BreastScreen Aotearoa Programme Sustainability:

Critical Infrastructure Replacement

This business case:

Sets out the justification for urgent investment to upgrade vital components and ensure the sustainability of the national BreastScreen Aotearoa (BSA) Programme ICT infrastructure, which is s 9(2)(c), s 9(2)(e) and which cannot be adapted to meet the changing needs of the service.

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1 Executive Summary

1.1 Introduction

This detailed business case provides information supporting the Budget 2021 approval of up to $55.6 million over four years to invest in national breast screening Information and Communications Technology (ICT) infrastructure. The investment will replace vital components of the national BreastScreen Aotearoa (BSA) programme ICT infrastructure s 9(2)(c), s 9(2)(e)

The project will be undertaken in two phases. Initial funding for the financial year 2021/22 has been released to develop a full implementation business case.

The Phase 1 investment is $5.35 million (comprised of $3.16 million capex and $2.19 million opex) for requirement gathering and design activities for the replacement ICT solution. In Phase 2 a further $50.247 million of funding in tagged contingency (comprised of $22.565 capex and $27.682 opex) is available for the development, build and implementation of the ICT solution. Drawdown of this tagged contingency is subject to approval of an implementation business case.

1.2 Strategic Context

Background

Each year in New Zealand, approximately 3,200 new breast cancers are registered, and there are around 600 deaths from breast cancer. The national breast screening programme, BSA, provides free mammography screening every two years to women aged 45 to 69 with no breast cancer symptoms.

A core component of screening programmes is the ICT infrastructure to deliver the programme. The ICT systems supporting screening programmes track participants through the pathway and provide invitation/recall services and monitoring/evaluation data. The BSA ICT system is comprised of three interdependent components which must be linked and maintained concurrently to support clinical safety and practice:

1. A central **Picture Archive and Communication System** (PACS) to store digital mammograms for women participating in the BSA programme.

2. A **Radiology Information System** (RIS) to manage the workflow of women through the programme and support clinical management, deliver failsafe and operational reporting, and generate invitation and results letters. The current product is Concerto BreastScreen (cBS).

3. A BSA **Reporting Data Warehouse** to enable service providers and the National Screening Unit (NSU) to run reports and extract data for monitoring the quality of BSA.

s 9(2)(c), s 9(2)(e)

In addition, the current system lacks the flexibility and adaptability to adapt to future best practice changes in breast screening. The existing infrastructure also lacks a population register which limits the breast screening programme's ability to identify and offer services to eligible women in New Zealand.

Need for Investment

existing s 9(2)(c), s 9(2)(e) It is impossible to adapt the ICT infrastructure to changing service needs or accommodate future demand. s 9(2)(c), s 9(2)(e)

The system is no longer fit for purpose. Two of the components of the system, the RIS and the BSA Reporting Data Warehouse, are end-of-life and lack the adaptability and integration to support programme changes. These components cannot be easily enhanced or upgraded to mitigate operational risk or meet current or future business change requirements. The upgrade of the BSA reporting data warehouse is being addressed through another project, but the RIS requires significant investment. The RIS is a core application used to support BSA services and is unsuitable. It no longer carries vendor support across all components and cannot be updated or enhanced to meet current clinical practice or operational needs for breast screening.

The system lacks the integration, flexibility and scalability required to deliver modern services and support programme change.

Māori and Pacific women experience a more significant burden of disease and mortality from breast cancer than non-Māori and non-Pacific women. Improving access to the breast screening programme for these priority group women will positively impact equitable outcomes. Māori women with screen-detected breast cancer have the same outcomes as non-Māori; however, their outcomes are poorer if their breast cancer is diagnosed through the symptomatic pathway. Investment in the programme's ICT infrastructure will provide additional tools for identifying and engaging with priority group women and improving equity in the programme. The proposed technology will also include a register of eligible women, which is not currently available through the existing ICT system.

Scope

The scope of the investment is the upgrade/replacement of the ICT support systems for the BSA programme to support safe ongoing service delivery, including targeted support for priority group women to increase equity. Technology will be adaptive to future changes and support improvements in identifying and inviting women to screening services.

Investment sought from this budget initiative will be used to:

- Replace the breast screening Radiology Information System (RIS), Concerto BreastScreen, with a new RIS to support clinical management, including patient management, failsafe and operational reporting.

- Adapt the National Screening Solution (NSS) for BSA, including creating a population register of eligible breast screening participants and integrating with the new RIS for clinical pathway management.

- Upgrade the existing BSA Data Warehouse and reporting functions from new source systems.

- Fund ongoing license, hosting and support fees.

As the current central Picture Archive and Communication System used to store digital mammograms for women participating in the BSA programme is fit for purpose, it is out of scope for this project.

Benefits of Investment

The key benefits of the proposed investment include:

- **Reduced risk of ICT failure impacting the BSA programme** due to implementing robust and effective ICT systems; s 9(2)(c), s 9(2)(e)

- **Maintain improved health outcomes from breast screening** through sustainable ICT to continue the breast screening programme. This will maintain mortality gains and early cancer detection for women 45 to 69 who participate in screening.

- **Reduced inequity in screening access and health outcomes for people with breast cancer** as it provides a new capability to identify and target priority group women. This will decrease inequity in access to BSA, breast cancer mortality, and early detection for unscreened or under screened Māori, Pacific and Disabled women 45 to 69.

- **Improved participant experience** through improved screening timeliness as the adaptive and robust ICT will support the ongoing delivery of the programme and enhance the ability to recall and manage appointments.

The investment will also increase confidence in the BSA programme due to a more adaptive and responsive ICT solution that better meets the programme's needs. This will increase trust in the New Zealand public service (Living standard Framework **Civic Engagement and Governance**).

Investment Alignment

The investment will align with the Ministry of Health **Information Systems Strategic Plan**, as it will better manage the risks in the current asset and reduce the proliferation of technology platforms and bespoke applications. The recommended approach to the ICT solution aligns with the **National Screening Unit's vision for a shared information technology solution.** s 9(2)(c), s 9(2)(e)

The recommended approach to the ICT solution will undertake data collection and management in line with the *Data and Information Strategy for Health and Disability: Roadmap 2021-2024*.

This initiative will support Outcome 4 of the **New Zealand Cancer Action Plan 2019-2029**: He hiki ake i te o ranga - better cancer survival, by delivering a high-quality population screening programme.

By improving access for wahine Māori to screening services, it will also support the following recommendations:

- The **report on Stage One of the Health Services and Outcomes Kaupapa Inquiry (Wai 2575)** to act, to the fullest extent practicable, to achieve equitable health outcomes for Māori; and

- The **Inquiry into health inequities for Māori report of the Māori Affairs Committee in August 2020** to ensure all wahine Māori can access screening programmes.

The investment will positively impact **child poverty** by ensuring that the programme can continue reducing the burden of breast cancer on whānau. Improving outcomes for priority groups will have a positive impact on children and the wider whānau. The investment will also align with Government and Te Whatu Ora commitments to equitable health outcomes in New Zealand, enabling the identification and targeting of priority group women.

1.3 Economic Analysis

A long list of potential technology options was identified, and these options were evaluated against investment objectives and critical success factors. The recommended way forward is to source new technology services to support BSA, to address the programme's critical technology risk and meet future strategic requirements. Investment in a new RIS solution that integrates with the current National Screening Solution and the existing PACS will mitigate the current limitations and operational risks of the cBS legacy system.

1.4 Commercial Approach

The replacement technology will require procurement to support the programme. Existing contract arrangements will manage service delivery and implementation elements. Procurement will follow a single-stage Request for Proposal (RFP) process in line with Government Procurement Rules to approach the market for a RIS and supporting services. This will be through open advertisement on the Government E-Tendering System (GETS). This process assumes a small market for this type of system. Therefore, a Registration of Interest (ROI) process is not required, as this will introduce an unnecessary time delay to the eventual award. The procurement timeframe will require approximately 30-40 weeks from preparing RFP to contract award.

1.5 Financial Case

Total Programme Cost

The proposed investment in BSA over the 20-year modelled period is $156.57 million (to be confirmed during Phase 1). This is comprised of a capital cost of $25.73 million and an incremental operating cost of $130.84 million. The 20-year cost model is summarised in Table 1[1].

Table 1: Indicative Expenditure by Financial Year

Financial costs $m	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	10 yrs	Total 20 yrs
Total CAPEX	12.60	11.68	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.73	25.73
Total OPEX	3.26	6.43	10.43	9.50	7.61	7.61	7.61	7.61	7.61	7.61	75.28	130.84
Total	15.86	18.11	11.88	9.50	7.61	7.61	7.61	7.61	7.61	7.61	101.01	156.57

Phased Funding Approach

The project implementation funding is sought in two phases. The funding required for Phase 2 will be finalised following the design completion in Phase 1 and detailed in the implementation business case. Note that the initial Phase 2 costs cross two financial years, 2021/22 and 2022/23. Due to the phasing of the investment and where costs lie, some funding might need to be spread across several years. Further, given the recent changes to the accounting treatment of some aspects of Software as a Service (SaaS) implementation costs, there might be a need to convert some of the capital funding into operating. The implementation business case will confirm the potential impact on the operating and capital expenditure split.

