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5 October 2021

[redacted]

[redacted]
Ref: H202104160

Dear [redacted]

Response to your request for official information

Thank you for your request under the Official Information Act 1982 (the Act) on 9 April 2021 for a copy of the National Health Information Platform (nHIP) Programme Business Case.

As you have been advised, the publication of the programme business case has been deferred due to unanticipated delays in the approval process. In light of this, the Ministry has reconsidered the response provided to you on 19 April 2021 and is releasing a copy of the Hira Programme Business Case. Please note that some information has been withheld under the following sections of the Act:

- 9(2)(b)(ii) – to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information;
- 9(2)(f)(iv) – to maintain the constitutional conventions for the time being which protect the confidentiality of advice tendered by Ministers of the Crown and officials.

I trust this information fulfils your request.

Under section 28(3) of the Act, you have the right to ask the Ombudsman to review any decisions made under this request. The Ombudsman may be contacted by email at: info@ombudsman.parliament.nz or by calling 0800 802 602.

Please note that this response, with your personal details removed, may be published on the Ministry website at: www.health.govt.nz/about-ministry/information-releases/responses-officialinformation-act-requests.

Yours sincerely

Shayne Hunter
Deputy Director-General
Data and Digital

HIRA

Programme Business Case

Version 2.9
26.02.2021

Modernising the patient experience

Hira

This business case:

This programme business case outlines the justification and proposed approach, timing and cost for establishing the Hira programme. The programme would enable accessibility of health information from many sources and a range of digital services that empower patients and enable organisations to collaborate in the provision of person-centred care. It identifies the lifetime cost, based on a ten-year horizon, of approximately s 9(2)(b)(ii) .

This investment would empower people and their whānau to better manage their health, wellbeing and independence. It would enable organisations to collaborate in delivering person-centred care, support greater system innovation, deliver better data for improved organisational and support system insights and decision making. It would improve equity of access and outcomes and improve system performance.

This investment would enable a modernised experience for consumers and the health and disability system workforce. It would establish a programme that would transform the system and that delivers a digital operating model which supports the shift to a holistic health and wellbeing approach. It would make health information easier to access, use and share (with appropriate controls around privacy and security), enabling access to the right information, in the right context, at the right time.

This business case was originally prepared for consideration by Cabinet in March 2020, however, this review was delayed due to the COVID-19 pandemic. Supporting the public health response to COVID-19 presented a unique learning opportunity which both confirms the need for investment in IT and improved use of information and validates the proposed approach of iterative solution development. Investments in the COVID-19 pandemic response have also advanced aspects of Hira by establishing some of the key enablers.

Document Version:

Version	Date	Author	Reason	Sections
2.9 FINAL	26.02.2021	S. Meakin Hunter Group Ltd	Refresh	All

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Darren Douglass, Ministry of Health

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MIHI

Nau mai rā ki tēnei kaupapa
whakahirahira, ōtira he kaupapa
kia piki ake te hauora me te waiora
o ia tangata, ia whānau me te iwi
whānau o Aoteoroa.
Ko Hira tēnei.
Tīhei mauriora

Welcome, let us invite you
to our source of new services
that will improve the health and wellbeing
of our people, our iwi and
our Whānau in New Zealand
This is Hira!

1 Executive Summary

1.1 Purpose of Business Case

This programme business case outlines the justification and proposed approach, timing and cost for establishing the Hira programme. The programme will enable accessibility of health information from many sources and a range of digital services that empower patients and enable organisations to collaborate in the provision of person-centred care. It identifies the lifetime cost, based on a ten-year horizon, of approximately s 9(2)(b)(ii) . Using a flatline projection from the 2019/20 budget, this would equate to approximately s 9(2)(b)(ii) of Vote Health over that period.

Hira is not about rolling out a new or updated system – it is about developing a whole new way for different data systems to connect, so a person's health information can be provided in one place. There will be investment in new technology, and in working with the health sector on the changes needed for the technology to interact and share information.

This investment would empower people and their whānau to better manage their health, wellbeing and independence. It would enable organisations to collaborate in delivering person-centred care, support greater system innovation, deliver better data for improved organisational and support system insights and decision making. It would improve equity of access and outcomes and improve system performance.

This investment would enable a modernised experience for consumers and the health and disability system workforce. It would establish a programme that would transform the system and deliver a digital operating model which supports the shift to a holistic health and wellbeing approach. It would make health information easier to access, use and share (with appropriate controls around privacy and security), enabling access to the right information, in the right context, at the right time.

Hira comprises a wide range of deliverables across technical and non-technical domains. This includes digital and data services, architecture, standards (encompassing data, security, technology and business process) and privacy, consent, data sovereignty, social licence, commercial and funding mechanisms.

1.2 COVID-19

COVID-19 Response

The public health response to COVID-19 highlighted the urgent need for significant improvements to IT and access to data. The immediate response was hindered by inadequate IT systems and the inability of the sector to access and share the data necessary to support effective contact tracing and case management. Systems were not in place to support alternative approaches to service delivery, such as telehealth and e-prescribing. Much of the immediate effort was, therefore, in urgent remediation of deficiencies rather than adding value e.g. through data analysis.

However, the pandemic also provided a unique opportunity for the sector to work together to identify issues and to undertake rapid investigation and iteration to deliver solutions to meet needs. The ability of the Ministry to respond as well as it did was, in part, due to recent investments in IT, the use of information by the Ministry and the iterative approach taken. These were instrumental in creating the digital ecosystem required to support the public health response to COVID-19. Of particular note are the following:

- **National Contact Tracing Solution (NCTS)**: The National Close Contact Service (NCCS) successfully coordinated the collective contact tracing efforts and has provided surge capacity required to support Public Health Units (PHU) who lead contact tracing activities. The NCTS increased the accuracy, reliability and efficiency of the NCCS's contact tracing efforts by establishing standards (allowing different PHUs to cross reference and coordinate efforts

automatically), linking administrative data within the health system and wider Government, and enabling quick and seamless delegation of contact tracing tasks by PHUs to the NCCS.

- **NZ COVID Tracer:** The consumer application NZ COVID Tracer has almost 2.4 million registered users and provides digital support to speed up the contact tracing process. The initial release enabled users to enter and share their personal contact details securely, and scan QR codes to record where they have been. Subsequent releases iteratively improved the app and future releases have the potential to offer people value-add consumer services s 9(2)(f)(iv) [redacted]

- **The use of data for planning and intelligence:** COVID-19 response activities within the Ministry, PHUs and individual health providers were informed by implementing access to data and the use of reporting dashboards and analytics tools at a national, regional and local level.

- **Support for telehealth and remote working**: The Ministry facilitated the use of technology services to support the health system to operate within the constraints of life in COVID-19 alert levels 2, 3 and 4, where health system users were physically distant from the health staff with whom they interacted.

COVID-19 Response - Learning for Hira

The COVID-19 response has seen the Ministry deliver significant IT solutions at pace, requiring input from a range of stakeholders whilst not compromising on quality or essential elements such as privacy and security. Through this process, the Ministry has applied the implementation approach proposed for Hira and gained a number of learning points to draw on for future data and digital projects.

Going in to the COVID-19 response, the Ministry was well prepared to embark on the development of IT solutions affecting whole of the health system but lacked experience in delivering at pace and scale. However, the COVID-19 response has demonstrated successful delivery and built a better general understanding of the strengths and opportunities in the health system. The Ministry has taken note of aspects of development that have required more effort than first anticipated, for example in the area of digital identity, privacy by design, and security.

The Ministry has seen many benefits of an agile, iterative working approach. Whilst setting very clear expectations for product features and outcomes, the Ministry has seen quality work delivered on time, on budget through allowing developers flexibility in how they work and giving them opportunities to iterate products, rather than strictly executing a prescribed solution. This is consistent with the implementation approach proposed for Hira.

The Ministry will continue to make great efforts to build relationships and improve information access and communication continuously at all stages of the development process, at all levels, including with key decision makers, consumers, health providers, government agencies, and third-party developers. A focus on equity and co-design is critical in delivering solutions that work for the communities for which they are intended.

The Ministry has used public cloud services and, where possible, has leveraged existing technology solutions and data sources and created capabilities that are able to be re-used in the future. In particular the COVID-19 investment in digital identity, security and systems integration provide important foundations for Hira. The Ministry will continue to leverage work done in the past and apply this to new situations where appropriate. In many cases, the COVID-19 response needed to establish, in a constrained manner, the enabling services of the first phase of Hira implementation.

The Ministry has seen both the benefits and challenges of the rapid uptake of technology solutions by consumers and by health providers as part of the COVID-19 response. The Ministry is focused on making the benefits sustainable whilst addressing the challenges such as understanding how to ensure equity and accessibility to IT solutions, to consumers of health, health providers and third-party developers of IT solutions.

Opportunities Presented by Hira

Given the need to respond rapidly, the development of IT solutions for COVID-19 has necessarily taken a piecemeal approach. There has been little time to consider a more coordinated investment approach with a larger, cohesive ecosystem in mind. A more coordinated approach to IT investment, such as that proposed in the Hira business case, has many advantages. Had Hira been in place, many of the solutions that were developed and deployed at pace during COVID-19 would have reused existing capabilities and been incorporated seamlessly into the digital eco-system enabled by Hira. Hira should be considered as an investment to support the rapid delivery of digital solutions to the health system's problems and to mitigate future risk of the spread of infectious disease, or currently unknown public health challenges.

For example, through linking up the health system's data (as per the Hira approach), new service models, for example Community Based Assessment Centres (CBACs) can be created quickly if required, supported by reliable IT systems and access to data that can be delivered to any device with an internet connection. In most cases this would not require new, bespoke IT solutions (with associated costs of development and risk of errors) but would re-use and adapt existing solutions. In the case of CBACs this would include identifying patients new to the service, and keeping track of tests sent between CBACs, laboratories and results forwarded to Public Health Units.

Additionally, Hira will connect consumers and the health workforce through multiple IT solutions, such as patient portals, enabling communications and information access in real time during a major public health event delivered directly with people through their chosen solution. Hira would also support more possibilities for remote working and telehealth services within the health system, for example enabling surge capacity to be used across locations, and opportunities for improved coordination between government agencies, for example for management of COVID-19 at the border. Investments in the COVID-19 pandemic response have advanced aspects of Hira by establishing some of the key enablers.

1.3 Strategic Context

Background

In 2015, work commenced on creating a National Electronic Health Record, based on a traditional data collection and technology delivery model. The initial proposal was to collect key patient information from service providers over time to create a centralised health record and digital services. A Strategic Assessment was approved in 2016 and an Indicative Business Case completed in 2017.

Advances in technology have now enabled alternative approaches to the provision of digital services and data and have successfully transformed business delivery models in other industries such as banking, retail, supply chain and logistics. These advances allow us to access health information from many sources without the need to aggregate it into a centralised health record. Australia, Estonia, and the United Kingdom (amongst other countries) are now actively investing in this approach and moving beyond their existing Electronic Health Record systems.

In 2019, a change in approach was signalled driven by these new technology options and informed by international experience. The new approach is for a national health information platform which would make health data from multiple trusted source systems accessible on a virtual platform, enabling real-time access to an individual's data throughout the healthcare system. This would avoid unnecessarily duplicating data into a central location. It would have security advantages over a national Electronic Health Record system where all data is duplicated and stored in one place, which presents a significant security target.

In September 2019, the Government requested the development of a Detailed Business Case for Hira, for consideration by Cabinet in February 2020. Following discussion with Central Agencies, the Ministry has completed a programme business case, as it is better suited to the proposed tranche delivery approach.

Need for Investment

New Zealand, like most nations, is facing demographic change and the increased prevalence of complex and chronic diseases along with technological, societal, cultural and environmental change. The increasing demands on the health and disability system, compounded by workforce shortages, constrained physical capacity, and increasing costs, present significant challenges to sustaining the delivery of safe, quality care and support and ensuring access and outcome inequities are addressed.

In order to respond to these challenges, the health and disability system needs to work differently to make better use of the available resources, including consumers themselves. This was highlighted by Heather Simpson, Chair of the Health and Disability System Review, in their Final Report.[1]

"The next 20 years will bring sizeable shifts to New Zealand's population in terms of age, ethnicity, and geographic spread. Environmental, social, technological, and cultural changes also will provide both opportunities and pressures on the sustainability and efficiency of the health and disability system."

"[Hira] would provide a powerful platform for data integration and systems interoperability across the health and disability system. There is no question that this investment is urgently required."
Health and Disability System Review Final Report

The New Zealand health and disability system, along with public health systems worldwide, is shifting from an individual, episodic care approach, to one that focuses on wellbeing and supports, strengthens and facilitates relationships between the individual and their whānau/family, healthcare providers, and their community. Digital health is a key enabler for this shift. Digital health (including digital services and the use of data insights) provides a significant opportunity to improve the delivery of health care, at the system-wide level and at point of care.

However, whilst there has been investment across the sector in digital and data technologies, this has historically been low, generally reactive, and has not kept pace with need or expectations. Significant investment is required urgently to leverage the opportunities new technologies provide, and to establish the basis that will support the health system to transform to new models of care, deliver better services and health outcomes, and to innovate.

Multiple Investment Logic Maps (ILMs) with broadly the same parameters from across the health and disability system were reviewed with the intent that a consolidated ILM would become the foundation for Hira and subsequent investments across the sector. The consolidated Hira programme ILM identifying the main drivers for the proposed Hira investment was approved by the DHB CIOs in September 2019.

The inability of consumers[2] to engage effectively in managing their own care is contributing to unmanageable demand on health services. Limited access to health information hinders New Zealanders from participating actively in, and managing, their health and wellbeing. Consumers have limited access to their own health information and cannot share it with others or contribute their own information. They have few opportunities to use digital health services to interact with their care providers. It is difficult for them to navigate the system or be guided to the right information or service using the various digital resources and services available today. Health care is less effective when consumers are not engaged in decisions regarding their care and empowered to better manage their own health. Consumer engagement has been shown to increase self-management, which impacts utilisation of health services (including rates of contact with GPs and emergency departments and reducing hospital admissions, readmissions, and outpatient attendances). Consumers have experienced huge benefits from digital innovations in areas like air travel, banking and retail. They expect nothing less from the health and disability system.

[1] Heather Simpson, Chair, Health and Disability System Review Final Report March 2020

[2] In this context, the term consumers encompasses the individual, their whānau/family and support networks.

Information does not adequately support decision making, adversely impacting individuals, organisations and system level planning. At an individual level, clinical decisions made based on incomplete or unreliable information are resulting in the potential for poor health outcomes and poor experience of care. Current data management is creating significant security and privacy risks. At a system or organisational level, whilst some information can currently be drawn from data collections, more complete sets of health data are not readily available and are costly to assemble. This constrains the value and data insights that can be gained, for example for population health management, service design, planning and performance monitoring, and research. It also constrains new or innovative uses of data such as statistical, predictive approaches to planning for healthcare demand and capacity management. These gaps are a missed opportunity to leverage emerging analytics and big data tools to assist researchers, policy makers and planners in improving equity and system performance.

Barriers to collaboration across the health, wider Government and private sectors are hindering innovation in the delivery and management of health care. The fragmented health information and technology landscape constrains the ability for New Zealand to embrace innovative models of care in a cost effective and responsive manner. Innovation offers the opportunity to change dramatically the way in which health care is delivered over the coming decades for the better. Immature commercial, procurement and innovation practices for digital health services are hindering digitally enabled innovation and collaboration. The inability to integrate data across health, social and wellness service providers limits the ability to support integrated service models across government, for example supporting delivery of school-based health services. The fragmented nature of health information is also slowing or preventing the uptake of advances in modern technologies (such as image recognition and Artificial Intelligence) which support clinical diagnosis and decision making. This has implications for the already overstretched workforce as well as health outcomes and consumer experience.

The lack of integrated information across the system is driving unnecessary rework and duplication for service users and health care staff. Health information is currently collected and used by many organisations and sits across a multitude of systems that are often unconnected. There is wasted effort to get information and/or consumers are required to be the 'glue' by providing information to multiple health providers or organisations and having to repeat symptoms, diagnoses and clinical history multiple times. This is contributing to the risk of harm, as well as impacting consumer, whānau and staff satisfaction. Where data cannot be shared, it must be sought and recorded multiple times by multiple users. Poor access to and sharing of information can be irritating and inconvenient (as in the case of consumers being required to provide their address multiple times along their care journey) or potentially hazardous (for example, when key allergy information is not available to a provider such as St Johns Ambulance or in an emergency department setting).

Hira Investment Objectives

The programme investment objectives were originally identified in the 2016 Strategic Assessment for the Electronic Health Record (EHR) and described in more detail in the 2017 Indicative Business Case (IBC). They have been reviewed and updated to reflect the current thinking, as summarised in the revised Investment Logic Map, and have been endorsed by the Steering Group and Programme Governance Board.

Hira Investment Objectives

By 2026, foundations for a digitally enabled health and disability system with access to and use of trusted health information and services are in place so that:

- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.
- The health and disability system is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.
- Innovation and transformation across the health ecosystem is accelerated.
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing.

Benefits of Investment

Hira would deliver direct, quantifiable benefits that provide a compelling return on investment. It would also enable the realisation of future benefits that cannot yet be defined. These future transformational benefits, and the industry and sector investment it incentivises, would far exceed the direct Hira investment proposed.

"[Hira] would support analysis and research, driving innovation and population management. If specific diseases were targeted (e.g. congestive heart failure, COPD, diabetes, asthma and immunisation) this could, at a system level, impact massively on patient outcomes and system demand."
Health system manager

The adoption of Hira services would fundamentally change the ways in which people interact with health services. The programme would prioritise the data and services it delivers based on the benefits that can be identified and realised. Speed to value and the realisation of real, quantifiable benefits are key drivers.

Hira takes a person-centred, broader Government approach to wellbeing by integrating information across health, social, education and other sectors in order to address the social determinants of health. It provides a foundation leverageable by the current system and into the future for system and wider Government transformation.

A simple scenario showing the comparison of current and future consumer experience is depicted in Figure 1, and a more detailed scenario for mental health is included in Appendix 1. This scenario in Figure 1 is based on the Turei's, a Māori family who usually reside in Auckland. The father, Nikau, has recently had a coronary artery bypass graft and is currently taking a range of medications packed in blister packs to deal with pain, high blood pressure and cholesterol. It has been about a month since the operation and, with Nikau starting to feel better, the family decides to take a short weekend trip to Rotorua to see whānau.

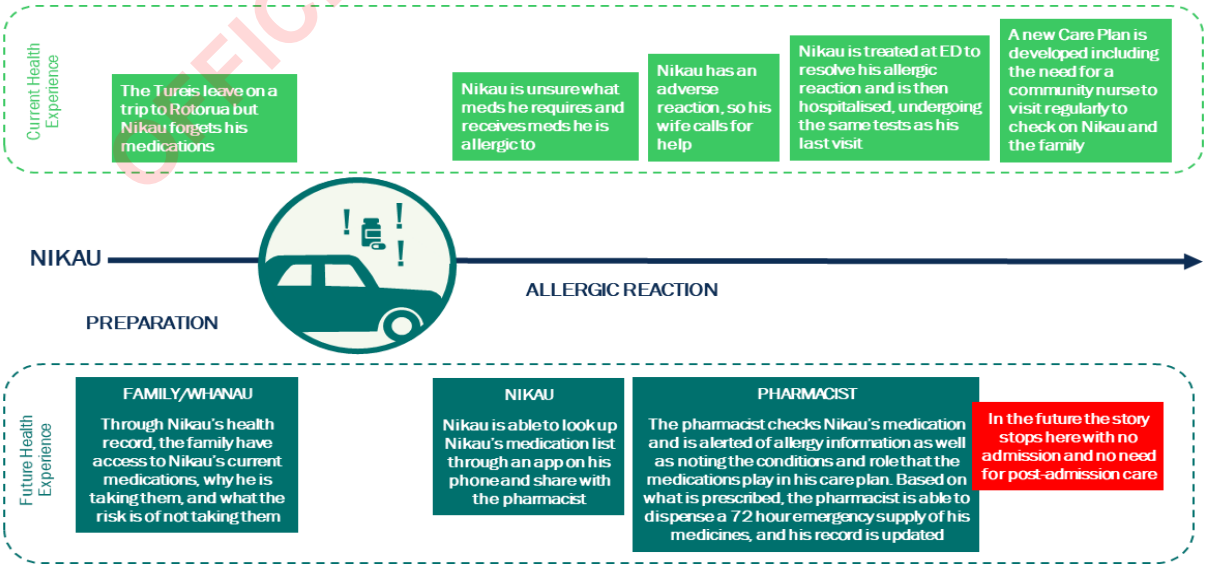


Figure 1: Current and Future Health Experience Scenario

The three primary benefits which would be realised by Hira are:

- **Improved health outcomes**. Providing timely access to a patient's health information at the point of care would improve decision making and co-ordination of care between health professionals. It would reduce the risk of errors (in particular, adverse drug events). It would reduce repeat and/or inappropriate diagnostic and other interventions (reducing the risk of harm and improving the consumer experience), make it easier to identify and address health equity issues, support improved research and innovation in health care, and improve the sharing of information between providers to support care delivery by inter-disciplinary teams. This would support improved management of complex patients with chronic conditions.
- **Affordable and sustainable health care system.** Hira would contribute to system sustainability by providing enabling digital services and making data more accessible. It would change the current approach to national collections and registries, in some cases avoiding the duplication of data, and would make data more accessible with less effort than is the case today. By enabling the sharing of data for care delivery by inter-disciplinary teams and empowering consumers to better manage their care and wellness (as well as their interactions with providers), Hira would support a reduction in demand on the system, releasing capacity, improving workflow and efficiency, and avoiding future costs.

  For example, a reduction in adverse drug events (due to increased data sharing) would result in fewer unnecessary bed days. Better sharing of data would reduce the number of duplicate and/or inappropriate tests or interventions, freeing up capacity and reducing avoidable costs. Shared real-time access to comprehensive information and ability to communicate securely would support integrated care across multiple settings, enabling consumers to react more quickly to clinical notifications. Enabling consumers to manage their interactions along the care continuum would reduce wastage, for example, enabling consumers to plan, book and schedule appointments would reduce the number of missed appointments. Hira would assist researchers, policy makers and planners in improving equity and system performance by informing policy, population health planning, healthcare investment strategy and health research, and stimulating innovation.

> *"Empowerment increases autonomy and self-determination, it gives people and communities greater control over decisions and actions that affect their health and wellbeing."*
> *Hira*

- **Improved consumer, family, whānau and staff experience.** Hira would empower consumers to monitor their own health; update, contribute to, and correct their own health information; better manage their chronic conditions; and consent to their information being shared with their support network. By making data accessible about their health status and their conditions, consumers and their carers would be able to become more active in managing their health and wellness. Hira services would allow consumers to be better informed, with timely access to more comprehensive and holistic health and wellness information. They would be able to more easily interact with providers, managing interactions not just one-to-one (e.g. consumer with provider such as a DHB), but in a one-to-many (e.g. consumer with GP, laboratory, DHB etc.) environment. Improved sharing of data across multiple providers would reduce inconvenience and risk of harm from repeat unnecessary interventions.

Hira would also enable the realisation of future transformational opportunities.

- **Improving security and sustainability:** Hira would improve the health and disability system's ability to respond to changing and growing demand, by increasing digital maturity[3], enabling flexibility and reducing the cost of reconfiguring health service delivery. Hira could contribute to value for money for technology investments

> *"[Hira] will open up access to health information to enable clinical decisions at the point of care, regardless of where you are in the country, AND enable consumers to access their own data. Who knows what will happen from there! The opportunities are endless."*
> *University of Auckland*

[3] A Digital Health Indicator maturity assessment has been completed which identifies opportunities for Hira to lift digital maturity across the system.

by reducing avoidable costs of maintaining legacy or outdated technologies. It would support the system to respond to cyber security risks and vulnerabilities and provide the foundations on which the system can innovate and transform operations.

- **Ensuring technology supports improved equity:** Providing insights into how service models are delivering improved outcomes for disadvantaged communities or where to focus health care investment for improvement. It would enable improved delivery of health services to disadvantaged populations, specifically Māori and Pacific peoples, and those in low socioeconomic groups. Hira would support more proactive data-driven interventions and empower people and their whānau to proactively manage their own health and wellbeing.
- **Ensuring consumers and whānau are at the centre of care:** Empowering consumers to monitor their own health; update, contribute to, and correct their own health information; better manage their chronic conditions; and consent to information being shared with their support network.
- **Allowing us to deliver care differently:** Integrating health, social and wellness service delivery and using data effectively across Government, for example sharing immunisations data with education and supporting delivery of school-based health services. Innovation is catalyst for transformation, coming from the outside in via customer engagement initiatives and from the inside out via insight derived from data. Bringing together top-down person-centric engagement and bottom-up information insights would create the pressure points to build on to challenge the status quo. Hira would make it easier for innovators to access digital services and data, in a controlled manner that ensures privacy and security, by reducing the need to interface with many points in the system and to so in a standardised way and at pace. This would improve responsiveness, agility and the time it takes to implement new policy and business initiatives that have a technology component.
- **Showing us where to improve:** Significantly enhanced access to data and health system analytical capability, to ensure the tools and skills are available to support operational forecasting, diagnosis, and understand what changes need to be made to improve health system performance. Leveraging Artificial Intelligence and Machine Learning to allow significant amounts of information to be quickly synthesised (in real time where appropriate) into advice for clinicians and policy makers.

Many of these benefits rely on better access to, and use of, data for secondary purposes, such as research and analysis, planning etc. For these to be realised, Hira needs to deliver the ability for access to data beyond consumers and providers.

Investment Alignment

There are a number of population and health strategies that provide specific directions for population groups or health conditions, which would inform the design and development of the recommended solution. These include the **New Zealand Health Strategy**, the **New Zealand Disability Strategy**, the **Healthy Ageing Strategy 2016**, **He Korowai Oranga: The Māori Health Strategy**, **'Ala Mo'ui: Pathways to Pacific Health and Wellbeing**, **Whānau Ora** and the **Pharmacy Action Plan 2016 to 2020**.

Since the completion of the IBC, further initiatives and strategies have been developed, to which the proposed initiative would align. These include **Strategy for a Digital Public Service**, **Data Strategy and Roadmap for New Zealand, Digital Inclusion Blueprint**, **Data Protection and Use Policy (DPUP)**, **Digital Health Strategic Framework (DHSF)**, **Health and Disability System Outcomes Framework, Ministry of Health Strategic Portfolio 2020-21, Ministry of Health Business Plan 2019/20,** and the **Ministry of Health Information Systems Strategic Plan (ISSP).** Hira aligns to the aims of the proposed **Public Service Act** (which replaces the State Sector Act) including "delivering better outcomes and better services" and "create a modern, agile and adaptive New Zealand public service".

There are numerous other initiatives requiring or leveraging digital technology and data capability in the sector that would benefit from this initiative. These include **Transforming Mental Health and Addiction Services**, **Wai 2575 Health Services and Outcomes Kaupapa Inquiry**, the **Cancer Action Plan** and **Support for carers of older people with complex conditions**.

Stakeholder Support

Hira is a priority for the Ministry and has strong support from the wider health and disability system and consumers. Hira has support from other Government agencies who would benefit from the digital services and access to, or sharing of, the data Hira provides. The agencies engaged to date include the Department of Internal Affairs, District Health Boards, Accident Compensation Corporation, Ministry of Education, Ministry of Social Development, Statistics New Zealand and the Ministry of Business, Innovation and Employment.

"This is a huge opportunity to enable safer, more effective, more efficient facility and heath care provider agnostic healthcare to all New Zealanders." GP

1.4 Options and Recommended Way Forward

Programme Options

Options 1 to 3b summarised below were considered in the Indicative Business Case. Option 4, Hira, was approved by Cabinet for consideration in this programme business case.

1. **Do Minimum:** Progress solutions across New Zealand in the current manner, but drive alignment through an emphasis on standards, consistency and controls that support local/regional objectives.
2. **Central Health Platform:** Create a closed platform limited to health data. Enable controlled access to centralised national health datasets/services, supporting both information sharing and interactions across the health and disability system.

3a. Gateway (single EHR): A purpose-built gateway with access to a single electronic health record based on aggregated health, wellness and social data. Built on an open architecture of shared data and services, standards and promoting innovations that respond to evolving needs. This would be delivered using a traditional waterfall programme/project approach.

3b. Gateway (single EHR) commencing with health: As per 3a but commencing with health data, with flexibility to scale into wellness and social data at a later date.

4. **Hira:** An ecosystem[4] approach where data from multiple trusted sources and digital services are discoverable and accessible. There is no single centralised electronic health record. Virtual electronic records would be assembled on an "as required" basis and available to different end users (with appropriate controls around privacy and security) for example clinicians, consumers, innovators, planners and policy makers. Centralisation of infrastructure and data limited to core enabling digital and data services. A combination of new capability and building on/complementing the investments made to date in the sector and by Government. Built on an open architecture of shared data and services, standards. Delivered using modern, flexible and lower risk digital methods. Would enable the sector to more easily innovate and deliver services in response to changing demand and needs.

The recommended approach is **Option 4: Hira**. Whilst options 2, 3a and 3b would enable health information to be available to those who need it, when and where needed, Hira is considered the optimal, future proofed and lowest risk option.

The investment in Hira would deliver both technology and other artefacts (such as standards and protocols, security controls and commercial frameworks). Hira would also contribute to broader Government data and digital health priorities, such as the work on privacy, human rights and ethics; data protection and use; digital inclusion; Māori data governance; digital rights; and growing the digital economy.

[4] Whole of health and disability system, including technology partners and suppliers brought together to create transformational change.

Programme Delivery

Hira would not be a traditional waterfall, defined end-state delivery programme. A portfolio approach to investment, based on continuous delivery and improvement would be adopted. Delivery would be prioritised and phased so that investment is required in three tranches rather than as a single monolithic project. The programme would be implemented over five years, commencing in 2021 with the development of the Tranche 1 business case and concluding in June 2026.

The phased delivery approach would align delivery to earlier realisation of benefits, informed by stakeholder needs, with enabling capabilities compounding value over time. The approach would lower implementation risk and cost, as well as providing flexibility to meet changing business needs and enabling the latest technology to be incorporated as it becomes available, rather than being committed to a particular technology or business model at the outset.

Implementation risk would be minimised by co-designing and co-creating services with users and by testing technology capabilities and delivery processes through pilots, proof of concepts and prototypes before investing. Hira would partner with sector, Government and commercial organisations to leverage their skills and capabilities, support the delivery and adoption of Hira services, and facilitate the realisation of benefits. This approach is consistent with the reshaping investment and procurement actions in the Government Strategy for a Digital Public Service.

1.5 Commissioning and Procurement

Approach

A Procurement Strategy has been developed for the programme. The plan assumes three programme tranches. Projects within each tranche would develop detailed Procurement Plans, where required. Procurement activities would include:

- The Ministry leading core platform/foundation procurements for enabling technologies.
- Supporting wider health and disability system procurement activity for the development of new systems and changes to existing systems that are part of the Hira ecosystem.
- A variety of approaches to get technology suppliers to develop systems or adopt standards to enable future Hira capabilities.

The sourcing approach incorporates the broader outcomes from Government procurement, specifically the priority outcome of increasing access for New Zealand Businesses. The programme would seek participation in the early stages of the planning process and throughout the sourcing process. A probity management plan would be established as part of the programme establishment, to cover all aspects of the programme including procurement.

Attractiveness to Market

As there are other significant activities in the health and disability system and the broader Government sector which could result in supply-side capacity and capability constraints, the programme would focus on ensuring that it is attractive to suppliers and talented individuals. It would have in place a well-planned and articulated timeline for individual projects so that potential suppliers could plan ahead for the skills and capacity required.

In order to increase the willingness of the market to engage, the programme would communicate the strategy and emphasise the innovative approaches, high visibility, national reach and potential opportunities arising. It would communicate the work required as early as possible, so that the market is well placed to plan to respond.

1.6 Indicative Programme Costs

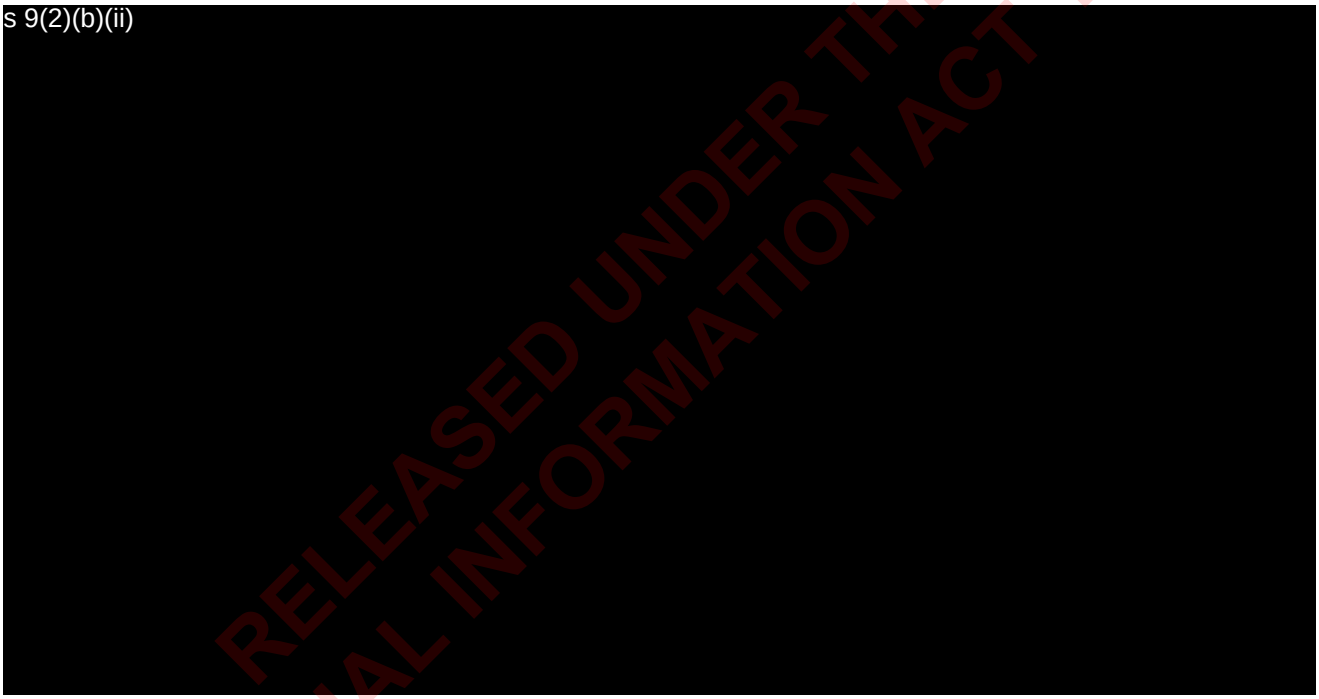
Indicative Costs

A portfolio approach to investment, based on continuous delivery, would be a lower risk and lower cost implementation approach. Rather than relying on exhaustive analysis and effort before starting delivery, funding for the programme would be released via tranches as needed and could be redirected or stopped if required at almost any point without regretful spent to that point in time. Each new tranche of investment would be requested on the basis that the programme is demonstrating value and building confidence with investors and the sector.

The programme business case signals a multi-year funding requirement. Like other infrastructure investments, a committed funding pipeline is needed to ensure the right skills and partners can be sourced and to enable costs effective delivery.

For the purposes of this business programme business case, the cost modelling covers a ten-year period from 2021/22 to 2030/31. This comprises five years of programme costs to implement the changes, with incremental ongoing operational costs over the modelled period.

s 9(2)(b)(ii)



Affordability

The proposed cost of this investment is approximately s 9(2)(b)(ii) over the ten-year modelled period. Crown funding would be required to meet the costs forecast. The funding requested in this initiative could be scaled or phased differently. This would defer the realisation of some benefits, reduce the multiplier effect from adding additional services and could impact the delivery of related initiatives.

1.7 Programme Management and Delivery

Programme Governance and Management

Hira is a significant transformation programme, and the Ministry has designed the governance and assurance framework in line with best practice to improve the clarity of roles and responsibilities, which will contribute to the overall success of the programme.

Governance arrangements and a programme structure have been defined for the programme delivery phase and would be implemented if the programme is approved. The structure would continue for the duration of the implementation phase (i.e. to 2026). At appropriate points through Hira implementation, responsibility for managing Hira services would transition to Ministry or sector operational teams.

- **Programme Governance:** The DDG for Data and Digital, Ministry of Health, is the Senior Responsible Owner (SRO) and has overall responsibility for the programme and for ensuring that it remains within the approved scope, timescales and budgets and realises the desired benefits. Governance comprises:
    - **Hira Governance Board**: Provides strategic direction and alignment for the programme.
    - **Hira Programme Steering Group**: Provides operational direction to ensure successful delivery.
    - The Ministry of Health **Capital Investment Committee** (CIC): Responsible for the national prioritisation and allocation of capital investment in the health and disability system.
    - The **Digital Investment Board** (DIB): Provides governance oversight for Hira and is required to endorse individual programme investments prior to submission to CIC.
    - The **Architecture & Design Authority** (ADA): Responsible for ensuring Hira purchased or created technology solutions comply with architectural standards.
    - The Hira **Clinical Governance** Group (to be established): Responsible for input to relevant clinical processes and governance requirements.
    - The Hira **Data Governance** Group (to be established): Responsible for ensuring Hira standards and technical policies are in alignment with sector expectations.

- **Programme Management**: The programme would be managed in line with the key principles from Managing Successful Programmes (MSP) and PRINCE2 (for projects), with the programme and project structures and documentation aligning broadly with the concepts and documentation as outlined in these approaches. A tailored hybrid approach would be adopted for delivery. This approach blends elements of waterfall, agile, lean and scrum methodologies as appropriate and aligned to programme requirements. This would allow for a more nimble and nuanced approach, enabling the right methodology to be applied to each individual outcome, increasing the likelihood of successful delivery.

Management of Risks, Benefits, Service Adoption and Change

The programme has developed an operating model which defines processes and delivery.

- **Risk and Issue management:** The programme would follow the Ministry's established risk and issue management process. A Risks and Opportunities Management Plan, and a Risks and Opportunities Register have been developed and would be maintained for the life of the programme. Projects would be required to establish Risks and Opportunities Plans and Registers. Where required, the process of risk identification, assessment and the development of countermeasures would involve consultation with the Steering Committee members, the Hira Governance Group, other relevant stakeholders and project team members.

- **Benefits management:** A high-level Benefits Realisation Management Strategy and Plan and benefits register have been developed, detailing the measures and realisation against target. Identification, measurement and tracking of benefits would be undertaken to ensure that the expected outcomes are realised. The SRO would have overall responsibility for the realisation of benefits. Benefits monitoring and reporting would be the responsibility of the Hira Programme Director.

- **Service Creation, Adoption and Transformation:** One of the programme's key challenges would be enabling and supporting the sector, industry partners and other stakeholders to make the changes required to adopt Hira and realise the opportunities it presents. The programme has developed an approach for managing change which is customer-centred, builds capability and capacity, supports active learning and fosters collaboration.

Stakeholder Engagement and Communications

A Communications and Stakeholder Engagement Approach has been developed. This details the processes and mechanisms for engagement in the longer term, as the programme moves towards (and beyond) implementation. It describes the engagement principles and objectives, key messages, channels and tools, activity plan, roles and responsibilities and resourcing.

Monitoring and Assurance

The Programme has been assessed as 'High Risk' through the Treasury Risk Profile Assessment and would be subject to Treasury Major Projects Monitoring Assurance, ongoing monitoring and Gateway reviews. Each Tranche would be subject to external and internal monitoring and review, as agreed with the monitoring agencies.

Internal Quality Assurance would be provided by the Hira Steering Group and Governance Group, as well as the Ministry Enterprise Programme Management Office. Independent Quality Assurance would provide assurance that the programme is appropriately planned, managed and controlled, and that the governance supports the programme to best effect. External Technical Quality Assurance on the deliverables from the architecture workstream has been incorporated in the Hira architecture.

The Programme undertook a combined Gateway 0/3 (Investment decision) review in January 2020. The programme has addressed the review recommendations pertinent to the business case, increasing the clarity on strategic alignment and strengthening the descriptions of the value arising from each tranche. The remaining recommendations (strengthening assurance, reviewing the governance and advisory bodies, appointing key roles and progressing the development of the Tranche 1 business case) would be addressed following approval of the programme business case.

Programme Timeline

The key high-level programme milestones and indicative timeline are summarised in Figure 2.

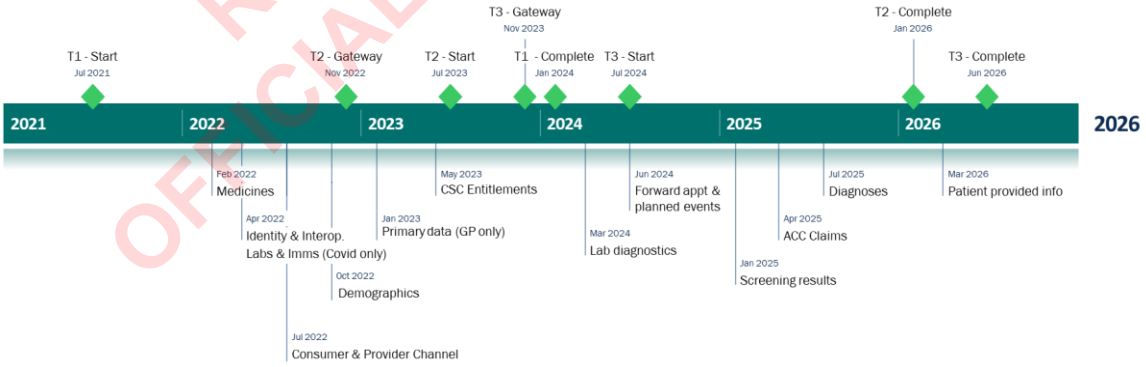


Figure 2: Hira Implementation Proposed Timeline

2 Introduction

2.1 Purpose of this Business Case

This programme business case outlines the justification and proposed approach, timing and cost for establishing the Hira programme to improve the interoperability of systems and access to, and use of, data across the health and disability system and public sector. It identifies the lifetime cost, based on a 10-year horizon, of approximately s 9(2)(b)(ii) (using a flatline projection from the 2019/20 budget, this would equate to s 9(2)(b)(ii) of Vote Health over that period).

Hira is not about rolling out a new or updated system – it is about developing a whole new way for different data systems to connect, so a person's health information can be provided in one place. There will be investment in new technology, and in working with the health sector on the changes needed for the technology to interact and share information.

This investment would empower people and their whānau to better manage their health, wellbeing and independence. It would enable organisations to collaborate in delivering person-centred care, support greater system innovation, deliver better data for improved organisational and support system insights and decision making. It would improve equity of access and outcomes and improve system performance.

This investment would enable a modernised experience for consumers and the health and disability system workforce. It would establish a programme that would transform the system and that delivers a digital operating model which supports the shift to a holistic health and wellbeing approach. It would make health information easier to access, use and share (with appropriate controls around privacy and security), enabling access to the right information, in the right context, at the right time.

Hira comprises a wide range of deliverables across technical and non-technical domains. This includes digital and data services, architecture, standards (encompassing data, security, technology and business process) and privacy, consent, data sovereignty, social licence, commercial and funding mechanisms.

2.2 Business Case Approach

Background

In 2015, work commenced on creating a National Electronic Health Record (EHR), based on a traditional data collection and technology delivery model. A Strategic Assessment [5] aligning the initiative to the strategies being pursued by the Ministry of Health across broader Government was approved in August 2016.

An Indicative Business Case (IBC) for the implementation of a single EHR[6] was considered by the Cabinet Committee on State Sector Reform and Expenditure Control in July 2017 [SEC-17-MIN-0045 refers]. The Committee requested further information on the costs and benefits of an EHR. This resulted in further analysis and a revision of the proposed approach, concluding with a revised IBC in November 2017.

[5] Strategic Assessment: Establishing the Electronic Health Record. Ministry of Health 2016.

[6] Indicative Business Case: Enabling Next Generation Care through an Electronic health Record. Ministry of Health November 2017.

In 2019, a change in approach was agreed, moving away from the concept of a single EHR to a national health information platform, Hira. This would make health data from multiple trusted source systems accessible on a virtual platform, enabling real-time linking existing electronic medical record systems and data repositories, to create a virtual electronic record on an as required basis.

In September 2019, the Government approved the development of a Detailed Business Case for the national Health Information Platform (nHIP), to improve access to and use of health information as a key enabler of an effective and sustainable health and disability system [CAB-19-MIN-0447].

With support from the Treasury, the Ministry of Health ('the Ministry') elected to complete a programme business case (PBC, this document) that details the overarching direction and intention of the programme, as it is better suited to the iterative delivery approach for the development of Hira. The PBC reflects the scope of Hira as a programme that would coordinate the delivery of multiple related projects over time, to deliver benefits to New Zealanders. The relevant Gateway recommendations made for the Strategic Assessment and IBC have been considered and addressed in the development of this PBC.

The programme business case was complete and was intended to be delivered to the Cabinet Social Wellbeing Committee in February 2020. Due to COVID-19, Cabinet consideration of the business case was delayed.

Ideally, the programme business case would have been endorsed by Cabinet prior to the development of the Tranche 1 business case and related activities. However, to maintain momentum and support strategic enablers for the COVID-19 response, development of the Tranche 1 business case commenced whilst awaiting Cabinet endorsement of the programme business case.

On 18 May 2020, Cabinet approved $5.3 million in 2020/21 from the COVID-19 Response and Recovery Fund ('CRRF') to continue the development of the tranche 1 business case for Hira, including a limited number of proofs of concept [CAB-20-MIN-0234 refers]. This was done as a top priority for the COVID-19 system recovery and system redesign. It is anticipated that the first tranche of projects would be funded through Budget 21. The investment for COVID-19 does not pre-determine Cabinet decisions regarding Hira.

