encouraging user adoption will require a clear strategy

The launch and adoption strategy will be vital to assessing overall viability, setting priorities, and identifying key partnerships.

- Payment products are two-sided markets, requiring adoption from both payers (who want to, and can, pay using a product) and receivers (who want to, and can, accept that payment product)
- Adoption of a NZ CBDC will require intermediaries who want to join the ecosystem and develop and promote products for payers and receivers to use
- Adoption will also require ubiquitous payments acceptance as early as possible. This includes by other people receiving NZ CBDC payments, at point of sale, and by government agencies
- We will need to develop an adoption strategy that carefully considers:

Priority use cases
to bring together
payers & receivers

Public sector role
in stimulating
adoption

Push & pull
factors that kick-
start market
network effects

Collaborating with
key launch and
adoption partners

Incentives
alignment: payers,
receivers &
intermediaries

Level of
promotion
required

Ensuring low cost
while supporting
viable business
models

Governance that
generates trust in
the ecosystem



D.3 Meaningful partnership with Māori and Iwi is needed

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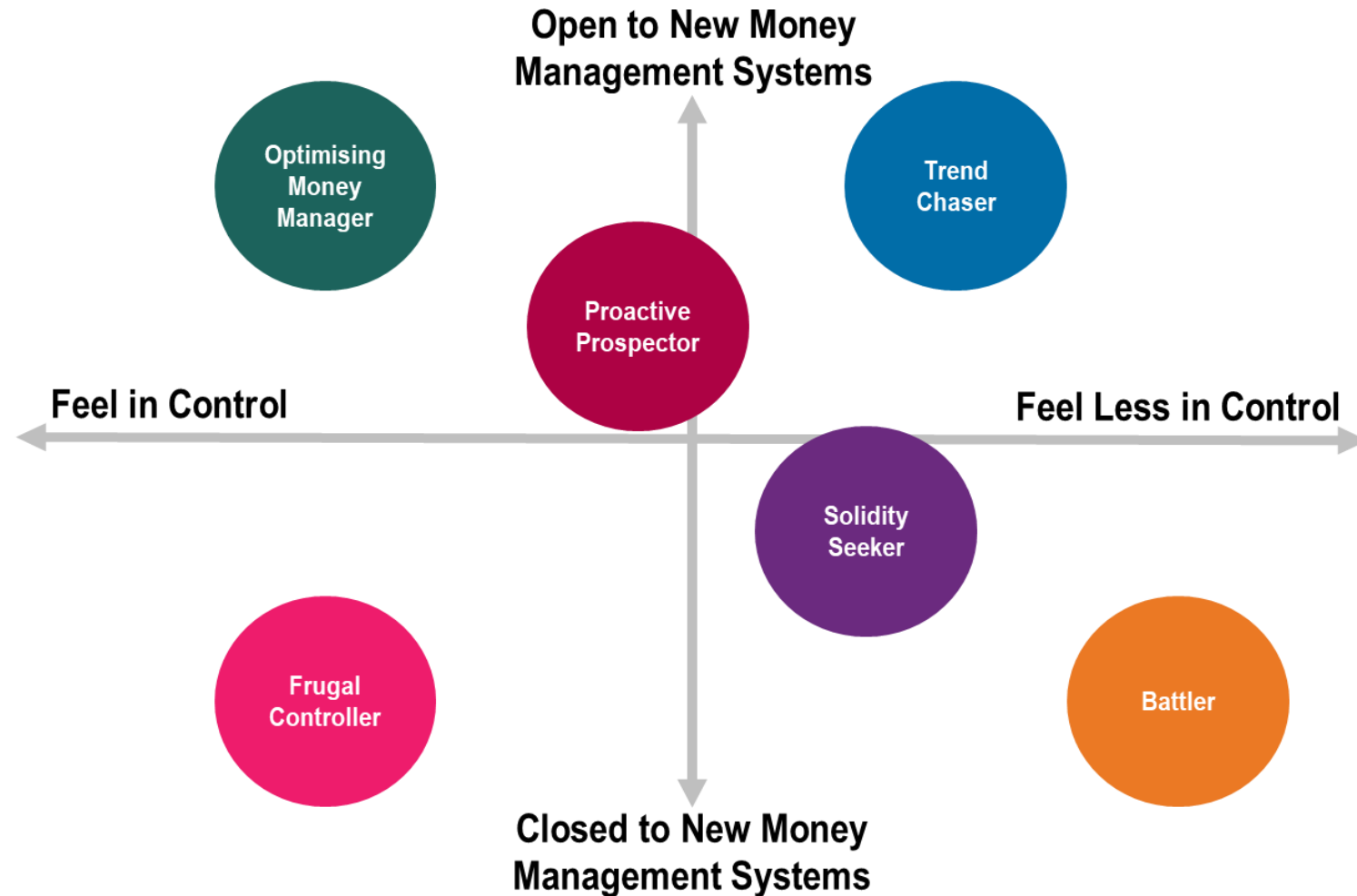
Meaningful consultation and embedding principles of Māori data sovereignty into the design of a NZ CBDC will enhance user inclusion, control and choice outcomes.

- Our work with external experts highlighted the opportunity to create a globally-leading CBDC through Te Ao Māori, Māori data sovereignty and inclusivity. *"Incorporation of a Te Ao Māori viewpoint into the RBNZ CBDC design process, alongside the inclusion of principles for Māori data sovereignty provides New Zealand with the opportunity to deeply embed inclusive design into a key element of New Zealand's economic 'infrastructure'"* Accenture CBDC Insights Dossier June 2023
- Our use case work with external experts highlighted the potential ability for a well-designed NZ CBDC to support all small to medium sized enterprises, including Māori and collective enterprises.
- Market research reinforced the importance of ensuring effective engagement with iwi organisations. *"... speaking from an iwi space and in the chair, the role that I have for the iwi... but that what I've seen, they're [the discussion around the establishment of a CBDC] primarily government-centric, and they don't account for Māori understandings of money."* GravitasOPG quantitative research August 2023
- Meaningful partnership and kaupapa with iwi, and embedding principles for Māori data sovereignty, will form an essential part of our engagement and design approach as we move forward. This will need to be embedded in RBNZ's wider Māori engagement.



D.4 Understanding user personas will be key to adoption

Research developed six detailed user personas and mapped them onto the dimensions of feelings of control of their money management systems, and openness to trying new systems.



D.5 User personas help understand likely adoption curve

Understanding the wants, needs and sizing of the user personas who would support early adoption and usage will inform our adoption strategy, design and ongoing modelling.