- **Phase 1: Design and Development** ($5.35 million comprised of $3.16 million CAPEX and $2.19 million OPEX): This phase is for requirement gathering and design activities for the replacement ICT solution. At the end of this phase, an implementation business case will be prepared to confirm the remaining investment required to implement this project. The Implementation Business Case, completed in early-2023, will reflect the impact of changes to CAPEX/OPEX rules.

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[1] Due to rounding, columns and rows may not add to the totals. Totals are correct.

- **Phase 2: Implementation and ongoing costs** ($151.22 million comprised of $22.57 million CAPEX and $128.65 million OPEX): This phase will deliver the new ICT solution to support the BSA programme and ongoing support up to the end of the 20-year modelled period.

- The implementation business case will provide detailed costing and refinements.

1.6 Management Approach

Governance and Management

The Executive Leadership Team (ELT) is ultimately responsible for the project's governance as part of its overall organisational governance responsibilities. Governance will be through the National Screening Unit (NSU) National Cervical Screening Programme (NCSP) and BSA Governance Group, which will report via the Senior Responsible Owner (SRO). The Steering Group has responsibility for advising and supporting the programme team to deliver the project on time and within budget. It will report on an exception basis to the Governance Group.

The governance structure will encompass the BSA and NCSP-Human Papilloma Virus (HPV) projects. This approach aims to achieve synergies between the projects and minimise duplicated work and effort, with effective management of resources across the two projects.

This business case was developed in consultation with the Data and Digital team at Manatū Hauora – the Ministry of Health., Both the National Screening Unit and the Data and Digital team have subsequently moved to Te Whatu Ora – Health New Zealand. National Digital Services will be represented in the project governance.

The project will be managed using a combination of delivery approaches that merge waterfall (PRINCE2) with some Agile SPRINT approaches. These structured approaches will ensure effective management of scope, budget, time, human resources, quality, communications and risk.

Management of Change, Benefits and Risks

- Proactive **change management** will be undertaken to ensure that any potential or actual issues are identified and effectively managed to minimise any negative impacts on service delivery.

- The SRO will have overall responsibility for the **realisation of benefits**. The benefits register will be maintained for the project's duration and until the post-implementation review is completed. Identification, measurement and tracking of benefits will be undertaken to ensure that the expected outcomes are realised. The benefits of investing in ICT to strengthen and stabilise the existing programme will be realised from the time of implementation.

- Standard **risks and issues management** methodologies will be used throughout the project's life. The risks and issues register will be maintained to reflect the status of any risks or issues arising. All key risks and issues will be monitored and reported/escalated where required.

Stakeholder Engagement and Communication

Key stakeholders have been identified, and a high-level Communications and Engagement Plan has been developed. This outlines the key messages and engagement approaches and will be finalised, subject to the approval of this business case.

Monitoring and Assurance

The project was initially assessed as 'High' on the NZ Treasury Risk Profile Assessment based on the broader scope originally envisaged (a combination of ICT change and extension of the screening age range). A Gateway review was undertaken in May 2019, and a follow-up Targeted Investment Review was undertaken in November 2019. Both reviews were focused on the extension of the programme's age range. Following the descoping of age range extension, the project risk profile assessment was revised to 'Medium'. Based on the revised scope and reassessment, no further Gateway reviews are required.

Internal quality assurance will be provided by the Leadership Group and the Governance Group; this may incorporate real-time assurance reporting. Independent Quality Assurance (IQA) will be provided by an All of Government (AoG) Consultancy Services panel member, selected using a closed procurement process. External oversight will be provided by the Central Agencies through regular and specific engagement.

Timeline

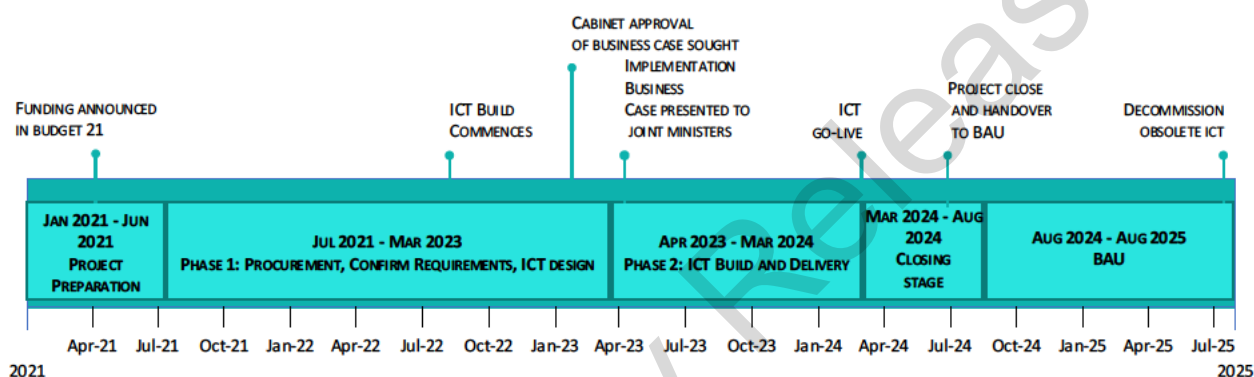Key milestones and approximate dates are summarised below.

Figure 1: Indicative Timeframe for BSA Critical Infrastructure Replacement

2 Introduction

2.1 Purpose of this Business Case

Proposed Investment

This business case seeks approval of $156.57 million over 20 years (including capital charges and depreciation) to upgrade and replace vital components of the national BreastScreen Aotearoa (BSA) Programme Information and Communications Technology (ICT) infrastructure s 9(2)(c), s 9(2)(e)

In Budget 2021, following Cabinet's agreement, the Government announced funding of up to $55.6 million over four years to replace vital components of the information and communication technology infrastructure supporting BreastScreen Aotearoa [CAB-21MIN-0116.14: Budget Package: Vote Health refers]. The proposed investment in BSA over the 20-year modelled period is $156.57 million, these costs will be confirmed during Phase 1 of the project and provided in an implementation business case.

The initiative will s 9(2)(c), s 9(2)(e) improve the sustainability of the national screening programme. This will enable BSA to better record current clinical practice and adapt to future changes, such as extending the screening age range or the introduction of new screening and service delivery technologies. The proposed investment will leverage existing investment in the National Screening Solution (NSS) and will provide opportunities to utilise a population register to invite women for breast screening. This could be especially significant for improving equitable access to breast screening, as it provides a tool to identify and invite Māori and Pacific women to access screening services proactively. The investment will also provide opportunities for efficiencies, for example through centralising services or freeing up resources.

Business Case Approach

The business case approach agreed with Central Agencies is:

- An initial **detailed business case** describing the need for investment and recommended approach *(this document).*

- An **implementation business case** to confirm the final costings, implementation detail and timing. The implementation business case will seek approval of the joint Ministers of Health and Finance to release the balance of the funding to implement the changes.

This business case also builds on the business case for the NSS [2] which was approved by Ministers in August 2018. The NSS is the ICT solution, initially developed to support the National Bowel Screening Programme (NBSP), which is expected to be extended to provide the ICT support for BSA and other screening programmes.

The proposed investment aligns with the proposed investment in ICT support for the National Cervical Screening Programme (NCSP). s 9(2)(c), s 9(2)(e) Due to timing differences in progressing the two programmes, these are not being run jointly, even at the platform level. The NSU is continually reviewing this and, at the appropriate time, will look for as many efficiencies as possible to support delivery.

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[2] National Screening Solution for NBSP Business Case, Ministry of Health July 2018.

This may mean merging the two teams, but at a minimum, learning from the HPV ICT implementation will be leveraged for the BSA programme. As part of designing the ICT solution for HPV, the NSU will ensure that it is suitable and scalable for BSA.

The New Zealand Treasury, Government Chief Digital Officer (GCDO) and New Zealand Government Procurement and Property (NZGPP) have been engaged through the development of this business case. The format and approach are as agreed with the Central Agencies and meet the requirements of the New Zealand Treasury Better Business Case process.

2.2 Background to this Business Case

Each year in New Zealand, approximately 3,200 new breast cancers are registered in New Zealand and there are around 600 deaths from breast cancer. The national breast screening programme, BSA, provides free mammography screening every two years to women aged 45 to 69 who have no symptoms of breast cancer.
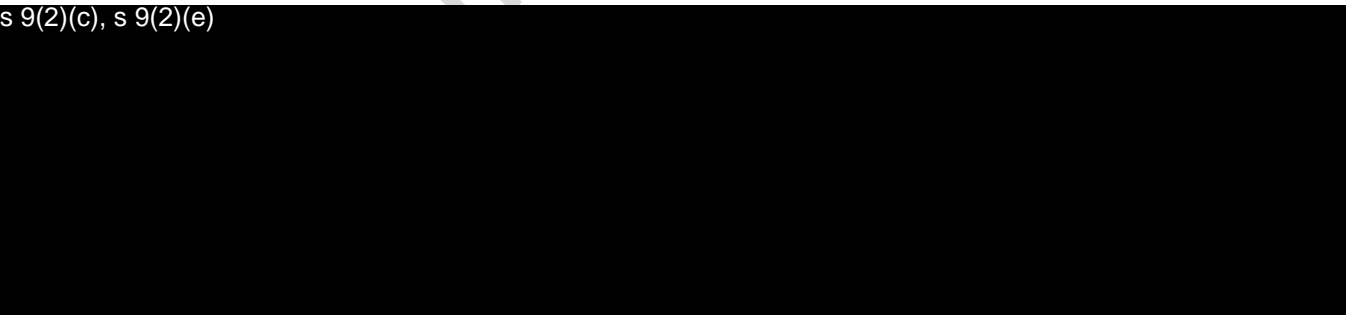
In December 2016, the Ministry of Health (the Ministry) commenced work on an analysis of the potential impact of extending the eligible age range for BSA. Although this analysis was completed in 2018[3], the initial budget bid to extend screening invitations to women aged between 70 and 74[4] was deferred.