The revised business case development process is depicted in Figure 3.

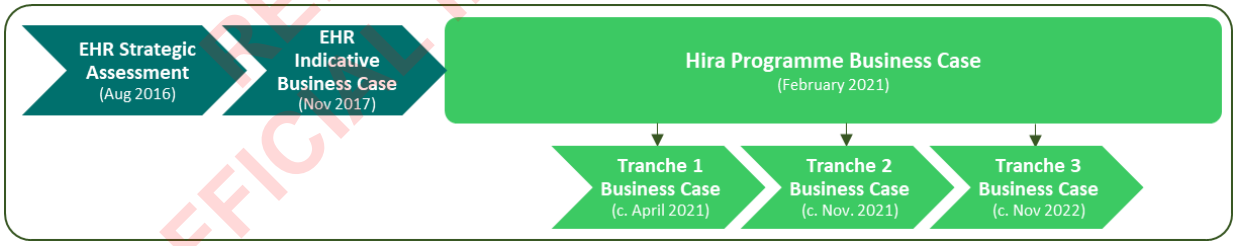


Figure 3: Overview of Business Case Approach

The PBC builds on the significant planning and analysis undertaken for the Strategic Assessment and IBC. It presents refreshed and refocused thinking on what the programme would deliver and how it would achieve its goals. Whilst the full analysis undertaken for the previous cases is not repeated in this document, key elements of the analysis are included. This approach is intended to minimise duplication and deliver a more concise document. The PBC:

- Updates the strategic context, case for change and need for investment, previously detailed in the Strategic Assessment and Indicative Business Case.
- Recommends a preferred programme approach.
- Identifies the projects that would support the delivery of the programme, including proposed tranches of projects.

The programme would be delivered as a series of tranches, with each tranche designed to create standalone capability and delivery of value and realisation of benefits. This approach provides decision-makers with options for ceasing (or changing the direction of) investment at the end of any given tranche. The investment in the first tranche includes the majority of the enabling elements and delivers some benefits, with more significant benefits being delivered in the later tranches as the capability built on the capability in tranche 1 is leveraged.

Each tranche would be informed by the overarching vision and strategy as described in this PBC, and by learning from the delivery in previous tranche, proofs of concept and pilot activities, and sector implementation of Hira services. Each tranche business case would describe the projects and programme outcomes to be realised by that tranche. They would also provide an update on the programme context and, importantly, would identify any changes in content, timing, duration or approach for the tranche (and any subsequent tranches) based on progress to date. This aligns with the intended agile delivery approach for the programme.

Central Agency Engagement with Business Case Development

The Central Agencies were engaged throughout the development of this programme business case. The format and approach are as agreed with the Central Agencies and documented in accordance with the requirement of the New Zealand Treasury Better Business Case process. Approval for the programme business case will be sought from Cabinet, with support from the Central Agencies.

Programme Branding

nHIP was the initial working title for the programme. The programme has engaged with key stakeholders to identify a name which better reflects the outcomes sought. The nHIP programme has consequently been rebranded as the Hira programme.

Hira is a te reo Māori word which means to have a significant bearing on future events, and also means to have a widespread effect. This name speaks to the Hira promise of better health outcomes for all New Zealanders.

The colours of Hira reinforce the feelings the programme wants people to have towards the brand.

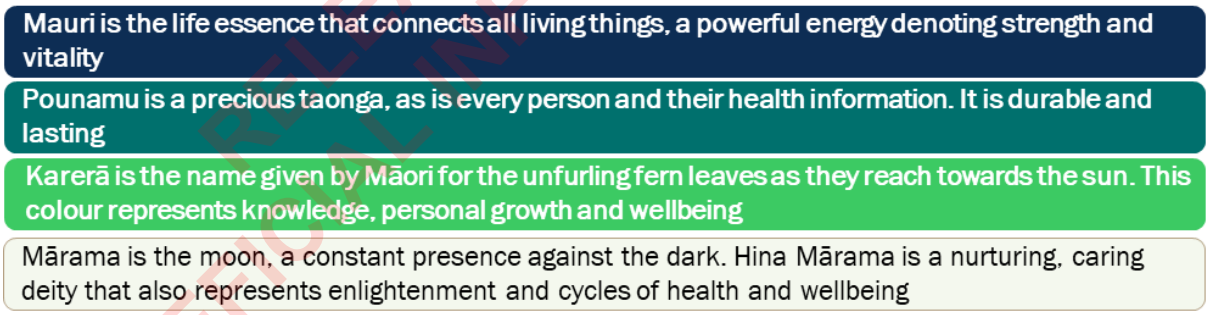


Figure 4: Hira Colours

3 Strategic Case

3.1 Strategic Context

Organisational Overview

The Ministry of Health is responsible for improving the wellbeing and health of New Zealanders, through the delivery of services that are accessible, safe, individual, family-centred, clinically and cost effective. The proposed initiative would support the Ministry's purpose as **Kaitiaki of the health and disability system in Aotearoa New Zealand** and mission **A fair, effective and sustainable system that people trust**. The Ministry's four aims are:

1. Improved equity in health outcomes and independence for Māori and all other people.
2. Sustainable and safe health and disability services.
3. An integrated, collaborative and innovative health and disability system.
4. People-centred services, support and advice that meet the needs of everyone.

The Ministry approach is informed by the wider New Zealand health and disability system strategic context, as depicted in Figure 5 and by the digital context, as depicted in Figure 6.

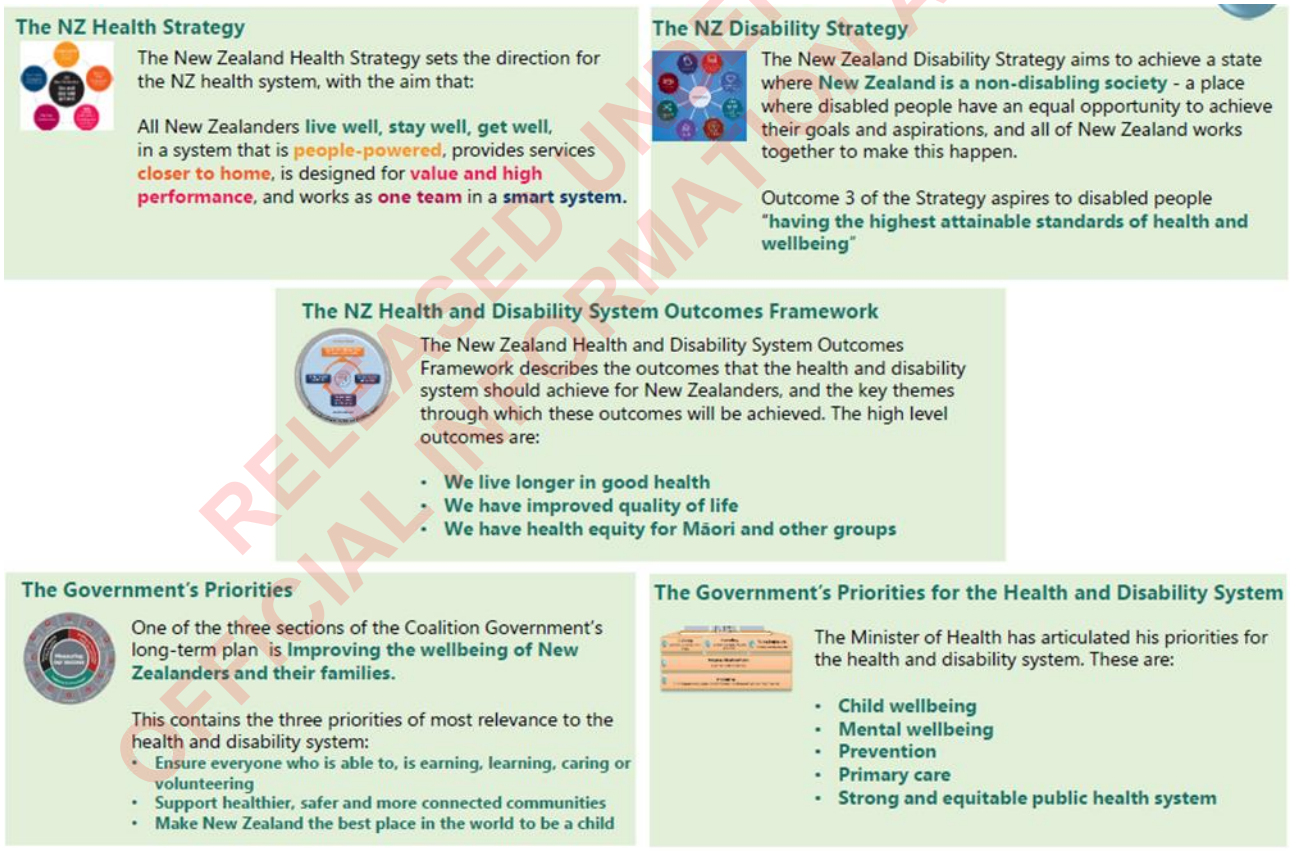


Figure 5: New Zealand Health and Disability System Strategic Context DRAFT – Not Government Policy
Source: Ministry of Health, February 2020

Figure 6: Digital Context

Programme Context

Hira is proposed within a context of a health and disability system that is struggling to cope with significant demographic, technological, societal, cultural, and environmental change. Increasing demand driven by these changes is threatening the viability of the health and disability system. This was highlighted by Heather Simpson, Chair of the Health and Disability System Review Final Report.[7]

The external environment in the context of Hira is summarised below and further detailed in Appendix 2.

- **Technology:** Technology will radically shape the future of health care. Advances including artificial intelligence, machine learning, robotics and the internet of things are causing disruption to all areas of society and enterprise. Digital health technology innovations offer new opportunities, but technological change also poses new challenges.
- **Social/demographic:** Population growth, ageing and changing lifestyles (poor diet and increasingly sedentary lifestyles) in New Zealand are driving an increase in demand on health services, as people are living longer with more complex health conditions. People have greater access to information about conditions and treatments, and expectations of health service provision are rising and, in many cases, exceeding the ability of services to deliver.
- **Economic:** If nothing changes in the way services are funded and delivered, Government health spending is expected to rise from approximately seven per cent of Gross Domestic Product (GDP) now, to about 11 per cent of GDP in 2060. This is unfeasible on the basis of the current and anticipated economic environment. To address this, transformational change is needed. Health services must adapt to become more affordable and efficient, ensure equity and respond to changing needs and expectations as the population becomes more ethnically diverse and technologically savvy.

[7] Heather Simpson, Chair, Health and Disability System Review Final Report March 2020

- **Political:** In 2020, the newly elected New Zealand Government committed to undertake a long-term programme of reform to build a stronger health and disability system that delivers for all, drawing on the recommendations of the Health and Disability System Review. The focus on transformation and tackling inequities is highlighting the needs for significant change across the health and disability system and the challenges in achieving this shift in an environment of sub-optimal access to and use of health information.

Providing electronic access to health information and digital services is a core requirement for a modern public health system and will become increasingly important as the changes above manifest. Hira would therefore be instrumental in supporting the health and disability system to respond effectively to these challenges. Enabling more widespread sharing and utilisation of data would help health and disability system providers, and individuals, to better manage health care demand.

3.2 The Need for Investment

Approach

Extensive analysis was undertaken for the 2017 IBC, involving significant consultation with consumers and the sector and resulted in the development of a substantial body of data to support the problems definition. This PBC leverages off, and does not duplicate, this analysis. The PBC therefore presents a précis of the comprehensive analysis previously presented in the IBC, and provides an update aligning with the revised problem and benefits statements and programme objectives.

An Investment Logic Mapping (ILM) exercise was carried out in 2017 to determine the most important problems and benefits. Prior to and since that date, a number of ILMs with broadly the same parameters have been undertaken across the health sector, as there are multiple micro and macro actions being taken in these areas. In order to mitigate the risk of overlap or conflict between investments, the District Health Board (DHB) Chief Information Officers (CIOs) requested that a consolidated view across these ILMs be created, with the intent that the ILM and the investment statement for Hira would become the foundation for subsequent investments across the sector. The consolidated Hira programme ILM was approved by the DHB CIOs in September 2019 and is attached as Appendix 3.

Key Challenges

The ILM identifies four key challenges. These are summarised in Figure 7 and described further below.

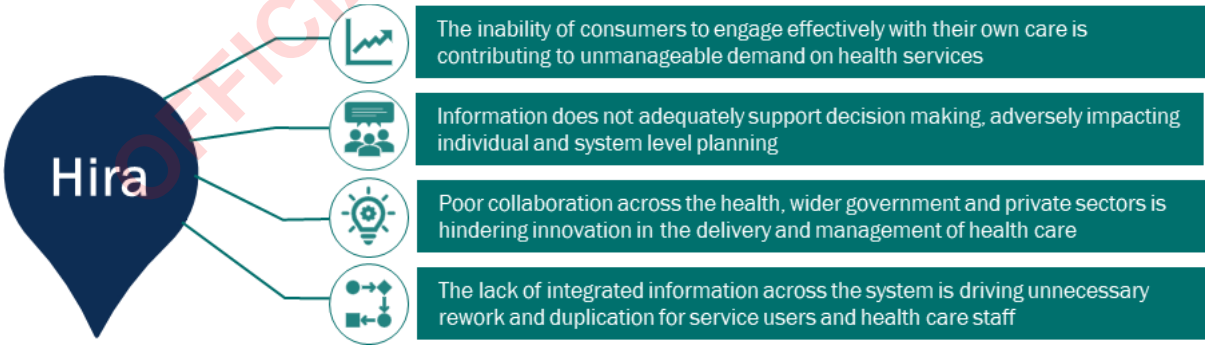


Figure 7: Hira ILM Consolidated Problem Statements

The inability of consumers to engage effectively with their own health care is contributing to unmanageable demand on health services: Limited access to health information hinders New Zealanders from participating actively in, and managing, their health and wellbeing. It is difficult for people to navigate the system or to guide people to the right information or service using the various digital resources and services available today. Consumers have cited that obtaining and managing information from across multiple sources can be frustrating, difficult, and sometimes impossible[8], which can prevent even motivated consumers from being effectively engaged in managing their own health.

Consumer engagement has been shown to increase self-management, which impacts utilisation of health services (including rates of contact with GPs and emergency departments and reducing hospital admissions, readmissions, and outpatient attendances). Consumer engagement is impacted by a range of factors, including the accessibility and usability of health information, health literacy, access to digital technology, age, socioeconomic status and ethnicity. Consumers have experienced huge benefits from digital innovations in areas like air travel, banking and retail. They expect nothing less from the health and disability system. The workforce is also demanding digital ways of working, to free up time to spend with consumers and provide safe care.

There is growing international evidence that health care is more effective when consumers are engaged and involved in decisions regarding their care[9]. Self-management may include consumer education, support for decision-making, self-monitoring, and psychological or social support. Findings from recent studies showing the impact of consumer engagement on health outcomes and utilisation of resources include:

- Self-management capability in patients with long-term conditions is associated with healthcare utilisation across the health economy. Less activated patients have higher rates of contact with GPs, ED attendances, emergency hospital admissions and outpatient attendances.[10]

- Self-monitoring in chronic illness can impact healthcare utilisation, including hospitalisation and re-admissions. Self-monitoring has the potential to reduce the pressures placed secondary care services (although it may lead to increased pressure elsewhere in the system).[11]

- Self-management is associated with small but significant improvements in health outcomes, with interventions for some conditions (particularly respiratory and cardiovascular problems) associated with a reduction in health service utilisation.[12]

The implications for the health and disability system are significant and must be addressed if New Zealand is to ensure a fair and viable health service for all users. The continued failure to enable consumers and their whānau to engage effectively with their own health care is contributing to an ongoing and increasing burden on delivered health services. As noted in Section 3.1, based on the current trajectory, spending on health as a proportion of GDP will increase from around seven per cent to around 11 per cent over the next 40 years. In the light of the inability of New Zealand to meet these projections (from both a financial and a practical perspective, for example the level of additional staff resources that would be required) the need to better enable self-management is becoming increasingly pressing.

[8] Workshop with Consumer Representative Panel. 2016

[9] Greene, J., J.H. Hibbard, R. Sacks, V. Overton and C.D. Parrotta. "When patient activation levels change, health outcomes and costs change, too." Health Affairs 34:3 (March 2015): 431-437.

[10] Barker, I., et al. (2018) "Self-management capability in patients with long-term conditions is associated with reduced healthcare utilisation across a whole health economy" BMJ Quality and Safety 27(12): 989-999

[11] McBain, H., et al. (2015) "The impact of self-monitoring in chronic illness on healthcare utilisation: A systematic review of services". BMC health services research 15(1)

[12] Panagioti, M., et al. (2014) "Self-management support interventions to reduce health care utilisations without compromising outcomes: a systematic review and meta-analysis.: BMC health services research 14: 356-356

The health and disability system is failing to meet increasing consumer expectations around the availability and accessibility of their health information, hindering those who are keen from fully engaging and placing barriers in the way of those who are moving tentatively in this direction. Consumers increasingly want to be able to use mobile applications and other new technologies to engage with their information in meaningful ways, to support their health and wellness. The rise of health and fitness apps, smartwatches and wearable devices is contributing to a 'digital wellness' environment which both contributes to, and requires, improved quality and accessibility of health data.

For groups that may struggle to gain access to traditional services, electronic access to information may help provide alternatives. However, at present, significant effort is required to gain access to information, and the information that is available may not be the most useful to people in planning and contributing to their own health care.

Whilst information technologies are becoming a more important and common part of health care, they are not currently supporting the achievement of equitable health outcomes for all population groups. International evidence indicates that uptake of access to digital information (and consequently the ability to engage in and effectively self-manage health) is impacted by a range of factors, including health literacy, access to broadband, age, socioeconomic status and ethnicity[13]. In planning and implementing the programme, care would be taken to ensure that all population groups are enabled to uptake newly emerging technologies, to prevent an increase in inequitable health outcomes for those who are less able to access digital information.

Information does not adequately support decision making, adversely impacting individual, organisation and system level planning: At a system level, New Zealand is failing to take advantage of the possibilities arising from using health data as a powerful tool to better inform policy, service planning and research for the country. This is reflected in the HIMSS Digital Health Indicator Achievement Assessment Report, which highlighted the need for further action and investment in the areas of person-enabled health and Predictive Analytics[14]. Advances in big data analytics and population health, which could create significant benefits for both individuals and broader population health outcomes and service planning, are not being realised nationally, with only small pockets of good practice.

Whilst some information can be drawn from national registries, national collections and other national repositories, more complete sets of health data (such as patient reported outcome measures[15]) are not readily available and are costly to assemble. Addressing these gaps results in duplicated effort and exacerbates the information silo challenge. Where gaps are not closed, this creates limitations that constrain the value that can be gained from information at a service provider and system level, for example for population health management, service design, service quality and safety, planning and performance monitoring, research, as well as new or innovative uses of data such as statistical, predictive approaches to planning for healthcare demand and capacity management. It is significant in terms of improving equity of access and outcomes. It is difficult to identify and address system inequities without linkages between information types, context of care and outcomes.

[13] Levy, H. et al. (2015) "Health literacy and the digital divide among older Americans" Journal of General Internal Medicine 30(3): 284-289. Perzunski, A. T., et al. (2017) "Patient portals and broadband internet inequality" Journal of the American Medical Informatics Association 24(5):927-932

[14] HIMSS Digital Health Indicator Achievement Assessment Report December 2020

[15] Source: https://www.safetyandquality.gov.au/sites/default/files/migrated/PROMs-Environmental-Scan-December-2016.pdf Accessed 15/01/2020

Figures from MBIE identify that the health and disability system is the single biggest employer in New Zealand, with around 10.5 per cent of the working population (employing approximately 236,000 people[16]). Excluding DHB and GP employees (approximately 86,000 people[17]) the remainder of the health workforce is contracted to the Ministry of Health, DHBs or associated organisations. This means that up to 65 per cent of the health and disability system, particularly in community mental health and disability providers, have little or no access to core health information to deliver their services.

This means that, at an individual consumer level, clinical decisions are frequently made based on incomplete or unreliable information, resulting in the potential for poor health outcomes and poor experience of care, as well as creating significant security and privacy risks. Even where data is available and accessed, delays in accessing this data (for example, where it is delivered via fax/scan) can impact on the care provided. Acute care tends to require access to consumer's general health information and for the documentation related for that episode to be accessible to the consumer and discoverable/accessible by others as and when needed. Complex patients with chronic (and often multiple) long-term conditions need their information to be discoverable and accessible, as well as needing their care to be coordinated.

The fragmented and non-standard nature of health information is slowing or preventing the uptake of advances in modern technologies (such as image recognition and Artificial Intelligence) which support clinical diagnosis and decision making. This has implications for the already overstretched workforce as well as health outcomes and consumer experience.

The lack of accessible data is impacting consumer care:

- Across **care settings**: providers across primary/secondary care, aged care, pharmacies, and Non -Governmental Organisations (NGOs) often do not have records from other care settings.
- Across **geographies**: health data is not easily accessible across regions, e.g. care providers for Northern Region do not readily have access to key information contained in DHB records from Southern Region and vice versa.
- Across **time**: gaining a historical (or longitudinal) view of consumer health information and services is difficult, costly and time consuming.

At an individual level, examples of the impact of poor availability or speed of access to data to support decision making include:

- **Adverse impact on emergency department attendance**: An American review of the correlation between speed of access to data and emergency department care found an increase in visit length, likelihood of imaging and admission associated with delays in accessing information from external sources.[18]

[16] Source: Statistics NZ - Business Demography series February 2018 - http://nzdotstat.stats.govt.nz/wbos/index.aspx Accessed 1/02/2019

[17] 76,000 from DHBs in Sep 2019- https://tas.health.nz/assets/Workforce/DHB-Employed-Workforce-Quarterly-Report-Sep-2019.pdf Approximately 10,000 from General Practice – estimated from GP numbers and practice nursing ratio – Source: https://rnzcgp.org.nz/RNZCGP/News/College_news/2019/2018_Workforce_Survey_Results.aspx Accessed 15/1/2020 Source: https://www.nzdoctor.co.nz/sites/default/files/2019-04/Workforce%20and%20resources%20for%20future%20general%20practice_0.pdf Accessed 15/01/2020

[18] Everson, J., et al (2017) "Health information exchange associated with improved emergency department care through faster accessing of patient information from outside organizations" Journal of the American Medical Informatics Association 24(e1):e103-110

- **Medications management**: the ability to identify drug-drug interactions is compromised where only drugs issued by a single provider can be reviewed. International studies indicate that this could miss drug warnings for approximately 20 per cent more people where all drugs issued to a consumer are checked, and the number of severe drug-drug interactions warnings and duplication warnings would increase by around 17 per cent.[19]
- **Inability for consumers to make data-based decisions:** Inadequate, incomplete data does not enable consumers to make more informed choices. For some consumers, access to high-quality and timely data could support changes in behaviour, resulting in improved health outcomes.

These simple examples are replicated across virtually all services. Despite clear evidence showing that people have better health outcomes when data is appropriately shared in a timely manner, logistically this is still problematic and there is no systematic way to ensure that the right people have access to the right data, at the right time. This is true both within the New Zealand health system (e.g. between hospitals in different geographical areas) and between health and social agencies (e.g. between hospitals and NGOs, such as St John Ambulance). This is resulting in unacceptable waste of limited resources (for example, where unnecessary scans are performed because results of previous scans are not available), an ability to increase the productivity of the workforce and potential for significant harm to consumers.

Barriers to collaboration across the health, wider Government and private sectors are hindering innovation in the delivery and management of heath care: Innovation offers the opportunity to change dramatically the way in which health care is delivered over the coming decades. However, the siloed health information landscape constrains the ability for New Zealand to embrace and foster innovation. At present:

- The sector has a limited view of individual level data across the system and information on service utilisation is not clearly linked across services.
- Information from NGOs, national systems and other data sources is not widely used across user groups.
- Continuous improvement is constrained by the lack of a coordinated view across information held in National Collection, DHB and Primary Health Organisation (PHO) systems. This is undermining the achievement of system level measures.
- Anonymised health information to support policy, research and social investment (whilst becoming increasingly available via the Integrated Data Infrastructure[20] is incomplete and not updated regularly and is focused on population (rather than individual) level research.
- The inability to integrate data across health, social and wellness service providers limits the ability to support integrated service models across government, for example supporting delivery of school-based health services.

The fragmented existing health service landscape makes it difficult to scale and promote innovation at the national level. For example, an organisation developing a new tool for use by clinicians may have to integrate with a wide range of national service providers to draw on a disparate range of data sets.

[19] Rinner, C., et al (2015) "Effects of shared Electronic Health Record Systems on Drug-Drug Interaction and Duplication Warning Detection" BioMed Research International 2015: 380497

[20] The Integrated Data Infrastructure is run by Statistics NZ and is a collection of integrated life events data belonging to New Zealanders, gathered from a number of Ministries, surveys and other agencies. It is a receiver of static, moment-in-time data. The Ministry of Health, along with other Government departments, is contributing data to the IDI for the purposes of addressing complex social issues.

Software developers and innovators do not always have access to the data they need (with appropriate access and security controls) to enable ongoing innovation and continuous improvement. This is constraining the sector from developing innovative new care models which take advantage of a range of information collated from multiple sources, hindering access and use of new types of information, and preventing stakeholders from investing, innovating and responding to changing demand and needs.

The health and disability system is also limited in the capability required to develop new digital services. A recent Digital Literacy survey (Ministry of Health – pre-publication[21]) of 1,258 health and disability system workers has identified that the ability to innovate is the biggest skills gap in the use of technology in the sector across those employed in data and digital health roles (average of 4.4/7 vs 3.8/7). This gap grows for those not in digital roles (average of 3.8/7 vs 2.7/7).

When developing health applications, it is difficult to incorporate a consumer's historical health information, as this information is fragmented across the system with limited access channels. If developers wish to incorporate a consumer's historical health information, they must work with individual providers across the country to create bespoke solutions or are reliant on consumers contributing information from their devices or transposing their health records.

Health technology has been identified by MBIE as a key sector for the future of the economy in the 2019 Industry Policy for New Zealand – From the Knowledge Wave to the Digital Age[22]. The Health Research Strategy, on which this assessment is based identifies a lack of interoperable data as a key constraint along with a lack of capability and capacity that comes from not having the data to use.[23]

The lack of integrated information across the system is driving unnecessary rework and duplication for service users and health care staff: Where data cannot be shared, it must be sought and recorded multiple times by multiple users. Poor access to and sharing of information can be irritating and inconvenient (as in the case of consumers being required to provide their address multiple times along their care journey) or potentially hazardous (for example, when key allergy information is not available to a provider such as St Johns Ambulance or in an emergency department setting). Some examples of the impact of poorly integrated/shared information include:

- **Duplicate data entry:** Clinical and administrative staff are frequently required to enter data manually into multiple systems, due to the lack of integration between the systems. This occurs both within organisations where data is not transferred between departments on the consumer's journey, and also between organisations where the consumer journey has multiple touchpoints across the primary and secondary health care sector. Where other organisations are involved (for example, NGOs or social agencies, education, ACC etc.) there is very limited or no data transfer, preventing any re-use of data. This is both hugely wasteful of administrative and clinical time, and potentially dangerous for consumers. The duplicate entry of data introduces unnecessary risk to consumers due to the potential for transcription and omission errors.

[21] mohgovtnz.sharepoint.com/sites/MoHDDCOVID-19Response/Shared%20Documents/Innovation/3%20Digital%20Literacy/DIgital%20Literacy%20Survey

[22] Source: https://www.mbie.govt.nz/business-and-employment/economic-development/industry-policy/ Accessed 15/01/2020

[23] Source: https://www.health.govt.nz/publication/new-zealand-health-research-strategy-2017-2027 Accessed 15/01/2020

- **Inconvenience to consumers and whānau** as a result of the current poor sharing and integration of data between providers (and, sometimes, between departments within the same provider). They must communicate key pieces of their health history multiple times as they engage with health care providers across the system. This is resulting in duplication and time wasted filling in forms, including pre-encounter questionnaires, repeating information, undergoing duplicated and/or inappropriate tests or procedures, and waiting between events. The lack of timely and comprehensive access to consumer history increases the risk of repeat (unnecessary) testing and does not provide context for treatment.

- **Unnecessary duplicate testing:** Medical imaging is frequently repeated for the same consumer within a relatively short period of time, due to the lack of access to previous images. Duplicate testing is a significant contributor to waste, costing the health and disability system millions and wasting limited capacity on unwarranted investigations. This negatively impacts consumers, both those of whom who undergo the repeat testing (wasting their time and exposing them to unnecessary interventions) and those who have to wait for their tests due to backlogs contributed to, in part, by these unrequired tests. Waiting times for procedures could be reduced through more efficient workflow.

  The absence of an integrated or shared record has been shown to be associated with duplicative laboratory and radiology testing, emergency department costs, hospital admissions, poorer public health reporting capability, care coordination and knowledge about consumers[24]. A 2015 American study identified that basic imaging (radiography, ultrasound and mammography) accounted for 85 per cent of the avoidable cases of repeat imaging; CT and MRI accounted for approximately 13 per cent of avoidable procedures but constituted half of the estimated savings.[25] Similar findings in 2014 American[26] and 2016 Canadian[27] studies found that that the ability to access previous images was associated with a reduction of repeat imaging within 90 days of around three per cent and 13 per cent respectively. Whilst shared image repositories in New Zealand have already addressed this to some extent, there are still some potential gains from image sharing where this is not currently achieved.

Investment Objectives

Investment objectives (IOs) describe the anticipated outcomes expected from an investment and are a component of the evaluation criteria used for assessing the potential options. The IOs were originally identified in the 2016 Strategic Assessment for the EHR and described in more detail in the 2017 IBC[28].

At the commencement of the PBC process, the 2017 IOs were revisited and updated to reflect the current thinking, as summarised in the revised Investment Logic Map. The new IOs respond to the re-stated problems and describe the overarching outcomes that are sought from this investment. They are intended to be a refinement of, rather than a radical departure from, the original IOs, which were tested and supported in 2017 by the wider stakeholder group. The updated IOs, below, have been endorsed by the Steering Group and Programme Governance Board.

[24] Hersh, W. R., et al (2015) "Outcomes from Health Information Exchange: Systematic Review and Future Research Needs: JMIR Medical Informatics **3**(4):e39

[25] Jung, H. Y., et al (2015) "Use of Health Information Exchange and Repeat Imaging Costs" J Am Coll Radiol 12(12 pt B): 1364-1370

[26] Vest, J. R., et al (2014) "Health information exchange and the frequency of repeat medical imaging" Am J Manage Care 20(11 Spec No. 17):eSP16-24

[27] Welk, B., et al (2016) "Repeated Diagnostic Imaging Studies in Ontario and the Impact of Health Information Exchange Systems" Health Q 19(1):24-28.

[28] (1) Empower consumers and their carers to become more active in managing their health and wellness by making information accessible to improve the ways in which they engage with health information. (2) Enable better care delivery and decision making by closing current gaps in information at the point of care and promoting avenues for care coordination. (3) Inform policy, investment planning, research, and broader use by providing access to data with appropriate privacy and legal constraints. (4) Enable a national health ecosystem to emerge that accelerates innovation by breaking down information silos and supporting new types of information exchange.

Hira Investment Objectives

By 2026, foundations for a digitally enabled health and disability system with access to and use of trusted health information and services are in place so that:

- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.
- The health and disability system is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.
- Innovation and transformation across the health ecosystem is accelerated.
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing.

The existing arrangements and business needs for each investment objective are summarised in Table 2.

Table 2: Investment Objectives – Existing Arrangements and Business Needs

By 2026, foundations for a digitally enabled health and disability system with secure and trusted access to and use of health information and services are in place so that:	
Investment Objective One	**New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.**

Existing Arrangements	• Data is held in multiple locations, some of which may be known (but inaccessible) and others may be unknown.
	• Obtaining and managing their own information can be difficult or impossible, preventing consumers from engaging effectively in managing their own health.
	• Frequently, consumers are unable to make changes (e.g. change of address) to their own data, resulting in reliance on others to manage their data for them.
	• Growing demand on acute services, due in part to:
	  ○ Lack of engagement in decision-making regarding their own care, which contributes to disengagement and disempowerment, reinforcing the clinical-led model where decisions are made for, not with, the consumer.
	  ○ Low levels of self-management, as data is not accessed or used by consumers to inform their decision making.

Business Needs	• An increase in the transparency on what data is held and where (even when this data is not made accessible by Hira). • Targeted digital literacy initiatives to support consumers to access and understand their health data. Targeting of those who do not have access to necessary and appropriate health information. • Curation of, and signposting to, trusted health services and information. • Access to health information and identification and support of key sector exemplar services to aid service uptake, with a focus on consumer access. • Enhancement of access to information by including information from other sources (including GPs and other primary care, hospital/ED care and other providers). • Ability for consumers to annotate and/or upload additional information and communicate with providers, including in the development of care plans.

Investment Objective Two	**The health and disability system is enabled to improve decision making at the point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voices in decision making.**
Existing Arrangements	• There is a limited view of consumer level data across the system and information on service utilisation is not clearly linked across services. • Advances in big data analytics and population health are not being realised nationally, with only small pockets of good practice. • Costs and difficulties in assembling data are preventing planners and researchers from using data more effectively to improve system effectiveness and address inequities. • At a consumer level, inability to consolidate data is impacting care planning, as decisions are frequently made in the absence of a coherent and complete picture of an individual. • Limited access to information is impacting efficiency and costs, as well as putting consumers at risk (for example, where tests are repeated as results are not known, or medications provided by another provider cannot be seen by a prescriber).
Business Needs	• Timely and comprehensive access to, and use of, health information to reduce the risk of errors, reduce repeat (unnecessary) testing and provide context for treatment. • Reduced costs of searching for, recording, storing and transferring information. • Enhanced reporting, analytics and insights capability to identify existing or emerging health equity issues e.g. Areas of unmet need, areas where access to care is limited.
Investment Objective Three	**Innovation and transformation across the health ecosystem is accelerated.**
Existing Arrangements	• There is poor collaboration across the health, wider Government and private sectors, with limited sharing of data between organisations. • It is difficult/impossible to get a complete view of a consumer, as their data is held in numerous locations in differing formats. Accessing this data is time consuming and onerous, requiring communication with multiple providers. • Inability to access data is constraining innovation and continuous improvement.
Business Needs	• Development of standards. • Establishment of a reusable health identity and consent service. • Data anonymisation and bulk data download services to support data research and innovation activities. • Development of new tools to support health care and wellness services in all settings, including self-management. • Better access to data across the New Zealand market and an increased ability to introduce national solutions at scale for vendors and innovators. • Detailed and accessible longitudinal data to support improved analysis/research and provide the evidence necessary to underpin evidence-based care, leading to improved clinical effectiveness.

Investment Objective Four	Primary care and community-based services are better able to respond to consumer need, and the growth in the use of hospital services is reducing.
Existing Arrangements	• Data sharing with some NGOs is very limited, and sharing between providers, where it happens at all, can be inconsistent and incomplete. • Demand on acute services is growing year on year. The inability to share information (e.g. test results to prevent unnecessary repeat investigation) is contributing to this demand. • Advances in technology and clinical practice are not being maximised, as traditional boundaries continue to constrain innovation and opportunities for change.
Business Needs	• Shared real-time access to comprehensive information and ability to communicate securely to supports integrated care across multiple settings. • Enhanced reporting, analytics and insights capability to identify existing or emerging trends at population level, across regions or specific consumer groups. • A more holistic view of consumer health and wellness, to improve preventative care capabilities. • Additional health information (including alerts/reminders) to support national/regional programmes and local care delivery.

3.3 Programme Scope and Key Service Requirements

The business scope describes the extent of change required for the programme to be considered successful. The service requirements range from minimum (essential to the success of the programme), intermediate (essential and desirable service requirements), and maximum (essential, desirable and aspirational service requirements).

The recommended scope for Hira across the three tranches is Intermediate, as summarised in Table 3, as this achieves the best balance of benefits to costs. The full potential scope is attached as Appendix 4. The programme scope would be reassessed as part of each tranche business case.

Table 3: Scope and Key Service Requirements

Requirements	Summary
Data and digital quality management	Data curation and mitigations for data quality of Hira datasets. Delivery of core business process and technical improvements required for adoption of Hira services[29].
Standards	Define, publish, mandate and support standards for Hira interoperability.
Privacy, security and trust	Consent and delegation services, secure by design Application Programme Interfaces (APIs), security and quality of third-party API environments and users, data protection and use frameworks and monitoring, and audit of data accessed via the solution.

[29] The digitisation of health records is a journey, and in the first instance Hira would afford the opportunity to showcase existing, high quality data sources such as demographics, medicines, entitlements, and general practice data, to enable New Zealanders to better manage their health and wellbeing, and that of their whānau. Hira would also respond to the demand to make new data available across the system, and in doing so would surface any data issues and opportunities for improvements. The Hira programme has identified an operating model that supports continuous feedback and improvement with sector providers. This would enable Hira to identify and support data quality uplift at source. This is in line with the Hira principle of data minimisation that champions leaving data at source.

Requirements	Summary
Enabling services	Creation and management of APIs for identified datasets, establishment and management of API gateway and portal, integration with sector consumer and clinical systems and creation of universal provider and consumer service, bulk data service for approved third parties, identity/access management/consent/delegation services, creation of reusable digital health identity.
Investment and commercial frameworks	Frameworks to support and incentivise use of services delivered by the programme.
Innovation frameworks	Testbed APIs, documentation, certification process and portal for developers.
Legislation, policy and regulation	Legislative, regulatory and policy change (if required to support and incentivise use of services delivered by the programme).
Digital health literacy	Active and passive digital health literacy improvement aligned to programme priorities, access to third party trusted health information sources.
Other	Support for technical and business process change to prioritised sector systems, sponsored data access to Hira consumer and provider services, customer and service management and partner/vendor management for Hira services.

3.4 Key Programme Benefits and Disbenefits

Introduction

"[Hira] would support analysis and research, driving innovation and population management. If specific diseases were targeted (e.g. congestive heart failure, COPD, diabetes, asthma and immunisation) this could, at a system level, impact massively on patient outcomes and system demand."
Health system manager

Hira would deliver direct, quantifiable benefits that provide a compelling return on investment. It would also enable the realisation of future benefits that cannot yet be defined. These future transformational benefits, and the industry and sector investment it incentivises, would far exceed the direct Hira investment proposed. The adoption of Hira services would fundamentally change the ways in which people interact with health services, improving efficiency and minimising risk of harm from poor communication.

Hira takes a person-centred, broader Government approach to wellbeing by integrating information across health, social, education and other sectors in order to address the social determinants of health. It provides a foundation leverageable by the current system and into the future for system and wider Government transformation.

A scenario showing the comparison of current and future state is shown in Figure 8. This is based on the Turei's, a Māori family who usually reside in Auckland. The father, Nikau, has recently had a coronary artery bypass graft and is currently taking a range of medications packed in blister packs to deal with pain, high blood pressure and cholesterol. It has been about a month since the operation and, with Nikau starting to feel better, the family decides to take a short weekend trip to Rotorua to see whānau.

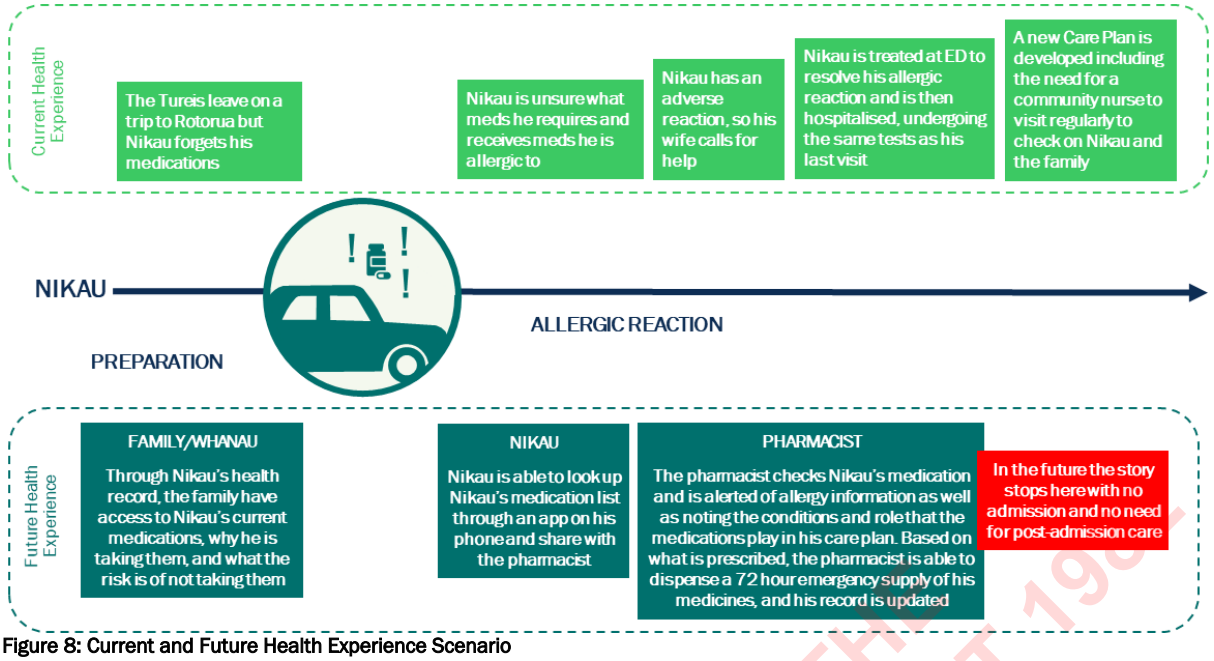


Figure 8: Current and Future Health Experience Scenario

Approach

The Hira programme has developed a Benefits Realisation Management Strategy and Plan.[30] International studies have shown that organisations with high benefits realisation management (BRM) maturity have greater success with their projects and programmes. Hira would strive to meet BRM best practice, guided by national and international best practice and standards. The New Zealand Treasury outlines key expectations and BRM resources that Hira would embrace.

The Hira benefits have been categorised into quantifiable (monetary and non-monetary), unquantifiable, and transformational benefits, based on the current understanding of what Hira would deliver. However, the programme would constantly reassess the expected benefits and actively investigate new benefits, including broader system benefits that partners would help realise. The benefits described are therefore a snapshot in time and would be continually updated as the first tranche is delivered, and further tranches are defined and delivered.

Where benefits have been quantified financially, the savings have been estimated based on findings from other similar initiatives. It is emphasised that the potential savings are not necessarily cash-releasing; that is, whilst Hira may make these savings possible, the organisations to which they accrue may choose to reinvest the time/cost saved into other services. Therefore, the change and adoption model specifically links investment in adoption to realising benefits. This means the financial values presented are indications of the likely scale of the financial benefits arising from this investment. They are therefore excluded from the financial model.

Hira expected benefits have been derived from a combination of the work undertaken for the IBC, analysis of the benefits identified in the sector ILMs, and literature review of local and international comparators. A benefits map showing alignment of programme outputs and benefits is attached as Appendix 5.

A Benefits Register has been developed to support the measurement and reporting of the benefits arising from this investment. The register would be maintained by the programme.

[30] V1.9 25 November 2020.

Living Standards Framework

The Living Standards Framework (LSF) has been developed by Treasury to enhance the quality of its advice about lifting broad living standards. This is expected to be achieved through the use of improved analysis and measurement of intergenerational wellbeing and the support the LSF provides to the Treasury's core economic and fiscal advice processes.

The LSF is a framework on intergenerational wellbeing spanning a broad range of economic, social and environmental outcome domains at a high-level. To support the implementation of the LSF, the Treasury has developed the LSF Dashboard, a structured database of indicators that provide an integrated system for measuring wellbeing outcomes. Together, the LSF and its Dashboard aim to provide a balanced and comprehensive view of wellbeing outcomes suitable for use in the Treasury's policy advice processes.

There are three core elements of the LSF: the current wellbeing domains; the future wellbeing capitals; and risk and resilience.

- **Current wellbeing** is divided into 12 domains (civic engagement and governance, cultural identity, environment, health, housing, income and consumption, jobs and earnings, knowledge and skills, safety, social connections, subjective wellbeing and time use). The domains of current wellbeing reflect wellbeing at a "point in time" and are based on research about what is important for people and their wellbeing.
- **Future wellbeing capitals** are divided into four: natural, financial and physical, human and social. The capitals are the foundations of wellbeing that, together, generate wellbeing now and in the future.
- **Risk and resilience** can be thought of at individual or national levels, but can also be considered at family, whānau and community levels. Risk and resilience relate directly to the capital stocks. The quality and quantity of the capital stocks influence the ability of New Zealand and its people to withstand shocks.

Whilst the expected benefits from Hira are primarily within the Health Domain of the LSF, the investment would also support benefits across the other domains, as health is a key factor in employment, education etc.

Quantified Benefits

Hira would be equity-led and person- and whānau-centred. The programme would prioritise the data and services it delivers based on the benefits that can be identified and realised. Speed to value and the realisation of real, quantifiable benefits are key drivers.

The benefits are expected to start being realised within three years of programme commencement and would expand with the delivery of each successive tranche. The expected timeline for realisation of benefits is attached as Appendix 5.

The realisation of direct benefits, in the short term, relates to the adoption of Hira data and services to improve the current consumer experience and the delivery of healthcare. For example:

- Providing a simple and trusted way to access health data would reduce the fragmentation and duplication of data sharing across the health and disability system, increase cyber security resilience and assist in reducing the complexity of the information technology landscape across the health and disability system.