In undertaking the analysis for the potential age range extension, the Ministry identified significant challenges with the existing BSA programme ICT infrastructure. The existing BSA ICT platform is no longer fit for purpose and lacks the integration, flexibility and scalability required to deliver modern health care services and support programme changes. These issues must be resolved urgently for BSA to continue to provide a safe and effective programme.

In preparation for a proposal for consideration for Budget 2020, a business case was drafted describing the investment required to achieve age range extension and associated equity interventions, as well as replacing the vulnerable ICT infrastructure. The proposal did not progress.

Considering revised Government priorities and the constrained financial environment due to the COVID-19 pandemic, the scope of the proposed investment has been limited to addressing the most immediate concern, the replacement of the at-risk ICT infrastructure to maintain the existing BSA programme safely and to enable change to the programme in future, as required. Extension of the screening age range has therefore been excluded from the scope of this investment proposal.

s 9(2)(c), s 9(2)(e)

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[3] Ministry of Health. 2019. Impact Analysis: Extending BreastScreen Aotearoa to include women aged 70–74 years. Wellington: Ministry of Health.

[4] Health Report 20180374

3 Strategic Case

3.1 Organisational Overview

Te Whatu Ora - Health New Zealand and National Screening Unit

On 1 July 2022, Te Whatu Ora (Health New Zealand) and Te Aka Whai Ora (the Māori Health Authority) were established as new entities to lead and operate the future health system. The National Screening Unit transferred to Te Whatu Ora from 1 July 2022. In preparation for this change the National Screening Unit transferred to the interim Health New Zealand entity from 1 May 2022.

The National Screening Unit (NSU) within Te Whatu Ora is responsible for developing, managing and monitoring nationally organised population-based screening in New Zealand. There are five screening programmes and one quality improvement programme in place: **BreastScreen Aotearoa (BSA)**, National Cervical Screening Programme, National Bowel Screening Programme, Universal Newborn Hearing Screening Programme, Newborn Metabolic Screening Programme, and Antenatal screening for Down syndrome and other conditions (quality improvement).

BreastScreen Aotearoa

New Zealand provides free breast screening (digital mammography) each year to around 270,000 asymptomatic women aged 45 to 69[5], through BreastScreen Aotearoa. BSA was established in 1998 to provide screening for women aged 50 to 64. In July 2004 the eligible age range was extended to 45 to 69.

BSA is delivered through eight Lead Providers (six are contracted through District Health Boards (DHBs), and two through private radiology providers). Additionally, eleven screening support service providers are focusing on supporting priority group (Māori, Pacific, unscreened[6] and under screened[7]) women to access breast and cervical screening.

Based on the available information about the proposed changes arising from the Health and Disability System Review, the approach to the BSA delivery model is consistent with the new operating model. It is not anticipated that BSA delivery will change. BSA will continue to be delivered by eight Lead Providers and their subcontractors.

Each Lead Provider is responsible for providing, either directly or by subcontracting another provider, all screening pathway components (except those provided by screening support service providers) throughout their region. BSA services are provided from about 35 fixed sites and 10 mobile units.

Screening mammography does not prevent the development of breast cancer but can find cancer earlier. This improves the probability of a positive outcome, as survival after diagnosis and treatment is directly related to the stage at which the cancer is diagnosed.

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[5] Women who are outside the age range for BSA can access mammography or other imaging through private providers, at their own cost. Women with symptoms of breast cancer, or who are considered at increased risk of breast cancer can access publicly funded imaging or mammography through their DHB.

[6] Women who have either never been screened or have not been screened for five years.

[7] Groups of women whose participation is well below those of the total eligible population.

Mammography delivered through an organised screening programme can reduce mortality from breast cancer in women screened, by 30 percent (women aged 50-69 years, assuming a coverage rate of 70 percent or more[8]). The coverage target for BSA is screening 70 percent of women aged 50 to 69[9]. Prior to the COVID-19 pandemic, the programme met this target nationally, with 70.8 percent coverage (as at March 2020[10]), noting that there are variations geographically and between population groups. As a result of the pandemic lockdowns and other factors, coverage has dropped to 63.1 percent as of November 2022.

The existing BSA programme funding covers services delivered by Lead Providers, support to screening for priority group women, the information system to support the screening programme, quality assurance, audit, monitoring and evaluation. Treatment for cancers identified through screening is provided through DHBs or private providers and is outside the screening pathway.

3.2 Strategic Context

Breast Cancer in New Zealand

Breast cancer is the second most common cause of cancer death for women in New Zealand, after lung cancer. The number of breast cancer registrations has increased due to population growth but the age standardised rate per 100,000 women shows that registration rates in New Zealand are relatively stable. Age standardised registrations are shown in Figure 2.
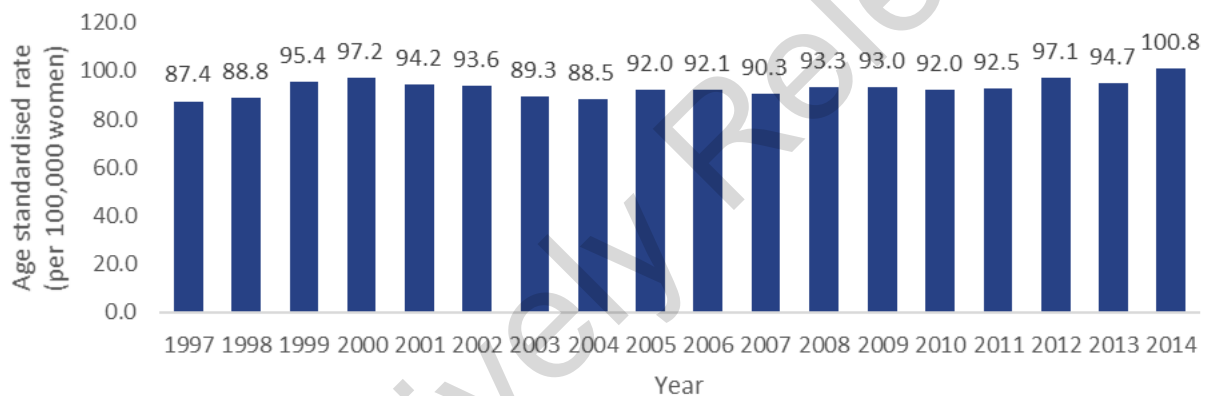
Figure 2: Age Standardised* Breast Cancer Registrations for women in New Zealand, 1997-2014
*All age standardised rates in this Impact Analysis have been age standardised to the WHO standard world population.
Source: Impact Analysis: Extending BSA to include women aged 70 to 74 years Ministry of Health, Time to Screen, BreastScreen Aotearoa July 2018

Whilst BSA has reduced mortality from breast cancer by a third for women who are screened compared to women who have not been screened[11], approximately 3,200 women are diagnosed with, and over 600 women die of breast cancer in New Zealand every year.

ICT Support to BSA Programme

A core component of screening programmes is the ICT infrastructure to deliver the programme. The ICT systems supporting screening programmes track participants through the pathway and provide invitation/recall services and monitoring/evaluation data. The BSA ICT system is comprised of three

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[8] This has been shown through Randomised Controlled Trials and observed in New Zealand. Cohort and Case Control Analyses of Breast Cancer Mortality: BSA 1999-2011 (Morrell et al 2015)

[9] While the screening age range is 45 to 69 the programme monitoring is based on targets for women 50 to 69 because of the strong evidence base of the benefit of screening for this age range.

[10] Note that from March 2020 the impact of the COVID-19 lock downs can be seen in coverage, the March 2020 figures give a picture of the pre-pandemic coverage rates.

[11] Cohort and Case Control Analyses of Breast Cancer Mortality: BSA 1999-2011 (Morrell et al 2015).

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interdependent components which must be linked and maintained concurrently to support clinical safety and practice:

1. A **Radiology Information System** (RIS) to manage the workflow of women through the programme, support clinical management and generate invitation and results letters. The current product is cBS. There are eight separate instances of cBS, one for each lead provider.

2. A central **Picture Archive and Communication System** (PACS) to store digital mammograms for women participating in the BSA programme.

3. A BSA **Reporting Data Warehouse** to enable service providers and the NSU to deliver failsafe and operational reporting, and extract data for monitoring the quality of BSA.