> *"By empowering whānau to direct information around the consumer needs, we will be able to engage with health providers through a single point of access for data and services."*
> *Consumer representative.*

- Enabling consumers and their carers to become more active in managing their health and wellness would improve their health and wellbeing and reduce the burden on in-person health service delivery models. This would be achieved by making data accessible about their health status and their conditions and by improving the ways in which they engage with health and disability providers, by creating new digital services and functions (e.g. renewing prescriptions).
- Making a person's medicines data accessible at every point of care would reduce medication errors, improve patient safety and health outcomes and reduce costs in avoidable admissions and GP visits.
- Closing the current gaps in information at the point of care, promoting the avenues for care coordination, reducing the level of redundant activity and reducing the rate of medical misadventure would enable better care delivery and decision-making leading to a reduction in the growth in demand on the health and disability system.

> *"When consumers/ patients have access to their own health information, wellbeing is improved, and people take better care of themselves."*
> *Clinical Informatics Leadership Network*

The three main quantifiable benefits which would be realised by Hira are:

- **Improved health outcomes.**
- **Affordable and sustainable health care system.**
- **Improved consumer, family, whānau and staff experience.**

These benefits and some indicative Key Performance Indicators (KPIs) are described in Table 4. Further detail on the benefits and measures, and their alignment with the LSF, is attached as Appendix 6. Note that KPIs and measures are intended to be illustrative of the sorts of benefits that would be realised by Hira. Indicative benefit values are based on national and international examples.

Table 4: Hira Quantified Benefits – Health Domain

Benefit	Benefit and Key Performance Indicators
Health (primary) **Improved health outcomes**	• **Reduced (risk of) errors due to inadequate information at point of care, improving consumer safety.** Timely and comprehensive access to consumer history reduces risk of errors (in particular, adverse drug events, ADE). Fewer errors flow through to better health outcomes. Provider access to comprehensive consumer history is expected to reduce adverse drug events by 8%.

Benefit	Benefit and Key Performance Indicators
Health (primary) **Affordable and sustainable health care system**	• **Reduced (risk of) errors due to inadequate information at point of care, improving consumer safety.** Timely and comprehensive access to consumer history reduces risk of errors (in particular, ADE). Fewer errors flow through to better health outcomes. Reduction in ADE and related hospital bed days could create s 9(2)(b)(ii) • **Reduced duplication and/or inappropriate tests or interventions.** Timely and comprehensive access to patient history reduces repeat (unnecessary) testing and provides context for treatment. Increased appropriateness of diagnostic tests and imaging could reduce costs of duplicate tests and images (less waste) with s 9(2)(b)(ii) • **Improved sharing of information between providers supports care delivery by inter-disciplinary teams.** Shared real-time access to comprehensive information and ability to communicate securely would support integrated care across multiple settings, reducing avoidable hospital admissions/readmissions. Reduced admissions on presenting to ED could result in s 9(2)(b)(ii) • **Consumers can more proactively manage their care and wellness.** Consumers can share information more readily with providers, carers and whānau, enabling more active shared care. Consumers can react more quickly to clinical notifications (more timely response). Better adherence to care plans including medication regimes could lead to s 9(2)(b)(ii) • **Consumers can manage their interactions along the care continuum with multiple providers.** They can receive alerts and reminders to improve attendance and adherence. Consumers would not be sent appointments without reference to their availability. Consumers can plan, book and schedule appointments online leading to s 9(2)(b)(ii)
Health (primary) **Improved consumer, family, whānau and staff experience**	• **Consumers can more easily engage with their providers.** Consumers can reduce travel time, expenses and inconvenience while self-reporting information directly to providers utilising digital tools and services. Remote, or non-attendance, monitoring and consultation is expected to **improve consumer satisfaction by 10%.** • **The clinical[31] workforce is more easily able to access all relevant consumer information.** Clinicians can reduce time searching for patient information and or repeating procedures and orders because information is readily available. Through information being easily accessible, clinicians will have increased consumer-centred time which is expected to **improve clinician satisfaction by 10%.**

Unquantified Benefits

It is anticipated that there would be further benefits from the proposed investment, which cannot easily be quantified but which nevertheless support the case for investment. These are summarised in Table 5.

"There is an immense opportunity for technology to assist with information sharing, gathering of health data and identifying trends in performance that feed back in to whole of system improvements." *NGO*

[31] Clinical workforce is defined as all clinicians providing patient care: doctors, nurses, specialists, nurse practitioners, allied health.

Table 5: Hira Unquantified Benefits

Benefit	Description
Health (primary) **Improved health outcomes**	• **Reduced duplication and/or inappropriate tests or interventions.** Timely and comprehensive access to patient history reduces repeat (unnecessary) testing and provides context for treatment. This would result in fewer unnecessary interventions and improved consumer safety. • **Greater ability to identify and address health equity issues.** Enhanced reporting capability to identify existing or emerging health equity issues e.g. areas of unmet need, areas where where access to care is limited, increased ability to identify and address disparities in health service provision and health outcomes. • **Improved research and innovation in health care.** Detailed and accessible longitudinal data can support improved analysis and research to provide the evidence necessary to underpin evidence-based care, leading to improved clinical effectiveness (e.g. faster updating of care pathways in response to emerging information). • **Improved sharing of information between providers supports care delivery by inter-disciplinary teams.** Shared real-time access to comprehensive information and ability to communicate securely supports integrated care across multiple settings, reducing avoidable hospital admissions/ readmissions and improving team-based care.
Health (primary) **Affordable and sustainable health care system**	• **Improved provider workflow and efficiency gains.** Reducing the time spent on taking patient history and/or following up with other providers frees up provider time to spend focused on patient care. Reduced administration costs of searching for, recording, storing, transferring information. Reduced time spent taking consumer histories and reduced administration leads to savings in administration costs and increases the productivity of the workforce. Reduced delays in care. • **Innovation supported for the digital health sector.** Hira could be leveraged to develop new tools to support health care and wellness services in all settings, including self-management. Vendors and innovators would have better access to the data across the New Zealand market and an increased ability to introduce national solutions at scale. This would result in improved health and wellbeing of consumers through availability of personalised health solutions/apps, greater choice of high-quality systems for providers and enhancements to existing health systems enabled by Hira data and services, as well as greater opportunity for export of NZ digital health innovations. • **Improved visibility of and responsiveness to trends and emerging issues.** Enhanced reporting capability to identify existing or emerging trends at population level, across regions or specific consumer groups, leading to more responsive health care delivery in both short and longer-term. This would support monitoring of outbreaks leading to faster, more effective responses and monitoring of prevalence of long-term conditions leading to better targeting of health funding and service delivery. • **Improved preventive health capability.** Preventive care capabilities are improved through a more holistic view of consumer health and wellness. National/regional programmes and local care delivery are enhanced with additional health information including alerts/reminders.

Benefit	Description
Health (primary) **Improved consumer, family, whānau and staff experience**	• **Staff have easy access to consumer information, increasing capacity for consumer-centred care.** Clinicians being able to easily access, input and share information, along with receiving and requesting referrals, orders, laboratories, and social care seamlessly, would release time for consumer-centred care. This would improve personal and professional job satisfaction, wellness and meaning[32]. • **Reduced duplication and/or inappropriate tests or interventions.** Timely and comprehensive access to patient history would reduce repeat (unnecessary) testing, benefitting consumers who would not have to undergo additional testing with the associated anxiety, potential loss of income through work absence and/or the burden of travel costs. • **Consumers can more proactively manage their care and wellness.** Consumers can share information more readily with providers, carers/whānau, enabling more active shared care. Consumers can react more quickly to clinical notifications. (More timely response). • **Consumers are better informed with timely access to more comprehensive and holistic health and wellness information through Hira services.** Current access to information would be enhanced by including information from other sources (including GPs and other primary care, hospital/ED care and other providers). Consumers can be alerted more quickly to changes in information e.g. results). This would result in increased confidence in providers, improved satisfaction with test result communication and improved satisfaction with patient encounters. • **Consumers can more easily engage with their providers.** Consumers can annotate and/or upload additional information and communicate with providers, including in the development of care plans. Engaging with their providers using secure messaging would lead to better management of long-term conditions.
Jobs and earnings (secondary) **Improved work environment**	**Improved provider workflow and efficiency gains.** Reducing the time spent on taking patient history and/or following up with other providers frees up provider time to focus on patient care. Reduced administration costs of searching for, recording, storing, transferring information. Reduced delays in care.
Knowledge and skills (secondary) **Health literacy**	**Consumers are better informed** with timely access to more comprehensive and holistic health and wellness information through Hira products and services. Current access to information is enhanced by including information from other sources (including GPs and other primary care, hospital/emergency department care and other providers). Consumers can more quickly be alerted to changes in information e.g. results).
Civic engagement &governance (secondary) **Increased trust**	**Increased trust in MoH and digital health services**: Increased confidence in health and disability services due to a more adaptive and responsive service, contributing to increased trust in NZ public service. Through an increased trust and confidence in Hira, other digital health services will gain trust, resulting in improved participation.

[32] Aligning to the MoH 2019 Health & Disability Workforce Strategic Priorities and Action Plan.

Transformational Opportunities

The national innovation ecosystem created by Hira would break down information silos, support new types of information access and use and enable stakeholders to invest, innovate and respond to changing demand and needs. New Zealand companies, in particular, would be able to design and deliver new digital services that benefit New Zealanders and the economy. Hira would ensure that these emergent future benefits and co-investment opportunities can be identified, prioritised and harnessed. Many of these benefits rely on better access to, and use of, data for secondary purposes, e.g. research and analysis, planning etc. For these to be realised, Hira needs to deliver the ability for access to data beyond consumers and providers.

> *"[Hira] will open up access to health information to enable clinical decisions at the point of care, regardless of where you are in the country, AND enable consumers to access their own data. Who knows what will happen from there! The opportunities are endless."*
> *University of Auckland*

Five categories of transformational opportunity have been identified, as summarised in Table 6.

Table 6: Hira Transformational Opportunities and Examples

Category	Examples
Improving security and sustainability	• Prioritising clinical workforce digital literacy competency, capability and confidence through education, training and professional development. • Improving the health and disability system's ability to respond to changing and growing demand, by increasing digital maturity[33] enabling flexibility and reducing the cost of reconfiguring health service delivery. • Simplifying connectivity, by providing a trusted internet connected service and data access point to create an open data ecosystem that can be used by innovators to create new digital services for consumers and health providers. • Supporting a move away from expensive and siloed health-specific solutions, to the use of modern cloud-based platforms and best of breed solutions that do not duplicate data sets or have extensive capability. Value for money for technology investments could be improved, by reducing avoidable costs of maintaining legacy or outdated technologies. • Enabling new digitally enabled service models to alleviate the reliance on expensive in-person delivery models (with an aging and increasingly scarce clinical workforce), prevent unnecessary admissions and readmissions and reduce the length of stay, reduced time and cost (e.g. travel) for consumers. • Support the system to responding to cyber security risk and vulnerabilities and providing the foundations on which the system can innovate and transform operations. • Enabling a move away from legacy technologies (e.g. faxes).

[33] A Digital Health Indicator maturity assessment has been completed which identifies opportunities for Hira to lift digital maturity across the system.

Category	Examples
Ensuring technology supports improved equity	• Improved workforce digital literacy, confidence and capability will enable higher engagement with technological utilisation and functionalities to address equity and the health and disability social determinants. • Access to current technologies, digital decision support tools and real-time processes enables the clinical workforce to design and deliver health and disability services to be equity focussed. • Enabling improved delivery of health services to disadvantaged populations, specifically Māori and Pacific peoples, and those in low socioeconomic groups. Hira would support more proactive data-driven interventions and empower people and their whānau to proactively manage their own health and wellbeing. • Enabling iwi to use data to inform emerging approaches for delivery of health and social care and to provide insights into the health of their people. • Enabling whānau to control (access, contribute and share) their own health data. • Providing insights into how integrated service models, inclusive of the individual and their whānau, carers and health and social service providers, are delivering improved outcomes for disadvantaged communities. • Enabling whānau to control (access, contribute and share) their own health data.
Ensuring consumers and whānau are at the centre of care	• Consumer-centred care would be delivered more efficiently by improving the digital literacy of the clinical workforce and implementing technology which supports care delivery. • Consumers would have an enhanced personalised engagement experience due to ability of clinicians to access consumer entered data. • Enabling consumers to identify themselves and to make better choices based on their preferences, for example being guided to services that match their preferred engagement method and rewarding consumers for making healthy choices. • Allowing consumers to make choices about who they share their data with, for example with their own online communities of interest or with researchers. • Empowering consumers and their families to self-manage, for example allowing people to monitor their own health; update, contribute to, and correct their own health information; better manage their chronic conditions; and consent to their information being shared with their support network. • Enabling more personalised, open and easy-to-use ways of engaging with health and social service providers and delivering new digitally enabled service models through the use of internet connected technologies such as smart phones, home sensors and voice assistants supporting independent living, for those who don't benefit from traditional healthcare methods or models. • Enabling consumers and whānau to contribute data to their own health record, such as data from wearables or home sensors. • Allowing consumers to report their own outcome and experience measures and making those measures visible to other consumers to inform choices and preferences.

Category	Examples
Allowing us to deliver care differently	• Partnering with consumers the clinical workforce is able to design and deliver healthcare that utilises technology and digitally enabled processes to minimise equity, remote, employment and economical barriers for the consumer. • Utilising internet connected devices means that health can be monitored, and care delivered remotely, for example reducing the effort to monitor patients for falls or delivering remote surgery without the need to travel. • Integrating health, social and wellness service delivery and using data effectively across Government, for example sharing immunisations data with education providers and NZ Defence Force recruiters, supporting delivery of school-based health services, greater collaboration and automation on medical certificates, community service cards and disability status for allowances. • Enabling real time analysis of capacity and planned care, e.g. enabling visibility of available neonatal intensive care beds across the country. • Enabling predictive, proactive and preventative approaches to healthcare delivery, for example through the use of genomics to allow the targeting of medicines and to provide real world evidence for the use of new medicines.
Showing us where to improve	• Specialised health digital literacy and data analytics education and professional development allows clinical leaders, health managers and data specialists to maximise artificial intelligence and machine learning for evaluation, predictive and planning purposes. • Leveraging Artificial Intelligence and Machine Learning to allow significant amounts of information to be quickly synthesised (in real time where appropriate) into advice for clinicians to make better treatment choices and for policy makers to design better care models, monitor the results and learn for the next individual or whānau. • Supporting cross Government analysis of population health and wellbeing to inform inter-sectorial policy development, service planning and model of care design and research including supporting the delivery of the New Zealand Health Research Strategy.

Disbenefits

In any change process, there are benefits as well as disbenefits i.e. the known downsides of making the investment. Unlike risks, which may be eliminated, disbenefits cannot be removed completely through programme or project actions. Whilst they may be managed to an extent, they WILL occur if the investment proceeds. Table 7 summarises the main disbenefits identified for the Hira programme.

Table 7: Disbenefits of Hira

Disbenefit	Summary and Management Approach
Time required for co-producing and intensive consultation	An emphasis on co-design and consumer-led development within the programme would mean more intense consultation and engagement is required as part of the programme (compared with a centrally designed and implemented solution). There would be an opportunity cost of not directing this time to other parts of the programme and system. Co-design and consumer-led development has already taken place through across agency consumer consultation. Provider consultation is imperative and would take place as needed throughout the Tranche 1 projects.

Disbenefit	Summary and Management Approach

Increased equity gap in use of digital health services	Due to differences associated with increased age, lower level of educational attainment and lower socioeconomic status, fewer members of hard to reach groups would see benefit from Hira services, leading to an equity gap in accessible digital health resources. Infrastructure issues would not be addressed by Hira.
	Hira would:
	• Focus on change and adoption, robust communications, readiness, training and support services.
	• Partner with other agencies to progress the 2020-2021 Digital Inclusion Action Plan, through the Digital Government Leadership Group of the Digital Government Partnership.
	• Leverage other agency initiatives addressing the digital divide, e.g.:
	  ○ Marae digital connectivity (which aims to help over 300 marae connect to the internet).
	  ○ InternetNZ's action plan for digital inclusion.
	  ○ Aotearoa Wellbeing Commitment.
	  ○ Connected libraries, regional digital hubs, rural connectivity, equitable access at home, getting social housing connected to the internet, ultra-fast broadband, mobile black spot fun, sponsored data and web accessibility.

Increased equity gap in digital health literacy	Some individuals (in particular Māori and Pacific peoples, and those in low socioeconomic groups) experience an equity gap in digital health literacy, which has strong links with health status. Actions to improve digital and health literacy would contribute to minimising the negative impact, but the effect cannot be mitigated completely until digital health literacy for all groups is the same. Broader government work such as the Digital Inclusion Blueprint and health literacy programmes undertaken by the Ministry of Health, will contribute to the mitigation of these disbenefits. Hira will leverage initiatives led by other agencies e.g. • the DIA-led work on increasing the digital skills of individuals and whānau for which the Government has allocated s 9(2)(b)(ii), in 2020/21. The expected outcome is up to 30,000 people will be equipped with foundational digital skills and the confidence to use the internet and digital devices.

Benefits Reporting

The programme would provide reports back to stakeholders, including Cabinet, on benefits realised, at points as agreed with the Central Agencies and Cabinet.

3.5 Key Programme Risks

The key programme risks are recorded in the Programme Risks and Opportunities Register. All risks were assessed for likelihood and impact. Mitigation actions have been identified and a further assessment of the residual risk, post mitigation, has been calculated. The risks assessed as having the highest residual risk impacting the delivery of programme benefits are summarised in Table 8. A summary of the current highest programme risks is attached as Appendix 7.

Table 8: Key Programme Risks

Risk	Risk Management Strategies
If there is a security or privacy breach either within the programme, or in the broader Government/public sector environment, the public may lose confidence in Hira and no longer use or adopt the products and services that it creates.	• Hira standards and designs would help ensure that Hira services are secure and private by design. • Third party involvement in accessing Hira data would be permitted only after an accreditation process and would be reassessed frequently. • The programme has a strong focus on all aspects of Social Licence to mitigate this.
If Iwi groups and other interest groups are not engaged and feel equity concerns are not addressed, it is possible that Hira services may not be adopted by these groups	• The programme would engage with Iwi and other special interest groups to minimise the equity disbenefit. • Engagement with the users throughout the design and development of Hira services would address concerns as they are identified. • The programme has a strong focus on all aspects of Social Licence, specifically Māori data governance to mitigate this.
If the programme is unable to recruit or retain the capability required to deliver and support the Hira programme, then products and services would not be delivered in the planned timeframe and benefits realisation would be impacted.	• Dedicated workstream leads would be recruited with shared accountability for programme deliverables. • A Resource Manager would be onboarded during programme establishment, to define the capability and resource management plan. • Staff would be retrained into new roles and supported through the transition of operating models if capability gaps are identified. • The Data & Digital COVID-19 response has meant that the Ministry has employed resources with skills complimentary to those required for the delivery of Hira. These resources would be redeployed to support the delivery of Hira Products and Services.
If the Hira programme is not aligned with the Transition Unit for the Health and Disability System Review, then there could be issues around completeness of scope, timing of delivery and a lack of a cohesive approach.	• Conversations are held with the HDSR team as appropriate to inform them of the scope of Hira and to provide general updates on scope and timing.

The programme recognises that it would have an impact on the sector, and that this may pose a risk to some businesses/providers of services that would be changed fundamentally by the new paradigm. The potential impact of each project on sector solutions would be assessed as part of the tranche development, with appropriate change management plans being developed to respond as required. The programme would engage with sector vendors and providers to investigate opportunities to adapt and evolve in the new ecosystem where Hira is providing new services.

3.6 Key Constraints, Dependencies and Assumptions

Programme Constraints

The proposal is subject to constraints (limitations imposed on this investment proposal from the outset). The key Hira programme constraints are summarised in Table 9.

Table 9: Key Programme Constraints

Constraints	Notes
Financial and human resource to support delivery of the preferred way forward	Funding availability would influence the timing and extent of delivery for each tranche. The programme would be operating in a constrained fiscal environment with multiple demands on limited Crown funding. Resource would be required to deliver the programme. This includes suppliers[34], programme and project management (including Agile expertise[35]), specialist expertise such as architecture, design, healthcare standards development and clinical governance, stakeholder engagement, change and adoption etc.) The programme would be competing with other large-scale IT projects and programmes across health and other sectors, with skilled resource in demand and therefore limited.
Data availability and maturity of source systems across the sector to populate and support the preferred way forward	The quality and usefulness of Hira services is dependent on the quality of the data that feeds into it. This includes its completeness, uniqueness, timeliness, validity, accuracy, and consistency. Significant challenges exist across the national health IT landscape regarding the availability, quality, and standardisation of data across New Zealand. These would be accommodated by the programme design and timing and addressed by the programme where required.
Social Licence and public trust in the solution	Successful implementation relies on public (including consumer and clinician) confidence in the system and how data is being used. When people trust that their data will be used as agreed and accept that enough value would be created, they are likely to be more comfortable with its use.
Legal limitations in the use of health information	Health providers may share personal health information only where permitted by the Privacy Act 1993 and Health Information Privacy Code (HIPC) 1994 or by an Approved Information Sharing Agreement or other legislation that permits or requires the disclosure of personal health information. Hira would monitor and respond to any changes in the Privacy Act.

[34] Initial market scanning indicates that there are suppliers in the market with the capacity and capability to deliver the required solutions. This would be further tested for the specific elements within each tranche, as part of planning each tranche.

[35] A number of programmes/projects across Government have been recruiting programme and project managers with expertise in Agile methodology. As the Hira approach is a hybrid model (i.e. not fully Agile), sourcing sufficient resource with adequate Agile expertise is assessed as being achievable. The risk is captured in the risk and opportunities register and would be monitored alongside other constrained resources.

Programme Dependencies

Dependencies are external influences. i.e. actions or developments outside the scope of the programme, upon which success is dependent. In line with the Hira programme methodology,[36] three types of dependency have been identified:

- **Intra dependencies:** those that can be managed at the boundary of an individual programme.
- **Inter dependencies:** those that can be managed beyond the programme boundary and into other programmes.
- **Extra dependencies**: those that extend beyond the boundaries of all the programmes into other parts of the organisation.

The broad scope of the Programme requires that this strategy focuses on the tracking and monitoring of the identified **Intra** programme dependencies. The Programme will maintain visibility of **Inter** dependencies and **Extra** dependencies, to enable proactive monitoring leading to prompt action where necessary by logging these within the Programme Schedule.

The three key interdependencies identified by the Hira programme are summarised in Table 10.

Table 10: Key Hira Inter Dependencies

Dependency	Date Required
The Integration Programme underway within the Ministry of Health Data & Digital team is delivering a number of Fast Healthcare Interoperability Resources (**FHIR) compliant APIs** that the Hira programme will use to link to key data held within wider health sector systems.	30/09/2021
The National Immunisations register will build a new **Immunisations database** that the Hira programme will access via API's and present through the Consumer and Provider digital channels.	30/06/2022
As part of the Enabler's activity within the COVID-19 response, the Identity project will develop the **minimum viable product for a reusable digital identity** that Hira programme would use for the Consumer and Provider digital channels.	30/06/2021

Identification of **extra** dependencies is difficult to identify pending the finalisation of budgets in FY2021/22; however, the Hira programme team is aware that the Department of Internal Affairs is carrying out work in the area of Digital Identity. The Enterprise architects within the Ministry of Health are working with their counterparts within the Department of Internal Affairs to manage any dependency that may emerge.

There are a number of related activities which would be progressing in the same timeframe. These include major DHB clinical and health data investments, for example: Auckland DHB Patient Administration System, Northland DHB Regional Collaborative Community Care, Bay of Plenty DHB and Hauora Tairawhiti DHBs Midland Clinical Portal deployments, Mental Health and Addictions work programme, modernisation of the Ministry's identity services, implementation of new integration capability within the Ministry, and Department of Internal Affairs Digital Identity Programme.

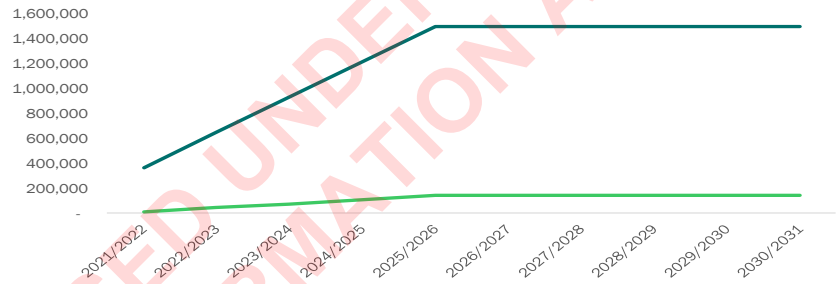
Given the ongoing investment in the sector and the potential for overlapping or conflicting investment, all such investment should be reviewed and coordinated. Whilst there is no single body with oversight of all sector investment, this is currently managed through the Digital Investment Board and the Capital Investment Committee. It is expected that, over time, the Ministry would further strengthen it's understanding of, and guidance to, sector investment in the ICT space.

[36] Managing Successful Programmes (MSP).

Programme Assumptions

The key programme (non-financial[37]) assumptions are summarised in Table 11. The programme assumptions are assumed to be true but are not proven.

Table 11: Key Programme Assumptions

Assumptions	Notes
Strategic context	No material changes in Government or Ministry policy or New Zealand legislation, that would impact the programme's ability to share and utilise data as envisaged.
Procurement	The Government Procurement Rules can be successfully applied to this type of delivery model.
Population	No material changes to population as a result of significant change to immigration policy or population demographics.
Technology	The IT capability exists or can be developed to meet the programme needs, within the anticipated programme resources and timeframe.
Consumer and provider demand	There is consumer and provider demand for Hira services. Expectations for access to data continue to rise over time in line with expectations for other sectors. Assumed cumulative consumer and provider uptake is shown in Figure 9.  **Figure 9: Consumer/Provider Uptake (Cumulative)**
Market/sector response to problems	The market/sector is not addressing the problems identified in a national and equitable manner.

3.7 Strategic Alignment

Policy Alignment

The proposed investment has not been developed in response to a single specific strategy, but rather responds to the needs identified in a number of local, regional and national strategies. As described in the IBC, there are a number of population and health strategies that provide specific directions for population groups or health conditions, which would inform the design and development of the recommended solution. These include the New Zealand Health Strategy, the New Zealand Disability Strategy, Healthy Ageing Strategy 2016, He Korowai Oranga: The Māori Health Strategy, 'Ala Mo'ui: Pathways to Pacific Health and Wellbeing, Whānau Ora, He Ara Oranga: Report of the Government Inquiry into Mental Health and Addiction, and the Pharmacy Action Plan 2016 to 2020.

Collectively, these strategies and approaches all highlight the need for a solution to enable the reliable and consistent collection and sharing of health and wellness information.

[37] Key financial assumptions are attached as Appendix 16.

The IBC also described the alignment of the proposed initiative with digital and IT strategies, including the Vision for Health Technology and draft Digital Health Strategy. As the alignment for these and the wider health strategies was detailed in the IBC, the analysis is not repeated here.

Since the completion of the IBC, further initiatives and strategies have been developed, with which the proposed initiative would align, and which have informed this business case. These are summarised in Table 12.

Table 12: Hira Strategic Alignment

Strategy	Alignment
Digital Health Strategic Framework (DHSF)	This investment would deliver critical Enablers, and support the creation of the Digital Environment, defined in the DHSF. It aligns to the Strategic Objectives defined in the DHSF.
COVID-19 Technology Principles	Hira would align with the DHSF strategic framework by building an interoperable ecosystem. It would support the four Cabinet Principles (Public Health Efficacy, Respect for Privacy, Freedom of Movement and Technical feasibility & data access) by enabling a more responsive public heath response, building trust with communities, supporting a recovering economy and developing solutions that can scale quickly and work together. The delivery approach would achieve value for money, create reusable assets and deliver capacity and capability.
Strategy for a Digital Public Service	This investment aligns to the Strategy for a Digital Public Service Outcomes and Focus Areas, Foundations and Investment initiatives.
Data Protection and Use Policy (DPUP)	This initiative would adapt and implement DPUP in a health context.
Information Systems Strategic Plan (ISSP)	This investment is the foundation component of the Delivering strategic digital services and platforms workstream in the Ministry ISSP.
Ministry of Health Strategic Portfolio 2020-21	The strategic portfolio contributes to achieving Tā Tātou Rautaki, Our Strategy. Hira would align with Focus Area 7: Deliver a modern digitally-enabled health system. This requires the development of strategic data and digital enablers to lay the groundwork for the health information platform.
Ministry of Health Business Plan 2019/20	Hira would support the achievement of Organisational Capability 4: Ensure data insights and evidence drive our decisions.
All of Government Data Strategy and Roadmap for New Zealand	This initiative would adapt and implement the Data Strategy and Roadmap in a health context.
Digital Inclusion Blueprint	This initiative would adapt and implement the Digital Inclusion Blueprint in a health context.
Health and Disability Systems Outcomes Framework	This investment aligns with the high-level outcomes described in the Health and Disability System Outcomes Framework.
Living Standards Framework	This investment aligns with the Living Standards Framework, which identifies 12 domains for current wellbeing, including Health – our mental and physical health. This investment is expected to contribute to current wellbeing and in the longer term, support improvements in the indicators of future wellbeing by investing in improving the health and wellbeing of New Zealanders.

Alignment with Other Investment

Hira would deliver new capability and would build on and complement the investments made to date in the sector and by Government. Other initiatives that require or leverage technology and data capability in the sector would benefit from this initiative, for example:

- Transforming Mental Health and Addiction Services.
- Wai 2575 Health Services and Outcomes Kaupapa Inquiry.
- Cancer Action Plan.
- Support for carers of older people with complex conditions.
- Smart Start.

Hira would combine, transform and make key data that is currently available to limited users available to all trusted stakeholders. It would not fund desirable changes to the source of data or information but would leverage complementary future investments (as well as guiding and informing the scope of those other investments).

3.8 Stakeholder Engagement and Communication

Stakeholder Analysis

Key internal and external stakeholders were identified and analysed for their level of influence (the degree to which they could positively or negatively influence the development and implementation of the programme) and level of impact (the degree to which their business activities would be required to change as a result of the programme).

Key stakeholders have been identified as those who would be impacted by the delivery of the programme (including Ministry technology and non-technology business units, technology suppliers and some small providers in the health system) and those who would be impacted by the use of the services. The latter is a much wider group and may expand over time, if or when Hira develops beyond the current envisaged boundaries. The key stakeholder groups for Hira are summarised in Table 13.

Table 13: Hira Stakeholder Groups

Consumers: The New Zealand public. Hira expects consumers, whānau and support networks to require direct support and education about Hira services.
Policy makers and Planners: Includes health and non-health services organisations and those who use data in the health system to plan and deliver services. Methods, breadth and quality of service would change for this group.
Providers: This group includes health professionals and other health workers in the New Zealand health and disability system. Of priority to the programme are those who do not have ready access to health information.
Innovators and Researchers: Includes people who want to use data and services in unconventional ways or to identify and prove how services might be delivered differently or more effectively.

A more detailed analysis of stakeholders, with their level of influence and impact indicated, is attached as Appendix 8.

Communications and Stakeholder Engagement Approach

A Communications and Stakeholder Engagement Approach has been developed and would be refined and implemented (subject to approval of this business case). It describes the communication principles and objectives, key messages, channels and tools, activity plan, roles and responsibilities and resourcing. A high-level summary of the Approach is attached as Appendix 9.

For the programme to achieve the successful implementation of services and uptake, it must communicate and engage effectively with all stakeholders. This would be not only (or even mainly) about the technology, but about the approach, the context and the inevitable trade-offs that are implicit in a prioritisation process. The degree of communication and engagement would grow and change as the programme develops. The Hira engagement approach is depicted in Figure 10.

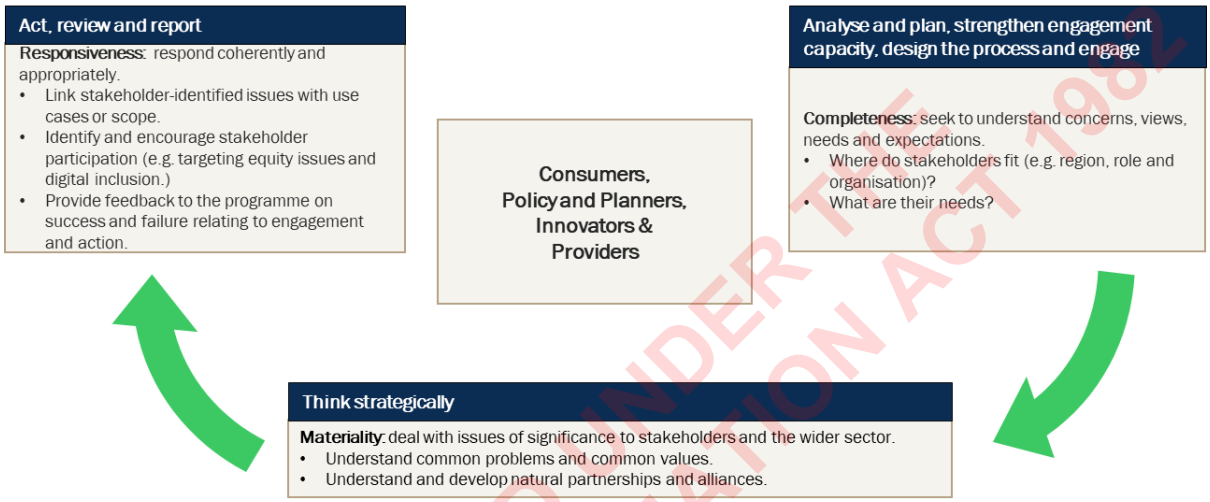


Figure 10: Stakeholder Engagement Approach

The programme communication and engagement phases to date are summarised in Table 14.

Table 14: Communication and Engagement Phases – To Date

Phase	Focusing on	Activity
Historical 2015-17	• Single Electronic Health Record proposal • Traditional IT project	Government agencies and machinery of Government. Sector consultation on concept and user needs and expectations. Use of multiple channels. Market engagement.
Reset 2019 to December 2020	• Building on what exists • Agile and Cloud-based • Adaptive and collaborative • Developing case for investment • Initial Proofs of Concept[38] (POCs)	Government agencies and machinery of Government. Sector consultation on delivery approach and business cases. Use of multiple engagement channels, most significantly Digital Investment Board (DIB), DHB Digital leadership forum, NZHIT, consumer fora presentations at the Health Informatics New Zealand (HINZ) conference, e-health NewsLive webinar, podcast interview, updates to the DHB Chief Information Officers and other direct points of engagement.

[38] Development of evidence and learning relating to the identification and testing of new business and technology concepts to support the delivery of Hira services.

One of the key philosophies that underpins Hira is that it is a whole-of-sector programme. Whilst the Ministry is the lead agency charged with delivering Hira, other agencies would be encouraged, and in some cases incentivised, to use it. These agencies include healthcare and disability service providers as well as innovators, disruptors, suppliers, consumers and, potentially, other Government agencies. For this new ecosystem to become established it is essential that the principles of engagement, co-design and co-creation are adopted from the start.

Key stakeholders have been engaged in the development of this initiative, from the initial work undertaken in 2016/17 through the more recent engagement in support of the development of this business case. This engagement has included workshops, hui, sector presentations and smaller discussion forums as well as individual meetings with some key individuals. There has been considerable engagement with DHBs and other providers in the sector, as well as central Government agencies including Treasury, GCDO, DPMC, ACC, the Social Investment Agency, Privacy Commissioner and Ministry of Education.

A Sector Advisory Panel (SAP) was established in June 2019, to provide input and guidance to the programme. As a result of the Ministry's response to COVID-19, a new forum (the Digital Enablement Oversight Group) has replaced SAP, to reflect a broader system and strategy perspective. The Oversight Group has broad Ministry, Māori Health, primary and secondary care expertise, medical, nursing and allied health professional experience represented in the membership. The DIB, established in October 2019, has the Hira programme as a priority and regularly receives programme updates.

Engagement at this stage has been aimed at ensuring the programme business case is developed with the buy-in of key representatives of the sector and other relevant Government agencies. Engagement activities have been focused on raising awareness of the proposed initiative and revised direction amongst key stakeholders and helping to develop the information needed to prepare this business case. This engagement has centred on identifying consumer and user benefits, understanding the scope and phasing of each delivery tranche, building stakeholder buy in and anticipated challenges (for providers in particular) of implementing the changes required to deliver the initiative.

A high-level summary of the 2019/20 reset engagement activities is summarised in Table 15.

Table 15: Engagement with Stakeholder Groups – Reset Activities 2019

Engagement	Purpose
Policy / Planners • Health and Disability Intelligence Group • Treasury • Department of Internal Affairs (DIA)/ Government Chief Digital Officer (GCDO) • Health Information Standards Organisation (HISO) • Digital Investment Board (DIB) • Ministry of Education • Social Investment Agency • Ministry of Social Development (MSD) • New Zealand Government Property and Procurement (NZGPP) • Accident Compensation Corporation (ACC) • SNOMED (Systematized Nomenclature of Medicine) body • Inland Revenue Department (IRD) • Office of the Privacy Commissioner	For **central agency reviewers**, engagement focused on: • Initiative purpose and intent • Programme delivery approach, timing and funding • Data security For **potential partners**, engagement focused on: • Understanding the potential value of sharing data across agencies • Potential approaches and challenges in the sharing of information • Prioritisation of projects • Programme dependencies

Engagement	Purpose
Providers • Association of Salaried Medical Specialists (ASMS) Joint Consultative Committee • National Chief Digital Officers (GDO)/Chief Information Officers (CIO) • Primary Health Organisation (PHO) CIOs • Patients First • DHB CIOs • Nurse Maude • Laura Fergusson Trust	To understand from a provider perspective: • The key challenges anticipated with moving to an environment with increased data sharing • Dependencies, timing and impacts • Concerns about data sharing (privacy, security etc)
Innovators • New Zealand Health IT (NZHIT) member workshops • Health Promotion Agency • HiNZ	To explore with providers and innovators: • Where opportunities are arising or may arise in the programme timeframe • The challenges innovators are finding with working with the health sector/health data to create new opportunities
Consumers • Canterbury DHB/Consumer Council • West Coast Consumer Council • Health Quality Safety Commission Consumer Council • West Coast Consumer Council • DHB Regional CIOs, National Chief Executive Officers (CEOs)	To understand from a consumer perspective: • What value the programme may deliver • Areas that would add the most value and that therefore consumers would like to see prioritised • Concerns about data sharing (privacy, security etc)

Already, the programme has been significantly influenced in its basic design approach through consultation with key stakeholders, including consumers, clinicians, health providers, planners and researchers, digital service suppliers, and sector experts. More detailed communication would be undertaken following business case approval.

Stakeholder Support

The proposed initiative is a priority for the Ministry and has strong support from the wider health and disability system. A letter of support from the National Digital Leadership Forum is attached as Appendix 10.

The initiative also has support from other Government agencies who would benefit from access to, or sharing of, the data that would be surfaced by Hira. Early engagement with other agencies has identified potential cross-sector benefits which would be realised by Hira.

> *"This is a huge opportunity to enable safer, more effective, more efficient facility and healthcare provider agnostic healthcare to all New Zealanders." GP*

The involved agencies/Ministries include:

- **Department of Internal Affairs:** To ensure alignment, where appropriate, with all-of-Government common capabilities and guidance and provision of health-related capability into life event services (e.g. Smart Start, and end of life).
- **Health system organisations (including District Health Boards):** The Ministry is leading the development of the business case in collaboration with multiple health organisations.

- **ACC:** To ensure alignment of technology and information access and use capabilities and to integrate consumer services.
- **Ministry of Education, Ministry of Social Development**: Collaborating with social agencies to align information access and use capabilities and to integrate consumer services (e.g. community services card eligibility).
- **Statistics NZ:** This initiative would implement the Social Investment Agency's Data Protection and Use Policy, Māori data governance, and social licence processes.
- **MBIE**: To align investments, where appropriate, with wider Government innovation and economic development activities.

As each tranche is developed, the programme would continue to engage with internal and external stakeholders to refine the benefits expected to be realised from the investment. At this early stage in programme definition, the detail of what would and would not be funded in each project is still being defined. On a tranche by tranche basis, the programme would work with stakeholders to identify cost and change impacts across the sector, and more specific statements of support would be sought from stakeholders. Sector affordability is discussed in Section 6.3.

4 Economic Case

4.1 Determining the Programme Preferred Way Forward

Approach

The shortlisted options identified in the IBC have been re-evaluated to determine the recommended preferred way forward. The assessment of the options undertaken for this programme business case is driven by two key changes since the development of the IBC:

- The programme evaluation criteria have been updated, to align with the revised problem and benefits definition as agreed by key stakeholders.
- A revised approach for programme delivery has been identified, which would achieve the programme goals at lower risk compared with the approach anticipated in the IBC.

Based on the analysis, a recommended preferred way forward for the programme has been identified. The proposed tranches, commercial approach, costs and management approach reflect this recommended approach.

Revision of Programme Evaluation Criteria

Two sets of evaluation criteria have been defined for the programme, Critical Success Factors (CSFs) and programme Investment Objectives (IOs). The revised investment objectives build on those developed for the IBC and have been revised to address the updated problem statements and expected benefits.

- **Critical Success Factors:** The broad programme CSFs (attributes essential to successful delivery of the proposal) are as per Treasury Better Business Case guidance. These generic CSFs have been refined with proposal-specific criteria, updated for this PBC. This analysis is attached as Appendix 11.

Hira Critical Success Factors

- **Strategic fit and business needs**: How well the option meets the agreed investment objectives, related business needs and service requirements, and integrates with other strategies, programmes and projects
- **Potential Value for Money**: How well the option optimises value for money (i.e. the optimal mix of potential benefits, costs and risks).
- **Supplier capacity and capability within timeframe**: How well the option matches the ability of potential suppliers to deliver the required services and is likely to result in a sustainable arrangement that optimises value for money.
- **Potential affordability**: How well the option can be met from likely available funding and matches other funding constraints.
- **Potential achievability**: How well the option is likely to be delivered, given the organisation's ability to respond to the changes required and match to the level of available skills required for successful delivery.

- **Investment Objectives:** As described in Section 3.2, the programme IOs were updated in 2019 to respond to the revised programme problem statements and benefits as stated in the consolidated ILM. The revised IOs state the overall programme goals and allow evaluation of both the programme options and the elements within the preferred programme option.

Hira Investment Objectives

By 2026, foundations for a digitally enabled health and disability system with access to and use of trusted health information and services are in place so that:

- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.
- The health and disability system is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.
- Innovation and transformation across the health ecosystem is accelerated.
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing.

4.2 Programme Approach

Programme Options

The 2017 IBC for the EHR determined four shortlisted options: Option 1: Do Minimum, Option 2: Central Health Platform, Option 3a: Gateway (single EHR), and Option 3b: Gateway (single EHR), commencing with health.

The evaluation of the shortlisted options at that time concluded that Options 3a or 3b were the preferred way forward. The distinction between Gateway 3a and 3b is largely an implementation one, with both approaches resulting in the collection of key consumer information from service providers over time. Option 3b is a lower risk but slower approach, offering greater control with risk management and delegation.

In 2017, the IBC analysis assumed the delivery approach would be via a single EHR. Since 2017, both technology and thinking have progressed. Advances in technology now enable dynamic access to health information from many sources, without the need to aggregate it into a single EHR. This alternative approach is referred to as a national health information platform, Hira. The revised programme options are summarised in Table 16.

Table 16: Summary of Programme Options

Option		Summary Description
1	Do Minimum	Progress in the current manner with solutions across New Zealand, but drive alignment through an emphasis on standards, consistency and controls that support local/regional objectives.
2	Central Health Platform	Create a closed platform with health data. Enable access to national health datasets/services in a controlled manner, supporting both information sharing and interactions across the health and disability system.
3a	Gateway (single EHR)	Aggregated data, delivery in a traditional waterfall approach. • Build a gateway with health, wellness and social data (accelerated approach) to create a single electronic health record. Gateway to a national digital health ecosystem to be built on an open architecture of shared health, social and wellness data and services, standards and promoting innovations that respond to evolving health and wellness needs.

Option		Summary Description
3b	Gateway, (single EHR) commencing with health	Aggregated data, delivery in a traditional waterfall approach. • Build a gateway with health, wellness and social data but start with health (considered approach) to create a single electronic health record. Gateway to a national health ecosystem to be built, commencing by creating a health gateway (with Option 2 data) with flexibility to scale into wellness data at a later date. • Whilst not as comprehensive as Option 3a initially, this option would expand over time.
4	Hira	Brings together data from multiple existing sources, rather than creating a single electronic health record, to enable the digital health ecosystem. • Comprises a wide range of deliverables across technical and non-technical domains, including digital and data services. • No centralisation of infrastructure and data, except for delivery of core enabling services. • Use of modern international healthcare data exchange standards to enable the sharing of healthcare data.

Assessment of Programme Options

The programme options were assessed against the programme IOs and CSFs in order to determine the recommended programme approach. This analysis is summarised in Table 17 and the analysis undertaken is further detailed in Appendix 11.

Table 17: Programme Options Analysis Summary

Option		Summary Analysis
1	Do Minimum	• **Pros:** Relatively straightforward to implement. Meets CSFs for supplier capacity, achievability and affordability. • **Cons:** Whilst in principle, enforcement of standards supports openness, in practice it does little because of the high cost of establishing point to point solutions. Does not meet CSFs for innovation or shift of demand to primary/community care.
2	Platform	• **Pros:** Provides core infrastructure supporting interoperability. Moderate alignment with IOs. Good alignment with CSFs. • **Cons:** Provides a basis for openness to solutions but is controlled centrally at the application/service level. Restricted to health sector data.
3a	Gateway (single EHR)	• **Pros:** Provides openness to solutions controlled at the permissions and security level. Open to health, wellness and relevant social sector data. Very good alignment with IOs. Aligned with strategic fit and value for money, moderately well aligned with supplier capacity and affordability. • **Cons:** International evidence shows that there are significant challenges with implementing an EHR approach. More expensive and higher risk than 3b due to increased complexity and security/access implications for consumers and providers. Assessed as being only moderately achievable. An initially open platform would be higher risk.