3.3 Existing Arrangements and Business Needs

Need for Investment

Key stakeholders participated in facilitated Investment Logic Mapping (ILM) workshops in September 2018, to confirm the most significant problems with the current BSA programme and the expected benefits of investment. s 9(2)(c), s 9(2)(e)

s 9(2)(c), s 9(2)(e)

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[12] BSA Current State Technology Assessment and Options Analysis v1.6 25 April 2019.

[13] Age Range Extension is no longer in scope for this proposed investment.

s 9(2)(c), s 9(2)(e)

Table 2: cBS Significant Risks, Issues and Weaknesses

Risk Area	Summary
Operational and Clinical	If current operational failsafes and manual processes are not consistently and accurately executed, the operational and clinical safety of the BSA programme will be compromised.
Technical Suitability	If there is a requirement to change current screening operations, that requirement may not be able to be delivered using the current BSA technology platform resulting in additional out of system processes and/or manual workarounds.
Maintainability	If operational and business change are not able to be incorporated into the BSA technology platform this will hinder service improvements such as ensuring data integrity.
s 9(2)(c), s 9(2)(e)	
Adaptability	If cBS cannot be adapted to meet changing requirements, this will constrain future changes to the BSA programme.
s 9(2)(c), s 9(2)(e)	

An independent review of the Assessment and Options Analysis was completed in October 2019[14]. This review concluded that whilst the analysis was originally commissioned in relation to the ability of the programme to implement age range extension and is presented within that context, most of the material in the report is directly relevant to the ongoing sustainability of the technology platform, independent of change to age range. The review concluded that the platform is not sustainable on an ongoing basis.

s 9(2)(c), s 9(2)(e)

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[14] Independent Review of BSA Current State Planar Consulting 30 October 2019.

s 9(2)(c), s 9(2)(e)

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Impact of COVID-19

Nationally there has been a decrease in breast screening coverage nationally due to the ongoing impacts of the COVID-19 pandemic.

BSA has taken an equity first position, and catch-up appointments have been prioritised for Māori and Pacific participants throughout the pandemic response. However, screening coverage did decrease for all ethnicities during this period, and a continued focus on equity is required to ensure the equity gap in screening access closes. As of November 2022, nationally, approximately 38,500 screens are needed to reach the breast screening coverage target of 70 percent. The impact of COVID-19 on screening has been especially severe for providers in locations where populations have been most impacted by COVID-19.

The two-year screening coverage for BSA through to November 2022 is summarised at Table 4.

Table 4: Two-year coverage by ethnicity for period ending November 2022

Ethnicity	Coverage	Pre COVID-19 Coverage	Current Coverage	Screens to reach target (approx.)	Screens to reach equity (approx.)[18]
Māori	70%	63.1%	.59.3%	11,000	7.000
Pacific	70%	.71.4%	.63.5%	2,500	1,100
Other	70%	72.40%	.66.1%	25,000	

Compares two-year coverage for period ending 30 November 2022 with pre-COVID two-year coverage period ending 29 February 2020.

The experiences during the pandemic have highlighted the need for an adaptive and flexible ICT system that can support the programme to better identify, contact and manage screening participants during significant events like a pandemic. The ICT tools developed as part of the pandemic response by the Ministry of Health have demonstrated new ways of using ICT to effectively engage and provide health services at a population level. This project will leverage off the lessons learnt during this time.

Alignment with Te Whatu Ora/NSU Business Vision

In addition to the issues described above, the current standalone approach to ICT support for BSA is not aligned with the Te Whatu Ora business vision for ICT support to screening programmes. In the longer term, Te Whatu Ora and the NSU envisage that the NSS will be the ICT solution that enables the nationwide delivery of screening programmes. This strategic direction for the NSS is supported by the Central Agencies.

The proposed investment aligns to Te Whatu Ora digital strategy in terms of common national investments and re-use of strategic cloud platforms such as the National Screening Solution and proven Covid investments. These investments also align to Te Whatu Ora design principles such as strengthened cyber security, setting up for continuous delivery approaches and empowering and engaging consumers in particular for the delivery of equity outcomes.

The NSU is currently implementing the National Bowel Screening Programme, for which the NSS was developed. The NSU views the NSS as a long-term strategic solution which will (over time and subject to approval and funding for extension) contribute to an improved consumer experience for participants of all

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[18] With group with highest coverage, non-Māori, non-Pacific. Data Source: coverage – BSA Coverage DHB Rshiny app; number of screens to reach target and equity – BSA Data Warehouse.

the New Zealand screening programmes. The business case for the national information technology solution (the NSS) for the NBSP was approved in August 2018 and work to develop and build the NSS was completed in March 2020.

In March 2020 the Ministry was required to develop technology solutions rapidly to support the health response to the COVID-19 pandemic. A separate instance of the NSS technology was created (the COVID Platform), to allow the rapid and potentially temporary development of several business applications specifically to support the response. These include the National Contact Tracing Solution (NCTS), the National Border Solution (NBS) the Border Clinical Management System (BCMS) and the managed exemptions process. The COVID-19 Platform has been extended to help manage other COVID-19 processes.

The cBS legacy system does not provide the full range of functionality that will be delivered by the NSS:

- Supporting optimal, safe, ethical and equitable delivery of screening activities.

- Enabling the successful identification and invitation of eligible people to participate in screening.

- Underpinning failsafe mechanisms and adequate safety provisions for individual participants.

- Gathering the appropriate treatment data from other sources.

- Integrating with Te Whatu Ora, screening service and other health sector provider systems, e.g., National Health Index (NHI), Health Provider Index (HPI), Clinical Systems.

- Providing direct access to systems for a range of health care providers and professionals involved in the care of screening programme participants.

- Allowing the management of surveillance for participants in screening programmes.

- Having the potential to be scaled to support the wider NSU and population health outcomes.

Equity

Māori and Pacific women experience a greater burden of disease and mortality from breast cancer compared to non-Māori and non-Pacific women. Improving access to the BSA programme for these priority group women will have a positive impact on equitable outcomes. Māori women with screen-detected breast cancer have the same outcomes as non-Māori, however, their outcomes are poorer if their breast cancer is diagnosed through the symptomatic pathway.

Investment in the programme ICT infrastructure will provide additional tools for identifying and engaging with priority group women and improving equity in the programme. The proposed technology will include a register of eligible women, which is not currently available through the existing ICT system. The population register will utilise existing health data sets, including the National Health Index to provide a register of New Zealanders who are eligible for breast screening services. This provides the opportunity to adjust the invitation strategy to a default "opt-off" register rather than the current "opt on" strategy with relies on eligible participants enrolling themselves in the programme. Participants will still have the option to not participate but will not miss out on screening because they do not know they are eligible. This approach is likely to be especially significant for improving equitable access to breast screening.

The ICT will also provide additional tools to identify and target priority groups with messaging about participation in breast screening. This provides the opportunity to partner with Māori, Pacific and Disability community leaders and providers to design approaches that are tailored to be culturally responsive and accessible. This could include, but not be limited to, running targeted campaigns in different languages and alternative formats to increase understanding and encourage screening.

Improved ICT and a population register will help identify other priority groups who we may not be reaching. For individuals who belong to two or more underserved groups, approaches and solutions need to be unique and multifaceted to ensure they can participate in the programme. The investment will provide better tools to understand who is participating in the programme and who is not. The Government has

committed to improving healthcare outcomes for disabled people under the New Zealand Disability Strategy. However, data is not currently collected on eligible disabled people who access breast screening. Without this information, the levels of participation remain unclear, and it is unknown if the screening programme is honouring the commitment to improve health outcomes for disabled people.

Lessons Learned

This programme has considered lessons from the New Zealand Bowel screening pilot[19] and the Independent Review of the Bowel Screening Programme[20]. These lessons have been used to inform programme definition and planning, as well as informing programme governance, risks and mitigations, requirements, procurement approaches and implementation planning. Lessons from the national pandemic response will be incorporated going forward and lessons from other similar projects will continue to be sought and incorporated into ongoing planning and delivery approaches. Key lessons are summarised in Table 5.

Table 5: Lessons Learned

Area	Lesson
Data security	• Health data is at risk of cyber-attack. Recent examples of data security breaches in (health and other sectors) have highlighted vulnerabilities in New Zealand data. • Data security is critical and must be addressed as a priority where there is an actual or potential risk. • Public confidence may be lost in the event of a data breach.
Processes	• The importance of systems and processes, to provide assurance around the screening invitation process. • Strong programme management and governance is essential.
ICT and data management	• Infrastructure must be fit for purpose and able to adapt to the changes required. • Data entry manual input and duplication needs to be reduced as far as possible and the user interface for ICT systems simplified. • When changes are made to the ICT system, measures must be put in place to ensure everyone who should be invited is.

During the COVID-19 response, the Ministry demonstrated its ability to implement large scale ICT projects rapidly and successfully on the types of platforms that will be utilised to replace the BSA ICT system. The project will especially benefit from experience gained during the development and roll out of the National Contact Tracing System.

Investment Objectives

The investment objectives describe the intended outcomes sought from the proposed investment. They have been developed from the problems and benefits described and support the wider BSA programme goals. The investment objectives are to:

• Ensure the BSA programme has a robust and fully supported ICT platform with minimal risk of ICT failure which will compromise the ongoing delivery of the BSA service, from 2025.

• s 9(2)(c), s 9(2)(e)

• Improve the identification, invitation and recall process of priority group women, to reduce programme inequities and progress improved cancer outcomes.

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[19] Missed invitations during Ministry's Bowel Screening Pilot – May 2018 (https://www.nsu.govt.nz/health-professionals/national-bowel-screening-programme/missed-invitations-during-ministry%E2%80%99s-bowel)

[20] Report of the Independent Assurance Review for the National Bowel Screening Programme. 2018. (https://www.health.govt.nz/our-work/preventative-health-wellness/screening/national-bowel-screening-programme/key-documents-national-bowel-screening-programme)

- Allow more timely and cost-effective adaptation of the BSA programme in response to programme, technology and best practice changes, from 2025.

Analysis of the existing arrangements and business needs for each objective is attached as Appendix 3.

3.4 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). Items that are determined to be out of scope are specified for clarity. The potential business scope and key service requirements are summarised in Table 6.

Table 6: Potential scope and key service requirements

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Extend NSS to support management, coordination, and monitoring of the BSA screening pathway nationally. "Opt-off" register of eligible women.	✓			
Source a new national RIS to: • Maintain current state • Meet future service requirements	✓	✓		
Update Data Warehouse and reporting solution to integrate with new RIS to: • Monitor and report on quality across all aspects and indicators for the programme. • Monitor and report on performance across the programme	✓[21]			
ICT improvements to enable more efficient identification and invitation of women, reduce labour intensive work arounds and failsafe checks and create efficiencies to enable resources to be redeployed. Support central coordination and monitoring across all aspects of the programme nationally.		✓		
National PACS • Upgrade to the current PACS environment to allow reporting directly from the PACS				✓
• Current PACS platform replaced with a single consolidated national solution with a single repository (with logical separation) allowing standardisation of process and data to be enforced across all Lead Providers			✓	

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[21] The business case funding would support accessing data from the new source(s), developing new extract, transform and load (ETL) process to load that data into the data warehouse, modify the existing reports where required (for example due to new field names, different fields) or other reasons that make the new data incompatible with the existing reporting system.

Service Requirements	Scope Assessment			
	Minimum Scope	Inter-mediate Scope	Maximum Scope	Out of Scope
Upgrade/replacement of regional provider and DHB ICT infrastructure				✓

The recommended scope for the investment is **intermediate**. This scope is recommended as it incorporates the minimum investment required to deliver a safe and sustainable service, but also supports and enables future programme change.

3.5 Key Benefits and Disbenefits

The main benefit of the proposed investment, as identified at the ILM workshops held in September 2018, is a reduced risk of ICT failure impacting the programme. The investment benefits map and further detail on the benefits and measures, and their alignment with the Living Standards Framework (LSF), is attached as Appendix 4.

Living Standards Framework

Following the completion of the Strategic Assessment, further analysis has been completed on the alignment of the programme benefits with the Government Wellbeing priorities and the Living Standards Framework (LSF). The LSF was developed by the New Zealand Treasury in 2018 and updated in 2021. It is a framework for intergenerational wellbeing spanning a broad range of economic, social, and environmental outcome domains at a high level. The LSF2021[22] update refines the definitions of the 12 domains within "Our Individual and Collective Wellbeing" (health, knowledge and skills, cultural capability and belonging, work care and volunteering, engagement and voice, housing, environmental amenity, leisure and play, family and friends, safety, and subjective wellbeing.) A new level has been introduced in LSF2021; 'Our institutions and governance', with the final level 'the Wealth of Aotearoa' capturing financial wealth, human capability, and the natural environment.

Key Quantified Benefits

Quantifiable benefits fall into three categories: monetised (financial benefits arising from the proposed changes); non-monetised (benefits which have not been assessed financially for the purposes of the investment financial analysis); and wider social and economic benefits.

- **Monetary Benefits:** No financial benefits have been identified from this investment. There may be some financial benefit arising from increased service efficiency, but this will be marginal or difficult to quantify. No financial benefits have been included in the financial analysis.

- **Non-Monetary Benefits:** Whilst some of the benefits could in theory be quantified financially by applying a set of assumptions, these will be variable and subjective. As it is difficult to quantify these benefits financially with an acceptable degree of robustness, they have been excluded from the financial analysis. The key quantified non-monetary benefits are summarised in Table 7.

Table 7: Key Quantified Non-Monetary Benefits

Benefit	Summary and Key Performance Indicator
⊞	s 9(2)(c), s 9(2)(e)

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[22] https://www.treasury.govt.nz/publications/tp/living-standards-framework-2021-html

Benefit	Summary and Key Performance Indicator
Health (primary) s 9(2)(c), s 9(2)(e)	s 9(2)(c), s 9(2)(e)
Health (primary) **Maintain improved health outcomes**	**Maintain reduced mortality from breast cancer:** BSA achieves the expected mortality benefit from providing a breast screening programme[24]. Investing in the sustainability of the programme ICT will maintain the mortality reduction being achieved for women who participate in the programme. **Maintain increased early breast cancer detection:** BSA achieves expected early detection rates from providing a breast screening programme. Early detection is associated with better outcomes, including less intensive treatment and increased likelihood of successful treatment. In some cases, treatment will be less expensive. Investing in the sustainability of programme ICT will maintain the gains from early breast cancer detection for women who participate in the programme.
Health (primary) **Reduced inequalities in screening access and health outcomes**	**Decreased inequity in access to BSA**: This investment will provide improved tools to support efforts on providing equitable access to screening services for Māori, Pacific and Disabled women. **Decreased inequity in outcomes for people with breast cancer**: Organised breast screening programmes have been shown to reduce mortality from breast cancer, and outcomes for Māori and Pacific women who have screen detected cancer are similar to Other women. As a result of targeting to improve access to screening services, the proportion of breast cancers diagnosed at earlier stages will increase for Māori and Pacific women. Early detection is associated with better outcomes.
Health (primary) **Improved participant experience**	**Improvement in screening programme timeliness**: BSA reports annually on key indicators. There are several timeliness measures that are not being met by the programme, improving the ICT should lead to improvements in these measures. Timeliness is important in maximising the benefits from early detection and for reducing screening participants' anxiety when waiting for results or further investigations.

Unquantified Benefits

In addition to the quantified benefits, further benefits from the proposed investment are anticipated, which cannot easily be quantified but which nevertheless support the case for investment. These include wider social and economic benefits which are of value to New Zealand. Whilst the expected benefits from BSA sustainability are primarily within the Health Domain of Our Individual and Collective Wellbeing of the LSF, the investment will also deliver benefits within work, care and volunteering domain. In addition, benefits

s 9(2)(c), s 9(2)(e)

[24] The impact of the COVID-19 pandemic is not yet known.

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will be seen in Our Institutions and Governance in the Central and local government Institutional Sphere, refer Table 8.

Table 8: Unquantified Benefits

Domains / Benefit	Description
Health (primary) **Participant satisfaction**	**Participant and whānau satisfaction**: The investment will contribute to greater participant satisfaction, as the ICT system will, over time, support improvements to participant booking and workflow management. **Less intensive treatment**: Early detection is associated with less intensive treatment and increased likelihood of successful treatment.
Health (primary) **Dynamic and adaptive ICT**	**Redeployment of staff to higher value activities**: Improved ICT support to the programme will enable more productive use of resources, as staff will have access to accurate and timely data and effort will not be spent on re-entering data and resolving errors. The expected improvement in uptime will also support improved productivity. **More responsive ICT**: Upgraded ICT infrastructure will deliver a more responsive system which could be updated in a timelier manner. Changes will be more cost effective, as the system design will make changes easier, and therefore quicker, to implement. **Improved programme reach through improved ICT**: Access to a population register will increase the reach of the programme to women not currently engaged in breast screening. Improved ICT will support targeted engagement campaigns and increased accessibility of health promotion material and provide a wider set of delivery channels to meet customer demand (mobile, digital).
Central and local government (secondary) **Increased trust**	**Increased trust in MoH and screening services**: Increased trust and confidence in the BSA programme due to a more adaptive and responsive service, contributing to increased trust in New Zealand's public service. Through increased confidence in the breast screening programme other screening programmes will gain trust, resulting in improved participation.
Work, care and volunteering (secondary) **Avoided lost work and productivity**	**Avoided lost work, productivity and time caring for others**: Reduced disruption from the impacts of breast cancer, due to detection of cancers at an earlier stage and reductions in mortality from breast cancer. Benefits eligible women in employment or who provide childcare or other support roles, who participate in screening.