Option		Summary Analysis
3b	Gateway (single EHR), commencing with health	• **Pros:** as per 3a but implemented over a longer time period and therefore scores more highly on the achievability IO. Provides a limited solution initially to help substantiate delivery capability and seek initial benefits. Allows some of the issues and challenges of openness to be managed. Add risk management and consent/delegation. Helps spread the cost over a longer period. Meets the IOs but scores lower than 3a due to the delay in delivering benefits. • **Cons:** Longer timeframe compared to 3a means that benefits realisation would be slower.
4	Hira	• **Pros:** Provides a limited solution initially to help substantiate delivery capability and seek initial benefits. Allows some of the issues and challenges of openness to be managed. Add risk management and consent/delegation. Helps spread the cost over a longer period. Very good alignment with the IOs and CSFs. Would enable health information to be made available to those who need it, when and where needed (subject to appropriate security and privacy considerations). Avoids challenges and complexities of creating a single EHR. More flexible approach would allow the use of health information to more readily evolve and adapt over time, in response to changing needs. Would not require replacement of existing investments and therefore complements existing electronic medical record systems and data repositories in the sector, including both public and private (e.g. GP) systems, by linking to these and making information available to others in the system. • **Cons:** Longer timeframe compared to 3a means that benefits realisation could be slower and therefore early benefits realisation needs to be prioritised to prove value. Reliant on multiple sources (as data remains at source) rather than aggregated into a single central repository.

Economic Assessment of Programme Options

The most recent cost estimates for the programme options are summarised in Table 18.

Table 18: Summary Financial Impact

Option	Cost over 10 Years, $m
Option 1: Do Minimum	s 9(2)(b)(ii)
Option 2: Central Health Platform	
Option 3a: Gateway	
Option 3b: Gateway, commencing with health	
Option 4: Hira	

Multi-Criteria Analysis of the options was undertaken. The raw score are high level indications of the relativity between the base case and the other options, i.e. they are not scientific measurements. Based on the assessment, the weighted overall scores for options 2, 3a/b and 4 are significantly greater than the base case, which does not meet the investment objectives and scores lowest against the programme critical success factors.

Options 3a and 4 score more highly than options 2 and 3b, as they better meet the investment objectives and critical success factors. Option 4 is preferred to option 3a, as it has lower costs over the ten-year modelled period and was assessed as being significantly more achievable and would deliver greater financial benefit. The MCA analysis is summarised in Table 19 and the more detailed analysis is attached as Appendix 12[39].

Table 19: MCA Summary Analysis

	Option 1: Do Minimum	Option 2: Central Health Platform	Option 3a: Gateway	Option 3b: Gateway, start with Health	Option 4: Hira
Criteria 1: Investment Objectives (weighting 35%)	2.0	4.6	7.6	6.0	7.6
Criteria 2: Net Present Value (weighting 25%)	0.0	5.9	9.8	7.4	10.0
Criteria 3: CSFs (weighting 40%)	7.6	8.0	7.8	8.0	9.4
Overall Weighted Score (out of 10)	**3.7**	**6.3**	**8.2**	**7.1**	**8.9**
Preferred option					✓

Quantitative Risk Analysis

No Quantitative Risk Analysis was undertaken at a programme level, as agreed with the Central Agencies.

Preferred Way Forward

On the basis of the analysis described above, **Option 4: Hira** has been identified as the preferred way forward. This approach would enable health information from multiple sources to be available to those who need it, when and where it is needed (subject to appropriate security and privacy considerations). It is founded on the notion of information sharing and would have the ability to assemble a virtual electronic record on an "as required" basis and make it available to different end users, including clinicians, service users, citizens, planners and policy makers.

Hira would build on the investments made to date in the sector and by Government. It would complement the existing electronic medical record systems and aggregated data sources in the sector (including Ministry, regions, DHBs and Primary Health Organisations, GPs etc) and Government (such as community services card entitlements), by linking to these and making information accessible to others. This investment would deliver both technology and other artefacts (such as standards and protocols, security controls and commercial frameworks) which would inform the overall programme.

[39] The analysis in Table 19 includes the estimated financial benefit. Excluding the financial benefit, Option 4 still has the highest Overall Weighted Score, although the NPV is negative. Excluding benefits, whilst Option 1 has the best NPV as the cost of this option is minimal it would not be recommended as it does not deliver benefits.

Hira would also contribute to broader Government data and digital health priorities, such as the work on privacy, human rights and ethics; data protection and use; digital inclusion; Māori data governance; digital rights; and support the growing digital economy. It would deliver a series of health system enablers that can be leveraged by all, including commercial agreements, standards and governance and management frameworks. This initiative would include investment across the Government Chief Digital Officer (GCDO) investment categories of service delivery, information and data services, digital enablers and infrastructure, and specialist services.

Hira Approach

Hira would be a wide-ranging programme which includes the development of digital products and services to enable real-time access to an individual's data, throughout the healthcare system. The programme would fulfil the role of systems integrator (i.e. it would be the entity that brings together component subsystems into a whole and ensures that those subsystems function together), but anticipates having strong delivery partners, particularly in the initial tranches.

Hira is intended to transform access to, and use of, information across the health and disability system. It has the potential to improve equitable health outcomes and experience of care, and to enable transformed models of care by promoting collaboration and innovation.

An example of the current and future state is depicted in Figure 11.

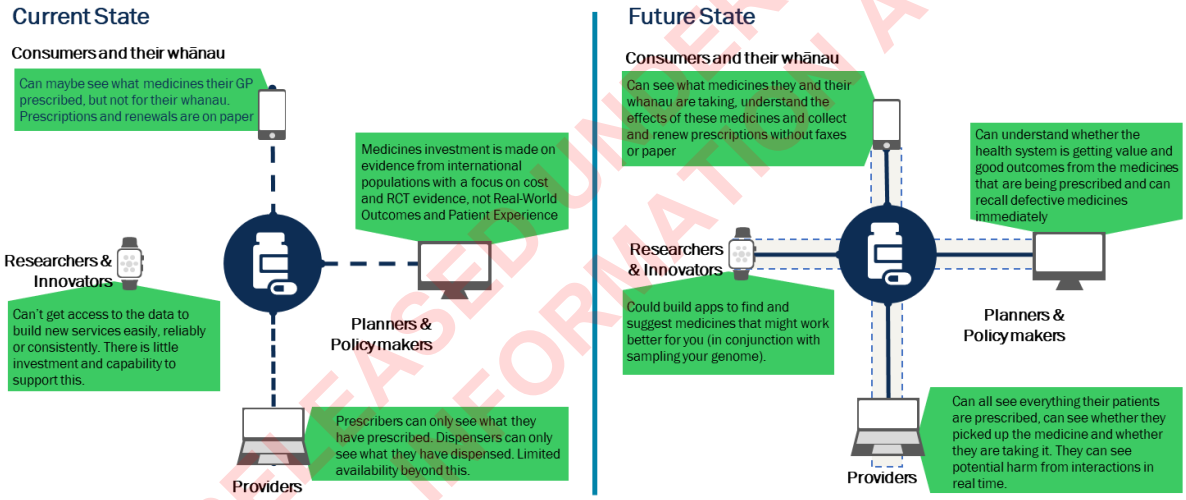


Figure 11: Hira Current and Future State – Medicines Example

The recommended approach for Hira is summarised in Table 20. The programme architecture is summarised in Appendix 13.

Table 20: Hira Dimensions and Selected Approach

Dimension	Selected Approach
Implementation	Multiple investment tranches, over five years.
Service Delivery	Partnership between MoH / health sector / wider Government.
Delivery Management	Focus on enabling the system, design and develop when market gap may lead to equity issues and need to run Proof of Concept (POC)/Pilot.
Funding	Co-investment between Ministry/Crown and Sector.

Dimension	Selected Approach
Service Solution	**Data domains** All information (including consumer generated data) made available through open standards.
	Data Structure and History Structured, codified, curated data and unstructured data with meta data.
	Primary Service Users Connect consumers, providers and innovators across the health and disability system.
	Secondary Service Users Secondary use of national data is enabled only for health care providers, innovators, policy and service planners, researchers and New Zealand Government agencies.
	Participation Universal provider access. Implied consent on existing data sources, consumer consent for new data sources and third-party use.
	Consumer Content Management Read only provider sourced information. Create, read, update and delete other health information as appropriate, for example some demographic information (e.g. address, next of kin, ethnicity, Iwi etc). Create, read, update, extract and delete consumer generated data or preferences. Consumers can make notes on provider/clinical data and contribute to care planning.
	Provider Content Management Full read, write, extract access for all types of identified health data.
	Channel Services (Interface Solutions) Select partners to develop "default" consumer channel and provider channel.
	Compliance and Authority Mandate compliance and use of a national service within 2 years for all connected solutions.
	Integration and Interoperability Publish standards and actively support existing solutions to become compliant and integrate with each other. API marketplace to enable all compliant partners to push and pull data and utilise services and capabilities. Require new services to conform to new standards and utilise Hira services. Grandfather systems that are not using APIs, so all go through APIs within five years.
	Adoption Support Adoption and change management may be supported by the programme. Specific technical support would be provided for the in-scope datasets. Support provided for hospital and primary care health providers (e.g. train the trainer programs to drive adoption amongst clinician workforce). Disability sector workforce. Consumer groups. Social licence is critical to adoption. The concept of social licence as it applies to data is extremely important as Hira seeks to join health data and make it available in ways previously not considered or undertaken. It applies both to those who use the data, but also to those to whom the data relates, and, in a Māori context, the whakapapa associated with the data. In order to maintain and grow the social licence for using health data, factors that need to be considered include: Data Governance, Individual and collective agency over data, Cultural Licence, Privacy, and Security. The Hira approach is summarised in Appendix 14.
	Sourcing Create panels of vendors to provide appropriate resource, products and services as required.

4.3 Tranche Definition

The overarching concept is to deliver Hira capability through tranches, each of which delivers capability and value building on the previous tranches. In this way, offramps are provided for funding to cease at the end of any given tranche, recognising that this would limit the benefits realised and the full programme benefits would not be achieved.

Phasing delivery and investing in tranches within a programme context rather than a single monolithic project would align delivery to earlier realisation of benefits, establish enabling capabilities to compound value over time, and lower implementation risk and cost.

A decision-making framework was developed to determine the preferred implementation and timing of projects. The framework allows for flexibility and agility over the programme implementation. Decisions on tranche content, timing and individual project delivery approach would be informed by progress and achievements, as well as changes in the external environment.

In identifying tranches, the programme has started from a high-level understanding of the user problems and opportunities. In order to determine the most logical approach for delivery, which both builds the enabling elements and delivers value, three lenses have been applied:

- **Strategic Lens**: the extent to which the potential project aligns with strategies and policy. Only services which meet a defined need or respond to strategy would be taken forward for further consideration.
- **Execution lens**: the shortlisted services would be evaluated for feasibility, i.e. does the data exist and could Hira realistically expect to be able to deliver the service in the expected timeframe. Feasible options would then be triaged, with those which enable other services being prioritised.
- **Value lens**: the expected value (quantifiable and unquantifiable benefits) to be realised would be assessed, with benefits validated by key stakeholder groups. Specific weighting on achieving improved equity of outcomes for priority populations[40]. Only those which would deliver benefits which would be valued by stakeholders would proceed to the tranches.

The programme decision-making framework is depicted in Figure 12.

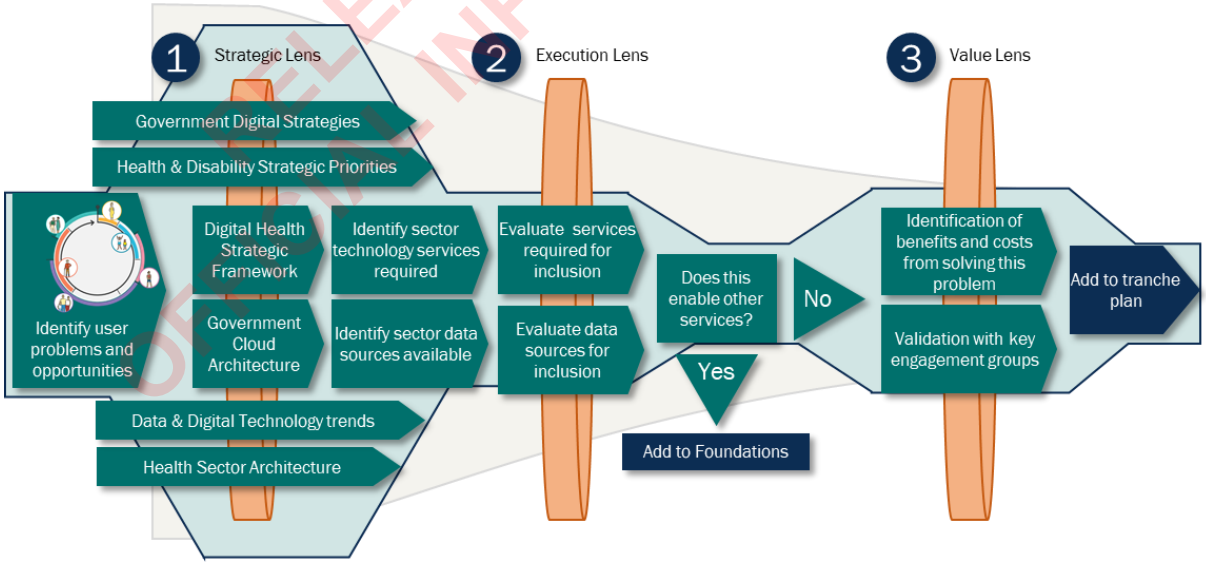


Figure 12: Hira Tranche Framework

[40] Priority populations defined as Māori, Pacific, over 65's and those in Deprivation Quintile 5.

4.4 Recommended Tranches and Sequencing

Tranche Concept

- **Delivery by Tranche:** The programme is proposed to be implemented over five years, through three tranches:
    - Tranche 1: Hira – Launch (July 2021 – June 2023)
    - Tranche 2: Hira – Extend (July 2022 – July 2024)
    - Tranche 3: Hira – Connect (July 2023 – July 2025)

  These tranches are described below, and a diagram depicting the programme by tranche is attached as Appendix 15.

- **Iterative Tranche Planning:** The proposed tranches and the specific deliverables within each tranche (particularly in Tranches 2 and 3) are expected to evolve over the duration of the programme, as the scope is refined, and the programme builds experience in delivery and is informed by the backlog of problem statements raised by key stakeholders. This approach to determining the content of each tranche is aligned with the proposed tailored hybrid approach to programme delivery (described in Section 7.3) which combines waterfall and agile approaches to allow rapid changes in direction and delivery in response to testing of value, within a structured and well-governed framework.

  Iterative discovery and design activities would be used in each tranche to refine deliverables for both the current tranche and the next. Learning points from each tranche would be applied to the design and delivery of subsequent tranches and would be shared with other agencies, as appropriate, to disseminate good practice across Government/partners. Future products, services and datasets would also be informed by the Change and Adoption activities across the programme. All tranches would target digital health equity challenges in collaboration with identified DHB, PHO and NGO partners. The content, cost and timing of the tranches would be revisited throughout the programme and the overall programme plan updated as required.

- **Delivering Value:** The design of the three programme tranches provides the necessary investment decision gates for Ministers. Hira emphasises smaller, early deliverables, e.g. delivery of product(s) in a 12-18 month timeframe with quick feedback loops, as a way of testing whether the benefits can be realised. The tranches have been designed in this way, with the early release of value from data and digital assets that are well understood and whose quality is already of a high standard.

  The projects and deliverables identified in Tranche 1 are those that offer Ministers and New Zealanders the most benefit, whilst also testing and validating new ways of working, allowing for thorough and considered change management to take place. The discovery phase underway as part of the Tranche 1 business case development has included proofs of concept, pilots and prototypes that serve to identify and highlight the most valuable deliverables from within the defined projects.

  The programme recognises that there are multiple challenges and risks around benefits realisation, given the reliance on adoption to achieve the benefits; other demands on the sector; and the novel approach that Hira is taking (i.e. making health information available to service users at a higher level of detail than comparable programmes in other countries). Hira is deliberate about adapting new technologies and ways of working for the New Zealand context, as demonstrated by the tailored co-design and change management approaches outlined in the Hira operating model.

  During and at the conclusion of each tranche, services would be operationalised with support models implemented, including capability for continuous improvement.

Tranche Composition

The components of each tranche are described as per Figure 13.

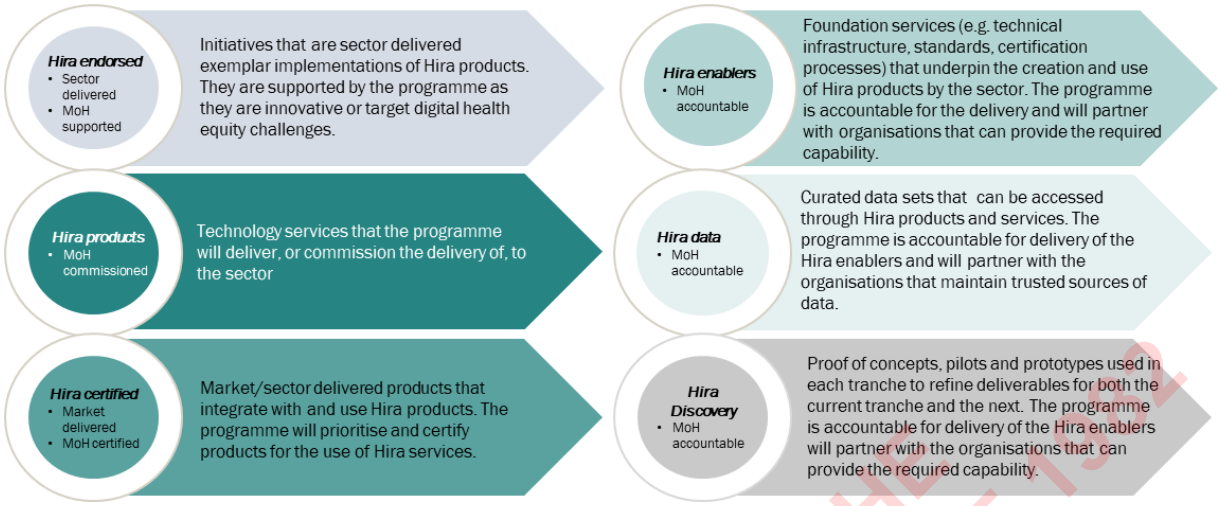


Figure 13: Hira Tranche Components

Tranche Implementation Timing

The proposed timeline for tranche implementation is depicted in Figure 14.

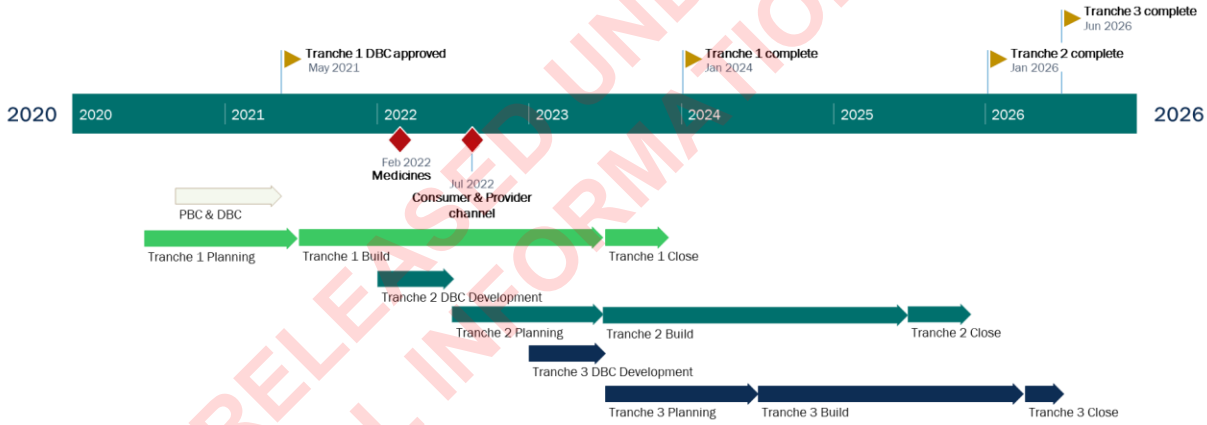


Figure 14: Hira Indicative Tranche Timing

Tranche 1: Hira – Launch (July 2021 – June 2023)

The value created by Tranche 1 would be:

- Improved connection and communication between service providers, leading to more accurate and timely information sharing.
- Reduced risk of errors due to improved medicines information.
- Better provider workflows owing to better information for decision making at the point of care.
- Consumers would have the ability to view and update their relevant demographic information, medicines prescribed and dispensed across multiple providers.
- Entitlements activity would commence with the integration of Community Services Card eligibility information.
- The provision of universal consumer and provider services leveraging identified Hira datasets would mean that those who currently do not have access to digital health tools would have access to these tools.

There would be a dedicated project within the programme to support Service Adoption, supplemented by an Inclusion and Equity change fund to support consumer and provider uptake of Hira services.

The Tranche 1 scope is summarised in Figure 15 and the Tranche 1 benefits are shown in Figure 16.

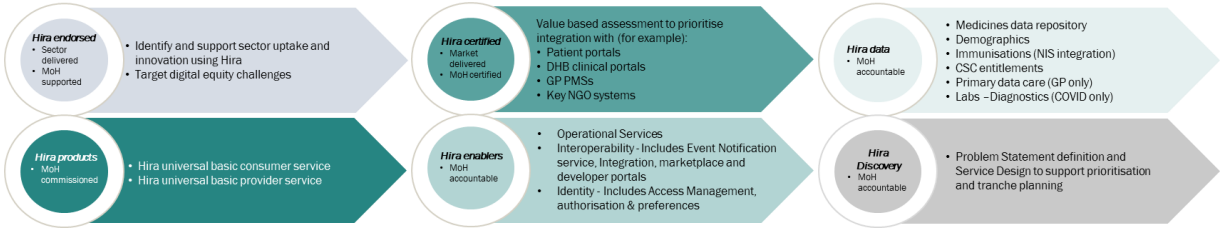


Figure 15: Scope of Tranche 1: Hira – Launch

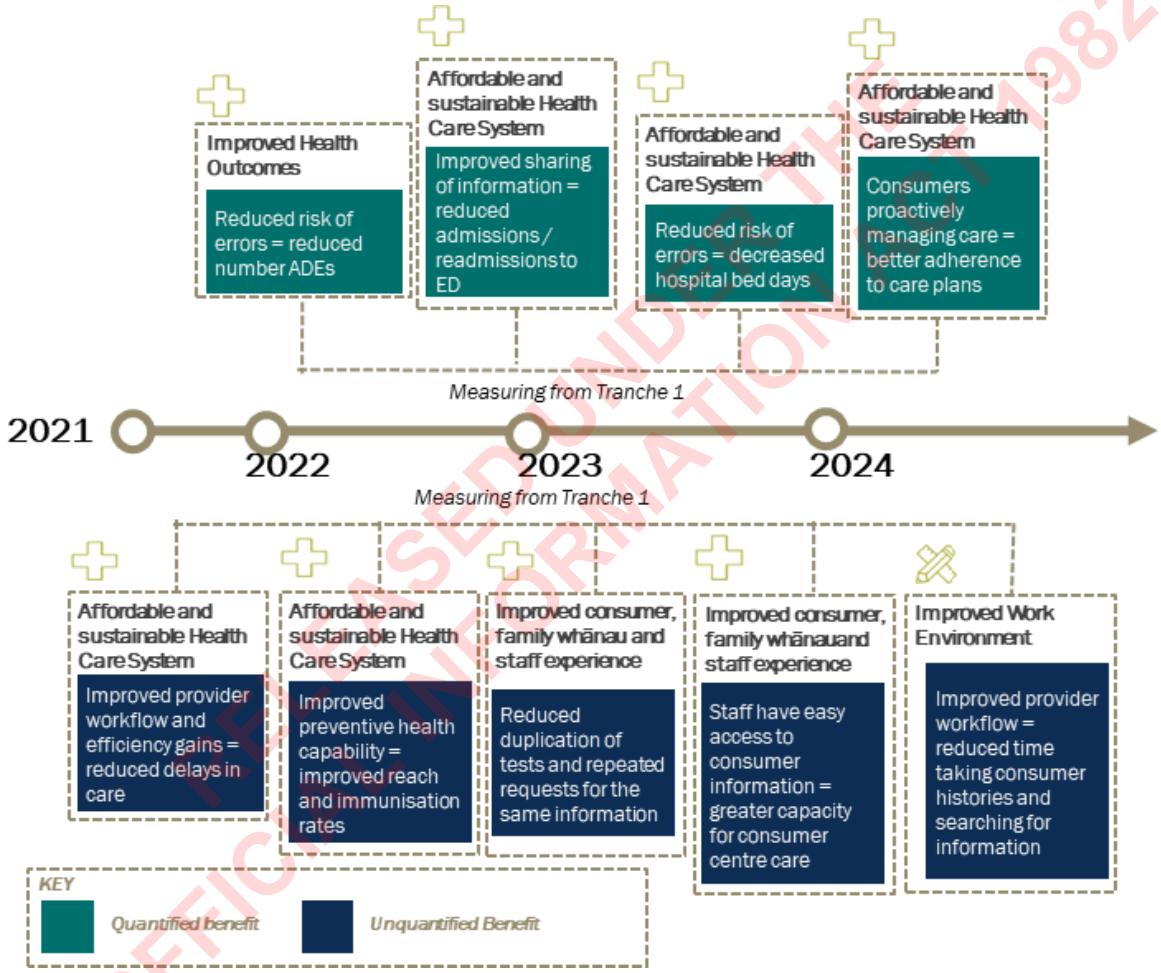


Figure 16: Tranche 1 Benefits

The quantified benefits expected to be realised by Tranche 1 are summarised in Table 21.

s 9(2)(b)(ii)

The proposed delivery timeline for Tranche 1 is shown in Figure 17.

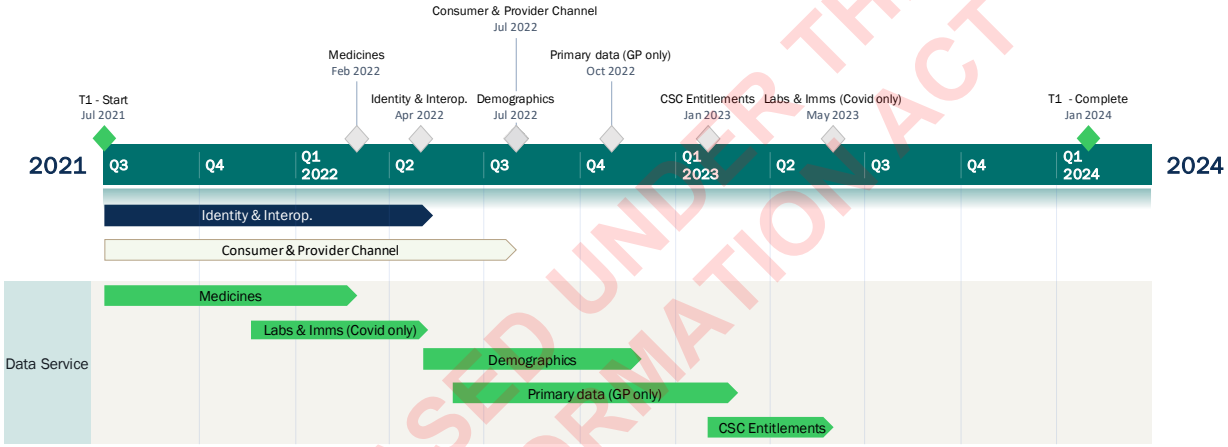


Figure 17: Tranche 1 Delivery Timeline - Proposed

Tranche 2: Hira – Extend (July 2022 – July 2024)

The second tranche focuses on delivering data relating to Immunisations and Laboratory results. This would be extended beyond the COVID-19 use case and primary care data would be broadened into community care, to enable access to a wider range of patient relevant data. Data relating to allergies, adverse reactions and shared care plans, and eligibility and entitlements would be included. The tranche would place further emphasis on health literacy education strategies around adoption of the services delivered in Tranche 1, including a focus on digital equity and literacy pertaining to health data. Tranche 2 would bring new opportunities for consumers and providers to engage with the health and disability system. Additional data (allergies, laboratory results and information on eligibility for, and entitlement to services) would be made available to consumers. Consumers would have visibility of where information is held on them, including who is authorised to access to their data.

The Tranche 2 scope is summarised in Figure 18.

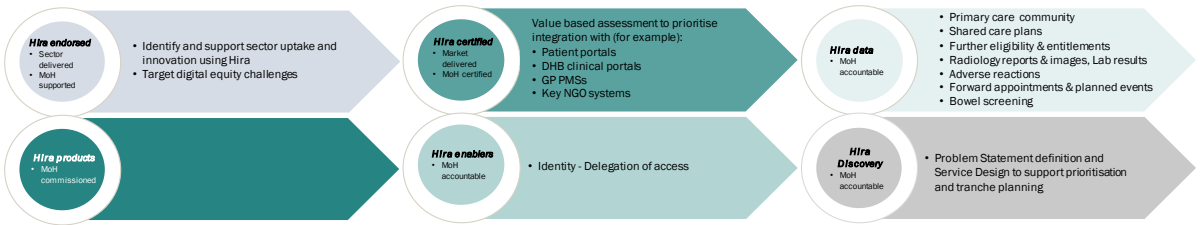


Figure 18: Scope of Tranche 2: Hira – Extend

The value created by Tranche 2 would be new opportunities for consumers and providers to engage with the health and disability system. Additional data (allergies, laboratory results and information on eligibility for, and entitlement to services) would be made available to consumers. Consumers would have visibility of where information is held on them, including who is authorised to access to their data.

Tranche 3: Hira – Connect (July 2023 – July 2025)

The third tranche would focus on connecting Hira services more widely across the health and disability system and expanding access to Hira datasets. The development and implementation of delegation across Hira services, and a provider directory service would be priorities. Tranche 3 would enable consumers to include their broader network in the provision of their care, by enabling authorised delegation of access to health and wellbeing information. Consumer, family, whānau and provider experience would be improved through achieving better communication and collaboration along the care continuum, using Hira services. There would be better evidence-based planning and interventions grounded in richer, more accurate and timely data at a system level. Improved consumer health outcomes would be supported by the increased integration and use of self-reported data, and a greater ability to identify health equity issues in order to address disparities in the provision of services.

The Tranche 3 scope is summarised in Figure 19.

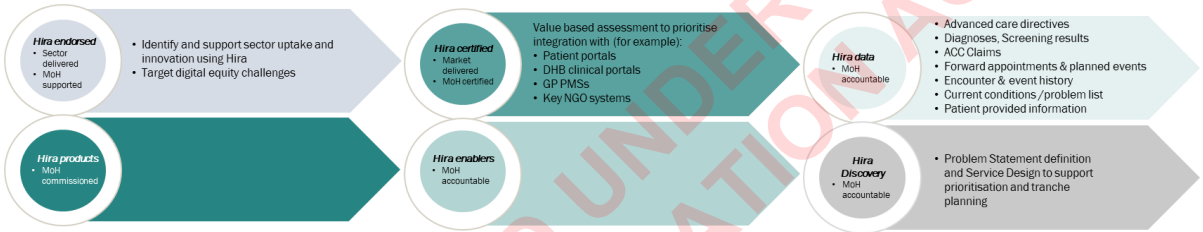


Figure 19: Scope of Tranche 3: Hira – Connect

The Advance component of this tranche is focused on delivering access to more complex data sources to Hira that the Innovation team would deliver as part of Change and Adoption, including self-recorded data sources, such as home monitored measurements. Data anonymisation and bulk data download services to support of data research and innovation activities would be priorities. Programme closure and handover would be completed at the end of Tranche 3.

The value created by Tranche 3 would be in enabling consumers to include their broader network in the provision of their care, by enabling authorised delegation of access to health and wellbeing information. Consumer, family, whānau and provider experience would be improved through achieving better communication and collaboration along the care continuum, using Hira services. There would be better evidence-based planning and interventions grounded in richer, more accurate and timely data at a system level. Improved consumer health outcomes would be supported by the increased integration and use of self-reported data, and a greater ability to identify health equity issues in order to address disparities in the provision of services.

4.5 Project Option Analysis

Investment Approach

Analysis would be undertaken on projects within each tranche, to determine the best investment approach for that project. This analysis would consider options under any relevant dimensions (scope, implementation (timing); service solution; service delivery; and funding). The project options analysis approach is described in Table 22.

Table 22: Project Options Analysis Approach

Stage	Summary
Clarification of scope	Confirmation of what the project is seeking to address and identification of any elements which are excluded from the project scope.
Identification of long list of potential options	• Scale and scope • Implementation (timing and staging): within the tranche, taking account of other complementary and conflicting projects • Solution (how) • Delivery (who) • Funding
Evaluation of long list options to derive shortlist	Assessment of options against: • Programme CSFs and IOs • Project specific CSFs and IOs
Assessment of shortlist to determine preferred approach	Further evaluation on project specific multi-criteria analysis. To include analysis of: • Cost and value for money • Achievability and extent to which requirements would be met and benefits realised

5 Commercial Case

5.1 The Commissioning Approach

Overarching Approach

A Procurement Strategy[41] has been developed for the programme, to describe the broad procurement approach and principles to be followed. The overarching philosophy for procurement for Hira encompasses value for money, fairness and transparency. The plan is based on the intended three tranches of work over the duration of the programme. Detailed Procurement Plans would be developed for each project within the programme, as required.

Hira would build on what has already been substantive investment in existing health information held across the sector and the digital technology infrastructure and services that support access to it. Leveraging existing investments and technology capabilities where possible is a procurement principle and is also reflected in the Hira architecture and operating model.

All Hira procurement activities would align with the Ministry Procurement policy, which sets out the framework for undertaking procurement within the Ministry. At a high level this includes:

- All procurement activity is conducted in accordance with the Government Procurement Rules.
- The approval of all significant procurement is required to be endorsed by the Ministry Procurement and Contract Manager.
- The requirement for independent procurement overview.
- Requirement for external probity management.
- Procurement delegation is included within the Ministry Delegated Financial Authorities (DFA) associated to positions.
- Significant (high risk and/or high value) contracts are required to be approved by Health Legal prior to execution of the agreement.

The programme would deliver the technology capabilities that make data accessible, as well as an enabling technology architecture (including services such as digital identity), standards (encompassing data, security, technology and business process), and non-technical aspects of the wider ecosystem that would enable or constrain the use of data such as privacy, consent, data sovereignty, social licence, commercial and funding mechanisms.

The nature of this change is not characterised by a single or defined set of Ministry-led sourcing activities. Rather, the procurement activities would include the Ministry (where appropriate):

- Leading several core platform / foundation procurements for enabling technologies. This would require the Ministry to identify and source appropriate systems, engage vendors for support with design, implementation and ongoing support services of the technologies, including the undertaking of proofs of concept.
- Developing existing systems that would be integral to Hira. This recognises that many of the data sources required are in existence and would need to be enabled to work within the Hira environment, and that existing capabilities could be applied to meeting Hira outcomes.

[41] Hira Procurement Strategy v2.2, 13 January 2020.

- Supporting the wider health and disability system procurement activity for the development of existing systems, to meet the requirements of Hira. This reflects the extensive nature of the existing heath technology environment, which has a mix of national suppliers, suppliers who provide core systems to DHBs, and an extensive array of suppliers who provide systems to the wider health sector.
- Influencing technology suppliers to develop systems or introduce standards to enable future Hira capabilities.

The main factors influencing the development of procurement strategy include:

- The maturity of the architecture design, recognising the elements/components that are required to meet the objectives of the programme, and the scale of the requirements. At this stage there is a high-level understanding of the nature of the components and a generic understanding of the ability of the components to be sourced.
- Understanding of the level of change required in supplier systems in the health and disability system, and the appropriate approach for supporting the changes required.
- The role of the health and disability system users in supporting the change, the investment required by DHBs, and providers (PHO, NGOs, etc) as implementers.
- The responsiveness of suppliers in supporting/developing products and services.

Programme Procurement Principles

The programme procurement principles would aid in determining the appropriate sourcing approach as the Hira programme is implemented. These principles would be incorporated within the appropriate sourcing activities.

1. Technology contract ownership (relationship wise) within the Ministry – the Ministry maintains a direct relationship with the key platform suppliers.
2. Leverage existing investments – where appropriate (and possible), the Ministry will reuse existing system solutions.
3. Vendor partnering model – the Ministry will build a trustful and resilient relationship framework.
4. Capability development in the Ministry – the Ministry will support a strong knowledge base within the Ministry to govern and operate the contracted services.
5. Contract for flexibility – the Ministry will allow for changing requirements as implementation progresses and the contracted services are used.
6. Enable a future state – the Ministry recognises the immediate need and will provide solutions that will evolve over time.
7. Allow other parties to participate – the Ministry will consider wider agency involvement in the delivering or supporting Hira.

The sourcing approach incorporates the Government broader outcomes from Government procurement, specifically the first priority outcome, "Increasing access for New Zealand Businesses"[42].

[42] Procurement.govt.nz: Increasing access for New Zealand businesses. Increasing access to Government procurement contracts for New Zealand businesses, with particular focus on those les able to access opportunities and those working in priority sectors (such as ICT, Māori and Pasifika businesses and businesses in the regions).

The Hira programme would be a significant change to the health sector, and to be successful would require support from a broad range of suppliers, both domestic and internationally. The Ministry would actively seek participation from stakeholders in the early stages of the planning process and throughout the sourcing process. The early engagement would provide the opportunity for New Zealand businesses[43] to understand the programme and be in a position to respond to opportunities as they arise, to support the development of a thriving ICT market in New Zealand. Beyond the core platforms, the systems that are in use through throughout the health system have a robust mix of New Zealand developed and supported system.

As each tranche is developed, the programme would consider what capabilities and services would be required and would evaluate the market to identify whether capability exists in New Zealand or whether the specific service/capability would need to be sourced internationally. All the procurement activities would be conducted following established processes, i.e. openly advertising the opportunity, clearly stating the breadth of the procurement, and the likely use by sector organisations. This would ensure that, whilst there is a focus on New Zealand suppliers, the best supplier is selected for each procurement undertaken.

Where possible, procurement would seek to ensure the upskilling of New Zealanders and knowledge transfer to benefit the ICT sector and New Zealand overall.

Procurement Governance

The programme has established a governance structure that aligns with the Ministry delegations framework and appropriate practice for a programme of this nature. The governance framework ensures that there is appropriate oversight across the programme, including procurement activities, with specified roles and interactions.

Procurement plans would be required to be established (with endorsement by the procurement manager and approval by appropriate delegated financial authority holder) for the expenditure amount, prior to any sourcing activity being undertaken. All significant procurements would be overseen by a senior procurement advisor.

Where exemptions or opt-outs are considered, approval would be required from the Ministry Chief Financial Officer. This is required as part of the procurement planning process. This may arise with Hira procurement activity as the Ministry progresses through the programme and introduces change with the specific healthcare providers.

A probity management plan has been developed.

Procurement Streams

To meet the requirements of the various stakeholders who are within the ambit of the Hira programme, the Ministry would employ three approaches to supporting the procurement and commercial activities required for Hira to be successful. The three approaches are depicted in Figure 20.

[43] When purchasing ICT services or software, agencies must consider how they can create opportunities for New Zealand Businesses. A New Zealand business is defined as a business that originated in New Zealand (not being a New Zealand subsidiary of an offshore business), is majority owned or controlled by New Zealanders, and has its principal place of business in New Zealand.

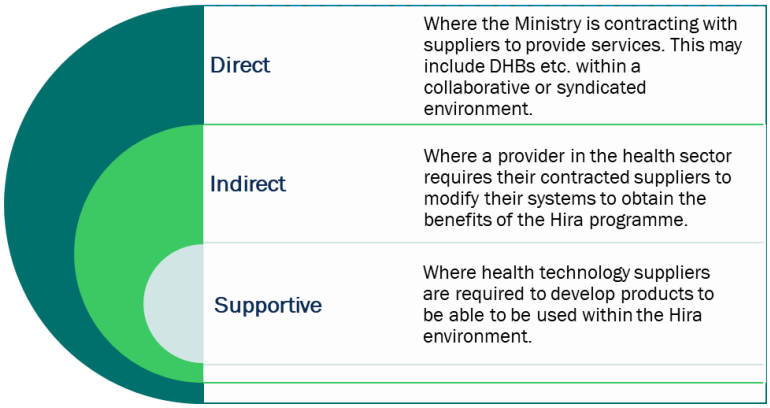


Figure 20: Hira Procurement Approaches

Each approach (stream) has different characteristics in how procurement activity is conducted. General supplier development is included, recognising that Hira is an evolving concept which would require all potential suppliers to the health sector to be developing their products and services.

The streams span the various types of suppliers required to meet the Hira objectives across the health and disability system. Suppliers include commercial vendors, other Government entities, not for profit organisations, and non-Government organisations. The method of engaging and working with the suppliers would reflect the entity type. Methods of engagement would include:

- Commercial contracts.
- Memorandum of understandings, between crown entities and Providers (if appropriate).
- Participation agreement s (used to access other Government agency contracts.

The stream approach builds on what has already been substantive investment, recognising the existing health information held across the sector. The architecture states that "Hira would reuse existing modern IT investments made across the New Zealand health and disability system where possible". The platform approach within the architecture provides the scalability and extensibility that would be required by an evolving Hira. It would also support the use of "rentable" services versus "purchase and run" models. Where regions have invested in a regional Health Information Platform, Hira would integrate with that capability rather than integrating at a lower level.

5.2 Attractiveness to Market

The Request for Information process undertaken for the IBC confirmed that multiple suppliers exist with the skills and capability to assist in solving the problems being faced. This includes traditional "health" software suppliers, as well as established suppliers who have entered the health and disability system with cross-industry experience, including familiarity with person-centred digital transformation, new entrants and start-ups, solving niche and specialty solutions. The Request for Information process found that there is a strong sense that the required services can be delivered by the market and that there is a willingness to do so.

However, procurement activities would be undertaken against a backdrop of other significant procurement activities, including other Ministry procurements (such as those required for the National Screening Unit programmes), other sector procurements (such as DHB PAS replacement procurements) and other Government agency platform development work. The Hira programme would therefore be operating in a competitive market. Capacity and capability constraints can be anticipated, particularly for resources experienced in service and product co-production and management; solution, business and enterprise architecture; business/organisation change management; and procurement and commercial negotiation.

In order to secure the resources required to deliver Hira, the programme would need to ensure that it is attractive to suppliers and talented individuals (in comparison with other competing initiatives). The programme would also need to have a well-planned and articulated timeline for individual projects, so that potential suppliers could plan ahead for the skills and capacity required. To increase its attractiveness and prepare the market in advance of capability being required, the programme would undertake a range of general actions:

- Communicate strategy and the work required to increase the willingness of the market to engage. Emphasise the innovative approaches, high visibility, national reach and potential opportunities arising from the programme. Vendor presentations to vendors as part of the Request for Information process undertaken in November 2020 for the Tranche 1 projects.
- Pro-actively share strategies so that (as and when funding becomes available) the market is well placed for delivery.
- Work with the market to understand capacity constraints, particularly where there is competition for resource within the Government sector.
- Maintain timetables to increase market confidence, facilitate effective deployment of resource and reduce risk of supply-side delay.

Continued supplier engagement would provide a more concrete view of attractiveness to suppliers and, in particular, the degree to which innovative procurement and risk sharing models may be explored. As each tranche is developed, the procurement approach would consider the specific items to be sourced/procured and would determine the most effective way of increasing attractiveness to market, for those items. This may include, for example, paying a higher price for resources, consideration of the commercial model including levels of partnership etc.

5.3 Required Services

Platforms to be Sourced (Indicative)

The target architecture model provides an outline of the technology tools and capabilities that are required to be sourced by the Ministry. As part of the sourcing approach, the programme would determine the best method for procuring the technologies and the engagement of suppliers to support the design, implementation and operation of the systems. The indicative technology, development and support procurements are grouped as:

- Identity and Access Management (IAM) toolset.
- Enabling systems (security, network and infrastructure).
- Data Presentation (Provider and Consumer Services).
- Incident and event monitoring.
- Data acquisition and cleansing toolset.
- Integration platform.
- Security toolset.
- Customer support platform.
- Digital Identity toolset.

The specific components, method to source, groups or packages would be determined through the procurement process, as detailed requirements are developed. This would take into consideration whether the capability could be sourced locally or internationally (noting that this is a higher risk due to border restrictions arising from the COVID-19 pandemic).

5.4 Contract Provisions

Procurement Options

A variety of procurement options may be utilised in the programme. Each procurement method could utilise subtle variations, to enhance opportunities and minimise risks. Given Hira's breadth, it is likely that a combination of approaches would be used. The procurement options, by stream, are summarised in Table 23.

Table 23: Hira Procurement Options

Stream	Procurement Options
Direct Ministry-led procurement	Determining packages of activities or service areas and seeking **lead supplier partners to deliver to specified outcomes**, combines product and services to a supplier to deliver within a contract.
	Direct management of requirements by: • Engaging with specialist technology vendors for the purchase of specific products to meet Hira requirements. • Creating supplier panels to provide access to resources to support the development and implementation. • Engaging contractor resources to support the Ministry capabilities required for Hira.
Indirect Health and disability system provider systems	The Ministry would support the sector to introduce the changes required. From a procurement perspective this would include: • Ensuring that Ministry-led procurements have appropriate structures to allow DHB use (syndicated). • Include, where appropriate, the sector within the direct scope of a commissioned package of work. • Provision of requirements to be met by health and disability system providers. • Support for the entity to implement the changes. • Support the coordination of system changes.
Supportive Health and disability system suppliers	The Ministry focuses on the creation of standards for operating within the health and disability system. Suppliers are expected to adopt these standards into their technology products to be used within the health and disability system. Changes to existing products to reflect changing buyer/user requirements is the responsibility of the supplier. There may be a change in how suppliers share or expose data to other systems. Such a change would incur a cost to a supplier (i.e. new API, or a security enhancement) that may be passed onto the users of their system. The degree of the change and cost would vary depending on the maturity of the system, the required change and the market use of their products.