Benefits Timeline

The expected timeline for realisation of benefits from the investment is shown in Figure 4
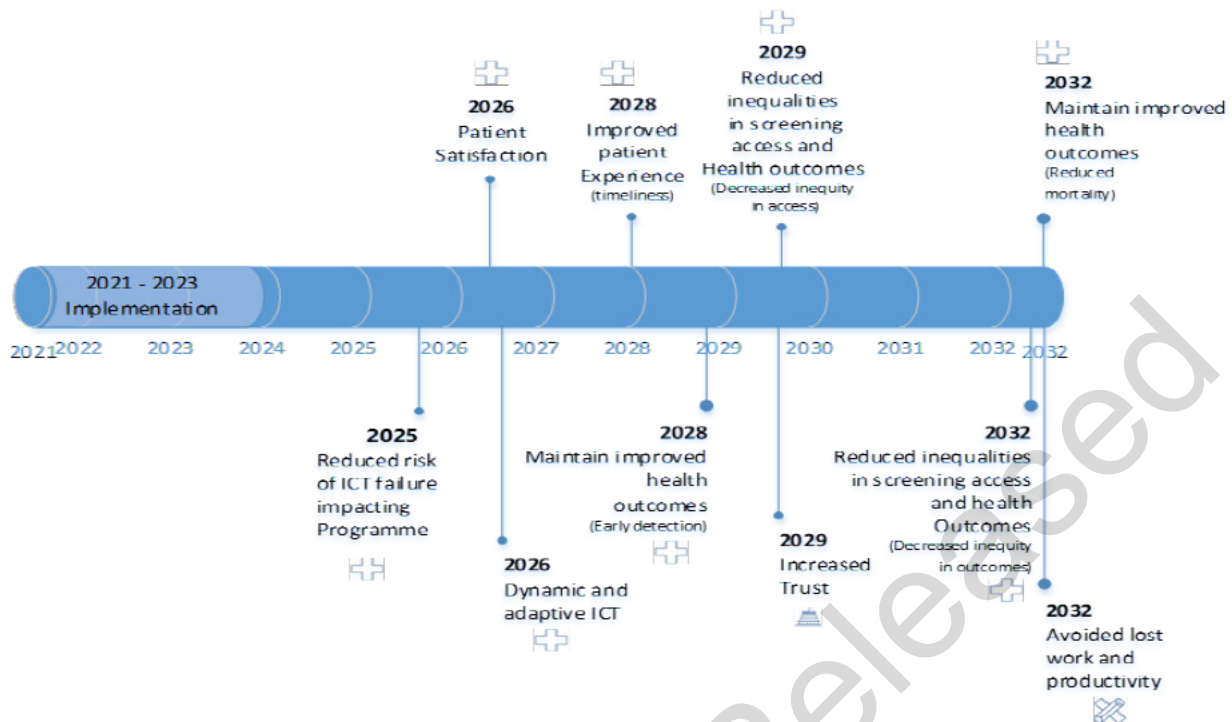
Figure 4: Benefits Realisation Timeline

Disbenefits

This investment will result in some outcomes that will be perceived as negative by one or more of the stakeholders. These are the downsides that will definitely occur (as opposed to risks which may or may not occur). The most significant disbenefits that will arise from this proposed investment are summarised in Table 9. Whilst the disbenefits are important, the long-term benefits outlined above outweigh these disbenefits.

Table 9: Disbenefits of Implementing BSA Sustainability

Disbenefit	Summary
Health Opportunity cost	**Precludes investment in other areas**: The cost of investing in this programme will preclude investment in other priority areas.

3.6 Key Risks, Constraints and Dependencies

Key Project Risks

The key risks have been identified and recorded in the project Risk Register. Detailed risk management planning is ongoing and will continue during the detailed planning and implementation phases. Risks have been assessed for likelihood and impact, mitigation actions identified, and residual risk assessed. The highest rated risks, post mitigation, are summarised in Table 10.

Table 10: Risk Theme Areas and Key Risks

Key Risks	Mitigation Actions Identified
If the RIS fails prior to the completion of the IT system upgrade, it may take time to recover and may not be recoverable. This will lead to an inability to offer the screening programme for a period and clinical follow through of women who had a possible cancer, or a cancer diagnosed may be compromised. In addition, this will increase the urgency and complexity of the ICT upgrade project and may compromise successful completion of all aspects of the project.	• Conduct a Current State Technology Assessment (*complete*). • Conduct an ICT Options Analysis and recommend a solution. • Conduct a formal market scan (Request for Information, RFI) to obtain information from the market on RIS. • Seek investment through a Better Business Case. • Continue current support contracts. • Escalate risk through Te Whatu Ora risk channels.
If the ICT does not adequately support the invitation and recall process it may lead to women who are eligible for screening missing out on appointments. This may mean women who develop breast cancer miss an opportunity to have the cancer detected earlier and is likely to result in negative media/public attention and reputational damage.	• Implement a functional ICT capability that supports safe invitation and recall of the screening population, learning from local and international incidents. • Robust failsafe processes as part of the ICT system.
If the project leads to significant disruption for services (screening, assessment) or increased demand for services more than programme capacity, it may result in service disruption, missed or delayed appointments and as a result cause clinical harm to screening participants or lead to participants losing confidence and disengaging with the programme. Inequalities may also be increased.	• Clinical safety included as a critical success factor by which options will be assessed. • Governance by Clinical Oversight Group (COG) included in project governance structure. • Monitor potential harms through transitional and routine programme monitoring. • Capacity modelling to understand programme requirements for increased demand.

Key Constraints, Dependencies and Assumptions

- **Constraints** are limitations imposed on the investment proposal from the outset. The most significant constraints are that the investment must meet legislative best practice requirements for ICT systems, and that it must align with the Ministry of Health's strategy for ICT.

- **Dependencies** are external influences on the success of the investment, where success is contingent on the actions of others. No external dependencies have been identified.

- **Assumptions** are things which are assumed to be true but are not proven. The key project (non-financial[25]) assumptions are summarised in Table 11.

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[25] Key financial assumptions are attached as Appendix 8.

Table 11: BSA Assumptions

Assumption	Impact if Not Correct
s 9(2)(c), s 9(2)(e)	
Investing in improved ICT will provide tools to improve equity and eliminate equity gaps in screening access for women 45 to 69. This will lead to a decrease in the equity gap in breast cancer outcomes, as evidence shows that mortality from breast cancer will decrease among Māori and Pacific women if participation rates were comparable to the total population.	No/minimal impact on equity gap.
That provision of breast screening continues to be a government priority.	Investment will be redundant, as the programme will cease.
That ICT is a critical enabler of the breast screening programme and the NSS will provide the required ICT capability for the register component.	Alternative ICT solution will be procured, likely resulting in a delay in procurement and resolution of ICT risks to the programme.
That it is achievable to upgrade ICT within the project timeframe.	Timeframe for delivery will be extended, increasing period for which the programme is at risk of ICT failure, and women's data is at risk of breach.

3.7 Investment Alignment

The proposed investment was identified as a priority in **Budget 21**.

This initiative supports outcome four from the **New Zealand Cancer Action Plan 2019-2029**: He hiki ake i te o ranga - better cancer survival. This initiative supports this outcome by delivering a high-quality population screening programme. The investment will align with the Government and Te Whatu Ora's commitments to equitable health outcomes in New Zealand. It will enable the identification and targeting of priority group women.

The **Report on Stage One of the Health Services and Outcomes Kaupapa Inquiry (Wai 2575)** noted 'An insufficient commitment to equity of health outcomes for Māori is inconsistent with the Crown's Treaty obligations.' The proposed investment will support the report's recommendation 'to act, to the fullest extent practicable, to achieve equitable health outcomes for Māori', as it will improve access for wahine Māori to the programme. It also supports the recommendation of **The Inquiry into health inequities for Māori report of the Māori Affairs Committee in August 2020** to ensure all wahine Māori can access screening programmes. The investment aligns with Government and Te Whatu Ora's commitments to equitable health outcomes in New Zealand, as it will enable improved identification and targeting of priority group women (wāhine Māori, Pacific women, unscreened and under screened women). The investment aligns with both **Whakamaua, the Māori Health Action plan 2020-2025** and **Ola Manuia, the Pacific Health and Wellbeing Action Plan 2020-2025,** through being committed to achieving equitable health outcomes for Māori and Pacific people.[26] [27]

It also provides opportunities to improve access to screening services for disabled people, aligning with the Government's commitment to improving health outcomes for disabled people in the **New Zealand Disability Strategy.**