Payment Mechanisms

It is expected that payments would be made monthly, based on progress. Essentially, payments would be made for work over a month, with an appropriate retention.

Contract Lengths

Multiple contracts would be let over the course of the programme. The duration of each contract would vary, depending on the nature of the activity being undertaken.

Proposed Key Contractual Clauses

Key contractual clauses would be determined based on the nature of the contract for each project within programme. These would include items such as the specific platform, the scope of works, indemnity and insurances, variations, payments and dispute resolution.

Contracts would be designed to recognise the Hira intent to make intellectual property (IP) available under creative commons licence within New Zealand, to ensure health and Government rights to use.

Post business case approval, detailed planning would clarify the details of planned contracts (including length, contractual clauses, risk allocation etc.). The planned procurement approach for each platform or service package would be reviewed to ensure consistency between contracts where relevant, and the appropriateness of each proposed contract. The procurement approach and progress would be monitored by the Programme Steering Group.

Risk Management and Allocation

For each procurement, a risk allocation table would be generated which would be assessed as part of the project initiation process. This would identify the risks within the project and allocate each risk to the party best able to manage it, the objective being to achieve the optimal allocation of risk, rather than maximising risk transfer. Procurement risks would be captured in the Hira Programme Risks and Opportunities Register and would be managed through the overarching project and risk management processes.

5.5 Commissioning and Procurement Timeline

Each tranche would have its own procurement timeline and milestones, with each main project within the tranche having a project plan and timeline, including procurement.

6 Financial Case

6.1 Overview

s 9(2)(b)(ii) [redacted]

The initiative is expected to be delivered over five years, commencing in 2021. However, as the services delivered by Hira become operational and are transferred to business as usual, ongoing operating costs would be incurred. As these services are expected to continue into the foreseeable future, any modelled period is necessarily arbitrary. The programme has therefore selected a modelling period of ten years, to provide a reasonable balance of upfront and ongoing costs and benefits.

s 9(2)(b)(ii) [redacted]

The initiative proposes delivery through three tranches, to provide the ability to increase, reduce and cease funding aligned to the delivery of value. Forecast funding could be reduced by deferring delivery and/or sector adoption of some Hira services. The proposed timeframe is 2021/22 to 2030/31, with delivery of Tranche 1 during the period 2021/22 to 2023/24

It is important to note that this investment, whilst reflecting a significant capital and operating investment, is not an investment case justified in terms of financial returns. The value of this investment is in making data available to consumers and providers to achieve improved health outcomes, contribute to the affordability and sustainability of the health care system, and improve the consumer, family, whānau and staff experience.

The funding model is based on assumptions and therefore the figures are high-level estimates. Further refinement of the figures would be undertaken for each tranche.

s 9(2)(b)(ii) [redacted]

[44] The financial analysis aligns with the Ministry Budget 21 bid.

6.2 Financial Costing Approach

Approach and Assumptions

The financial model is over a ten-year period and includes capital and operating expenditure, based on the recommended approach (**Option 4: Hira**) as described in Section 4.2. This modelled period comprises five years of programme capital and operating costs to implement the changes, with incremental ongoing operating costs over the ten-year period. The programme financial analysis is shown across two timeframes:

1. the five-year programme implementation timeframe[45].
2. A ten-year modelled period which reflects the ongoing costs arising from the programme once implementation has concluded. Because there is no natural end to this investment, the cost modelling covers the period from 2021/22 to 2030/31.

The costing approach factors programme, sector change, infrastructure, platform and services costs. depreciation, capital charge costs and contingency.

The cost estimates for capital have been prepared in discussion with the programme team and Ministry finance team and are based on costs for similar programmes. The cost estimates for operating expenditure have been prepared by the programme team in consultation with the Ministry finance team.

The financial costings are indicative at this stage. To allow for uncertainty in the initial estimates, the programme costs are based on range-based estimates and include contingency. The financial analysis would be revised and revalidated as part of the planning for each tranche and the development of the associated business case. The key assumptions for the cost model are are provided in Appendix 16.

Contingencies

As the costs presented in this business case are indicative it is likely that there would be some variation between indicative and final costs once detailed design is completed. In order to manage this, contingency has been included.

The following contingencies have been applied to the estimates:

- 20 per cent to the IT costs to allow for uncertainty in the costs of deliverables, which would not be resolved until a tender process has been completed and a fixed price is agreed for the IT solutions.
- 20 per cent to the implementation programme costs (non- IT) to allow for uncertainty in cost rates and time required to complete deliverables.

This is based on the expectation that the iterative delivery and programme tranche approach would mitigate against a higher contingency allowance. The contingency funding would be reviewed in each tranche business case, at which time initial market engagement and detailed design work would have been undertaken.

[45] The programme delivery timeline of five years is based on the current scope. As the programme would create capability for future change, decision makers may choose to invest further once the initial Hira scope is complete.

Financial Management

Standard programme and project management procedures would be in place to minimise scope creep and to ensure that costs are contained within the budget approval. The overall actual and anticipated spend would be monitored actively through the governance structure, as detailed in the management case, section 7.2.

6.3 Financial Projections

Total Capital and Operating Costs

The programme approach assumes overlap between tranches. This allows for planning of design, sourcing and procurement to commence for the subsequent phase, to avoid a stop-start pattern. In the overlap years, costs would be incurred for both the end of the previous tranche and the start of the new tranche. The spend by financial year is summarised in Table 25 and Table 26. A more detailed analysis is attached as Appendix 16.

s 9(2)(b)(ii)

The stacked cashflow and operating costs are shown in Figure 21 and Figure 22. These figures show the ongoing operating cost arising at the conclusion of the programme for the ten-year modelled period.

s 9(2)(b)(ii)

Ongoing costs increase from year five due to uptake. Uptake, and therefore costs, is expected to plateau in later years.

Programme Costs by Tranche

The funding requirements for the three tranches, split by capital and operating funding, is summarised in Table 27. The funding requirement over ten years is shown in Table 28.

s 9(2)(b)(ii)

[redacted]

Affordability

- **Ministry affordability:** The proposed cost of this investment is approximately s 9(2)(b)(ii) over the ten-year modelled period. Crown funding would be required to meet the costs forecast.

  - **Capital affordability**: the total capital cost of s 9(2)(b)(ii) over the ten-year modelled period would require Crown funding. As the costs presented in this business case are indicative, there is a risk that there would be some variation between indicative and final costs once detailed design is undertaken for each tranche. In order to manage this, programme contingency has been included.

  - **Operational affordability:** The cost of implementing Hira, estimated at s 9(2)(b)(ii) over the ten-year modelled period is not possible within the current Ministry funding allocation. This investment is only affordable with Crown funding.

  The Ministry has received an enabling appropriation to complete the establishment, engagement and design activities required for the development of the Tranche 1 business case. Hira investment would be aligned with wider investment decisions and would maximise sector value by either leveraging or enabling other investment across the health and disability system. This would include investment in service and system integration, primary care, mental health, population health, sector investments etc.

- **Sector affordability:** Hira would have a service and financial impact on the sector. Whilst the programme would proactively engage with the sector to leverage and align current and future investment, it recognises that the sector would not, in all cases, be able to fully fund the changes required to adopt all Hira services. As described in Section 7.4, change management would be critical in ensuring the successful adoption of Hira services. The programme has therefore estimated the change and adoption funding as a proportion of the programme resource/services costs, as it is not able to fully quantify the financial impact on the sector at this stage. In developing each tranche, the programme would analyse what investment is needed and where, to enable adoption and maximisation of benefits.

Scaling/Phasing

The funding requested in this initiative could be scaled or phased differently. This would defer the realisation of some benefits, reduce the multiplier effect from adding additional services and could impact the delivery of related initiatives.

The Deputy Director General of Health, Data & Digital has signified his agreement to the required level of funding required. The DDG's letter is attached as Appendix 17. The level of funding proposed in this paper would be signed-out by the Director General of Health as per the required process for Cabinet Papers.

Sensitivity Analysis

Sensitivity analysis was undertaken to determine the impacts of a range of factors on the indicative programme costs, considering a range of +/- 10%. The factors assessed included:

- US Dollar exchange rate[46].
- Percentage of consumer uptake.
- Percentage of provider uptake.
- Sector change People and Services (P&S).

The impact of these factors on the programme baseline is shown in Figure 23.

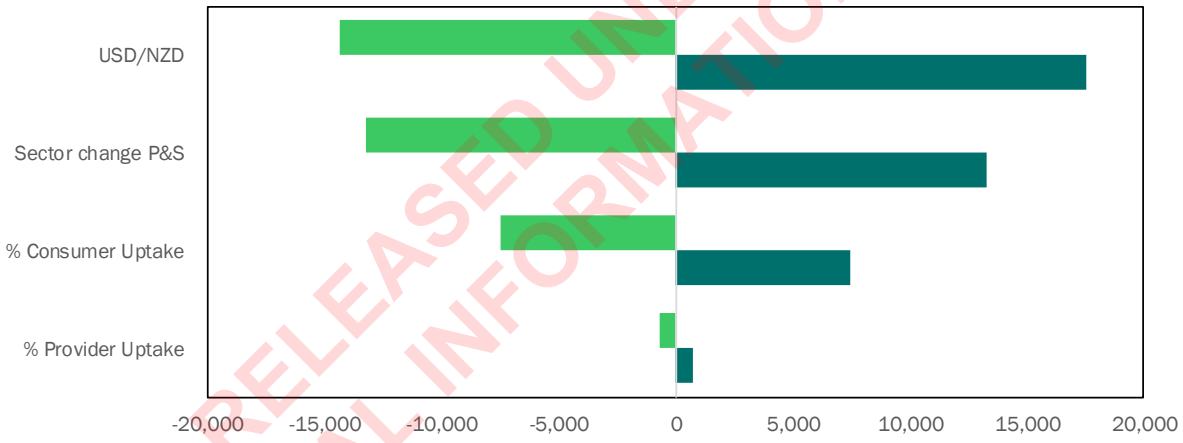


Figure 23: Sensitivity Analysis – Variance on Baseline

Negative costs variances due to:

- Increased Sector Change P&S, Consumer and Provider Uptake would only occur if the programme exceeds adoption targets and is therefore more successful than planned.
- USD/NZD rate movements may be offset by anticipated commodity price decreases over the duration of the programme. Commodity price decreases are not currently factored in, but, for example, the market trend is to pay significantly less for 1 GB of storage in five years, or for a similar amount of compute (i.e. Moore's Law).

[46] US dollar rates have been included in the sensitivity analysis as the indicative costing for the programme has been informed by other NZ programmes which have procured assets in USD. This does not pre-suppose the outcome of procurement for any Hira services or assets. It is included here to indicate the potential impact, should any assets/services be procured in USD.

7 Management Case

7.1 Overview

In planning Hira, the programme has taken into consideration both New Zealand and international experience in executing similar large-scale IT investments.[47] These initiatives face technical and operational challenges, with many fully or partially failed programmes providing salutary examples which have been used to inform Hira design and implementation approach.

Programme governance and management have been designed to provide the appropriate structures to govern and deliver outcomes, in a tailored hybrid environment. In moving away from a traditional waterfall delivery approach, it is critical that programme governance is able to direct the programme, whilst recognising the inherent uncertainties arising from the complex and changing environment.

The Ministry fully recognises the essential role strong governance plays in ensuring timely decision making to support efficient processes, consistent decision making to avoid rework, and clear leadership supporting the attractiveness of the programme to the market impacting the recruitment and retention of skill sets and partners to the programme.

Hira is a significant transformation programme and the Ministry has designed the governance and assurance framework in line with best practice to improve the clarity of roles and responsibilities, which will contribute to the overall success of the programme. Specifically, the Ministry has addressed the following considerations for the programme:

- A single point of accountability: empowered with appropriate authority to be singularly accountable for the successful delivery of the programme.
- Distinguishing between programme governance and organisational governance: ensuring responsibility for governance of the programme is not divided between groups and is focussed on delivering the programme outcomes and benefits.
- Distinguishing between programme governance and stakeholder engagement: explicit focus on decision making within the governance structure and managing stakeholder interests within the communication and engagement plan.
- Differentiating between decision making and advisory support: ensuring decision making is clearly separated from programme advisory groups and stakeholder engagement.

The Ministry has recently demonstrated its ability to manage large and complex work, specifically in the governance of large digital programmes. Examples include the National Finance and Procurement Information Management (FPIM) Programme (previously known as the National Oracle Solution) and the Ministry's data and digital response to COVID-19.

- The Ministry became responsible for the remediation and implementation of the FPIM Programme on behalf of DHBs in June 2019. The Ministry formed a Governance Board and sub committees to oversee this work, with the Director General of Health as the Chair of the Governance Board, and the Deputy Director, Data and Digital, as SRO of the Programme. The Programme has continued to deliver on time and on budget during 2020, is well supported by its DHB stakeholders, and is on track to deliver benefits in accordance with its business case.

[47] In particular, Hira considered the IRD Business Transformation Programme, the Education Payroll Limited Development Programme, and the MyACC Programme.

- The Ministry leveraged the governance, delivery and operating models designed as part of the nHIP programme business case to support the initial data and digital crisis response to COVID-19. This specifically aided robust and rapid decision making, addressing clinical, equity and consumer priorities, ensuring cross-Ministry and sector coordination on a national scale.

The programme places significant emphasis on service creation and adoption. Building technology and capability is not sufficient, in itself, to deliver the expected value across New Zealand. The real value comes from the adoption of the services delivered, and the opening up of opportunities for the transformation of health (and other) services across New Zealand. Bringing stakeholders along on the Hira journey and supporting and incentivising them to use and build on the services delivered, is therefore essential for success.

7.2 Programme Governance and Management

Programme Governance Arrangements

Programme governance has been defined to create clear lines of accountability from the Hira programme through the Ministry, as well as to reflect the external environment within which the programme would operate.

The governance arrangements and programme structure depicted in Figure 24 would be implemented if the programme is approved. The structure as outlined would continue for the duration of the implementation phase (i.e. to 2026). The full detail on the programme structure is captured in the Programme Operations Document.[48] The governance roles/groups are summarised below. The programme RASCI[49] matrix and membership of the key groups is attached as Appendix 18.

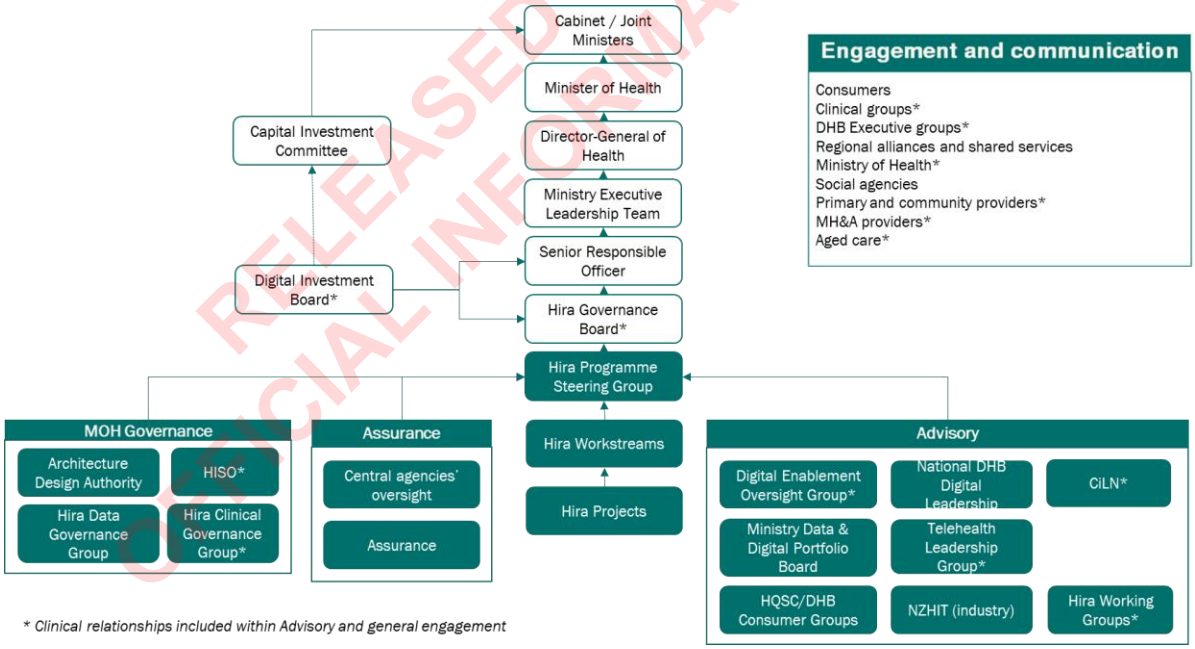


Figure 24: Hira Governance Structure and Relationships

[48] Hira Programme Operations Document v1.0, 14/1/20, Ministry of Health

[49] Responsible, Accountable, Support, Consult, Inform.

The **Senior Responsible Owner** (SRO) has overall accountability for the Programme and for ensuring that it remains within the approved scope, timescales and budgets and would enable the realisation of the desired benefits. The DDG Data and Digital is the SRO for the programme, in recognition of the overarching information technology solution to meet the identified business needs[50]. The DDG Data and Digital has the capacity and capability to undertake the SRO role, supported by the appropriate programme and project management teams.

Hira Governance Board is chaired by the DDG Data and Digital and provides strategic direction and alignment for the programme. It has a guidance and advisory function that is responsible for supporting the SRO to achieve the programme objectives with the relevant strategic alignment. The Governance Board provides active direction, periodically reviewing interim results and identifying adjustments to ensure achievement of the planned outcomes. The Board is comprised of technology and non-technology members, including independent (i.e. commercial and/or broader Government) and sector representatives to bring a range of perspectives to bear on the programme. The Board is supported by a range of robust advisory groups.

The **Capital Investment Committee** (CIC) is responsible for a centrally led process for the national prioritisation and allocation of capital investment in the health and disability system. The CIC chair is independently appointed by the Minister of Health. As CIC is an established Section 11 Ministerial Advisory Committee, it would be responsible for endorsing investment proposals from the Hira programme and providing the necessary advice up to Ministers (either Cabinet or Joint Ministers) for approval As such, endorsement for each detailed business case would be sought from CIC. The Digital Investment Board (DIB) would support the SRO and Hira Governance Board by providing strategic advice and direction.

The **Digital Investment Board** is chaired by the DDG Data and Digital. It has been established to provide leadership and oversight of digital investment across the health and disability system. The DIB would provide governance over investment proposals and would also provide advice and strategic direction into the programme. Interim DIB endorsement is required for Hira investment proposals to advance to the CIC.

The **Hira Steering Group** is chaired by the Hira Programme Director, and the membership consists of the PMO and workstream leads. This group provides operational direction to ensure coordinated, successful delivery and is focussed on managing prioritisation and the backlog of initiative.

Ministry of Health Technical Governance would be provided through two groups:

- The **Architecture & Design Authority** (ADA) comprises a group of solution and enterprise architects, and key representatives of other disciplines within the Data and Digital and Ministry ICT directorates. The ADA is responsible for ensuring Ministry of Health purchased or created technology solutions comply with the Ministry and Health Sector architectural standards.

- The **Hira Data Governance Group** is chaired by the Ministry's Lead Data Steward and includes specialist input from experts including the Ministry's Chief Legal Advisor and Privacy Officer. The Group is responsible for improving processes and the consistency of decision-making related to data sharing, in order to improve access to Ministry held data for the health and disability system, whilst continuing to protect consumer privacy.

The **Hira Clinical Governance Group** would be established for programme delivery. It would be responsible for input and updates on relevant clinical processes and governance requirements. It would be a multidisciplinary group, ensuring that Hira services are suitable and valuable to frontline care professionals.

[50] The day to day management and oversight of the programme is undertaken by the Programme Director (currently the GM DS&I but proposed to be a dedicated role once the programme is approved).

Advisory Groups would be formed, and membership flexed to meet the evolving needs of projects.

Programme assurance would be through oversight from the Central Agencies (through regular engagements and briefings) and independent assurance advice (technical and quality assurance at appropriate points).

Programme and Project Management Approach

The programme would be managed in line with the key principles from Managing Successful Programmes (MSP) (as this is a transformational programme) and PRINCE2 (for projects), with the programme and project structures and documentation aligning broadly with the concepts and documentation as outlined in these approaches.

There would be a structured approach to developing and managing both the programme and its constituent projects (the tranche implementations), to ensure effective management of scope, budget, time, human resources, quality, communications and risk.

Having in place an effective governance structure (as outlined above) and programme and project management structure (as outlined below) is critical to the successful delivery of the programme and its constituent projects.

Programme and Project Structure and Resourcing

Programme and project resources are expected to comprise a combination of Ministry employees (some full time, some part time), fixed-term contractors, consultants and sector partners. This approach would ensure the best combination of subject matter expertise and institutional knowledge and would provide the most cost-effective structure, as resources would only be engaged for the period required. Some resources are expected to be required for the full duration of the implementation phase, whilst others (for example, procurement expertise) would be required for shorter periods at specific points. This approach allows flexibility to scale as required to meet the varying demands of the programme.

The programme arrangements would be in place until 2026, at which point services would have been operationalised and the programme team would be disbanded (unless extended, subject to the delivery of expected benefits and approval of a further funding proposal). It is anticipated that, during the implementation period as products or services become operational and are handed over to business as usual, some of the resources would transition with these products/services from the programme team.

The programme is managed by a Steering Group, which provides operational direction to ensure successful delivery. The Steering Group has a supervisory (oversight and control) function for developing and delivering the Hira case for investment, managing and addressing programme issues, monitoring risk, quality and programme timelines. The membership is attached at Appendix 18.

The programme management structure is shown in Figure 25.

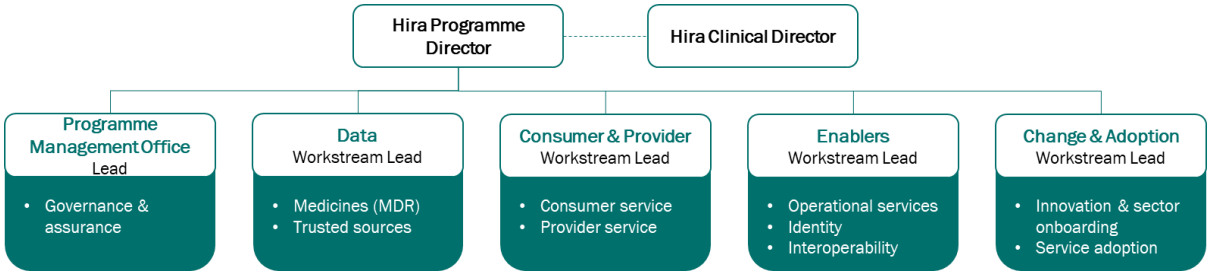


Figure 25: Hira Programme Management Structure

The Hira programme requires people with specific skills and attributes in order to deliver the desired outcomes and value. These skills and attributes are currently dispersed throughout the sector. In some instances, these roles are not matured enough or in great enough supply to deliver on Hira objectives. The current resource models within the Ministry and across the sector need to be realigned to be able to support more dynamic, flexible and responsive health technology and information development. It is a clear preference of the programme that existing roles within the Ministry and the sector would be leveraged as part of Hira delivery where practicable.

The programme team/project teams would be resourced following business case approval. As noted in Table 9 in section 3.6, some resources required by the programme/projects are in relatively short supply due to competing demands from other programmes and projects. Given the current expertise in the team, and within the Ministry and wider sector, resourcing to the level required is expected to be achievable. As a result of the COVID-19 pandemic, the Ministry has employed a range of people with skills that would be valuable in the Hira programme. It is anticipated that these resources would be redeployed across the Data and Digital work programme, including Hira, as required.

7.3 Delivery Approach

Process Model

A number of process models were considered in the development of the Hira operating model:

- The **Agile** process model is a time boxed, iterative approach with a focus on process adaptability for rapid incremental delivery. **Scrum** is an agile process that provides a focus on delivering value in the shortest time. The approach emphasises accountability, teamwork, and iterative progress toward a well-defined goal. The scrum framework usually deals with the fact that the requirements are likely to change or most of the time are not known at the start of the project.
- The **waterfall model** defines and completes activities in distinct stages. The process of delivery is linear in nature and each phase is dependent on the deliverables of the previous phase.
- The **Lean** process model is a method for creating a more effective business by eliminating wasteful practices and improving efficiency. The lean process model focuses on improving products and services based on what consumers want and value.
- The **tailored hybrid** approach accepts the fluidity of projects and allows for a more nimble and nuanced approach to the work. It enables some of the different principles to be applied at various points of the lifecycle, enabling more ways to solving problems to be introduced and increasing the chances that they can be resolved.

Within a large delivery programme such as Hira, it is unreasonable to expect that a single process model would adequately support all activities. Tailoring and adopting a hybrid process model would enable the right methodology to be applied to each individual outcome, increasing the likelihood of successful delivery. The proposed tailored hybrid process model incorporates and blends elements of waterfall, agile, lean and scrum methodologies as appropriate and aligned to programme requirements. The tailored hybrid process model is depicted in Figure 26.

This approach does not require the Ministry to implement a new methodology (i.e. Agile) as an organisation, minimising the risk inherent in moving to a different approach whilst planning and delivering change. Where individual projects (or elements within projects) would be managed through an Agile approach, this would be designed as part of the detailed project planning.

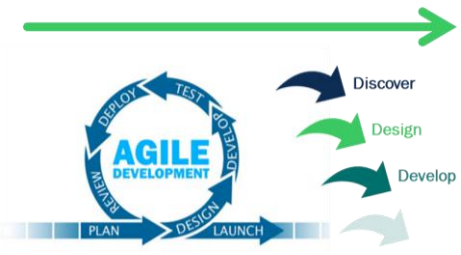


Figure 26: Tailored Hybrid Process Model

Examples of how the overarching tailored hybrid process model would be operationalised within the Hira structure include:

- A **tailored waterfall** structure would be utilised in the PMO workstream so as to accommodate and support accountability and governance frameworks within the Ministry, across Government, as well as with sector and industry partners.
- A **tailored agile** structure would be demonstrated by squads within the Hira Services workstream, tribes as represented by the Hira workstreams themselves, and chapters comprising skills and capabilities groupings across Hira.
- A **tailored hybrid** structure would apply within the Change & Adoption workstream, where alignment and engagement with sector and industry partners would require a greater degree of flexibility and adaptability.

Operating Model

The programme has developed an Operating Model[51] which describes the future operating state based on current knowledge. The Operating Model is divided into three sections detailing the Design, Enable and Execute phases. These sections comprise eight chapters outlining the core operating model components as they are currently understood. The Operating Model follows ten design principles:

1. **Person-centred** – we design and build trusted Hira services to meet the needs of the people.
2. **Structured around products and services** - not programmes and projects
3. **Evidence based design** – Using discovery, research and consumer feedback to drive direction.
4. **Leverage existing investments** – people, process and product, where appropriate.
5. **Clinically led** – patient safety and clinical governance are inherent.
6. **Modern ways of working** – leveraging 'by design' approaches and the use of hybrid process models to speed delivery and benefits realisation.
7. **Active benefit and value management** – ensuring that there is value for money and benefits are realised.
8. **Supported change and adoption** – sector uptake is critical to the success of the programme.
9. **Standards conformance** – products and services adhere to the standards, security and governance defined by the sector and industry.
10. **Working in partnership with industry** – making the most of supplier relationships and skills.

The programme would also work to advance Ministry and sector maturity against programme principles in the following areas outlined by the Operating Model design principles. This assessment, depicted in Figure 27, has been undertaken to demonstrate the relative value of the Hira programme and the transformational impact it would have across the sector.

[51] Hira Operating Model v0.10, Ministry of Health 24 January 2020.

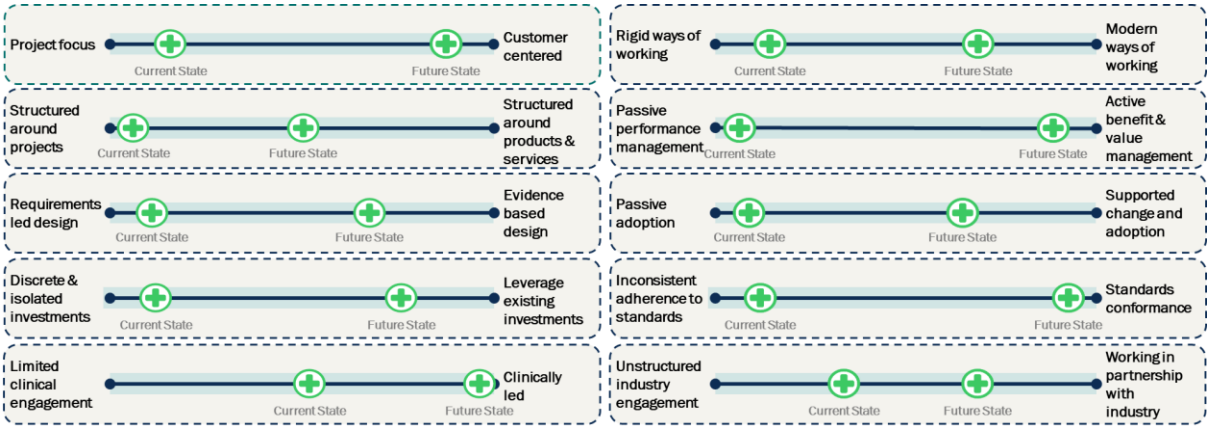


Figure 27: Application of Programme Principles

The Operating Model is comprised of three elements, as shown in Figure 28.

Design: Details the definitions and descriptions relating to the programme's enabling elements. These are interrelated as they build upon a defined process model to inform the operational structure, functions and roles within the Hira OM.

Enable: details the supportive elements identified as being critical to successful programme delivery. Taken together, these chapters provide a holistic view of the emotional, technical and physical environment within which the programme would operate.

Execute: describes relevant standard operations both internal and external to the Hira programme. These chapters detail the ways that the programme would work as per the operating model, and how it would interact with the relevant external structures within which it operates.

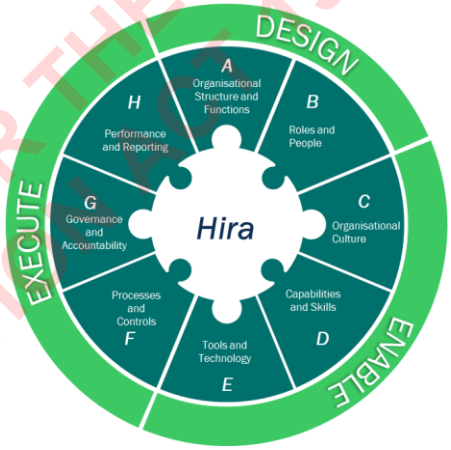


Figure 28: Operating Model Elements

Iterative Discovery and Design

Iterative discovery and design activities, such as POCs, pilots and prototypes, would be used to refine deliverables. Case studies for the MyMeds Proof of Concept and NZ COVID Tracer are shown in Figure 29 and Figure 30.

MyMeds Proof of Concept

Delivering Hira would require a number of commonly available technologies to be combined in the health context. The Ministry Data & Digital directorate developed the MyMeds application, using a **Lean Canvas** approach. This both tested whether the technologies common in Hira could be utilised to create a digital identity using public cloud technologies to show people their health information, and helped the programme understand the reaction to this capability in the health system and in the market.

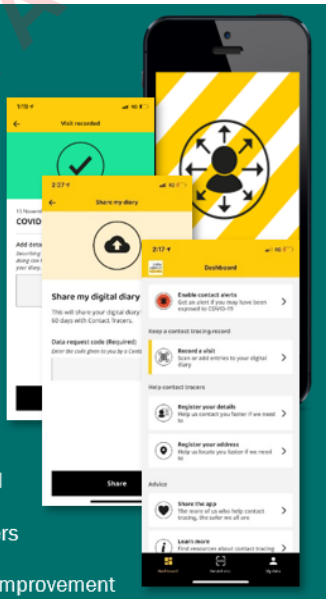
The Findings included being able to deliver a functional prototype to a Ministry of Health audience in twelve weeks. This increased the Ministry's understanding of agile methods, the utilisation of public cloud, and how to build microservices, identity and user experience in a mobile and consumer friendly manner. It also highlighted the link between digital services and consumer-centred service design. Further learnings were in the security design and approach, understanding of the privacy requirements, and interpretation and presentation layers should be provided to increase the utility of the data. The POC has since led to identifying further aspects to test in Tranche 1 and is providing a robust platform to gather feedback from consumers about what they want to see and what they value. These tests are being further developed using the Proof of Concept Methodology that has been developed in concert with the initial MyMeds app.

Figure 29: MyMeds Proof of Concept

NZ COVID Tracer

Effective contact tracing is a key pillar in New Zealand's elimination strategy of COVID-19. Rapid testing and self-isolation of contacts has been vital in reducing the risk of COVID-19 spread.

The development and use of a Consumer based phone app, the Ministry of Health's NZ COVID Tracer, has been an important component of New Zealand's response to the pandemic. NZ COVID tracer is the largest consumer-based Government provided app in New Zealand, with almost 2.4 million registered users.



Key learnings related to Hira consumer and provider services:

- **Accessibility**: there are no Government standards for mobile application development. Utilise the Government Web Accessibility Standards wherever possible and work with key stakeholders such as Blind Association New Zealand and Hearing New Zealand.
- **Communications and education**: simple and digestible messages should be formulated to ensure reach of audience in multiple channels.
- **Consent**: giving users the option to share or opt into features is important to them. Behavioral science can help improve the effectiveness of product and services.
- **Development**: utilising cloud-based platforms allows delivery of scalable products and services quicker than traditional on-premise technologies.
- **Digital Inclusion and equity**: design solutions that can be reached by as many New Zealanders as possible e.g. zero rated data.
- **Embracing modern ways of working**: an iterative development approach with continuous improvement should be taken to regularly release high value functionality. Use regular learning and feedback sessions to drive improvement of the product.
- **Engagement**: co-design and engage with key stakeholders. This includes users, Māori Health, accessibility teams, privacy experts, clinical and public health units.
- **Interoperability**: create standards-based Application Programming Interfaces (API's) so that these can reused by certified partners. This will allow the market to innovate and provide choice for customers.
- **Operating a consumer-based digital service for all New Zealanders**: there are complexities with device management and operating systems. Providing a service that meets the demand at scale requires toolsets, resources and new processes.
- **Prioritisation**: effective backlog management is necessary to deliver in a compressed timeframe. Understanding priorities is important to ensure focus is on value. Strong and effective product ownership ensures decision making is clear and well communicated to all stakeholders.
- **Privacy and Trust**: users are in control of their data. New Zealanders value their privacy and trust services delivered by Government. Recognise that trust is not always shared by all communities and continuous engagement and dialogue is needed.
- **Working with key agencies**: build key relationships and involve agencies early.

Figure 30: NZ COVID Tracer App

7.4 Change Approach: Service Creation, Adoption and Transformation

Within the Operating Model (Execute section F: Processes and Controls) the programme has developed a change approach[52]. This aims to facilitate and support the sector, industry partners and other stakeholders to assess the impact of the programme on operations and identify any attendant changes that may be required to their structures and functions. An overview of the change approach is provided below, and a summary attached as Appendix 19.

The programme would create, maintain, operate and improve the services described in the programme scope, and support the adoption of those services by stakeholders. Aligned with change management guidance published by the Treasury, the overarching change management methodology for the Hira Programme addresses preparing, managing and sustaining change in order to realise benefits, and is defined within the Hira Operating Model.

The change approach scope includes:

- Delivery of change management for the creation, maintenance and operation of Hira services.
- **Prepare:** Defining the business change required as a pathway to benefits realisation, assessing business readiness and engaging stakeholder as partners to ensure uptake and adoption of Hira products and services.
- **Manage:** Delivery of supported change management for the creation, maintenance and operation, and ongoing improvement of Hira services.
- **Sustain:** Supporting the change management required by stakeholders to adopt Hira services. The type and level of support required would differ for each stakeholder and adopted service.

The programme has a specific workstream, and allocated resources, to support change management for service creation and service adoption. Enabling and supporting transformative change is within the scope of the Programme.

Hira would impact suppliers of Hira services (or the underlying data or technology components of those services) and on the organisations and people that use or access those services. The consequence of creating services and adopting them could create transformative impacts. As Hira products and services move through the change and adoption cycle defined in the Operating Model, the change management requirements would differ between service creation, adoption and transformation, and define distinct activities aligned to the specific stakeholder needs and development activities at each point. The change and adoption cycle and the change management approach is depicted in Figure 31.

- **Service Creation** Change activities (such as stakeholder and business readiness assessments) would be required when the programme connects, accesses data sources or creates new services such as APIs. These activities would focus on how data or services are made available and on any consequential changes to the suppliers of the services (for example, on process changes required to curate and govern a new data source). These changes would need to be planned, designed, delivered and evaluated effectively as part of service creation to ensure the change is fit for purpose to deliver value.

[52] Hira Change Approach: Service Creation, Adoption and Transformation Ministry of Health, v3.0 15 January 2020.

- **Service Adoption** Refers to change activities required at the point of adoption of Hira services by stakeholders, to ensure that understood use cases in the sector are supported and value delivered. The programme would provide broad supports for service adoption and change across the health and disability system, for example providing for digital inclusion and digital literacy uplift for consumers and supporting technical and business process change for providers. This service change and adoption approach would need to understand and work in concert with other change priorities and activities.

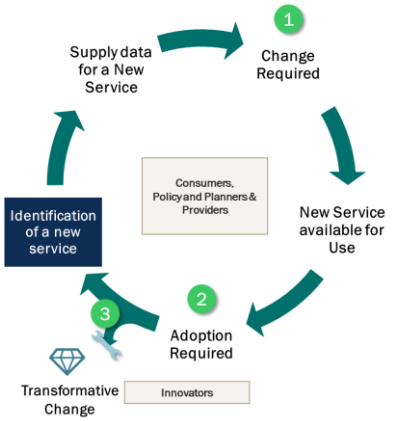


Figure 31: Hira Change and Adoption Approach

- **Transformation** Opportunities for innovation and transformational change would emerge as Hira services are adopted in new and exciting ways, rather than being identified and led by the programme. On the basis of good intelligence and an iterative delivery approach, the programme would have a good sense of where transformative change is emerging or could be enabled and would be able to promote, support, encourage and guide these opportunities with the Ministry as policy lead, policy enabler and kaitiaki of the health system.

Transformative change would be in scope where innovative use cases and applications of Hira services are identified for investment and are supported by the programme. (i.e. not all transformative initiatives related to Hira are within scope, but provision is made to support prioritised transformative projects that originate within the sector).

In order to address the complexity and challenges of change and adoption activities for all stakeholders, the programme would:

- Implement an active learning approach to inform investment and prioritisation decisions at regular intervals. Key decision points include:
  - Portfolio: value, risk and achievability assessments.
  - Research & Development and Solution Development Lifecycle: assessments on value, impact on data governance and technical feasibility.
  - Change & Adoption: evaluations of new opportunities and further investment.
- Leverage prototypes, pilots, POCs and early adopters of Hira services throughout the delivery tranches to discover and evaluate achievability, risks and value, as well as deliver continuous improvement.
- Make decisive and evidence-informed decisions about the continuation or improvement of any activity based on the learnings generated from the above.

7.5 Benefits Management

The benefits expected to be realised by Hira are described in Section 3.4. These would be delivered incrementally as the programme rolls out through the Tranches. The programme has developed a high-level Benefits Realisation Management Strategy and Plan[53] and Benefits Register, detailing the measures and realisation against target. Identification, measurement and tracking of benefits would be undertaken to ensure that the expected outcomes are realised. The Programme Senior Responsible Owner would have overall accountability for the realisation of benefits. Benefits monitoring and reporting would be the responsibility of the Hira Programme Director. The Benefits Register would be maintained for the duration of the Programme.

The benefits plan would be reviewed agreed points in the programme implementation. The final benefits review would be developed at the end of the programme implementation and would run alongside the programme evaluation.

7.6 Risks and Issues Management

Approach

The objectives of the risk management approach are to identify, assess and mitigate risks where possible and to monitor risks continually throughout the remainder of the project, as other risks or threats emerge or a risk's impact or likelihood changes. As risk management is an ongoing process over the life of the programme, the Risks and Opportunities Management Plan (ROMP) and Risk and Opportunity Register are considered to be a 'snapshot' of relevant risks at a point in time. Where required, the process of risk identification, assessment and the development of countermeasures would involve consultation with the Steering Committee members, the Hira Governance Group, other relevant stakeholders and project team members.

A comprehensive risk assessment would be undertaken for the implementation of the outward facing services (consumer, provider, data) of the Hira programme in accordance with the Agency's risks guidelines and the Australian and New Zealand Standard on Risk Management (AS/NZS ISO 31000:2009).

Process

The programme risk management process is depicted in Figure 32.

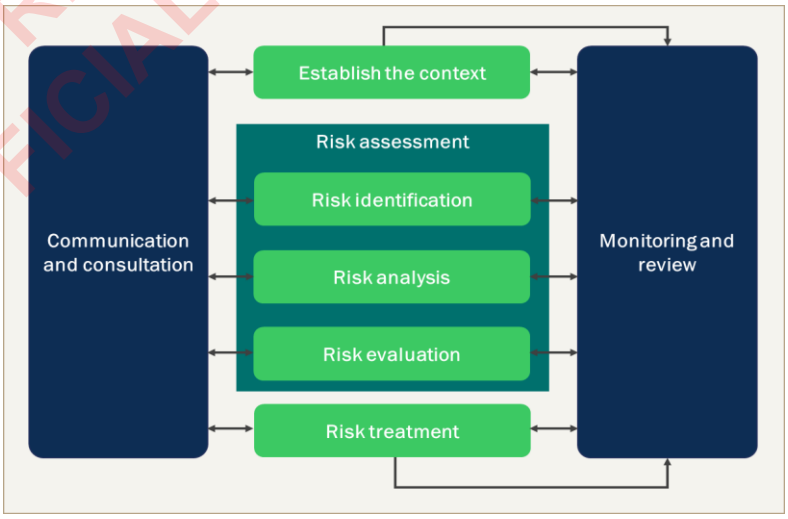


Figure 32: Hira Risk Management Process

[53] Benefits Realisation Management Strategy and Plan v1.9 25 November 2020

The treatment of risk involves selecting one or more options for modifying the risk or managing the risk to a status acceptable within the programme risk tolerance. Risk treatment recognises that elimination of risk is not always possible or desirable. Instead, treatment aims to drive the risk as low as is reasonably practicable or achievable, thereby achieving a balance between the cost of managing the risk and the anticipated benefits. The risk is then reassessed providing an assessment of the residual risk – the level of risk with controls and treatments in place.

The potential risk treatment mechanisms are outlined in Figure 33.

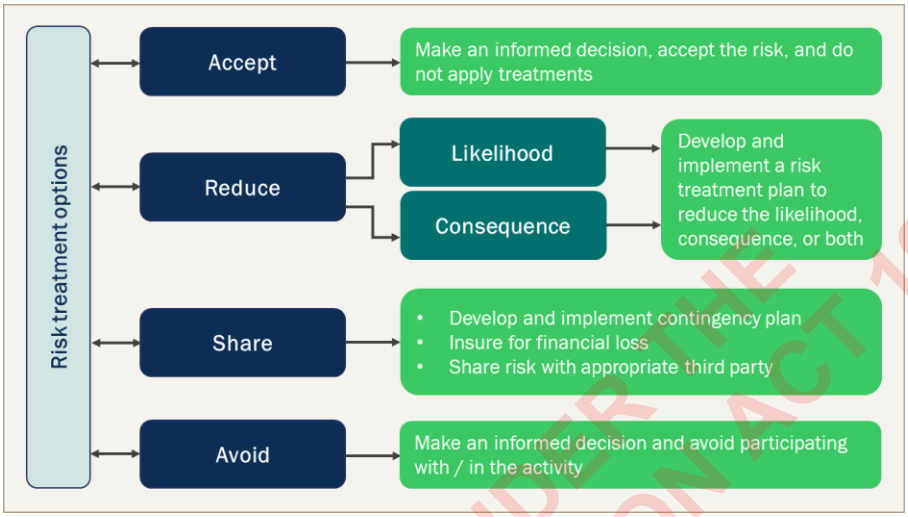


Figure 33: Risk Treatment Mechanisms

Risks and Issues Management Roles and Responsibilities

The key roles and responsibilities for managing programme and project risks are summarised in Table 29.

Table 29: Hira Risk Management Roles and Responsibilities

Role	Summary
Governance Board	Ultimate responsibility for ensuring that appropriate risk management processes are applied rests with the SRO and the Governance Board. The ROMP and the Risks and Opportunities Register would provide the SRO and the Governance Board with clear statements of the programme/project risks and the proposed risk management strategies to enable ongoing management and regular review. The Governance Board would review the risks rated 'High' and 'Extreme' on a monthly basis, via updated information provided in the Programme Status Report and provide advice and direction to the SRO. The Governance Board would also receive updates on the overall profile of programme risks on a monthly basis.
Steering Committee	The Steering Committee would review the risks rated 'High' and 'Extreme' on a monthly basis, via updated information provided in the Programme Status Reports and provide advice and direction to the Programme Director. The Steering Committee would also receive an updated Risks and Opportunities Register for consideration, as required, when additional threats emerge or the likelihood or potential impact of a previously identified risk changes.

Role	Summary
Programme Director	The Programme Director would be accountable (and the Programme Deputy Director responsible) for: • Development and implementation of a Programme Risk Management Plan. • Organisation of regular risk management sessions so that risks can be reviewed and new risks discussed. • Assessment of identified risks and developing strategies to manage those risks for each phase of the project, as they are identified. • Ensure that risks given a 'High' or 'Extreme' rating are monitored closely. • Providing regular status reports to the Steering Committee, noting any 'Extreme' Grade risks and specifying any changes to the risks identified during each phase of the project and the strategies adopted to manage them.
Clinical Director	The Clinical Director would be responsible for: • The overall clinical oversight across the programme, including functional leadership of all Clinical Leads within the programme. • Engagement and leadership of sector change impact and adoption of Hira services as it relates to clinical stakeholders. • The development and maintenance of social licence over the use, interpretation and presentation of clinical data in Hira services.
Programme Team / Project Team	All members of the programme team are responsible for assisting the Programme Director in the risk management process. This includes the identification, analysis and evaluation of risks and continual monitoring throughout the programme life cycle.

Project Risk Management

Projects undertaken as part of the Hira programme would be required to establish a ROMP and Risks and Opportunities Register at the inception of each program or project. The way in which the ROMP is developed would depend largely on the size, scope and complexity of the program or project that it relates to. Smaller projects may include the ROMP as part of the overall project plan with a separate register. Larger and more complex projects would ordinarily require a separate stand-alone ROMP.

The key risks and issues identified for the Programme are summarised in Table 8 in Section 3.5 and detailed further in Appendix 6.

Issues Management

Through the lifecycle of a programme, unplanned events or unexpected problems would arise that need to be resolved in order to complete the programme. If not resolved, an issue would impact programme cost, delivery date, or quality of deliverable. In an extreme instance, an issue can prevent the completion of the programme.

The programme issues management plan provides a means of recording issues as they arise or for recording highly probable risks, analysing the issue to determine what the problem is, how it would impact the programme, what the resolution for the issue is, and the timeframe for resolving the issue, and tracking issues so that they are all closed out before final delivery of the programme.

Some issues may require formal changes to the scope of the programme in order to be resolved. If a formal change to the scope is required, a scope change request would be submitted. The programme Director would be responsible for reviewing all assigned issues and recording and monitoring the progress of all issues. The steering committee would be responsible for any issues that could not be resolved by the programme team or that the programme team needs assistance in resolving. Specific responsibilities include resource acquisition, as appropriate and settling disputes between stakeholders.

Escalation of an issue would happen in several ways depending on the circumstances:

- If the issue is not resolved by the resolution date, it would be presented for resolution to the next higher decision-making team/body.
- An issue may be escalated to the programme team at any time, if it becomes clear that the issue has implications for the programme as a whole.
- The programme manager may involve the key stakeholders and/or SRO at any time if unable to resolve an issue within their authority, although the issue remains at programme level.

Change Control

The change control process ensures that that any changes to the delivery of the programme against its original scope are managed and documented. Change control is the process through which all requests to change the baseline scope are captured, evaluated and then approved, rejected or deferred. All proposed changes within the Hira programme would be required to follow this process. The process would align with the programme tailored hybrid delivery model.

The primary objectives of change control are to manage each change request from initiation through to closure, process change requests based upon direction from the appropriate authority, communicate the impact of changes to appropriate personnel, and allow small changes to be managed with a minimum of overhead.

A multi-tiered approach would be used to approve change requests:

- The programme manager would make decisions to analyse and decisions to proceed with changes, if the changes do not impact scope, budget or schedule or result in an increase in risk.
- The Steering Committee would make the final decision, based upon the information provided.
- Changes which impact scope, budget or schedule of the overall programme plan would be forwarded to the Steering Committee for review. The Steering Committee would advise the Senior Responsible Owner. The change would then be escalated to the Governance Board for further consideration.

Any material change to programme scope which would impact on the proposal, as described in this business case, would be referred back to Cabinet or Joint Ministers if delegated.

7.7 Reporting, Monitoring and Evaluation

Programme Reporting

Reporting on Programme progress would be provided by the Senior Responsible Owner at periods agreed as part of detailed implementation planning, including key agreed milestone points. The programme would provide reports back to Cabinet on benefits realised, at points as agreed with the Central Agencies and Cabinet.

The programme would monitor DHB costs and costs of change for direct Hira investments. This would be part of the programme monitoring and reporting framework, as the change assessment for each tranche would identify what investment is being made (and what projects are being leveraged), by which organisation and who is funding that investment.

Programme Monitoring

The programme has been assessed as 'High Risk' through the Treasury Risk Profile Assessment. It would be subject to Treasury Major Projects Monitoring Assurance, ongoing monitoring and Gateway reviews. Each Tranche would be subject to external and internal monitoring and review, as agreed with the monitoring agencies.

Internal **Quality Assurance** (QA) would be provided by the Hira Steering Group and the Governance Group, as well as the Ministry Enterprise Programme Management Office (EPMO). The EPMO has focused specifically on the programme structure and governance arrangements, rather than the business case and associated documentation. The EPMO sets the overall strategic direction for work across the Ministry and, through regular monitoring, would ensure that the programme is well aligned to Government, sector and Ministry strategic objectives. The PMO within the programme would be responsible for the successful management of the programme (i.e. cost, quality, scope and time) and would be directly accountable to the Hira programme. It is appropriate that there is a dotted-line from the Hira PMO to the Ministry EPMO to ensure reporting and metrics are aligned and follow Ministry standards and practice. (Note: this setting allows the Co-Director role to exist within the PMO, no strategic tension required as that is provided external to the programme by the EPMO).

Independent Quality Assurance (IQA) is conducted on behalf of the SRO to provide assurance that the project is appropriately planned, managed and controlled, and that the governance supports the project to best effect. The Ministry of Health Capital Investment Committee would review the programme business case, as well as the Tranche business cases (if agreed). An external IQA provider has been commissioned to provide review of the Tranche business cases.

Technical Quality Assurance (TQA) services are required to review the deliverables from the architecture workstream, contributing to the Hira case for investment. An external TQA provider has been commissioned to provide this service, the core elements of which include:

- Tracing architecture, services and capabilities to stakeholder preferences, objectives and requirements.
- Assurance that the technical capabilities and services are technically suitable for the purpose proposed.
- Review of whether technical scope is broad enough to meet the programme requirements as outlined.
- Assessment of whether regular and appropriate reviews of artefacts have taken place by qualified and experienced resources.
- Assessment of whether technical standards are being adhered to (where required) or are defined (for new items).

- Review of assumptions and risks to ensure they are reasonable for the level of definition at the programme business case level.
- Review of risks and issues highlighted to ensure that they are appropriate and complete, and that mitigations proposed are sound and sufficient to manage the identified risk.

Gateway Review

The Programme has been assessed as 'High Risk' through the Treasury Risk Profile Assessment and is therefore subject to Gateway reviews. The purpose of Gateway Reviews is to provide the SRO with information and advice to increase the chances of programme success.

During the preparation of the 2017 Indicative Business Case, two Gateway reviews were undertaken: a Gate 0 review (Strategic Assessment) was held in October 2016, followed by a Gate 1 (Business Justification & Options – Indicative Business Case) review in April 2017. The findings from these reviews have been taken into account in the development of the programme business case. In particular, the programme has focussed on broadening sector engagement to better understand both the potential benefits and challenges in implementing an initiative on this scale. There has been a strong focus on defining an appropriate governance structure, including the establishment of a range of sector and partner groups with consultation and oversight responsibilities.

The Programme undertook a combined Gateway 0/3 (Investment decision) review in January 2020, focused primarily on the programme business case and the supporting artefacts that have been developed as part of developing the business case and programme planning.

In response to the recommendations, the programme has increasing the clarity on strategic alignment and highlighted the descriptions of the value realised by each tranche in the business case. The remaining recommendations (strengthening assurance, reviewing the governance and advisory bodies, appointing key roles and progressing the development of the Tranche 1 business case) would be addressed following approval of the programme business case.

Further Gateway reviews are planned and anticipated. It is expected that Gateway reviews would be required, as a minimum, for each Tranche as the tranche business case is developed. Benefits reviews would be scheduled as appropriate. Ongoing engagement with the Central Agencies and Gateway Team at Treasury would determine whether any other Gateway reviews are required as the programme progresses.

Programme and Project Evaluation

The proposed programme and tranche evaluation process is as follows:

- **Programme monitoring:** Ongoing monitoring would be undertaken at national, regional and local levels. This would include the active learning approach identified in the Change Approach.
- **Post-Tranche evaluations:** As post-Programme evaluation cannot be undertaken until the programme has been fully implemented, progress would be monitored by tranche. Tranche reviews would take place within 12 months following the final project implementation in that tranche. This evaluation would encompass:
    - Evaluation of the tranche benefits realised compared with those initially identified.
    - Assessment of the project deliverables.
    - Evaluation of the implementation process.
- **Post-programme evaluation:** this would be undertaken in 2026/27, once the national implementation is complete and any outstanding issues are remediated. This would include a process evaluation and outcome evaluation and would build on the monitoring and evaluation work completed during the life of the programme. Whilst the life of this programme has been projected at ten years, for costing and benefits purposes, the programme function (directing and managing the rollout) would cease once the final go-live is complete.

7.8 Programme Key Milestones

The proposed programme plan has been developed based on the proposed implementation approach summarised in Section 4.4. The programme is intended to be implemented over five years, commencing in 2021 with the completion/approval of the Tranche 1 business case. The programme implementation is expected to conclude in December 2026 with final handover to the relevant Ministry team(s) to be maintained and evolved as 'business as usual'.

The key programme milestones and approximate timings are shown in Figure 34. All tranches are planned to commence in July of the relevant year, following a Gateway and as aligned with the annual budget bid process.

The timeframe is deliberately aggressive in order to minimise delivery costs and realise benefits as quickly as possible. The timeframe for each tranche would be re-evaluated as part of tranche planning and any material change to the tranche or programme timelines would be managed through change control processes.

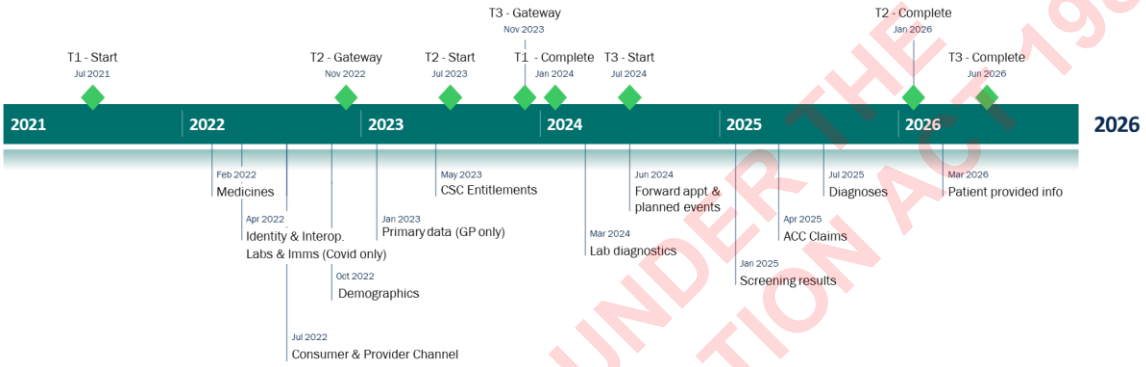


Figure 34: Hira Implementation Proposed Timeline

Appendix 1: Mental Health Persona - Example

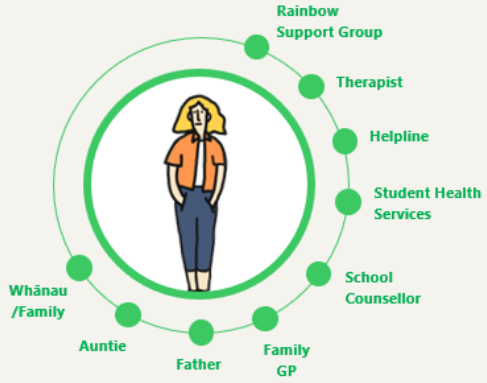
Kelly

BACKSTORY

Kelly is a 17 year old Pākeha girl in her final year of high school who lives in Tokoroa with her dad following her parents difficult separation. She has always felt different from the rest of the girls and has started to question her gender identity, which is making her feel distressed and anxious. Relentless cyber bullying about her choice in clothes and the pressure of her final year are compounding and become too much for her. Kelly becomes uncharacteristically withdrawn and is anxious about going to school and after a few months she realises that she needs help. She doesn't feel comfortable opening up to her dad whose opinions are quite conservative. So she starts researching online and is quickly overwhelmed by options. After seeing an ad on Instagram she contacts a youth helpline anonymously.

Themes explored:
Youth and young people, mental health, LGBQTI, equity, consent and control of information, role of family, cyber bullying, online resources, virtual care

TOUCHPOINTS



> *"If you are experiencing mental distress, you might think it is not an issue for young people and that you are the only one experiencing mental health issues."*
>
> Provider, Interviews

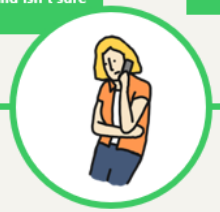
KELLY | MENTAL HEALTH

Current State Experience

KELLY

ADVICE

Kelly speaks anonymously with a youth support helpline and is given some basic information and techniques to manage her feelings. She feels like she now has a better understanding of what's happening but is struggling to keep on top of managing it herself and isn't sure where to turn next.



CRISIS/ INTERVENTION

Teachers notice that Kelly's marks were declining and she's been missing lessons at school, so they suggest she speak with the school counsellor. Kelly talks with the counsellor about how she's been struggling emotionally, the counsellor gives her some information and pamphlets and sends her back to class.

TREATMENT

A few weeks later Kelly's father notices that she has taken a lot of sick days from school and is complaining about having trouble sleeping and stomach aches, so he takes her to see the family GP. As her father waits outside Kelly answers some questions about her mental health and wellbeing and it becomes clear that she needs further support. Kelly's GP informs her that she may be eligible for subsidised counselling. He hands her a referral, a form, and a list of options for therapists to contact.

After a number of weeks Kelly finally finds a therapist she connects with, however there is a 3 week wait and they are located in another town making it hard for her to attend regularly. After completing a few of her counselling sessions Kelly starts to feel like she is back on track. She manages her anxiety during the final NCEA exam period, but is worried about how she will manage moving forward.

RECOVERY

Kelly's NCEA results come in and she accepts a place at Otago University. The pressure of first semester assessments and finding a new job increases her distress. Recognising she is in a downward spiral she reaches out to Student Health Services who inform her that she needs to change her enrolment from her home GP to access their services. Student Health connects her to their counselling service. Again, it takes Kelly a few tries and many weeks to feel comfortable with the person she is seeing, and finds herself having to tell her story all over again. They work together to develop a wellbeing plan for Kelly.

MANAGEMENT

Months later, without a support network around her, Kelly is finding it difficult to stay motivated and on top of her wellbeing plan. The counsellor supports Kelly in reaching out to a rainbow support group on campus, and suggests she reaches out to her Auntie, who lives in Dunedin, to get some support and space. Kelly feels like she still needs help maintaining healthy sleep habits.

Challenges & considerations

ADVICE	CRISIS/ INTERVENTION	TREATMENT	RECOVERY	MANAGEMENT
There is a lack of integration between the school and other services around Kelly, and data around students wellbeing is fragmented making it difficult to get a rich picture of a young person's wellbeing	Schools and universities are large institutions and individual students, like Kelly, can get lost in the noise - it's often on individual counsellors or teachers to spot students in need	This is the first time that the health system is aware of Kelly's situation and they lack visibility of Kelly's complex story up until this point from previous discussions she's already had	For diagnoses, labels, and other medical language to be valuable to patients they need to be preceded with context and be explained in a way that makes sense to the patient.	There are a broad range of entitlements with complex criteria so for Kelly and her father it can be hard to navigate and they may end up missing something that could improve the way they receive care and support	Having someone within the whānau who has experienced a mental health event and is open about their experience can be an important catalyst in seeking help as well as ongoing management
The stigma around mental health events discourages people from seeking help or speaking up, particularly in certain community groups where religion and tradition is closely tied to health and wellness	Unless the counsellor is concerned for Kelly's safety they won't involve her father - Her privacy is protected but it means her father is completely unaware of her situation	Sharing her situation openly with a family GP is concerning for Kelly who's worried about her father or school knowing of her situation and how this may affect the way she is treated	Beyond basic identifiers such as male/female, or cultural background, the data that is currently collected does not capture contextual information that would truly reflect an individual, their story or preferences.	From puberty the incidence of mental health conditions increases, including depression, anxiety, psychosis and suicidal ideation; young people in New Zealand have one of the highest rates of suicide in the developed world.	Kelly, as a female student with sexual orientation concerns, is part of a group that has some of the highest occurrence of mental health symptoms in young people. If Kelly were of Māori, Pasifika, or Asian decent this would be even higher
	Lack of connection between learning support and mental health support meaning that neither has a complete picture of Kelly's overall wellbeing	In order to access student health, Kelly has to transfer/enroll between PHO, a step that creates a barrier to entry for those in need of help	The onus is largely on Kelly to take the next step creating a large and daunting experience for a young, anxious individual	People need help to navigate the complexity of the system - there are plenty of potentially unspoken steps and processes that need to be made explicit	

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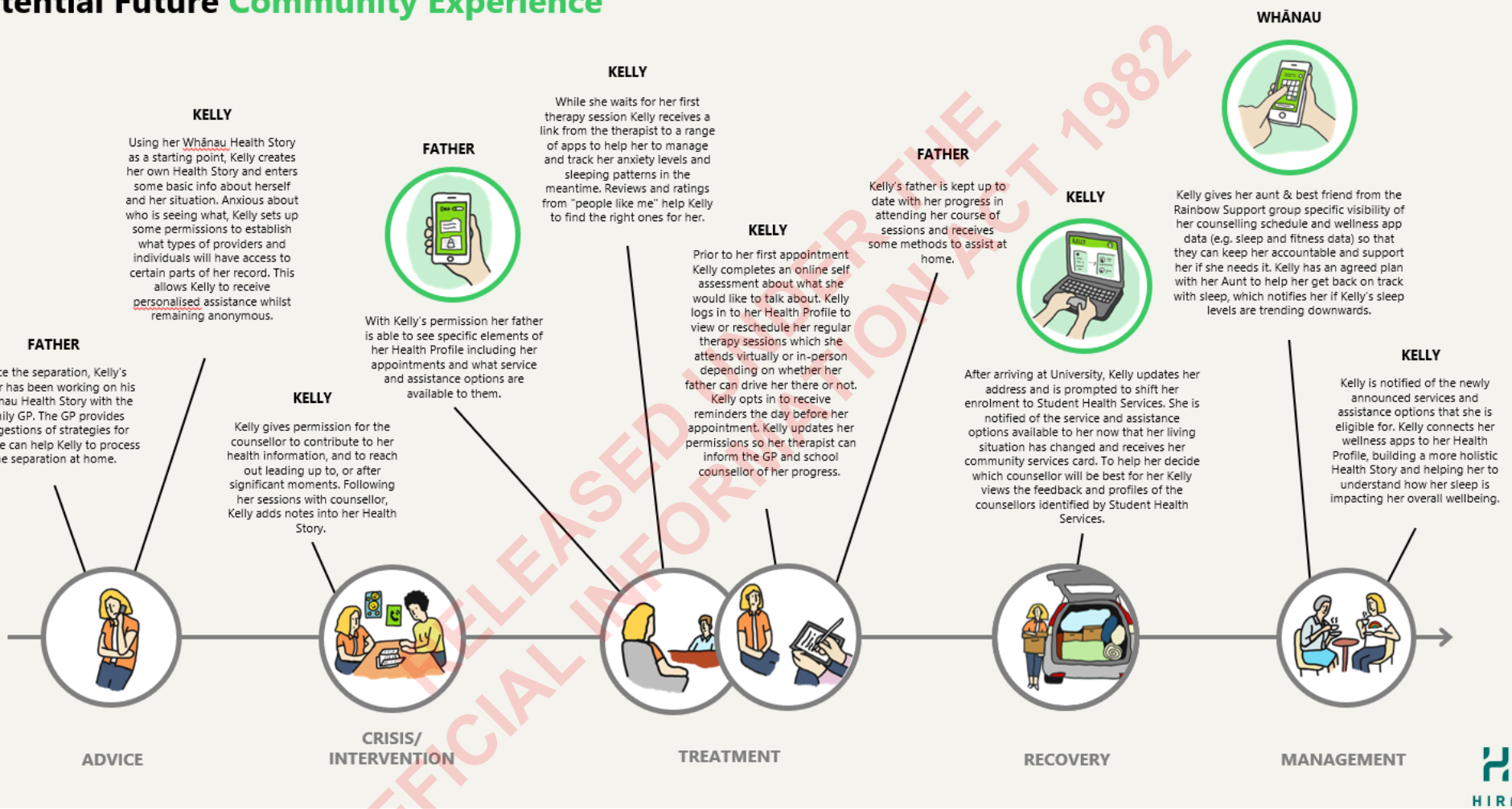
HIRA

KELLY | MENTAL HEALTH

Potential Future Community Experience



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HIRA

Appendix 2: Strategic Context

Programme Context

Hira has been developed in the context of a health and disability system which is striving to improve services and realise better health outcomes for all New Zealanders. The system's strategic themes and concepts are summarised in Figure 35.

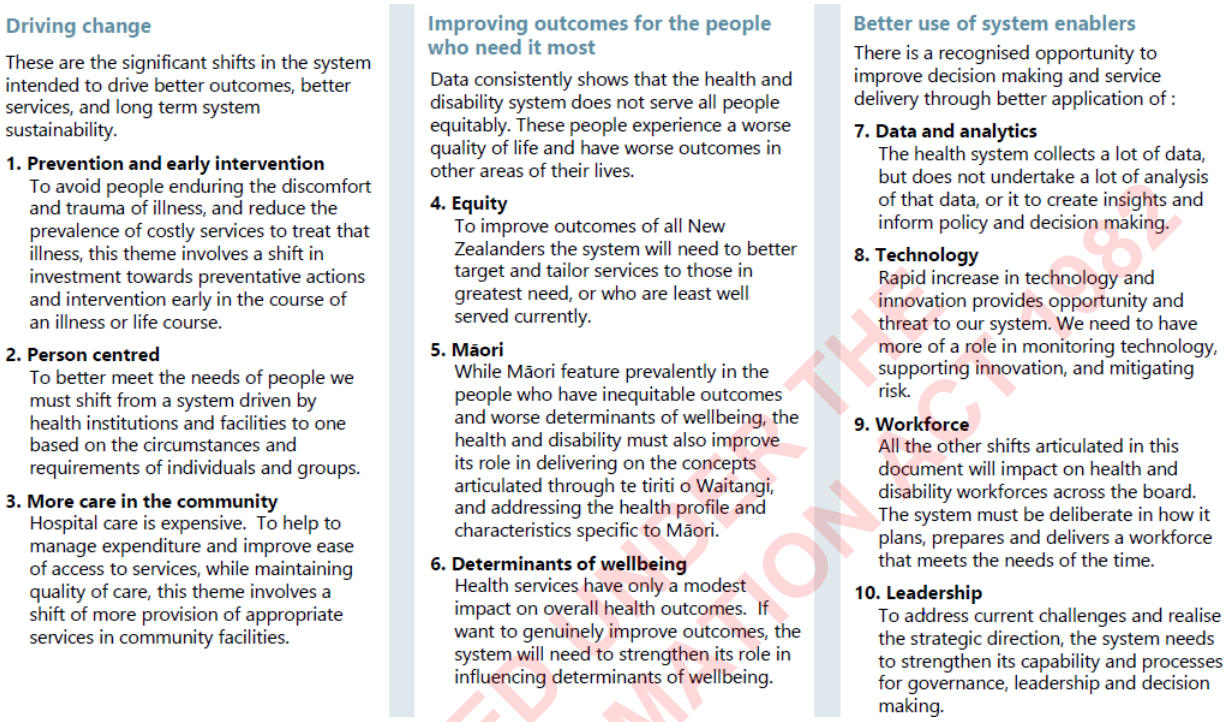

Figure 35: Health and Disability System Strategic Themes and Concepts Not Government Policy
Source: Ministry of Health, February 2020

The recently published Health and Disability System Review Final Report[54] noted that:

"The next 20 years will bring sizeable shifts to New Zealand's population in terms of age, ethnicity, and geographic spread. Environmental, social, technological, and cultural changes also will provide both opportunities and pressures on the sustainability and efficiency of the health and disability system."

The report is clear that if the health system is to become more equitable and viable, a number of changes need to be made urgently. Three key system enablers are identified:

- **Workforce** – kaiāwhina, surgeons, nurses, lab technicians, cleaners, managers and the hundreds of other categories of workers employed throughout the health and disability system, without which it could not function.
- **Data and digital technologies** – the ways of working and platforms required for a digitally enabled, information rich, data-driven system, and tools that are easy to use, inclusive and provide confidence to consumers and clinicians.
- **Facilities and equipment** – from hospital campuses and buildings, to equipment such as linear accelerators and MRI machines that enable care to be provided safely and effectively.

[54] Health and Disability System Review Final Report March 2020.

The Report refers specifically to the proposed investment and states that "the National Health Investment Platform (nHIP)...would provide a powerful platform for data integration and systems interoperability across the health and disability system. There is no question that this investment is urgently required"[55].

The Report also notes that:

"To enable a data-driven, digitally-enabled ecosystem that supports modern models of care, investment is required in more than just technology. The system needs to work differently to accelerate the digital transformation toward safer, more productive care delivery resulting in better experiences and more equitable outcomes for people."

Effective use of data provides the opportunity for two transformational changes to the health system, the first in the relatively near future and the second representing a generational change:

- The provision by health and disability services, of better and safer outcomes at a lower cost and with reduced stress on New Zealanders requiring care.
- The empowerment of New Zealanders to take greater control over the way they live their lives, enabling healthier choices and leading to a reduction in the growth in demand on the health and disability system.

External Environment - Political

In the 2019 Budget, the New Zealand Government signalled a shift in focus from economic growth alone to a broader definition of success. The Wellbeing Budget included financial health, as well as the health of natural resources, people and communities. The five areas of primary focus were:

- Supporting mental wellbeing for all New Zealanders, with a special focus on under 24-year-olds.
- Reducing child poverty and improving child wellbeing, including addressing family violence.
- Lifting Māori and Pacific incomes, skills, and opportunities.
- Supporting a thriving nation in the digital age through innovation, social and economic opportunities.
- Creating opportunities for productive businesses, regions, iwi and others to transition to a modernised and low-emissions economy.

This approach is supported by the introduction of the New Zealand Treasury Living Standards Framework (LSF). The LSF has been developed by the Treasury to enhance the quality of its advice about lifting broad living standards. This is through improved analysis and measurement of intergenerational wellbeing and the support the LSF provides to the Treasury's core economic and fiscal advice processes. The LSF is a framework on intergenerational wellbeing spanning a broad range of economic, social and environmental outcome domains at a high-level. To support the implementation of the LSF, the Treasury has developed the LSF Dashboard, a structured database of indicators that provide an integrated system for measuring wellbeing outcomes. Together, the LSF and its Dashboard aim to provide a balanced and comprehensive view of wellbeing outcomes suitable for use in the Treasury's policy advice processes.

[55] Health and Disability System Review Final Report March 2020. P215

External Environment – Social and Demographic Factors

The Ministry's Health and Independence Report 2016[56] highlighted that social, economic, and physical environment strongly influence health outcomes, as well as people's ability to adopt and maintain a healthy lifestyle. This environment is influenced by the economy, social organisations such as local Government, central Government and workplaces and communities.

The social environment comprises family and whānau structure, social connectedness, culture, employment status, exposure to crime and violence and levels of education. This environment influences health literacy, social norms, lifestyles, the value placed on health and ability to cope with life's adversities.

The New Zealand population is growing just over one per cent per annum on average and is expected to reach around 5.7m people by 2037/38.

The New Zealand population is also ageing, with an increasing median age and a growing proportion of older people. The number of elderly people in New Zealand is increasing at a greater rate than overall population growth, at around 3 per cent per annum (see Figure 36). People are living longer and fuller lives, which is good news for individuals and their families. However, older people are more likely to have disabilities and co-morbidities and they place greater demands on primary, secondary and tertiary health services. The annual health cost of a person aged 80 is approximately five times that of a 50-year old person.

The population growth for all age groups is shown in Figure 36.

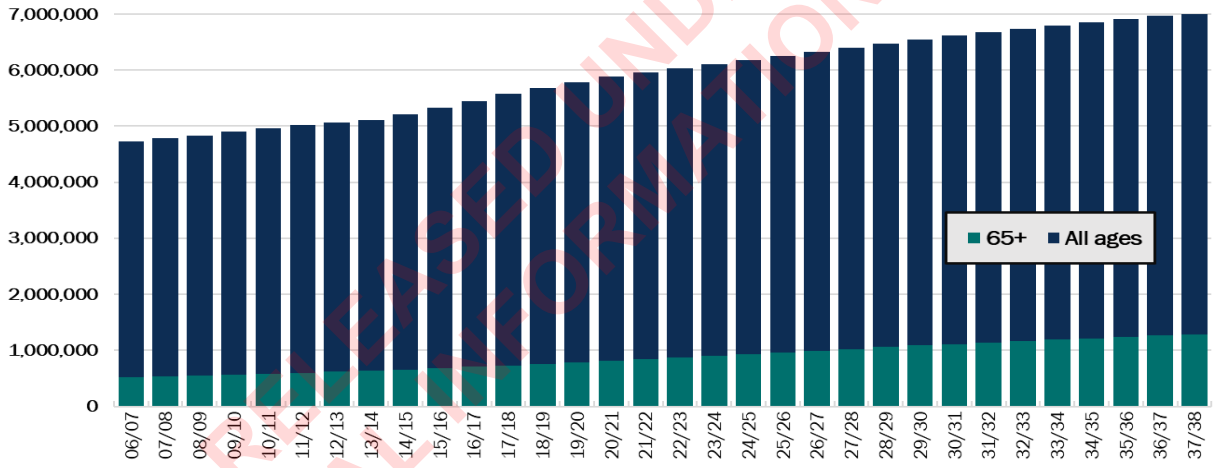

Figure 36: New Zealand Population Financial Years 2006/7 - 2037/38
Source: MoH October 2019

The ethnic mix of the New Zealand population is changing, with Māori, Asian and Pacific populations growing faster than the New Zealand population overall. Different ethnicities have slightly differing health needs, as some conditions are more prevalent in some groups than in others. The demands on some services will increase at different rates in different locales, based on the ethnic mix within that locality. Some of New Zealand's population groups do not benefit from the health and disability system as much as others. For example, while New Zealanders overall are living longer, Māori and Pacific peoples still have lower life expectancies than the population as a whole.

Changes in lifestyles are impacting the demands on health care services. The combined impact of poor diet and increasingly sedentary lifestyles is driving an increase in the prevalence of long-term chronic conditions. This is resulting in increased demand on health services, as people are living longer with more complex health conditions. People have greater access to information about conditions and treatments, and expectations of health service provision are rising and, in many cases, exceeding the ability of services to deliver.

[56] Ministry of Health, 2017 http://www.health.govt.nz/publication/health-and-independence-report-2016

External Environment – Economic

s 9(2)(b)(ii), s 9(2)(f)(iv)

"There is an immense opportunity for technology to assist with information sharing, gathering of health data and identifying trends in performance that feed back in to whole of system improvements." NGO

s 9(2)(b)(ii), s 9(2)(f)(iv)

New Zealand's total health and disability spending is about 9.5 per cent of gross domestic product (GDP); this covers spending in the public, private and non-Governmental organisation (NGO) sectors, including ACC expenditure. As a percentage of GDP, the total is slightly over the OECD average but consistent with most OECD countries. Health makes up about 22 per cent of Government spending[58].

The Treasury estimates that, if nothing were to change in the way services are funded and delivered, Government health spending would rise from approximately seven per cent of GDP now, to about 11 per cent of GDP in 2060. It is essential that the Ministry of Health, working with the sector, finds new and transformative ways to deliver services, investing resources in a way that will provide the best outcomes possible for people's health and wider wellbeing.

The increasing cost of providing health services through the current model cannot be maintained in the long term. To address this, transformational change is needed. Health services must adapt to meet a core set of challenges:

- New Zealand must find ways of providing services that are still affordable and addresses core problems in the face of increased demand – health services need to be more efficient.
- Some of New Zealand's population groups do not benefit from the health and disability system as much as others – health services need to ensure equity.
- New Zealanders' needs and expectations are themselves changing as the population ages but also because it is becoming more ethnically diverse and technically savvy – health services need to be future focused.

External Environment – Technology

The New Zealand health and disability system has been investing in technology to collect consumer related data for more than 50 years. The system is awash with data. However, unlike other industries (such as retail and banking) in healthcare, data remains largely fragmented and often difficult or impossible to access holistically when required.

The world of technology is advancing rapidly and affecting many aspects of people's daily lives, such as the way they shop, bank and travel. Health services are also being transformed by emerging technologies, driving changes in what, how, where and when services are provided, as well as who provides them.

[57] https://treasury.govt.nz/publications/estimates/vote-health-health-sector-estimates-2019-2020-html#section-2

[58] New Zealand Health Strategy: Future Direction NZ Government April 2016

Technology is revolutionising health systems. Robots and other automated systems are carrying out repetitive and predictable processes, advanced analytics are providing new insights into complex health problems, and research breakthroughs in human science are making 'personalised medicine' a reality for more and more people. Investment in digital health care technology worldwide has risen dramatically in recent years, enabling new capabilities in areas such as virtual care, wearables and remote monitoring. As adoption increases, these new technologies offer significant opportunities to transform the way healthcare is delivered. The use of technologies can improve the management of long-term conditions, decrease hospital admissions and reduce travel costs.

New technologies have the potential to generate large amounts of data that can give insights into the health system and the health of New Zealanders. Data and smart information systems can support evidence-based decisions on treatments, options and interventions. Technology can perform some tasks, help people communicate with each other and, ultimately, improve productivity.

Hira Response

Providing electronic access to health information is a core requirement for a modern public health system. Improving access to data impacts the provision of health care on an individual basis, as well as increasing the ability to use it in aggregated form to provide insights, support research, and improve planning and performance monitoring.

Internationally, there is a move to improve the use of health care data and information to support health care, as would be achieved through Hira. In some jurisdictions this is through the development of a single EHR and in others (in recognition of the material challenges inherent in creating a single EHR) the aim is a more collaborative rather than aggregated approach. The recommended Hira approach takes into account learning from numerous other countries who are also investing in this space, in particular the Netherlands, Sweden, Denmark and Estonia. The Hira approach recognises that each of these countries has a different health care model, cultural norms and IT requirements and therefore although Hira has learned from their approaches, it does not seek to replicate them.

Advances in technology now enable the dynamic accessing of health information from multiple sources, without the need for aggregation into a single EHR. This is a highly flexible approach as it allows the use of health information to more readily evolve and adapt over time in response to changing needs. The Hira approach is informed by the experience of other industries such as banking and retail who have successfully used data and information to innovate and transform their business delivery models.

Appendix 3: Investment Logic Map

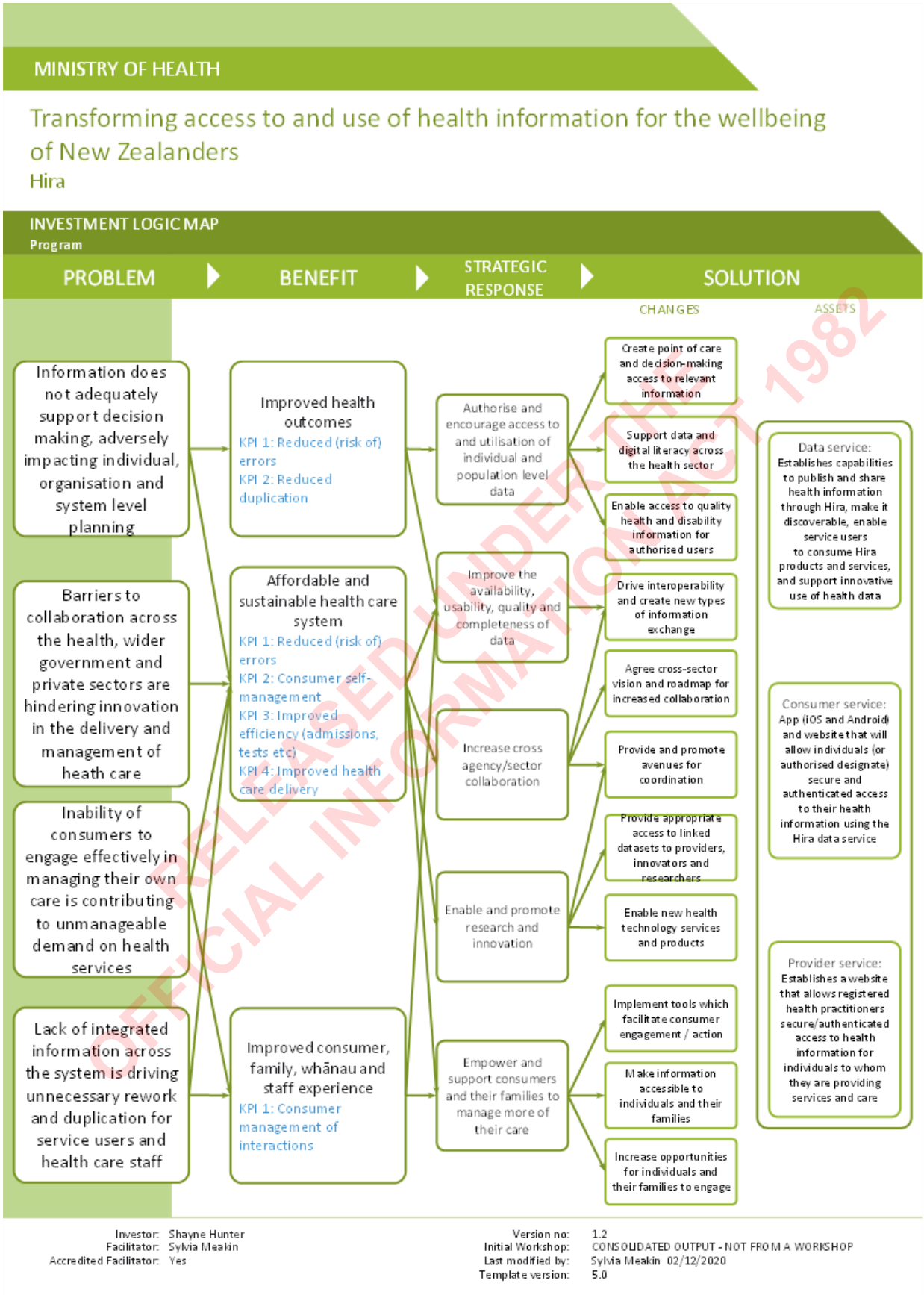

Figure 37: Hira Investment Logic Map

Appendix 4: Scope

The service requirements range from minimum (essential to the success of the programme), intermediate (essential and desirable service requirements), and maximum (essential, desirable and aspirational service requirements). Items that are out of scope are specified for clarity. The recommended scope for Hira across the three tranches is Intermediate, as summarised in Table 30. The maximum scope is aspirational and is not included within the scope of this investment. The programme scope would be reassessed as part of each tranche business case.

Table 30: Hira Scope and Key Service Requirements

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Data and Digital Quality Management				
Undertake data curation[59] and mitigations for data quality of Hira datasets	✓			
Manage the quality of data at source for Hira identified datasets				✓[60]
Deliver core business process and technical improvements required for adoption of Hira services		✓		
Support the delivery of business process and technical improvements required for adoption of Hira services – third party organisations			✓	
Deliver business process and technical improvements required for adoption of Hira services – third party organisations				✓
Standards				
Mandate and support the use of standards required to link to Hira across the sector and monitor adherence	✓			
Provide incentives to use and apply non-Hira related standards in the sector				✓
Mandate the use of non-Hira related standards across sector and monitor adherence				✓
Privacy, Security, Trust				
Utilisation of consent and delegation services for Hira services	✓			
Utilisation of consent service for sector-based systems		✓		

[59] Including the monitoring of data quality from source, assessment and report back on errors/issues to enable problem resolution.

[60] Processes would identify areas with data quality issues. The programme would not be responsible for addressing data quality issues, which would need to be resolved by the data provider before it would be accepted into Hira.

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Utilisation of consent service across MoH Services		✓		
Utilisation of delegation service by MoH Digital Services		✓		
Utilisation of delegation service by sector-based systems		✓		
Secure by design Hira APIs	✓			
Security and quality of third-party API environments delivered through Hira platforms	✓			
Security and quality of third-party users of the API gateway (onboarding and compliance process)	✓			
Data Protection and Usage frameworks for all users of Hira services (onboarding and compliance process)	✓			
Monitoring of Data Protection and Usage for Hira including auditing	✓			
Auditing of access to data via Hira	✓			
Enabling services				
Creation and management of APIs for identified datasets	✓			
Establishment and management of API gateway identified datasets	✓			
Adoption of APIs in prioritised sector systems		✓		
Creation of universal provider service utilising Hira APIs with identified datasets	✓			
Creation of universal consumer service utilising Hira APIs with identified datasets	✓			
Provision of bulk data service for approved third parties	✓			
Migration of National Digital Services to public cloud				✓
Provision of identity and access management system for Hira services	✓			
Utilisation of Hira identity and access management system across National Digital Services (MoH)				✓
Utilisation of Hira identity and access management system by sector-based systems				✓
Creation of reusable digital health identity used for Hira services and available for non-Hira services	✓			

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Investment and Commercial frameworks				
Commercial frameworks to support and incentivise adoption of Hira services	✓			
Funding and investment models to support use of digital services				✓
Innovation frameworks				
Creation of testbed APIs, documentation certification process and portal for developers to use with identified datasets	✓			
Innovation framework to support use of digital services				✓
Support sector innovation exemplars	✓			
Delivery of innovation incubator			✓	
Legislation, policy and regulation				
Legislative, regulatory and policy change (if required to support and incentivise use of Hira services)	✓			
Digital health literacy and capability				
Digital health literacy programme (for consumers and providers) related to Hira - Passive (e.g. website)	✓			
Digital health literacy programme (for consumers and providers) related to Hira - Active – directed at providers in their role supporting consumers		✓		
Digital health literacy programme (for consumers and providers) related to Hira - Active – national public digital health promotion campaign (e.g. multiple media channels)		✓		
Signposting to third party trusted health information sources	✓			
Other				
Undertake system maintenance of any systems connected with Hira identified datasets				✓
Customer and IT service management and partner/vendor management for Hira services	✓			
Sponsored data access to Hira consumer and provider services	✓			

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Support of Hira services	✓			
Support for technical and business process change to prioritised sector systems		✓		
Support of systems that link to Hira services				✓
Development of consumer and clinical applications additional to the universal services that leverage Hira services				✓

Appendix 5: Benefits Map and Timeline

Hira Benefits Map

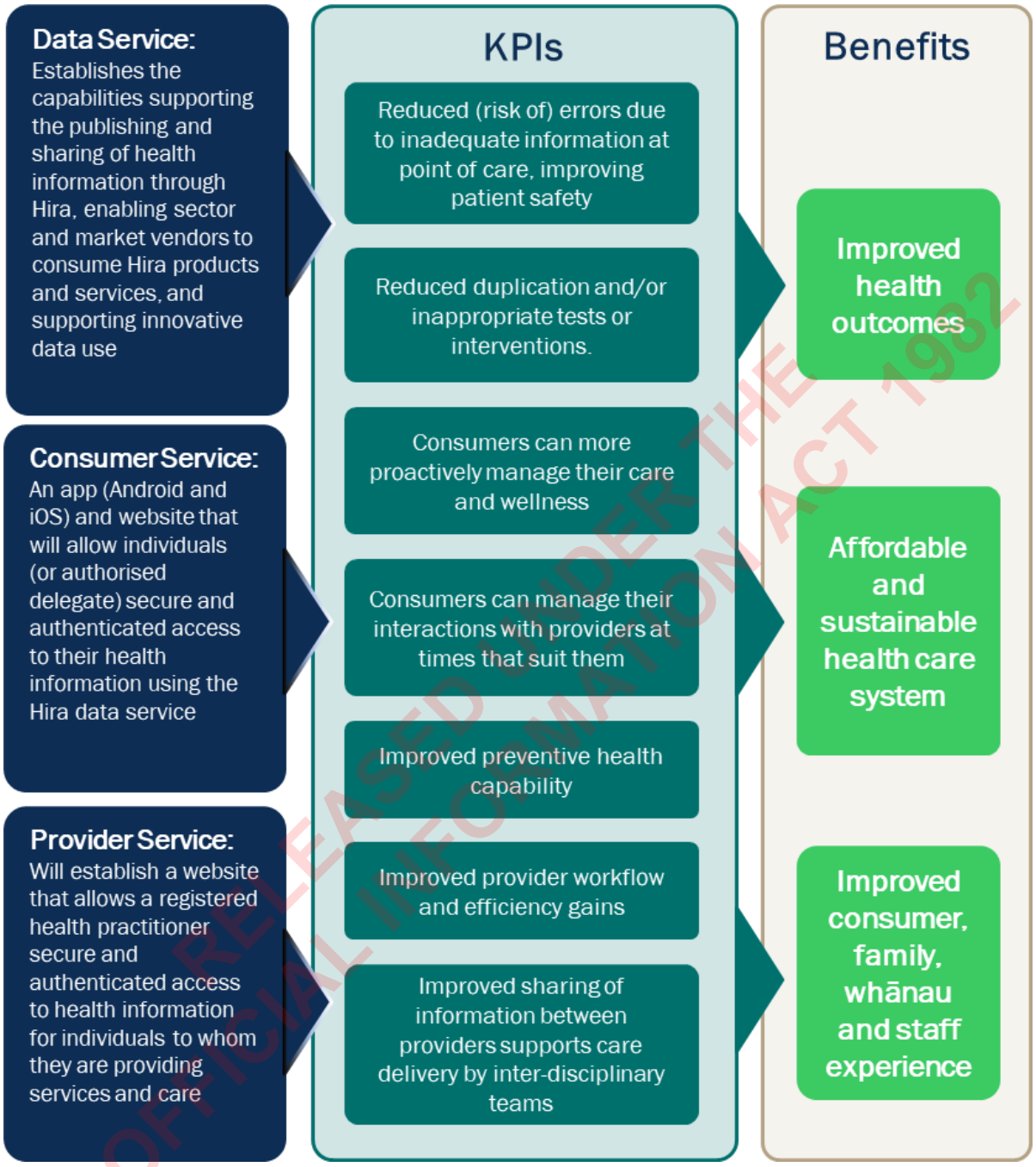

Figure 38: Hira Benefits Map

Hira Benefits Timeline

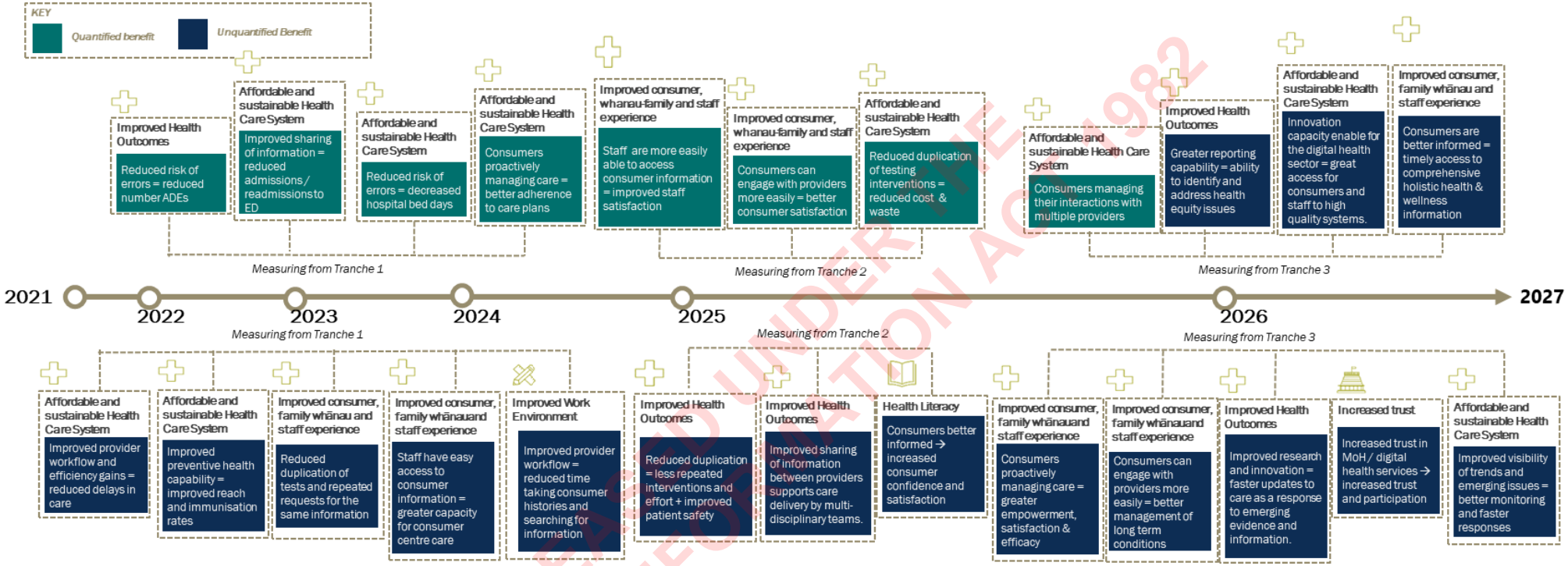

Figure 39: Hira Benefits Timeline

Appendix 6: Benefits and Disbenefits Schedule

Table 31: Hira Quantified Benefits

Health Domain: Benefit	KPI	Impact Description	Who is Affected	Magnitude of Impact	Realised
Improved health outcomes	Reduced (risk of) errors due to inadequate information at point of care, improving consumer safety	Number of Adverse Drug Events (ADEs)	Health and disability system consumers.	**Baseline:** To be determined within each tranche detailed business case **Target:** 8% reduction in ADEs **How big:** High[61] (Based on Johnston et al, 2003.)	Post full implementation of Tranche 1 – (from Jul 2023)
Affordable and sustainable health care system	Reduced (risk of) errors due to inadequate information at point of care, improving consumer safety	Reduction in ADEs resulting in decreased hospital bed days	Health and disability system providers.	**Baseline:** To be determined within each tranche detailed business case **Target:** s 9(2)(b)(ii) [redacted] **How big:** High (Based on Johnston et al, (2003), Bates et al, (1999) et al (2013).	25% Post partial implementation of Tranche 1 – (from Jul 2023) 50% Post partial implementation of Tranche 3 – (from Jan 2025) 100% Post full implementation of Tranche 3 – (from Jul 2026)
	Reduced duplication and/or inappropriate tests or interventions	Reduced costs of duplicate tests and images (less waste)	Health and disability system providers.	**Baseline:** To be determined within each tranche detailed business case **Target:** s 9(2)(b)(ii) [redacted] **How big:** High (Based on Tierney et al, (1997) and Briant et al, (2004).	50% Post full implementation of Tranche 2 – (from Jan 2025) 100% Post full implementation of Tranche 3 - (From Jul 2026)

[61] The evidence and literature underpinning each of the 'magnitude of impact' targets can be found in the Hira Programme BRM Strategy & Plan Appendix 7 Benefits Calculations and Appendix 8 Benefits Literature Review.