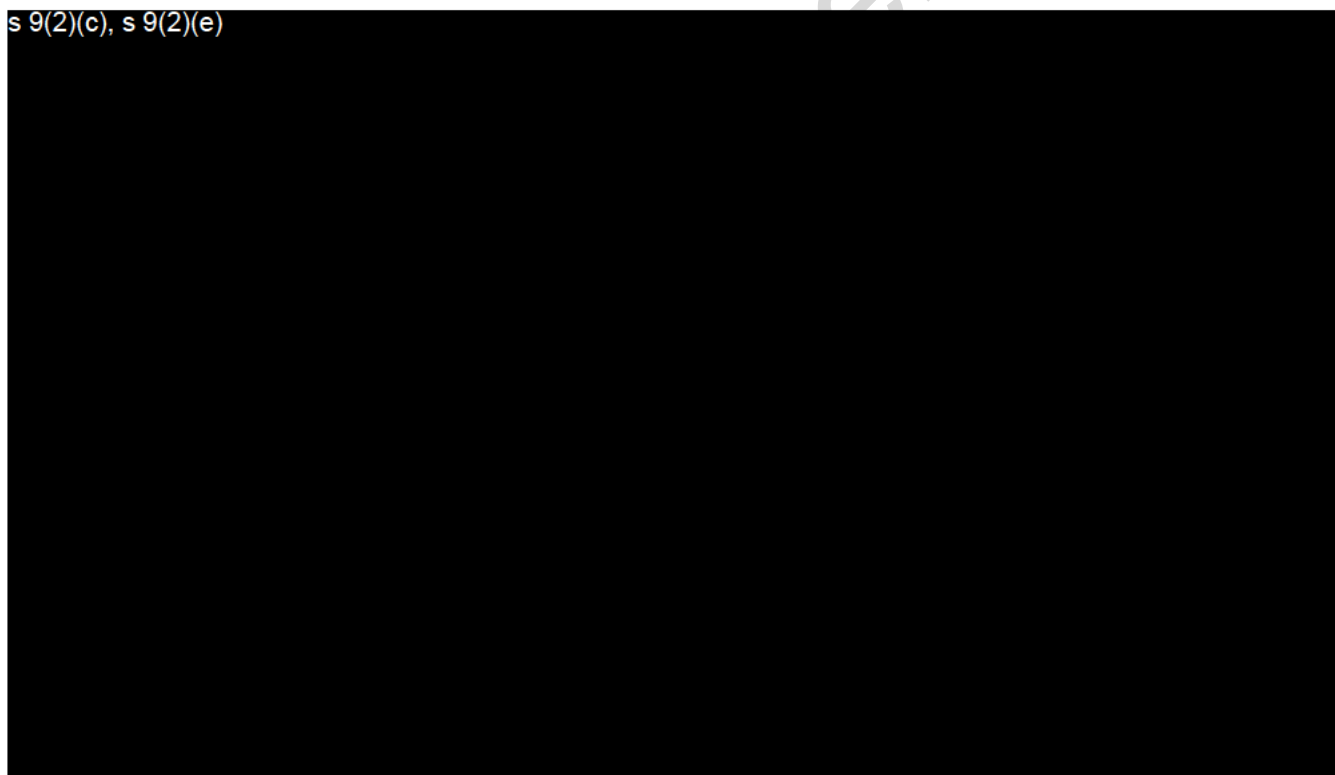---

[26] Ministry of Health. 2020. *Whakamaua:* Māori Health Action Plan 2020–2025. Wellington: Ministry of Health.

[27] Ministry of Health. 2020. *'Ola Manuia:* Pacific Health and Wellbeing Action Plan 2020-2025. Wellington: Ministry of Health.

The investment will have a positive impact on **child poverty**. Early detection of breast cancer reduces the risk of dying from cancer. It can result in less invasive treatment and surgery, enabling women to participate more fully in community and family life. Māori and Pacific women experience a more significant burden of disease from breast cancer than non-Māori and non-Pacific women. Therefore, improving outcomes for these priority groups will positively impact children and the wider whānau.

The recommended approach to the supporting information technology infrastructure is aligned with the Te Whatu Ora and NSU **vision for a shared information technology solution**. The NSS has been designed to be extensible across all national screening programmes (and potentially other programmes, such as Immunisation), building on core functionality developed for the NBSP. During the initial review of the BSA ICT requirements, the NSU identified that the existing technology solution supporting BSA is not able to sustain the programme safely. A strong correlation between the long-term technology needs of BSA and the NBSP was identified. The business case for the national information technology solution (the NSS) for the NBSP was approved in August 2018. Work to develop and build the NSS was completed in March 2020, and it now also supports the National Contact Tracing Solution for COVID-19. The investment will align with the Ministry of Health **Information Systems Strategic Plan**, which identifies the need for stronger business ownership of technology-enabled services and better management of the risks in the current assets, as well as reducing the proliferation of technology platforms and bespoke applications. This is critical to mitigating the risks and improving service delivery. Upgrading the ICT aligns with the **Ministry of Health Data and Information Strategy for Health and Disability: Roadmap 2021-2024** by improving how data and information is collected for the breast screening programme, providing additional tools for participants to view and change their information and preferences and providing improved access to support to screening providers to better support them to provide services for Māori and Pacific people.

s 9(2)(c), s 9(2)(e)

3.8 Stakeholder Engagement and Support

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 will be required to change as a result of the programme). The key stakeholders identified for this project include BSA service providers and staff, Primary Health Organisations (PHOs) and GPs, and BSA NSU staff. A more detailed analysis of stakeholders, showing their level of influence and impact, is attached as Appendix 5.

Key stakeholders have been engaged to raise awareness of the proposed investment and develop the information needed to complete this business case. Problems and benefits definition workshops were held to determine the main drivers for investment and the benefits expected to be realised. Communication with stakeholders designated as medium impact and influence has been more limited to date. Representatives of key stakeholders will receive regular reporting and opportunities to engage throughout the life of the project.

Broader communication and engagement activities have not yet been undertaken but will be planned following business case approval. A high-level Communications and Engagement Plan has been developed and will be extended (subject to approval of this business case). The plan details the processes and mechanisms for engagement in the longer term, as the programme moves towards (and beyond) implementation. The plan outlines the target audience, channels to be used and key messages. A summary of the high-level plan is attached as Appendix 5.

Te Whatu Ora supports the proposed investment as it will mitigate a serious risk for an important national programme.

4 Economic Case

4.1 Options Development and Evaluation Approach

The scope of the proposed investment was described in in Section 3.4. A long list of potential options was developed and evaluated, with the initial evaluation identifying a shortlist for further consideration and economic analysis. This has resulted in a recommended preferred way forward.

4.2 Options Evaluation Criteria

The evaluation criteria used were the Investment Objectives (see Section 3 and Appendix 3), and Critical Success Factors (CSFs). The broad CSFs are as per Treasury Better Business Case guidance and have been refined with proposal-specific criteria (summarised in Appendix 6).

- **Strategic fit and business needs:** How well the option meets the agreed investment objectives, 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 achievability:** How likely it is that the option will 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.

- **Potential affordability:** How well the option can be met from likely available funding and matches other funding constraints.

4.3 Long List Options and Initial Options Assessment

The primary focus of the options analysis was on the ability of the existing ICT support system to support the BSA programme. As described in Section 3.3, the Current State Technology Assessment and Options Analysis of the BSA technology platform identified that the core application used to support BSA services is not fit for purpose, no longer carries vendor support across all components and cannot be updated or enhanced to meet current clinical practice or operational needs for breast screening.

Of the 22 areas assessed as part of the Current State Technology Assessment and Options Analysis, six areas were identified as being at serious risk, having issues or weaknesses requiring urgent attention, or which will inhibit implementation of age range change.

- A qualitative evaluation of the options was conducted in an open workshop with a representative group of BSA stakeholders, subject matter experts and operational leads.

- Through the evaluation, consensus was sought and achieved through discussions. Through the discussion, refinement to several of the evaluation criteria were discussed and agreed. These refinements adjusted the originally presented criteria to be more considerate of the concerns of the BSA programme.

- Not all detailed criteria for Potential Value for Money and Supplier Capacity and Capability could be evaluated as part of the assessment, as there was insufficient information available. It was agreed that the evaluation of these detailed criteria was not material to the outcome of this initial phase of analysis.

The independent review of the Assessment and Options Analysis completed in October 2019 validated the need for ICT replacement and confirmed that options should be considered as part of the process to select an appropriate replacement solution.

The longlist of options for ICT support systems is summarised in Table 12. These high-level options were identified as strategic options and therefore the dimensions (scope, timing, etc.) used for the service delivery and implementation options are not relevant. Note that for clarity, the titles of Options 3 and 4 have been revised after the completion of the Current State Technology Assessment and Options Analysis. The options remain unchanged.

Table 12: Technology Longlist Options

Option	Description
1. **Maintain Current State** Maintain Current State BSA systems	Maintain the current BSA technology systems and support arrangements. No enhancements or upgrades will be executed against solution components and existing commercial arrangements will be retained. All other aspects of the BSA technology landscape will remain as is, including the underlying technology platform s 9(2)(c), s 9(2)(e).
2. **Upgrade/Enhance Current State** Upgrade and/or enhance the current state to sustain current services	All aspects of the existing BSA technology estate (application, data, and technology) will be upgraded, enhanced, and scaled to meet the BSA functional and non-functional requirements and to ensure all components of the BSA technology estate are fully supported for an extended period (>5 years). The current technology landscape will be retained at the component level where consideration will be given to further consolidating instances of cBS into one data centre and removing the need to operate and maintain duplicate, parallel solutions. The current BSA operating model will be retained, centralised active coordination and monitoring of the BSA will not be realised.
3. **Source new RIS to maintain current state safely**[28] Source and implement new RIS solution which will be limited to maintaining current state safely	Source a new RIS to replace cBS. A RIS solution will be sourced to provide a solution to meet current operational needs and provide a platform suitable to meet the strategic requirements of the NSU and BSA programme. The current BSA operating model will be retained. Centralised active coordination and monitoring of the BSA (through integration with the NSS) is not expected to be achievable.
4. **Implement improved ICT infrastructure to meet current and future strategic requirements of the BSA programme.**[29]	The NSS will be configured to support the coordination and monitoring of the BSA screening pathway for all women and will integrate with a RIS service/solution to support the management of the clinical pathway.