Health Domain: Benefit	KPI	Impact Description	Who is Affected	Magnitude of Impact	Realised
	Improved sharing of information between providers supports care delivery by inter-disciplinary teams	Reduced admissions on presenting to ED	Health and disability system providers.	**Baseline:** To be determined within each tranche detailed business case **Target:** s 9(2)(b)(ii) . **How big:** High (Based on Vest et al (2014).	25% Post full implementation of Tranche 2 – (from Jul 2023) 50% Post full implementation of Tranche 3 – (from Jan 2025) 100% Post full implementation of Tranche 3 – (from Jul 2026)
	Consumers can more proactively manage their care and wellness	Better adherence to care plans including medication regimes	Health and disability system providers and consumers.	**Baseline:** To be determined within each tranche detailed business case **Target:** s 9(2)(b)(ii) **How big:** High (Based on Alberta Physician Office System Program, (2012).	Post partial implementation of Tranche 1 - (From Jul 2023)
	Consumers can manage their interactions along the care continuum with multiple providers	Consumers can plan, book and schedule appointments online	Health and disability system providers and consumers.	**Baseline:** To be determined within each tranche detailed business case **Target:** s 9(2)(b)(ii) **How big:** High (Based on Kaelber (2008).	Post full implementation of Tranche 3 - (From Jul 2026)
Improved consumer, family, whānau and staff experience	Consumers can more easily engage with their providers	Consumers can manage their engagement with providers remotely	Health and disability sector providers and consumers.	**Baseline:** To be determined within each tranche detailed business case **Target:** 10% improvement in consumer satisfaction **How big:** High (Based on HIMSS (2017).	Post full implementation of Tranche 2 - (From Jan 2025)

Health Domain: Benefit	KPI	Impact Description	Who is Affected	Magnitude of Impact	Realised
	The clinical workforce is more easily able to access relevant consumer information	Clinicians can reduce time searching for consumer information and/or repeating procedures and orders, releasing time for consumer-centred activities	Clinicians, consumers	**Baseline:** To be determined within each tranche detailed business case **Target:** 10% improvement in clinician satisfaction **How big:** High (Based on New Zealand Ministry of Health 2019 Health & Disability Workforce Strategic Priorities and Action Plan)	Post full implementation of Tranche 2 - (From Jan 2025)

Appendix 7: Key Programme Risks

Table 32: Hira Key Risks

Risk Description	Likelihood Consequence Risk Rating	Mitigating Actions
If the ongoing Covid-19 response disrupts the ability for the Hira programme to complete its deliverables on time, then this will mean delays to completing the Detailed Business Case and its associated activity.	Likelihood: Likely Consequence: Significant	• Clear Portfolio governance has been established to provide a mechanism to highlight any Issues across the Data & Digital Portfolio. • Regular meetings held between the Covid-19 Response and Hira programmes to ensure alignment of dependencies and avoid resource contention. • Where possible teams involved in Covid-19 are not involved in Hira.
If borders remain closed due to Covid-19, then this will mean that sourcing specialist international resource to assist in delivering Hira may not be able to join the programme and drive up resource contention in the New Zealand labour market meaning the programme is unable to meet its delivery timeframes.	Likelihood: Likely Consequence: Significant	• Additional effort will be placed on identifying key resource within New Zealand early and securing them for the duration that they are required. • Modern ways of working will be used for any resources that can't be based in New Zealand, including the use of online collaborative tools and video conferencing facilities.
If the Covid-19 pandemic runs for an extended period, then this could affect the uptake of Hira Products and Services due to resources (labour and financial) being tied up fighting the pandemic.	Likelihood: Likely Consequence: Significant	• Work with DHB's and the Health sector to find ways to promote uptake of Hira Products and Services where possible.
If the concerns around digital literacy that were identified during the Covid-19 response are not addressed, then the digital divide and resulting data equity issues will be exacerbated	Likelihood: Likely Consequence: Severe	• Continued Service Design work with Iwi and other community groups to identify and address concerns raised. • A focus on developing digital literacy within the Change & Adoption workstream for Hira Products and Services.
If there is a security or privacy breach either within the programme, or in the broader Government/ public sector environment, the public may lose confidence in Hira and no longer use or adopt the products/services that it creates.	Likelihood: Likely Consequence: Catastrophic	• Hira standards and designs will help ensure that Hira products and services are secure and privacy by design. • Third party involvement in accessing Hira data will be permitted only after an accreditation process and will be frequently reassessed. • To mitigate this, Hira has a strong focus on all aspects of Social Licence.
If Iwi groups and other interest groups are not engaged and feel equity concerns are not addressed, then it is possible that Hira services may not be adopted by these groups	Likelihood: Likely Consequence: Severe	• The programme is engaged with Iwi and other special interest groups to minimise the equity disbenefit. • Engagement with the users throughout the design and development of Hira products and Services will address concerns as they are identified. • The programme has a strong focus on all aspects of Social Licence, specifically Maori data governance to mitigate this.
If the programme is unable to recruit or retain the capability required to deliver and support the Hira	Likelihood: Likely Consequence: Severe	• Dedicated workstream leads will be recruited with shared accountability for programme deliverables.

Risk Description	Likelihood Consequence Risk Rating	Mitigating Actions
programme, then products and services would not be delivered in the planned timeframe and benefits realisation would be impacted.		• A Resource Manager will be onboarded during programme establishment to define the capability and resource management plan. • Staff will be retrained into new roles and supported through the transition of operating models if capability gaps are identified. • The Data & Digital Covid-19 has meant that the Ministry has employed resources with skills complimentary to those required for the delivery of Hira. These resources would be redeployed to support the delivery of Hira Products and Services.
If the Ministry and stakeholder cannot achieve the required culture and people change to support the digital operating model proposed by Hira, then the programme delivery and benefits may not be realised	Likelihood: Likely Consequence: Severe	• Internal Change and adoption is a focus of the Hira programme. Internal communications and change is recognised as a critical mechanism in obtaining the shift required in internal culture. • Where possible MOH and partner staff will be placed in the Hira programme so that they are a part of the changes. • Staff will be retrained into new roles and supported through the transition of operating models if capability gaps are identified.
If Hira presents incomplete data or data of variable quality to the consumer, then consumer confidence in Hira data and services would be impacted.	Likelihood: Likely Consequence: Severe	• The Hira programme is investing in data cleansing and curation to help ensure relevant data is being provided to the consumer. • Where data is inaccurate processes are being created to ensure the data can be updated if inaccuracies are identified and the consumer is unable to update them directly themselves. • Data standards are being implemented across the programme to ensure data presented is accurate.
If funding for Hira is not allocated in Budget 2021, this would significantly delay the programme and the realisation of its benefits.	Likelihood: Likely Consequence: Significant	• Work closely with the Ministry leaders Hira team and Treasury to provide appropriate and timely input into the budget bid process and convey the relative priority of this investment in relation to others.
If Hira does not meet its Tranche timeframes, benefits would not be realised in line with current planning and costs may increase.	Likelihood: Likely Consequence: Significant	• The Risk associated with this is being mitigated through clearly defined Tranches with investment and capability required aligned to deliver value. • The Tranches are re-evaluated as a part of Tranche planning with any material changes to the Tranche plan highlighted following the programme change control process.

Risk Description	Likelihood Consequence Risk Rating	Mitigating Actions
If the SRO is unable to fully engage in the Hira programme due to other commitments, the programme may not deliver the change, outcomes and benefits defined due to its complexity.	Likelihood: Likely Consequence: Significant	• There will be strong and clear alignment between Ministry and the programme structure. • Programme director and clinical director will be appointed and directly support the SRO. • Provision has been made to source appropriate resources in support of the programme.
If the Hira programme is unable to obtain user (including consumer and clinician) confidence in Hira services and how data is being used, users are not likely to be comfortable with its use and value would not be created.	Likelihood: Likely Consequence: Significant	• Engagement with the users throughout the design and development of Hira products and Services will address concerns as they are identified. • The programme has a strong focus on all aspects of Social Licence to mitigate this.
If clinicians are unable to adopt the new Hira services and ultimately promote them to other consumers, adoption would be lower than planned.	Likelihood: Likely Consequence: Significant	• Change and Adoption of clinicians is recognised as one of the biggest risks to the success of Hira. A workstream will be established as a part of the programme focussed on working with clinicians to ensure that they are comfortable with the new functionality as it is delivered. • Clinicians views will be incorporated into the design of products and services. • Clinical representation is at the core of Hira as evidenced by the Hira Clinical lead role.
If funding for future Hira tranches is not allocated, then this will significantly delay the Programme and the realisation of benefits.	Likelihood: Likely Consequence: Significant	• Demonstrate and communicate delivery of value for each tranche as work progresses. • Work closely with the Ministry leaders, Hira team and Treasury to provide appropriate and timely input into the budget bid process and convey the relative priority of this investment in relation to others.
If the health and disability system has competing priorities to Hira, then this will significantly delay the Programme, benefits will not be realised in line with current planning and costs may increase.	Likelihood: Likely Consequence: Significant	• The Programme has a dedicated Change and Adoption workstream that will work with the system to understand competing priorities and look to support adoption and change activities where appropriate.

Appendix 8: Stakeholder Analysis

Hira External Stakeholders

Hira external stakeholders are summarised in Table 33 and their degree of interest and impact depicted in Figure 40.

Table 33: Hira External Stakeholders

External stakeholders
Ministers
Minister of Health
Minister of Finance
Cabinet Social Wellbeing Committee Ministers (SWC)
Sector
DHB Chairs, CEOs, CIOs, CMOs, CNOs, CCIOs/CMIOs, Planning and Funding GMs
PHO Chairs, CEOs, CIOs, CMOs, Nursing Directors, GPs
Private hospitals and private health providers
Universities and research institutions
Health IT vendor
Health professional groups • RNZCGP, GPNZ, Rural GP Network • New Zealand Medical Association • College of Midwives • New Zealand Nursing Organisation • Pharmacy Guild and Pharmacy Council of New Zealand • Practice Managers and Administrators Association of NZ (PMAANZ)
Ministry of Health sector advisory groups • Digital Investment Board (DIB) and Capital Investment Committee (CIC) • Sector Architects Group • Telehealth Forum • Patients First
Media (mainstream, medical, digital, health informatics)
Central Agencies
• Accident Compensation Corporation (ACC) • Department of Prime Minister and Cabinet (DPMC) • Government Chief Digital Officer (GCDO), Department of Internal Affairs (DIA) • Ministry of Education • Ministry of Social Development (MSD) • New Zealand Government Procurement and Property (NZGPP), Ministry of Business, Innovation & Employment (MBIE) • Oranga Tamariki – Ministry for Children • Science and Innovation, Ministry of Business, Innovation & Employment (MBIE) • Statistics NZ • The Office of the New Zealand Privacy Commissioner • Treasury

Stakeholder Representative Groups

- Health Informatics New Zealand (HiNZ)
- Health Information Standards Organisation (HISO)
- Health Promotion Agency
- Health Quality and Safety Commission
- Māori Data Governance Group
- Ministry of Health NGO Council
- NZ Health Information Technology (NZHIT)
- Patients' First
- The Pharmaceutical management Agency

Shared Services Agencies

- Central Region Technical Advisory Services
- HealthAlliance – Northern region DHBs' shared services agency
- HealthShare - Midland DHBs' shared services agency
- South Island Alliance – South Island DHBs' shared services agency

Consumer Groups

- DHB Consumer Councils
- Enabling Good Lives National Leadership Group
- Health Quality and Safety Commission National Consumer Council

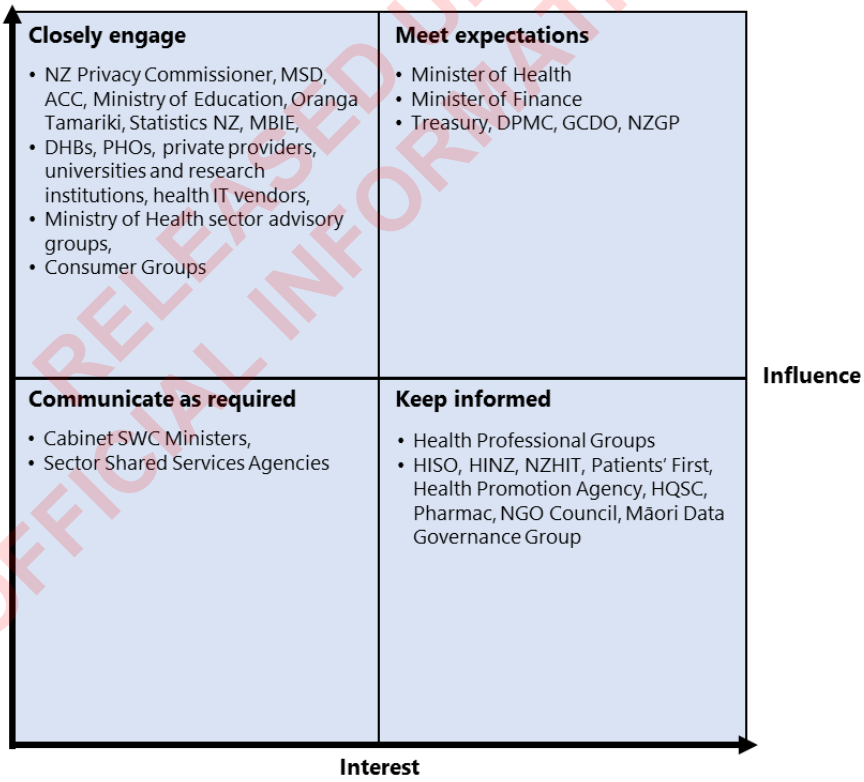

Figure 40: Hira External Stakeholder Impact Analysis

Hira Internal Stakeholders

Hira internal stakeholders are summarised in Table 34 and their degree of interest and impact depicted in Figure 41.

Table 34: Hira Internal Stakeholders

Internal stakeholders
Clinical Leadership Group
Corporate Services – Finance
Corporate Services – Legal
Corporate Services – Ministry ICT (MICT)
Corporate Services – Procurement
Data & Digital (D&D) directorate – all teams
Director General of Health
Health Service Improvement and Innovation (HSII) directorate
Health Workforce directorate
Māori Health directorate
Mental Health & Addiction directorate
Ministry of Health Executive Leadership Team (ELT)
Office of the Director General (ODG) – Communications
Population Health and Prevention (PH&P) directorate
System Strategy and Policy (SS&P) directorate

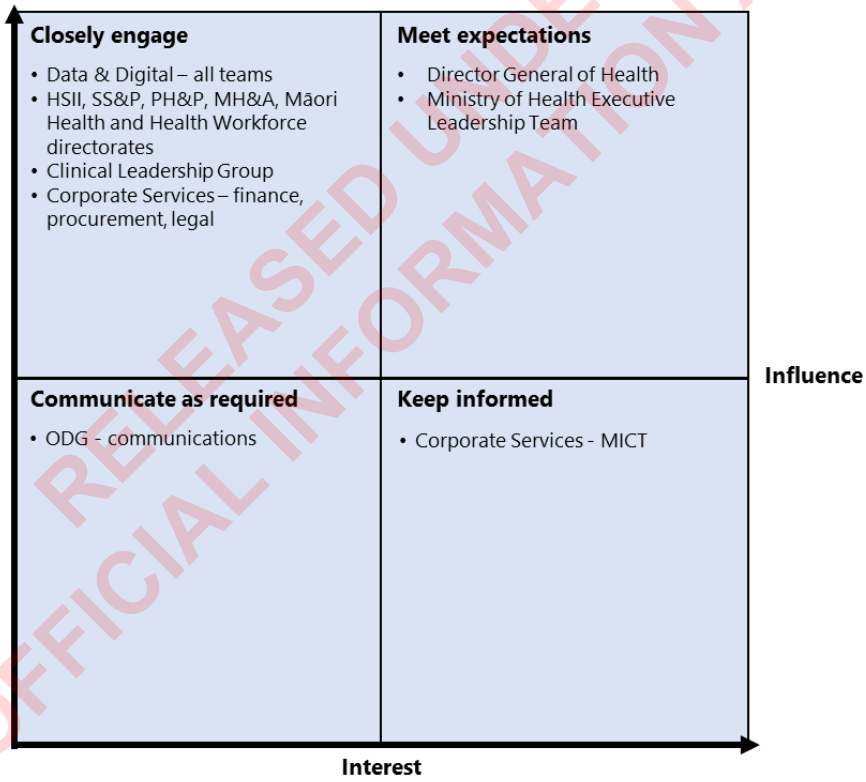

Figure 41: Hira Internal Stakeholder Impact Analysis

Appendix 9: Stakeholder Communication and Engagement

Communication and Engagement Considerations

The considerations that would guide communications and engagement for this Programme are:

- The consumer is at the centre and is the primary consent giver for the sharing of health data, while providers also have rights and responsibilities relating to information of people in their care.
- The programme would apply Te Tiriti o Waitangi (the Treaty of Waitangi) principles and support of equitable outcomes underpins the Programme. The intent is to conduct the programme with full regard for Te Ao Māori.
- Access and use of information would ensure that the value to New Zealanders of the data is maximised in the provision of healthcare and disability services, data guardianship is paramount, and the programme can only proceed based on establishing a social licence. The programme recognises that data are a living taonga and are of strategic value to Māori.

Given the priority of data guardianship, communications and engagement would embrace the principles, guidelines and approach articulated in the Data Protection and Use Policy published by the Social Investment Agency[62] and the Māori Data Governance Principles published by Te Mana Raraunga[63].

Communication and Engagement Objectives

The communication and engagement objectives are to ensure:

- Genuine and deliberative engagement with stakeholders provides design, development and prioritisation input to the programme, while creating and maintaining support and a Social Licence for Hira.
- The way that Hira is used as a catalyst for improvements in healthcare delivery and in offering greater engagement by consumers in their health status, would be an open process, actively encouraging the widest practical participation.
- Key stakeholders are well informed about the concept, approach and progress of the Hira programme.
- Trust is built in Hira as a safe and secure digital services ecosystem that facilitates better health outcomes.
- The pro-active identification of co-production opportunities that may be pursued with the programme by sector stake-holding organisations.
- All legitimate enquiries from media and other interested stakeholders are responded to in a timely, positive and effective manner.

[62] https://sia.govt.nz/assets/Uploads/Policy-overview-A3.pdf

[63] https://static1.squarespace.com/static/58e9b10f9de4bb8d1fb5ebbc/t/5bda208b4ae237cd89ee16e9/1541021836126/TMR+Ma%CC%84ori+Data+Sovereignty+Principles+Oct+2018.pdf

Future Communication and Engagement Phases

The future Hira programme communication and engagement phases are summarised in Table 35.

Table 35: Future Communication and Engagement Phases

Phase	Focusing on	Activity
Approval of Programme and Detailed Business Cases April 2021	• Cabinet decision • Securing funding for Tranche 1	Ministerial announcement
Implementation Business Cases May 2021 to December 2021	• Proofs of Concept (POCs) • Service design • Adaptive and collaborative co-production process • Prioritisation process	• Expand on Sector engagement specifically through use of Hira project Working groups • Arms length market engagement with suppliers • Increased depth of engagement with Government departmental stakeholders • Increased depth of consumer engagement with communities and with Māori
Build & Share July 2021 to 2023	• Developing first tranche of enablement products and services • Sector change and adoption • Supporting exemplars and innovation	• Active communications and engagement with communities to co-produce services • Apply DPUP and Māori data governance principles and a deliberative engagement approach • Active communication and engagement with providers, researchers and innovators to co-produce and implement services
Continuous delivery 2023 ongoing	• Further tranches of service enhancements • Sector change and adoption • Supporting exemplars and innovation • Benefits realisation	• Active communications and engagement with communities to co-produce services • Apply DPUP and Māori data governance principles and a deliberative engagement approach • Active communication and engagement with providers, researchers & innovators to co-produce and implement services • Continuous improvement and marketing of services, active support of uptake and innovation • Communication of benefits, active support of uptake and innovation, encouraging user proficiency through shared story telling

Engagement post Business Case Approval

The key changes that would take place in mid-2021, include:

- **Hira Working Groups:** A series of Hira Working Groups would be established in support of selected projects. These groups would focus on developing a constituency around their specified topic and providing input to and debate with the Programme. These Working Groups would be facilitated by the Programme and would seek to broaden their base of consultation by involving other suitably qualified individuals and organisations. They would provide a "meeting place" for the full range of stakeholders including consumers, vendors and other agencies to contribute to the formation, delivery and implementation of changes related to Hira products and services.
- **Strengthened engagement:** The programme would establish and/or strengthen engagement with other stakeholder groups including researchers, suppliers (this would be conducted through the industry body NZHIT, to ensure no conflict of interests arise), and consumers and their communities.
- **Deliberative engagement:** A deliberative engagement approach would increase its focus on co-production, change and adoption with affected stakeholders and especially with communities and consumers. Priority would be given to those currently disadvantaged in relation to accessing healthcare services.

Key Messages

The key messages and associated Frequently Asked Questions (FAQs) would be maintained as the programme progresses.

Appendix 10: Stakeholder Support

National Digital Leadership Forum

All District Health Boards

13 January 2020

Shayne Hunter
Deputy Director-General Data & Digital & SRO, nHIP Programme
Ministry of Health
P O Box 5013
WELLINGTON, 6140

Dear Shayne

nHIP Programme Business Case

The National Digital Leadership Forum, whose members include all the DHB Chief Digital and Information Officers, fully support the National Health Information Platform (nHIP) programme business case and the prioritisation of investment in this initiative.

The significant importance of this initiative cannot be underestimated if we are to deliver an equitable secure digital platform of health and disability information for all New Zealanders. As such we have been actively engaged with the business case development including representation on the Digital Investment Board and the nHIP Sector Advisory Panel, and it is a standing agenda item at CIO Exec meetings.

Over the next decade, it is well known that the demands on our health system will grow as our population increases and ages. New treatments and innovations in health care will become available, and we will need to drive continuous quality improvement in order to maintain our ability to meet the needs of our communities. The use of digital and data responses will help us do this. It will help us to improve access to services, to address and minimise health inequality, to improve the quality and safety of our services, and to increase the control people in our communities have over their own health and wellbeing.

nHIP will provide a range of enabling capabilities that will greatly assist with and support the sectors much needed digital and data transformation agenda. It is expected that through this process, DHBs and others, will be able to redirect their own planned investment in some areas, for example, Digital Identity, given this will be delivered by nHIP for the sector.

Furthermore, we fully endorse the approach being adopted in terms of programme tranche funding and agile delivery and prototyping to better manage risk and improve the speed to value/outcome. This is a well recognised and supported investment and execution approach used successfully by other industries undertaking similar data and digital transformation initiatives. It is also an approach that will encourage collaboration across the health and disability sector providers to deliver improved performance and value faster.

Yours Sincerely,

Steve Miller
Chair, National Digital Leadership Forum
Chief Digital Officer MidCentral DHB and THINK Hauora

Stella Ward
Deputy Chair, National Digital Leadership Forum
Chief Digital Officer, Canterbury and WestCoast DHBs

National Digital Leads Forum
All District Health Boards
PO Box 23075
Wellington 6140

04 801 2430

ACC

PREVENTION. CARE. RECOVERY.
Te Kaporeihana Āwhina Hunga Whara

11th February 2020

Shayne Hunter
Ministry of Health

Dear Shayne

ACC have been engaged by the Ministry of Health through the development of the business case for a national Health Information Platform and fully support the objectives and capabilities proposed.

We have established regular and ongoing engagement and have identified specific areas of common interest and benefit for our organisations, and the New Zealanders we deliver services to, particularly related to the use of common technology platforms and use of data. We look forward to continuing to collaborate with the Ministry in the delivery of the programme and to realise the significant opportunities that it offers.

Regards

Peter Fletcher
CTTO

Appendix 11: CSF Proposal Specific Criteria

Table 36: CSF – Proposal Specific Clarification

Critical Success Factors Broad Description	Proposal-Specific Clarification

Strategic fit and business needs:
How well the option meets the agreed investment objectives, related business needs and service requirements, and integrates with other strategies, programmes and projects.
	• The programme would afford the opportunity to transform access to and use of health information for consumers and providers of healthcare.
	• The programme aligns with local, regional and national strategies, including:
	  ○ Living Standards Framework
	  ○ Digital Health Strategic Framework
	  ○ Strategy for a Digital Public Service
	  ○ Data Protection and Use Policy (DPUP)
	  ○ MoH Information Systems Strategic Plan (ISSP).
	• The proposed initiative would support the Ministry's purpose as kaitiaki of the health and disability system in Aotearoa New Zealand working to achieve a health system that people trust; aligning with the Ministry's aims of:
	  ○ Improved equity in health outcomes and independence for Māori and all other people.
	  ○ Sustainable and safe health and disability services.
	  ○ An integrated, collaborative and innovative health and disability system.
	  ○ People-centred services, support and advice that meet the needs of everyone.
	• The proposal would enable the Ministry to achieve its Investment Objectives within the projected timeline and aligns with the consolidated ILM, which is intended as the foundation for subsequent investments across the sector.
	• Manages political and public expectations of digital health services.

Potential Value for Money: How well the option optimises value for money (i.e. the optimal mix of potential benefits, costs and risks).	• The cost of the option is deemed reasonable for the extent of achievement of the Investment Objectives. • The solution would increase efficiency and achieve economies of scale. • The solution would reduce risk of errors and minimise duplication of services. • The solution would support and enable improved service delivery. • The solution would support and enable consumer self-management of their health and wellbeing. • The solution would contribute to the minimisation of known sustainability, security and technology risks.

Critical Success Factors Broad Description	Proposal-Specific Clarification
Supplier capacity and capability within timeframe: How well the option matches the ability of potential suppliers to deliver the required services and is likely to result in a sustainable arrangement that optimises value for money.	• There would be suppliers available and ready in the market with the capacity and capability to deliver the technology components within the agreed timeframe. • Existing capacity and capabilities would not be diverted as a result of the programme. • Existing infrastructure and capabilities would be stable and reliable enough to securely support/enable the programme. • Workforce capacity would be stable and reliable enough to support/enable the programme.
Potential affordability: How well the option can be met from likely available funding and matches other funding constraints.	• Costs are reasonable within the context of public spending. • Costs are considered in the context of the overall data and digital health spend across the sector. • Costs are reasonable to DHBs and the Crown.
Potential achievability: How well the option is likely to be delivered given the organisations ability to respond to the changes required and matches the level of available skills required for successful delivery.	• The Ministry and service providers would have the capacity and capability to support the delivery and ongoing operations required in support of Hira. • The programme would be achievable within the context of the known constraints and the current environment (capability availability, funding and resourcing constraints, competing priorities, etc.). • Scale of change and the proposed timeframe would be achievable for the Ministry and service providers. • Existing clinical, administrative and digital services can be maintained at an acceptable level during the delivery and transition periods.

Appendix 12: Summary Programme Options Assessment

Overview of Programme Shortlist Options

Table 37: Hira Programme Options Summary

Dimension	Option 1: Do minimum	Option 2: Central Health Platform Create a closed platform with health data	Option 3a: Gateway (Single EHR) Build a gateway with health, wellness, and social data – an accelerated approach	Option 3b: Gateway Commencing with Health (Single EHR) Build a gateway with health, wellness and social data but start with health – considered approach	Option 4: Hira Enable health, wellness and social data from multiple sources to be linked dynamically to create a virtual electronic record
Overview	Progress in the current manner with solutions across NZ, but drive alignment through an emphasis on standards, consistency and controls that support local/regional objectives.	Create a platform that enables access to aggregated national health data sets/services in a controlled manner, supporting both information sharing and interactions across the health and disability system.	Build a gateway to a national digital health ecosystem built on an open architecture of aggregated shared health, social and wellness data and services, standards and promoting innovations that respond to evolving health and wellness needs. Single EHR.	Build a gateway to a national digital health ecosystem, but initially start by creating a health gateway, with Option 2 data, with the flexibility to scale into a wellness gateway (Option 3a) at a later date. The openness of this option, while not as open as option 3a and more aligned with option 2, would expand overtime. Single EHR.	Deliver an enabling technology platform built on an open architecture to access and use data, from the right trusted sources, to innovate and respond to changing demand and needs. Wherever possible, practical, and without affecting performance, data would be dynamically retrieved from source organisations rather than aggregated.
Services provided *(what the option delivers, includes extent of data provision)*	Enhance national enabling services – improving key national assets, NHI, HPI, enrolments services Establish a standards management function Increased guidance and support from MoH	*Option 1 plus:* Base APIs and services Implementation support for access to services and connectivity (e.g. integration of existing systems) Initial app/portal solution Reporting and analytics engine	*Option 2 plus:* Publishing of services, standards, and specifications for all to access Enable third parties to build APIs and services. Incentivisation fund/plan to spur and foster innovation in the sector More capability for reporting and analytics	Same as Option 3a at end point (approx. 3-5 years longer than 3a)	Deliver services incrementally starting with the enabling technology platform and base APIs and services (same as Option 3a at end point). Also deliver non-technical aspects of the wider ecosystem that would enable or constrain the use of data e.g.privacy, consent, data sovereignty, social licence, commercial & funding mechanisms

Dimension	Option 1: Do minimum	Option 2: Central Health Platform Create a closed platform with health data	Option 3a: Gateway (Single EHR) Build a gateway with health, wellness, and social data – an accelerated approach	Option 3b: Gateway Commencing with Health (Single EHR) Build a gateway with health, wellness and social data but start with health – considered approach	Option 4: Hira Enable health, wellness and social data from multiple sources to be linked dynamically to create a virtual electronic record
Data	Demographics (limited) Immunisations Allergies & Alerts	Health	Health Social Wellness	Same as Option 3a at end point	Start with Demographics, Medicines, Immunisations and incrementally include Health, Social, Wellness (same as Option 3 at end point)
Interoperability model	Point-to-point developed case by case	Tightly controlled platform enabling access to connected and aggregated health data	Open platform (controlled) enabling access to connected and aggregated data via open standards and services	Initially a controlled platform enabling access to connected and aggregated data, but moving toward a less tightly controlled platform	Open platform enabling access and use of data from the right trusted sources dynamically retrieved from source organisations rather than aggregated where possible.
Adoption Support (implementation)	For regional solutions only	Limited and controlled for early adopters,	Extensive for integrators and end users	Same as Option 3a at end point	Extensive for integrators and end users
Governance	Role would involve standards adherence, support/monitoring within MoH	Dedicated management arrangements, possibly within an existing agency, a new agency or a third party. Include mechanisms for sector and consumer representation			Dedicated management arrangements including mechanisms for sector and consumer representation.
Funding	Crown Funded (limited) with ongoing support	Crown Funded for core platform and to support some initial use cases	Crown Funded for core platform and to support some initial use cases and early innovations	Same as Option 3a at end point	Crown Funded for core platform, non-technical aspects and to support sector change, service adoption and some innovation and transformation exemplars.

Programme Option Analysis

Table 38: Programme Options Analysis

	Programme Approaches: Summary Assessment					Comment
Description	Do Minimum	Platform	Gateway	Gateway, start with Health	nHIP	
Reference	1	2	3a	3b	4	
Investment Objectives						
By 2026, foundations for a digitally enmable health and disability sector with secure and trusted access to and use of health information and services are in place so that:						
- New Zealanders are empowered to manage their health, wellbeing and independence	4	6	10	8	10	Option 3a is a significant step up from Option 2 because the openness of the system allows a greater range of innovative services supporting consumers to manage their health to be provided. Option 3b provides similar benefits to Option 3a, but they are deferred. Option 4 provides similar benefits to Option 3a.
- The health and disability sector is enabled to improve decision making and use system insights to improve service delivery	4	7	10	8	10	Key capabilities to support better care and decision making are delivered by Option 2. Option 3b provides similar benefits to Option 3a, but they are deferred. Option 3a is a significant step up from Option 2 because the additional wellness and social sector data provides insights into the important area of social determinants for health. Option 3b provides similar benefits to Option 3a, but they are deferred. Option 4 provides similar benefits to Option 3a.
- Innovation and transformation across the health ecosystem is accelerated	1	6	10	8	10	Option 1 leads to the development of local/regional interoperability solutions which reduces the likeliness and hinders the development of a national ecosystem. The openness of Option 3a enables a range of providers to contribute to innovation. It is therefore a significant step up to Option 2. Option 3b provides similar benefits to Option 3a, but they are deferred. Option 4 provides similar benefits to Option 3a.
- The health and disability sector will better respond to consumer demand in primary and community services and achieve a reduction in the year on year growth in acute services	1	4	8	6	8	Option 1 does not address the need to bend the demand curve. Option 2 would not support innovative ways of engaging consumers in primary and community. Option 3a would enable sharing of data within the health sector and with other sectors. 3b would achieve this, but more slowly. Option 4 provides similar benefits to Option 3a.
Critical Success Factors						
Strategic Fit & business needs	4	8	10	8	10	Option 1 does not support the EHR component of the digital health strategy. Options 2 and 3b strongly support it, but do not go as far or as fast as option 3a. Option 4 fits well strategically and meets business needs, including the requirement for early delivery of benefits and an incremental growth in funding and value delivery.
Value for Money	4	8	9	8	10	Option 1 provides low value for money because it will be associated with relatively uncoordinated, possibly duplicative investment at the regional level. Options 3a and 3b provide a significantly more future proofed solution. Options 3a and 3b are similar because both benefits and costs are deferred. Option 4 aligns expenditure and funding, with an incremental growth in the delivery of key foundational capability linked to delivery of value for consumers and other stakeholders.
Supplier capacity and capability	10	8	8	8	10	The market engagement indicated no doubt about the capability to deliver Option 1. Options 2, 3a and 3b are rated lower as they are more complicated but there are no major concerns based on international engagement and request for information inputs. Option 4 offers opportunities to the wider market place to engage and deliver innovative solutions as these are not costrained by the alternative of a centralised (and restrictive) EHR.
Achievability	10	8	6	8	10	Option 1 is relatively straight-forward. Whilst options 2, 3a and 3b are achievable, they are reasonable large, ambitious projects and therefore subject to a degree of risk. Option 3a is rated lower because it delivers more in horizon 1 which is more ambitious. Option 4 is more achievable than 3a/b, as it avoids the complexities of a single EHR.
Affordability	10	8	8	8	9	In the event that there is no investment in a national EHR, Option 1 would clearly be a priority investment to enable the development of regional solutions – and is relatively inexpensive. Whilst Options 2, 3a, 3b and 4 are relatively costly, the costs are justified by significant benefits.
Shortlisted Options *As all CSFs are crucial (not desirable) any option that has a CSF scoring a "no" is discounted* **Option Title**	↓				↓	
Option 1: Do minimum						
Option 4: nHIP: Enabling existing and future sources of health information to be connected and used incrementally						

Hira Definition (1)

Hira has been defined using the same dimensions and categories as those used in the IBC. The service solution dimension was divided into sub-categories to facilitate the development of longlist options in logical groupings. The options were assessed as fully, partially, or not meeting each IO and CSF. Any option that failed to meet any of the CSFs was not carried forward. For all dimensions except service solution, only one approach was shortlisted. Within the service solution dimension, a preferred approach was identified for all of the sub-categories except secondary service users and channel services (interface solutions). Within these sub-categories, two approaches were shortlisted for further consideration, and a preferred approach agreed.

Table 39: Hira Definition

	Implementation				Data Domains				Data Structure and History			Primary Service Users				Secondary Service Users		
Description	One investment, phased over 3 years	One investment, phased over 5 years	Multiple investment tranches, over 3 years	Multiple investment tranches, over 5 years	As is Demographics (limited) Immunisations Allergies & Alerts	DD1 plus primary and hospital clinical care data	DD2 plus aged care, dental and disability sector data plus government sectors	All information including consumer generated data made available through open standards	Current state - multiple data structures, and lack of clear history	Structured, codified, curated data only	Structured, codified, curated data & unstructured data with meta data	Connect clinicians /healthcare providers (i.e. DHBs, PHOs)	Connect social and disability sector	Connect clinicians/providers (all health & disability sector), excluding consumers	Connect consumers, providers and innovators across the health and disability sector	No secondary use of health data allowed	Secondary use of national data is enabled only for health care providers, policy and service planners, researchers and NZ govt agencies.	Consumers are able to consent to their health data being used by others outside of health - e.g pharma clinical trials
Reference	IMP1	IMP2	IMP3	IMP4	DD1	DD2	DD3	DD4	DSH1	DSH2	DSH3	PSU1	PSU2	PSU3	PSU4	SSU1	SSU2	SSU3
Investment Objectives																		
By 2026, foundations for a digitally enabled health and disability sector with access to and use of trusted health information and services are in place so that:																		
- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.	7	8	7	9	1	5	6	9	1	5	8	2	1	3	10	8	8	10
- The health and disability sector is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.	7	8	7	9	1	5	6	9	1	5	8	6	4	8	10	3	7	10
- Innovation and transformation across the health ecosystem is accelerated	7	8	7	9	1	7	8	9	1	5	8	6	4	8	10	3	7	10
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing	5	7	5	9	1	5	6	9	1	5	8	4	4	6	8	1	7	9
Critical Success Factors																		
Strategic Fit & business needs	8	8	9	9	1	4	5	9	1	5	8	5	3	7	10	1	7	10
Value for Money	6	7	8	9	1	3	5	8	2	4	7	5	3	6	8	1	7	10
Supplier capacity and capability	3	4	2	5	9	8	6	4	8	2	6	7	5	6	4	10	7	5
Achievability	2	4	2	5	9	8	6	4	8	2	6	8	5	7	5	10	7	5
Affordability	2	3	4	5	9	8	6	4	8	1	5	8	7	7	5	10	7	5
				↓				↓			↓				↓			↓

Hira Definition (2)

	Participation			Consumer Content Management				Provider Content Management			Channel services (Interface solutions)			Compliance and Authority				
Description	Opt in for both provider and consumer	Universal provider access only	Universal provider access and opt-out for consumers	View only information from clinical sources	Read only provider sourced information. Create, read, update and delete limited demographic information	as per CCM2 plus create, read, update, extract and delete consumer generated data	as per CCM3 plus consumers make notes on provider/clinical data	View only access to the data held within the system	as per CCM1 with ability to extract data for use in organisational systems	Full read, write, extract access to data	Publish approved APIs and compliance requirements & leave it to the market to build consumer, provider and any other solution (e.g research)	Support vendors and create a panel of solutions authorised to provide consumer and provide channels	Select partners to develop "default" consumer channel and provider channel (government-owned service)	Do not mandate compliance and use of the national services	Mandate compliance and use of a national service within 2 years for all connected solutions	Mandate compliance and use of a national service within 2 years for specified solutions such as clinical systems used by publicly funded health providers	Mandate compliance and use of all national services by 2025	Mandate compliance and use of all natioal services by 2030
Reference	P1	P2	P3	CCM1	CCM2	CCM3	CCM4	PCM1	PCM2	PCM3	CS1	CS2	CS3	CA1	CA2	CA3	CA4	CA5
Investment Objectives																		
By 2026, foundations for a digitally enabled health and disability sector with access to and use of trusted health information and services are in place so that:																		
- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.	2	2	8	3	5	8	10	4	6	8	5	7	10	2	6	5	6	2
- The health and disability sector is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.	2	7	8	4	5	8	9	4	6	8	5	7	10	2	6	5	6	2
- Innovation and transformation across the health ecosystem is accelerated	2	6	8	1	4	8	8	4	7	8	6	9	8	2	6	3	6	2
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing	2	5	8	1	2	7	10	3	7	8	6	8	8	2	6	3	6	2
Critical Success Factors																		
Strategic Fit & business needs	3	1	10	3	5	8	10	4	6	10	6	8	9	3	8	6	7	2
Value for Money	1	5	8	5	6	8	8	7	7	8	7	7	8	1	8	6	7	5
Supplier capacity and capability	9	5	5	7	7	5	5	6	7	6	8	7	8	10	5	6	6	7
Achievability	9	5	5	8	8	7	5	8	7	6	8	7	7	10	6	6	6	7
Affordability	6	5	4	8	7	6	5	8	7	5	8	7	7	10	7	6	7	8

Hira Definition (3)

	Integration and Interoperability				Adoption Support					Sourcing				Service Delivery			Delivery Management			Funding			
Description	Publish standards for interoperability and continue with current low level 1.5FTE support to industry	Publish standards and actively support existing solutions to become compliant and integrate with each other	IE2 plus API marketplace to enable all compliant partners to push n pull data and utilise services and capabilities	IE3 plus grandfather system that are not using API so all go through API's within 5 years	Adoption and change management to be the responsibility of user organisations, no support from the centre	Adoption and change management is the responsibility of user organisations, specific technical support provided for key industry solutions	AS2 plus support provided for hospital and primary care health providers)e.g train the trainer programs to drive adoption amonost clinician workforce)	AS3 plus disability sector workforce	AS4 plus consumer groups	Fully outsource all requirements	Insource - develop MOH capability to build and manage all	Source through existing sector reationships	Create panels of vendors to source appropriate resource, products and services as required	Delivered by MOH	Sector only delivery	Partnership between MoH / health sector / wider Government	As-is role will involve standards adherence, basic support and monitoring	Dedicated management arrangements, active sector enablement, lower the bar for selected innovators to connect	Focus on enabling the system, design & develop when market gap may lead to equity issue, and need to prove POC/Pilot	Ministry of Health	Crown	Coinvestment between Ministry of Health/Crown and sector	Partial industry contribution
Reference	IE1	IE2	IE3	IE4	AS1	AS2	AS3	AS4	AS5	SO1	SO2	SO3	SO4	SD1	SD2	SD3	GOV1	GOV2	GOV3	FUN1	FUN2	FUN3	FUN4
Investment Objectives																							
By 2026, foundations for a digitally enabled health and disability sector with access to and use of trusted health information and services are in place so that:																							
- New Zealanders are more empowered to manage their health, wellbeing and independence, and there is measurable improvement in equity of access and outcomes.	3	5	7	10	2	4	7	8	10	6	6	6	7	6	6	8	2	6	8	4	6	8	4
- The health and disability sector is enabled to improve decision making at point of care and has better insights to improve safety and quality, performance, planning, system and service level design and delivery. The consumer has a real voice in decision making.	3	5	7	10	2	4	7	8	10	6	6	7	7	6	6	8	2	6	8	4	6	8	4
- Innovation and transformation across the health ecosystem is accelerated	5	6	7	10	2	4	7	8	10	7	5	6	8	6	6	8	2	7	8	4	6	8	6
- Primary care and community-based services are better able to respond to consumer need and the growth in the use of hospital services is reducing	3	7	7	8	2	4	7	8	10	6	6	6	6	6	6	8	2	6	7	4	6	8	6
Critical Success Factors																							
Strategic Fit & business needs	3	1	8	8	3	4	8	9	10	1	1	5	10	1	3	10	3	6	10	4	6	8	6
Value for Money	4	5	8	10	4	4	7	8	9	2	1	6	8	3	7	8	4	7	7	4	6	8	4
Supplier capacity and capability	7	7	7	6	3	4	7	7	7	6	2	6	9	2	5	6	6	8	7	2	4	8	4
Achievability	9	7	6	6	9	7	8	7	7	6	2	8	8	2	5	7	9	7	7	4	4	8	4
Affordability	9	7	6	6	9	7	8	7	6	2	2	7	7	1	5	7	10	7	6	2	6	8	6
				↓					↓				↓			↓			↓			↓	

Secondary Service Users: The alternative shortlisted approach was that patients would be able to consent to their health data being used by others outside of health - e.g. pharma clinical trials. Whilst this better meets the investment objectives, it would be significantly more difficult to achieve. It is therefore in scope of Hira design but would not be delivered within the currently scoped programme.

Channel Services (Interface Solutions): The alternative approach was to support vendors and create a panel of solutions to provide consumer/provider channels. Whilst both approaches would achieve the outcomes sought by the programme, the supporting vendors option would delay benefits realisation, as relying on market forces would be slower at bringing a solution to market and would not address existing inequities. Creating a default channel service (a free universal basic consumer service) would ensure that services are provided for ALL New Zealanders rather than being dependant on the market to create services for specific demographic groups or patient cohorts. If more capability is desired, this may be behind a paywall.

Multi-Criteria Analysis

Table 40: Hira Multi-Criteria Analysis – INCLUDING Benefits

	Option 1: Do Minimum	Option 2: Central Health Platform	Option 3a: Gateway	Option 3b: Gateway, start with Health	Option 4: Hira
Appraisal Period (years) (1)	10	10	10	10	10
Whole of Life Capital Costs (discounted)	s 9(2)(b)(ii)				
Whole of life Operating Costs (discounted)					
Total Whole of life Costs (discounted)					
Cost-benefit analysis of monetary costs and benefits:					
Present Value of monetary benefits	s 9(2)(b)(ii)				
Present Value of non-project costs					
Net present value					
NPV Rank (out of 4)	5	4	2	3	1
Multi-criteria analysis of non-monetary benefits:					
Criteria 1: Investment Objectives (weighting 35%)	s 9(2)(b)(ii)				
Criteria 2: Net Present Value (weighting 25%)					
Criteria 3: CSFs (weighting 40%)					
Overall Weighted Score (out of 10)					
Preferred option					✓

Table 41: Hira Multi-Criteria Analysis – EXCLUDING Benefits

	Option 1: Do Minimum	Option 2: Central Health Platform	Option 3a: Gateway	Option 3b: Gateway, start with Health	Option 4: Hira
Appraisal Period (years) (1)	10	10	10	10	10
Whole of Life Capital Costs (discounted)	s 9(2)(b)(ii)				
Whole of life Operating Costs (discounted)					
Total Whole of life Costs (discounted)					
Cost-benefit analysis of monetary costs and benefits:					
Present Value of monetary benefits	s 9(2)(b)(ii)				
Present Value of non-project costs					
Net present value					
NPV Rank (out of 4)	1	2	5	3	4
Multi-criteria analysis of non-monetary benefits:					
Criteria 1: Investment Objectives (weighting 35%)	s 9(2)(b)(ii)				
Criteria 2: Net Present Value (weighting 25%)					
Criteria 3: CSFs (weighting 40%)					
Overall Weighted Score (out of 10)					
Preferred option					✓

Note: as described in Section 3.4, the potential savings are not necessarily cash-releasing; that is, whilst Hira may make these savings possible, the organisations to which they accrue may choose to reinvest the time/cost saved into other services. The anticipated financial benefits have therefore been excluded from the financial model.

Appendix 13: Hira Architecture

The following sections summarise the key elements of the Hira programme architecture[64].

Approach

The architecture development to date is based on The Open Group Architecture Framework and its ADM (Architectural Development Method). The framework was used in conjunction with the development of the Health Sector Blueprint Capability model, and reference models from healthAlliance to develop the Hira architecture model.

Hira architecture supports the development of applications and services that enable data 'insight by design' by exposing health events via standards based published APIs. Utilising the events as they are generated would enable health providers and consumers to take advantage of evolving artificial intelligence in clinical decision support[65]. However, Hira recognises that moving the entire health and disability system to an event driven API access model will be a journey that occurs over many years. As such the architecture supports alternative methods of data access and aggregation, with an underlying principle of ensuring only the minimal data needing to be cached is held in an Hira cache.

Hira would reuse existing modern IT investments made across the New Zealand health and disability system where possible. The platform "approach" within the architecture provides the scalability and extensibility that would be required by an evolving Hira. It would also support the use of "rentable" services versus "purchase and run" models. Where regions have invested in a "regional" HIP, Hira would integrate with that capability rather than integrating at a lower level.

Standards

Hira architecture and subsequent designs would be both HISO and non-HISO standards compliant. With the Hira focus on enabling interoperability within the New Zealand health and disability system, adoption and use of data and technology standards is critical. Hira would support agencies in the adoption of the HISO standards, by ensuring all interactions with Hira platforms conform to the current and emerging HISO standards, and any specific Hira standards published.

Security and Privacy

The approach to privacy in the development of the architecture is based on the requirements of the Health Information Privacy Code[66]. The core principle of "secure by design" is a key tenet. The capability blueprint and reference architecture include building blocks for security, including encryption, authentication/authorisation/access control, logging, monitoring, data anonymisation and automation. End-to-end encryption would be the default position for Hira platforms along with strong access and authentication controls, data minimisation, and regular security assurance activities. The architecture and subsequent designs would comply with the relevant sections of the Health Information Security Framework[67] and New Zealand Information Security Manual[68].

64 Hira Architecture, Ministry of Health, v2.0 8 January 2020.

65 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6697510/ or https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6616181/

66 https://www.privacy.org.nz/assets/Files/Codes-of-Practice-materials/Consolidated-HIPC-current-as-of-28-Sept-17.pdf

67 https://www.health.govt.nz/publication/hiso-100292015-health-information-security-framework

68 https://www.nzism.gcsb.govt.nz/

Hira Architecture Principles

- **Data remains at source:** Wherever possible, practical, and without affecting performance, data would be dynamically retrieved from source organisations.
- **Abstraction by Design:** Architecture building blocks would be designed and implemented in such a way that they could be changed or removed without needing to change any upstream or downstream building blocks.
- **Publish and Subscribe:** Changed data events from data providers would be published and notified to subscribers.
- **Cloud First:** Technology services would be delivered with low technology debt, by subscribing all services on a run-rate basis, cloud-based service consumptive model. Particularly focusing on Software as a Service and Platform as a Service.

Proposed Future State Architecture

Technology and services building blocks would conform to Hira architecture principles. Where existing investment in services and technology meets the principles and could realistically support Hira, these would be considered during a later design stage for becoming a Hira architecture building block. i.e. rather than buying or building new capability, Hira projects would consume existing investment wherever practicable (subject to alignment to the principles, standards, and technical needs).

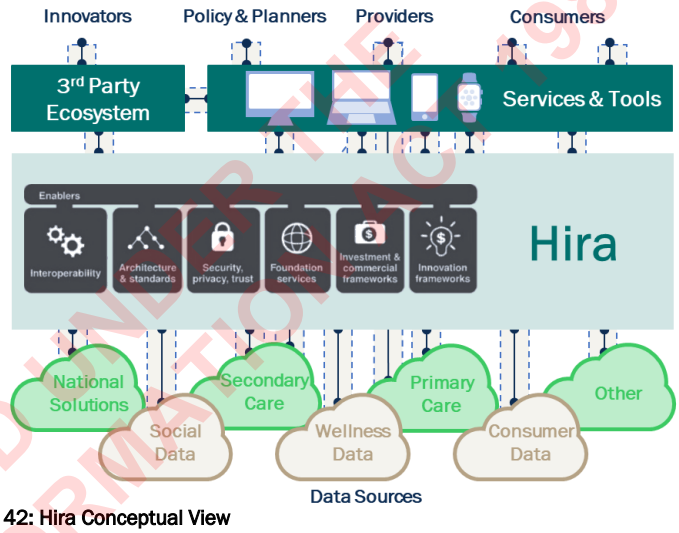

Figure 42: Hira Conceptual View

Figure 42 shows the Hira conceptual view and Figure 43 provides a simplified view of the major architectural building blocks that form the Hira platform and demonstrates the loosely coupled "plug and play" nature of the architecture, where services can be consumed by the sector and stakeholders on demand. The diagram also illustrates the flow of data/information from source to consumption.

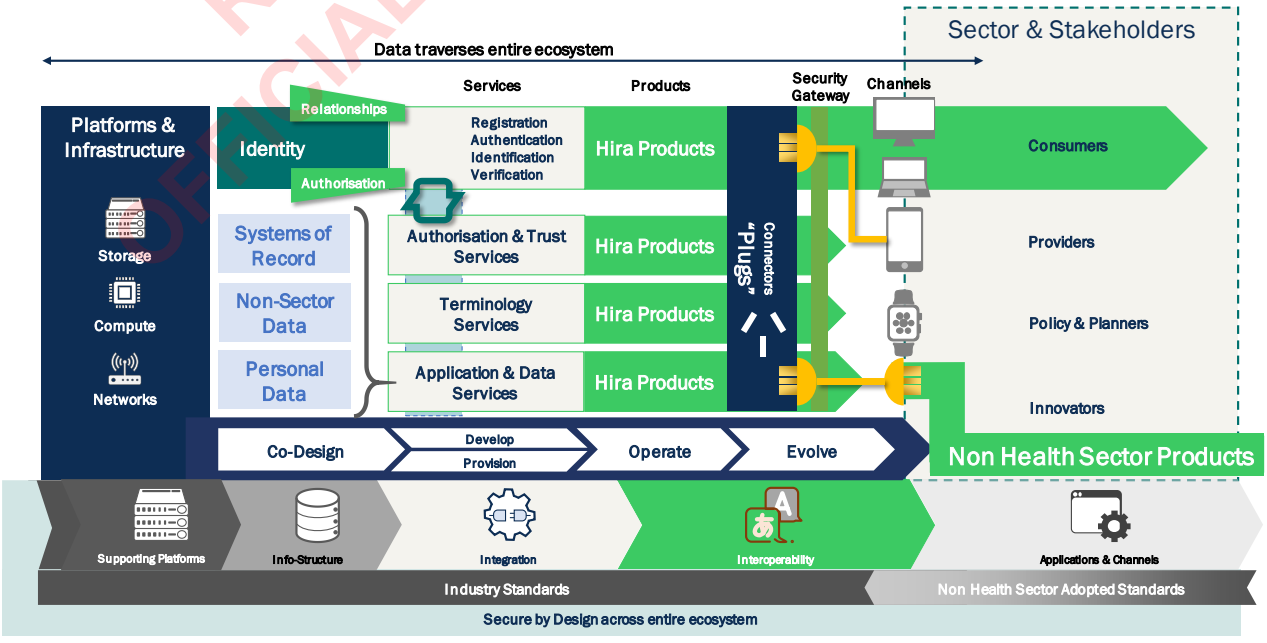

Figure 43: Simplified view of Stakeholders using Hira

Health Sector Architecture Capability Blueprint

The capability blueprint represents the capability building blocks that encompass the health and disability system (restricted to a clinical viewpoint at present). Hira uses this as a reference for the architecture building blocks. Each of the building blocks is grouped into a functional category. It is envisaged that the Technology Platforms building blocks are reusable components for other national services (non-Hira). The building blocks may expand overtime as more definition becomes available through a subsequent Hira Tranche or other national projects.

The capability blueprint is aligned with the Government Enterprise Architecture. It is agnostic of health and disability system agency size or complexity. That is, any provider organisation would need to provide one or more of the capabilities described in the model. The blueprint incorporates principles of abstraction and service orientation to ensure consuming architectures are flexible, supportable, and can be evolved at different speeds, without being held up by the whole architecture.

Reference Architecture

The Hira reference architecture provides the suggested template solution for the proposed Hira architecture. It is derived from the various capabilities from the Health Sector Architecture Blueprint. By adopting reference architectures within Hira, delivery can be accelerated through the re-use of an effective solution, and it provides a basis for governance to ensure the consistency and applicability of technology use within the sector.

The reference architecture is not intended to imply data flowing one-way (from source to consumption). Hira has a high dependence on source systems and may need to invest in the development or modernisation of some of these in order to meet Hira requirements. However, this does not mean Hira would be responsible for the on-going management or the data quality contained in any of these new or upgraded systems.

Ideally, all interaction with the core platform would be via well-defined APIs. However, the current level of digital maturity of many of the health and disability system systems means that alternative data access and integration patterns may need to be supported, until all systems support the use of Hira APIs. Given the differences in integration methods, data standardisation, etc, it is anticipated that Hira services would be presented with data that is not consistent with the current national data standards. To manage this, the Hira architecture provides services for data reconciliation and data normalisation based on a common data architecture. Any data transformation rules would require agreement via a data governance function.

High Level Technology Architecture

Data would be sourced from many provider organisation repositories. Due to practicalities of performance and accessibility, some constraints would be applied to how many repositories can be queried in real-time versus what may need to be cached within the Hira platform.

It is expected that the starting sources of data for Hira would include: DHB regional repositories (including diagnostic information, relationship data, care plans, etc), national PHO data repositories (such as the proposed National Primary Care Data Services), MoH national systems (NHI, HPI, Immunisation, screening results), and national NGO repositories (e.g. Plunket, St Johns, etc).

The architectural principle of “Data remains at source” would be supported by the Hira API model. However, the technology architecture supports other forms of data access, in recognition of the practicalities of moving the whole health & disability sector to the future state in a single step.

Appendix 14: Social Licence

Social Licence in the Healthcare Context

The concept of Social Licence has historically been recognised and codified in a framework of ethics governance approvals for research and in clinical registration authorities. In this context data collection and use for research is premised on informed consent, that is in short, the ability of the individual to apply *agency*[69] when participating in a research project.

In the case of informed consent related to data and the storage of records relating to care, this agency has become increasingly blurred. Ethics committees routinely grant access to historical data where the information can be used to draw conclusions about the effect of policy interventions or changes in practice over time, due to the observational rather than interventional style of the research. Historically, these decisions have been supported on the basis of the benefit to the population as a whole and on the basis of "anonymisation" of the outcomes, that is protecting an individual from being potentially disadvantaged from the outcomes of the research.

Social Licence and Hira

The concept of Social Licence as it applies to data is extremely important as Hira seeks to join health data and make it available in ways previously not considered or undertaken. It applies both to those who use the data, but also to those to whom the data relates, and, in a Māori context, the whakapapa associated with the data. In order to maintain and grow the Social Licence for using health data, factors that need to be considered include:

- **Data Governance:** Hira must maintain and increase the Social Licence to use health data. This would specifically include Māori Data Governance and would align with best practice being developed by Statistics New Zealand and Government through the Futures Taumata (led by the Department of Internal Affairs). The programme would operate a data governance model that incorporates independent Māori Data Governance and data governance, independent of the data source governance. This would allow the programme to understand how data can be used and would ensure that Hira maintains and grows Social Licence and meets the needs of Māori. Hira plans to get advice on Māori sovereignty from a combination of Māori members of the Sector Advisory Panel and from Te Mana Raraunga[70]. Further advice may be sought from Iwi Chairs and the Data Iwi Leaders Group.

- There is significant overlap with existing Ministry activities and, given the complex interrelationships, this governance should be directly tied to existing structures and use already recognised expertise to ensure consistency and continuity of decision making. Decision making would utilise the Health Information Governance Guidelines (HIGG) and would contribute to improving and disseminating this to suppliers of data and consumers of services.

- **Individual and collective agency over data:** The programme sees agency of one's own data as being both an enabler to better services and a way to increase trust and Social Licence for the programme. Key work being undertaken in this space includes understanding consent, delegation and transparency of data collection and use. The Hira approach is depicted in Figure 44.

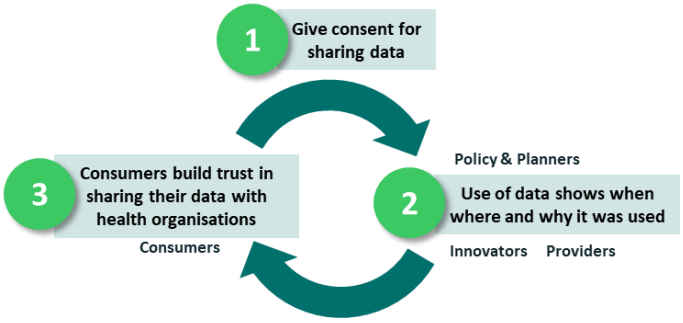

Figure 44: Feedback Loop in Sharing Data

69 A verb that variously describes the control an individual has over their data or the decisions about its use (not an organisation).
70 A collective that has been established to provide guidance and direction to organisations collecting and using Māori data.

In creating a digital identity with a consumer-mediated approach, the programme would utilise and develop work started in collaboration with DIA and ACC to understand consent for sharing information (and then transparency of use), the ability to delegate those choices to others, and the relationships between people and providers. The programme must build a practical and granular understanding of where choice and agency is offered or withheld, and how this would manifest in different situations.

- **Cultural Licence:** The programme would ensure that availability and use of data considers tikanga and the kaupapa of Māori data (e.g. understanding a whānau-centred approach). The programme has the potential to support the aspirations of Te Ao Māori through making health data more accessible and interoperable. The programme would take into account the principles for Māori data sovereignty identified by Te Mana Raraunga, which recognise Māori data as a taonga:
    - Rangatiratanga – Authority
    - Whakapapa – Relationships
    - Whanaungatanga – Obligations
    - Kotahitanga – Collective benefit
    - Manaakitanga – Reciprocity
    - Kaitiakitanga – Guardianship

  Te Mana Raraunga has also developed a framework for understanding how to build a partnership with Māori in the data and digital health space. The framework uses the Takarangi to reflect the duality that informs Te Ao Māori as assesses the data (Sensitivity Tapu/Noa), the data use (Integrity Tika/Pono, Authenticity Mauri/Wairua) and the data users (Mandate Whakapapa/Pukenga, Stewardship Kaitiaki/Wānanga). Hira planning would reflect this framework and the emerging Futures Taumata approach for central Government.

- **Privacy:** The programme must ensure that its approach is consistent with the intent of legislation and is recognised by New Zealanders as a model for future approaches to the balance between data use and privacy. The Health Information Privacy Code applies specific rules to agencies in the health and disability system to better ensure the protection of individual privacy. With respect to health information collected, used, held and disclosed by health agencies, the code substitutes for the information privacy principles in the Privacy Act.

  The programme would utilise the data governance function to provide assurance that the use of tools and procedures relating to the collection, use and disclosure of health information meets the standard. The Ministry of Health utilises a Privacy Impact Assessment process to understand the potential risks inherent in the collection and use of health data. This would be used by the programme, in conjunction with the Māori Data Use framework, to inform data governance decisions for the programme.

- **Security:** The programme includes significant capability and capacity requirements to ensure that services are designed and built with security at the forefront. Having good security of the health data is fundamental to maintaining and growing Social Licence. The security of the health data is maintained in a number of ways, including:

    - **Secure by Design (operational model and architecture):** Security is being designed in and would be part of the entire design, implementation, and operation. It would utilise leading global frameworks and methodologies. The preferred architecture option of keeping the information at source and only assembling the view or service on demand, thus reducing the likelihood of generating a honeypot. This contrasts with both the Australian and Singapore approaches and utilises learnings from the Tu Ora Compass incident in 2019.

    - **Information Security and Cloud Risk Assessments:** Coupled with the development of the Privacy Impact Assessment and the Māori Data Assessment Framework, the programme would use appropriate frameworks to identify and manage risks from a data security and privacy perspective (including public cloud), and work closely with standards, policies, direction, architecture, etc. to manage and reduce threats and vulnerabilities in the platform over its lifetime.

    - **Security Operations Centre:** A security operations centre (SOC) has been identified as a critical component for effective delivery. The SOC would ensure that the programme services and products would be monitored for security threats and issues 24/7, and that appropriate response and recovery capabilities are in place.

    - **External Audit and Compliance:** Good security practice relies on ensuring that independent security assurance is used to identify and mitigate any potential vulnerabilities (e.g. people, process or technology) that may be missed as a part of programme delivery, or are introduced through changing technology and evolving threats. This could include penetration testing of services, or audit of security controls.

    - **Data Agency:** A security benefit of a consumer-mediated approach is that often security can be breached from a position of trust, where a valid user uses services inappropriately or is compromised. Providing a consumer with transparency about where, when and why their data has been used provides both a crowd-sourced surveillance capability in the case of compromise, and also a psychological deterrent in the case of inappropriate access, which is addition to central security and accountability controls and monitoring that would be in place with the platform.

Appendix 15: Programme Tranche Summary

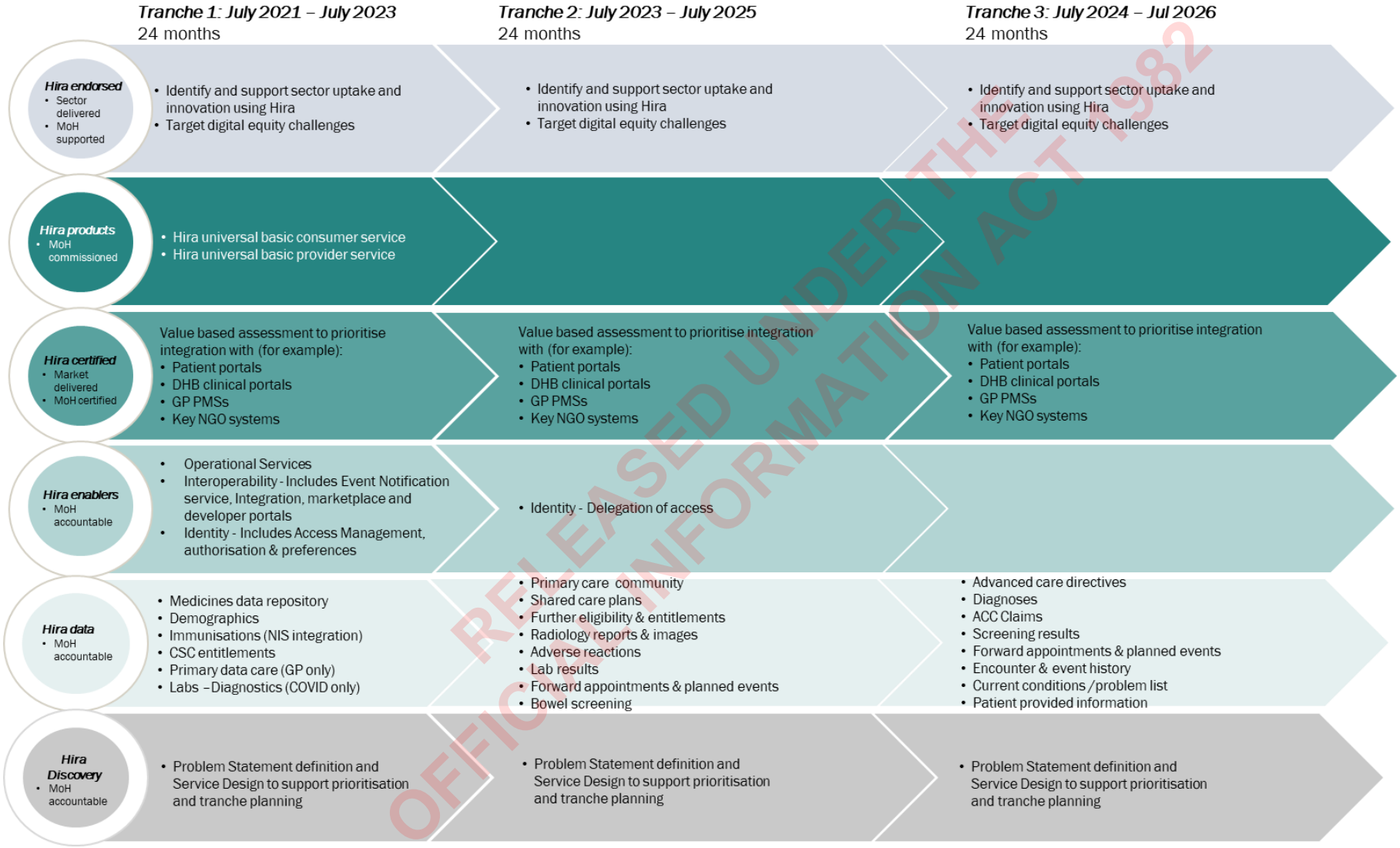

Figure 45: Hira Programme Summary by Tranche

Appendix 16: Programme Indicative Financial Analysis

s 9(2)(b)(ii)

Key Financial Assumptions

Whilst the financial summary is robust based on the information available and the key assumptions noted, it is signalled that the cost is indicative only and is subject to a range of factors. The key financial assumptions for the programme are summarised in Table 43.

Table 43: Key Financial Assumptions

Assumption	Comment
Capex/Opex	60% of costs are capital in first year (FY21/22). 40% of costs in remaining years of the programme until all tranches are completed.
Depreciation	Depreciation starts at the end of each tranche. Depreciation is calculated over 7 years straight line.
Sector Change	Costs estimated at 50% of people and services costs.
Capital Charge	6% per annum. Financing costs are based on the Capital Charge Rate for Crown Equity.
Contingency Rate	20% This is based on the expectation that the iterative delivery and programme tranche approach would mitigate against a higher contingency allowance.
USD/NZD Rate	0.60
Financials	Outflows and expenditure (Capital or Operational) are presented as negative values. Inflows, benefits or funding are presented as positive values.
Programme modelled life	10 years
Change management	Includes funding for people and services to support the business and technology change management required to deliver services to target stakeholder groups (in Ministry, outsourced suppliers and sector organisations) and realise quantified benefits. Sector change required would be dependent on service design and based on a change impact assessment.
People (FTE and services)	Includes increases in FTE and use of service partners to deliver the programme. Costs based on estimated tranche 1 delivery effort, costed at market rates for categories of service design, integration, identity management, analysis and development and operational service delivery. Costs in 2021/22 are lower as capacity and capability is built incrementally and decreases again in 2025/26 as capacity is being phased out and transitioned.
Technology platforms and services	Costed based on indicative platform costs for tranche 1 using market rates. All services costed on a strategy of reusable platforms, cloud delivery and “buy not build”.
Infrastructure	Costed based on tranche 1 requirements and market rates for cloud platform services.
DE/NDE	Costs are predominantly Departmental Expenditure (DE), including Ministry FTE component, with the exception of the change management component s 9(2)(b) [redacted] which is expected to be almost entirely sector-focused (NDE).

Appendix 17: Senior Responsible Owner's Letter

February 2021

To whom it may concern

Hira Programme Business Case

This business case is a significant deliverable of the Ministry of Health. Hira would improve interoperability of systems and access to and use of data across the health system and Government for both consumers and providers. It would enable secure delivery of trusted information to the right person in the right context, at point of care or by service users. It would support transformed health care delivery and greater system innovation; empowered people better managing their own health, well-being and independence; data for improved organisational and system insights and decision making; enabling system sustainability, equity and performance.

I confirm that:

- I have been actively involved in the development of the attached investment proposal through its various stages.
- I accept the strategic aims and investment objectives of this investment proposal, its functional content, size and services.
- The indicative cost and benefit estimates of the proposal are sound and based on best available information.
- Suitable contingency arrangements are in place to address any current or unforeseen affordability pressures.

Should either these requirements or the key assumptions on which this case is based change significantly, revalidation of this letter of support should be sought.

Yours sincerely

Shayne Hunter
Deputy Director General Data & Digital

Appendix 18: Programme Governance and Delivery

Programme Accountability Framework

The programme RASCI matrix is shown in Figure 46.

ROLES	DIB	CIC	Hira Programme Gov. Board	Hira Programme Steering Group	SRO	Hira Programme Director	Hira Clinical Lead	PMO Lead	Business Case writer	Reporting / Performance	Procurement	Risk and Assurance	Project Planner	Financial Analyst	Workstream leads	Project Managers	Business Analysts	Test Analysts	Change Manager	Release manager	Investment manager	Sector Lead	Operational Supoort	Enterprise Architect	Solution Architect	Technical writer	Security / IAM / Data specialist
Deliverable or Task	Sponsor / Leadership							PMO							Roles common across workstreams												
Delivery of services (Programme Ma																											
Clinical oversight	I	I	I	I	A	R	R	I							s	s											
Change Control	I	I	I	I	A	R	S	S		S					s	s											
Reporting	I	I	I	I	A	R	S	S		S					s	s											
Benefit tracking	I	I	I	I	A	R	S	S		S				R	s	s											
Risks	I	I	I	I	A	R	S	S		S		S			s	s											
Change Management	I	I	I	I	A	R	S	S		S					s	s											
PMO																											
Programme BC + single stage T1 BC	I	S	I	I	A	R	I	I	S	S	S	S	S	S	I						I						
POE document	I	S	I	I	A	C	I	R	S	S	S	S			I					I	I		I				I
Gateway review organisation and materials	I	S	I	I	A	R	S	I	S	S	S	S	S	S	I	I				I	I		I				I
Establish Governance	I	I	I	I	C	A	C	R	I	I	I	I	I	I	I	I				I	I	I	I				I
Financial modelling and benefits plan	I	I	I	S	S	A	I	I	C		S			R	S	S	S				S	I	I	S	S		I
Tranche, Scope & Implementation plan	I	I	I	I	I	A	C	R	S	S	S	S	S	S	C	S	S		I	I		I		I	I		I
Architecture																											
Target State Architecture model/ roadmap	I	I			I	A		I	I	I	S	S	I	S	I		I					I	I	R	S	I	S
Y1-3 costings	I	I		C		A	I	S	S	S	S	I		C	S		S				S			S	S		
Social licence	C				A	R	S		S		S	S	S		S		S					C					S
Engagement																											
Communications plan	I		C	S	I	A	C	S	S	S		S	I	I	R	S	S		S			C	I	I			
Stakeholder engagement plan	I		C	S	I	A	C	S	S	S	S	S	I	I	R	S	S		S			C	S	I			
Service Adoption and Change	I				A	R	C	S	I	S	I	S			C		S		C		C	C		I		C	
Service Design																											
Personas	I					A	C		S	S		I	S	I	I	I	R	C				C					
Use Cases						A						S			I	I	R	S				S	S		I		I
Problem Statements	I	I	I	I	I	A	I		S	I	C	S	S	I	I	R	C	S	S		S	C		I		S	S
Delivery of Services																											
Data Deliverables						A	S	I									S	I	I			S		S	S	I	C
Tranche One - Products and Services	I	I	I	I	A	R	S	R	S	C	I	S	S	S	I	S	C	S	C	S	I	C	S	S	S	C	S
Tranche One -Change & Adoption	I		I	I	A	R	C	R	S	C		S	S	S	S	S	C	S	C	S	C	C	S	I	I	C	S
Tranche One - Data Service	I			I	A	R	I	R	S	C	I	S	S	S	S	S	C	S	C	S	S	C	I	S	S	C	S
Tranche One - Enablers					A	R	I	R	S	C	I	S	S	S	I	S	C	S	C	S	I		I	S	S	C	C

R	Responsible	Assigned to complete the task or deliverable.
A	Accountable	Has final decision-making authority and accountability for completion. Only 1 per task.
S	Support	Provides support during implementation.
C	Consulted	An adviser, stakeholder, or subject matter expert who is consulted before a decision or action.
I	Informed	Must be informed after a decision or action.

Figure 46: Hira RASCI

Hira Groups – Purpose and Membership

The purpose and membership of the key Hira programme groups is detailed below.

Table 44: Hira Governance Board

Subject Matter Area(s)	Role
Chair: DDG Data and Digital	
Māori Health sector representative	CEO Toi Tangata
DHB services representative	CMO, Nelson Marlborough DHB
Primary care digital representative	CIO, WellSouth
DHB digital representative	CIO, MidCentral DHB
Primary Care services' representative	Manager Primary Care, MoH
Allied Health Professions representative	Clinical Principal Advisor, Allied Health Professions Office, MoH
Ex-officio: Programme Management	*Group Manager, Digital Strategy and Investment, MoH* *Programme Manager, Hira* *Group Manager, National Digital Services, MoH* *Manager, Data Governance, MoH*

Table 45: Hira Steering Group

Workstream	Role
Co-Chairs: Hira Programme Director/Hira Clinical Director	
PMO	PMO Lead
Change and Adoption	Workstream Lead, Change and Adoption
Consumer and Provider Service	Workstream Lead, Consumer and Provider Service
Data Service	Workstream Lead, Data Service
Enablers	Workstream Lead, Enablers

Table 46: Digital Investment Board Membership

Subject Matter Area(s)	Role
Chair: DDG Data and Digital	
Clinical – secondary care	CMO, Nelson Marlborough DHB
Clinical – primary care	GP, Mission Bay Doctors
Clinical – allied health	Chief Allied Health, Scientific and Technical Professions, CMDHB
Data & Digital	Deputy Director General, Data & Digital, MoH
Data & Digital	Chair, Angel Foundation NZ
Data & Digital	Independent Consultant
Data & Digital	Associate Professor and Clinical Director Innovation, Waitemata DHB and National Institute for Health Innovation, University of Auckland
Sector representative	Director Strategy, Innovation and Performance, Capital and Coast DHB
Sector representative	District Chief Digital Officer, Mid Central DHB and Central PHO
Sector representative	Chief Information Officer, Well South
Consumer representation	To be confirmed
Māori Health	CEO, Te Arawa Lakes Trust

Appendix 19: Hira Change Approach

The following sections summarise the key elements of the Hira Change Approach: Service Creation, Adoption and Transformation[71].

Overview

A dedicated methodology has been developed for Hira and is contained within the Hira Operating Model to support the delivery programme. The methodology has identified three change items for consideration:

- **Service creation**: change management required to create, maintain, operate and improve Hira services.
- **Service adoption:** change management required for stakeholders to adopt Hira services effectively and maximise value.
- **Transformation:** transformative business change arising from the innovative use of Hira services.

Service Creation

The programme would undertake key change activities across service creation, adoption and transformation. Key factors are summarised in Figure 47.

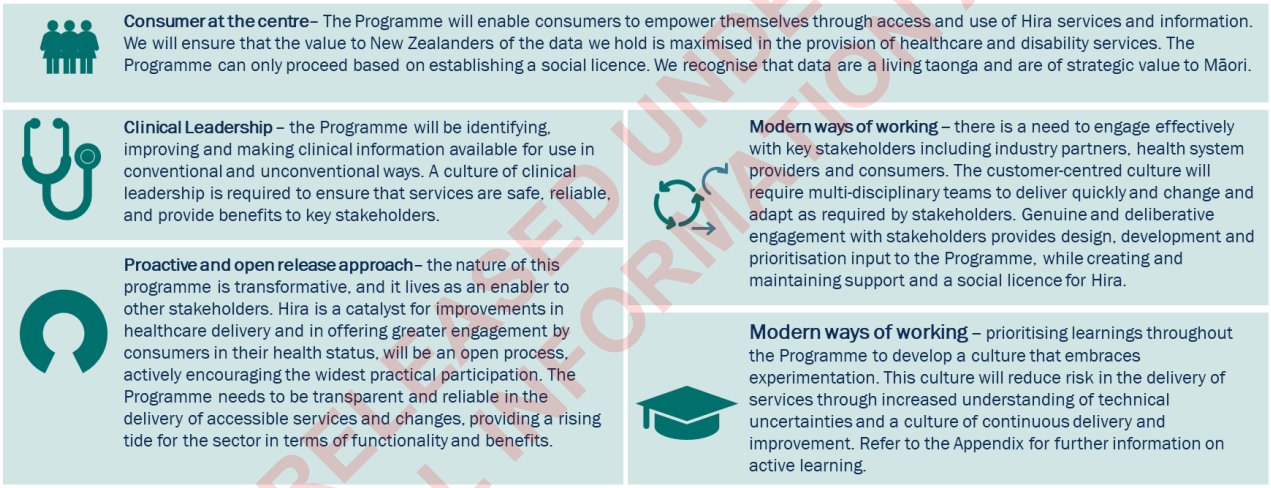

Figure 47: Behavioural and Cultural Change

Service Adoption

The programme has a role in supporting service adoption change management efforts. The type and level of support would differ for each stakeholder and each change.

The Hira programme would dedicate a substantial proportion of resources to Change and Adoption activities, including three unique funds to support Innovation, Hira service adoption and sector change. There would be dedicated teams within the programme focusing on co-creating the adoption strategies for Hira products and services with key stakeholder groups, as well as teams to manage community, Māori and vendor engagement. The detailed change impact of each project within the programme would be further identified in the tranche business cases and in latter planning activities, but capacity and resource to support such activities has been specified within the programme.

[71] Hira Change Approach: Service Creation, Adoption and Transformation Ministry of Health, v3.0 15 January 2020.

The service adoption approach is depicted in Figure 48.

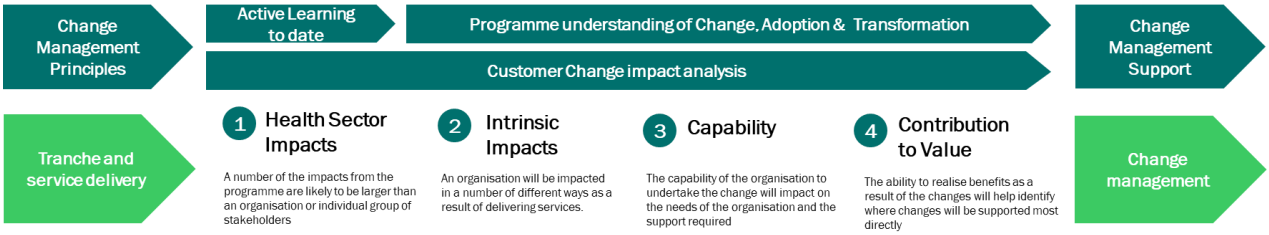

Figure 48: Service Adoption Approach

The service adoption impact analysis would inform the level of change management delivered directly by the programme, and the type of support that stakeholders may seek. Service Adoption would be timed and quantified, in order to monitor and measure the progress made against the support provided. It is expected that the programme would establish a best-practice approach that is action-learning oriented to ensure that all the adopters contribute back to the programme for consequent change support to leverage. The types of support available would include:

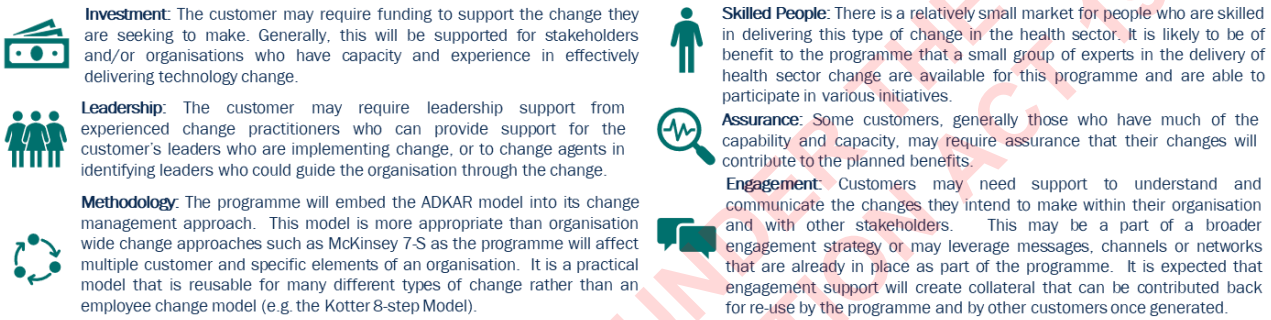

Figure 49: Support to Service Adoption

There is a need for consumer adoption management. This would be a direct engagement and feedback approach, primarily through the products that are offered themselves. Feedback may also come from the users of the developer services that make up the products (i.e. developers who create their own apps may want further information included in APIs).

Transformation

Enabling and supporting transformative change is in scope of Hira; however, delivery of this change is out of scope.

Transformation opportunities would arise as services offered by Hira are combined with policy decisions and stakeholders develop new ways for New Zealanders to get, stay and live well. The programme would utilise an active learning approach to identify transformative opportunities early in the development and delivery lifecycle. This would ensure that there is a good understanding for all key stakeholders of the services that would be made available and how these how these services would then be used (including the limitations).

Categories of transformative health change and some examples are depicted in Figure 50.

Figure 50: Hira Transformative Change – Categories and Examples

Appendix 20: Supporting Documentation

Table 47: Hira Supporting Documentation

Version	Document	Date
2.0	Architecture	8.01.2020
2.1	Benefits Realisation Management Strategy and Plan	22.02.2021
1.1	Change Control Plan	10.01.2020
2.4	Communication and Stakeholder Engagement	13.01.2020
	HIMSS Digital Health Indicator Achievement Assessment Report	12.2020
Final	Hira personas – Current and Future Health Journeys	12.12.2020
1.0	Investment Logic Map	13.01.2020
1.2	Issues Management Plan	13.01.2020
1.0	Probity Plan	01.2020
2.2	Procurement Strategy	13.01.2020
2.0a	Programme Assurance Plan	13.01.2020
1.0	Proof of Concepts	10.01.2020
1.2	Risks and Opportunities Register	13.01.2020
1.2	Risks and Opportunities Management Plan	13.01.2020
3.0	Change Approach: Service Creation, Adoption and Transformation	15.01.2020
0.1.3	Social Licence	09.01.2020
0.10	Target Operating Model	24.01.2020
1.0	Hira Programme Operations Document	14.01.2020

Appendix 21: Glossary

Acronym	Description
ACC	Accident Compensation Corporation
ADA	Architecture & Design Authority
API	Application Programme Interface
ASMS	Association of Salaried Medical Specialists
CBACs	Community Based Assessment Centres
CIC	Capital Investment Committee
CDHB	Canterbury District Health Board
CDO	Chief Digital Officer
CEO	Chief Executive Officer
CIO	Chief Information Officer
CMO	Chief Medical Officer
CNO	Chief Nursing Officer
CRRF	COVID-19 Response and Recovery Fund
CSF	Critical Success Factor
DHB	District Health Board
DHSF	Digital Health Strategic Framework
DIA	Department of Internal Affairs
DIB	Digital Investment Board
DPMC	Department of Prime Minister and Cabinet
DPUP	Data Protection and Use Policy
EHR	Electronic Health Record
EPMO	Enterprise Programme Management Office
FHIR	Fast Healthcare Interoperability Resources
FPIM	Finance and Procurement Information
GCDO	Government Chief Digital Officer
GDP	Gross Domestic Product
GM	General Manager
GP	General Practitioner
HIE	Health Information Exchange
HIGEAG	Health Information Governance Expert Advisory Group
HiNZ	Health Informatics New Zealand
HIPC	Health Information Privacy Code
HISO	Health Information Standards Organisation
IBC	Indicative Business Case
IDI	Integrated Data Infrastructure
ILM	Investment Logic Mapping

Acronym	Description
IO	Investment Objective
IQA	Independent Quality Assurance
IRD	Inland Revenue Department
LSF	Living Standards Framework
MAP	Ministry of Health Advisory Panel
MBIE	Ministry of Business, Innovation and Employment
MSD	Ministry of Social Development
NGO	Non-Governmental Organisation
NHI	National Health Index
nHIP	National Health Information Platform
NSS	National Screening Solution
NZGPP	New Zealand Government Property and Procurement
PAEHR	Patient Accessible Electronic Health Record
PBC	Programme Business Case
PHO	Primary Health Organisation
POC	Proof of Concept
PROM	Patient Recorded Outcomes Medication
ROMP	Risks and Opportunities Management Plan
SAP	Sector Advisory Panel
SNOMED	Systematized Nomenclature of Medicine
TQA	Technical Quality Assurance