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[28] In the Current State Technology Assessment and Options Analysis, this option was titled Source new RIS.
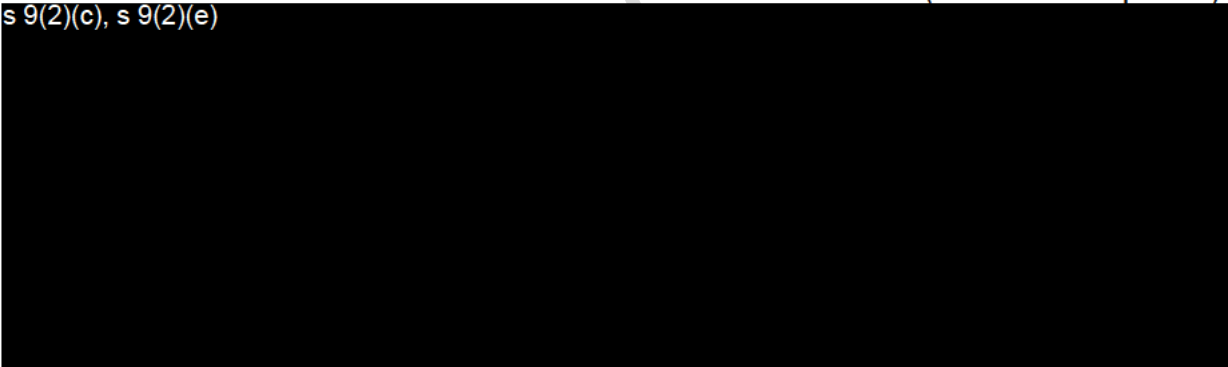
[29] In the Current State Technology Assessment and Options Analysis, this option was titled Source new RIS and integrate with NSS.

Option	Description
Source and implement new RIS solution to support the management of the clinical pathway and integrate with the NSS to support the coordination and monitoring of BSA nationally.	A RIS solution will be sourced to meet current operational and clinical needs and will be fully integrated with the NSS and other components of the BSA ICT infrastructure to provide a platform to meet the strategic requirements of the NSU and BSA programme, e.g., through integration with the NSS as a population health/screening platform. This option assumes that the RIS, to support radiology requirements, and NSS, to support the coordination and monitoring of the screening programme, are delivered as separate technology solutions. The current BSA operating model could be retained but opportunity to change/optimise/transform the current operating model will be available. The centralised active coordination and monitoring of the BSA will be realised through the introduction of the NSS into the BSA technology estate.

4.4 Shortlisted Options

The assessment of these options against the evaluation criteria (Critical Success Factors and Investment Objectives) is summarised in Table 13 and a more detailed analysis is attached as Appendix 7.

Table 13: Technology Longlist - Summary of Analysis

Option	Outcome
1. **Maintain Current State**	**Shortlisted** (as baseline comparator)
s 9(2)(c), s 9(2)(e)	
• Carried forward to shortlisting to provide a comparative baseline. It is not a feasible option to support the BSA safely in the immediate future.	
2. **Upgrade/Enhance Current State**	**Rejected**
• Limits Te Whatu Ora's ability to review products available on the market to select a product that will meet the needs of the programme. • The Current State Technology and Options Analysis identified that there is no upgrade path available for the cBS solution and that the current BSA technology estate cannot be sustained without significant investment. • There is no upgrade path available for the existing solution; change will require a complete re-architecting and re-platforming of the existing solution. Upgrade or enhancement will require the sourcing of new solution components, including the core replacement of the RIS. • An upgrade of the current RIS will be so significant (given how outdated the current product is), that it essentially constitutes the procurement and implementation of a new RIS. Investment required will be equivalent to or exceed that of a new solution and will offer limited or no strategic long-term benefit to BSA. • Procurement rules will require this option be considered as part of a procurement processes and will have to be measured and tested through a competitive process.	

Option	Outcome

3. Source new RIS to maintain current state safely — **Shortlisted**

- Minimum required to deliver a safe BSA programme, where the current service delivery model is maintained.
- Presents the minimum change required to achieve that outcome, whilst protecting current screening operations and addressing the issues and risks present on the current state technology platform.
- Will mitigate the current limitations and operational risks of the cBS based solution.
- Integration with the NSS will not be required, i.e., the changes required to the BSA ICT will be achieved through the minimum replacement of the RIS, without the integration of the RIS into the NSS. This option will continue to be a standalone approach to ICT, which is not aligned with the NSU business vision for integrated ICT support to screening programmes.
- Will not support the realisation of national coordination and monitoring across breast screening services or provide the opportunity to achieve outcomes related to equity. Lead Providers will continue to operate in regional silos with limited/constrained ability to enforce and measure against national standards.
- Due to the age of the current RIS and the specialised ICT requirements for the screening programme the work required to design, build and operate multiple RIS instances will be significant. The investment and effort required will likely be equivalent to sourcing a new RIS that provides strategic alignment with current and future needs of the programme.
- Without consideration of the future strategic requirements of the breast screening programme, (including adaptability to technology and best practice changes) this option is unlikely to provide a long-term solution.

4. Implement improved ICT infrastructure to meet current and future strategic requirements of the BSA programme — **Shortlisted, preferred**

- Implement the NSS, to support the national coordination and monitoring of the BSA programme and source a new RIS to support the management of the clinical pathway and allow Lead Providers to retain the ability to operate locally.
- This option aligns with the NSU business vision for integrated ICT support to screening programmes.
- Leveraging the NSS to support the delivery of Population Health based programmes (such as NBSP and the COVID-19 response) has proven to be a critical enabler to the success of those programmes, supporting the near real-time monitoring across all programme indicators. The NSS is also required to enable the safe and effective realisation of equity requirements.
- For the purposes of the evaluation and for transparency it is assumed that the current BSA operating model (where the Lead Providers operate independently), including current operational processes and procedures, will be maintained in the immediate future but that there are changes to best practice and technology that the programme will need to adapt to on the horizon.
- The additional functionality delivered (e.g., whole of population viewpoint, improved management of participant lists and the ability to target invitation and follow up of priority group women) will assist the programme to improve equity, enable increased operational efficiencies and allow for a change to an "opt-off" programme in the future.

The initial options evaluation process in 2018 resulted in the shortlisting of Options 1 and 3, with Option 3: Source new RIS preferred. However, this option does not meet the wider programme strategic requirements (i.e., equity, integrated ICT infrastructure and sustainability) and therefore subsequent revised analysis determined that **Option 4: Leverage the NSS to support the coordination and monitoring of the BSA nationally and source new RIS able to meet future strategic requirements** has replaced Option 3 as the recommended way forward.

In preparing for the Budget 2021 bid, a further alternative option was identified, as described in Table 14.

Table 14: Additional Option for Budget 2021

Option	Outcome
5. Limited National Functions and Local PMS	**Not progressed**

- Invest in limited national functions (utilising the NSS and existing PACS) and require the eight Lead Providers to invest in local patient management solutions (PMS). This option will enable programme safety to be sustained but will not add any additional functionality for the programme.
- Will require a new PACS architecture and an upgraded PACS to support the reporting directly out of the PACS. It is likely that there is an option to unlock additional functions in the PACS without an upgrade.
- Lead Providers have different systems, different processes, different capabilities, different operating models etc. A 'one size fits all' solution is required to resolve the current issues with the current technology stack and national operating model for the programme.
- This option will not solve, and will potentially worsen, the existing problems in relation to centralised coordination and monitoring.

4.5 Economic Assessment of Shortlisted Options

Multi-criteria analysis of the shortlisted options was undertaken, to assess each composite option against the Net Present Value (NPV), the Investment Objectives, and the Critical Success Factors.

- **Financial criteria:** The financial modelling of the options is an assessment of the costs and benefits that will arise from the proposed investment. Note that the NPV is a comparative NPV, against the baseline 'do nothing' option.

- **Non-financial criteria:** The use of non-financial criteria allows other, non-financial, factors to be considered when identifying a preferred option. The key criteria for the multi-criteria analysis were Investment Objectives (weighting 20 percent), NPV (weighting 10 percent) and Critical Success Factors (weighting 80 percent).

Option 1 capital and operating costs are shown as zero, as the capital and operating costs for shortlisted Options 3 and 4 are incremental costs above the existing programme funded baseline (Option 1). The capital and operating costs for Options 3 and 4 have been included at the same value. This approach has been taken, as whilst there may be a small additional cost in Option 4 for additional Te Whatu Ora staff to support the ICT and some additional integration work required to utilise the NSS, this will be netted off against some small savings for Lead Providers. It is unlikely that Option 3 will provide significant cost savings compared to a fit for purpose system that includes future adaptability, due to the age of the current system, and the specialised ICT requirements for the screening programme and requirement for any solution to integrate with a number of other systems.

Due to the relative importance of the Investment Objectives and Critical Success Factors, Option 3 will need to be at least $43.6 million cheaper than Option 4 to become the preferred approach. Since this is extremely unlikely, no further detailed cost analysis was undertaken on Option 3.

No economic analysis was undertaken for Option 5. Further review indicated that the costs may be significantly higher than for the other options, as this approach will require the implementation of eight PMSs. In addition, this approach will not support national standardisation of service delivery.

The analysis of the options is summarised in Table 15[30]. Option 1, 3 and 4 were shortlisted, option 2 and 5 were not shortlisted.

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[30] Option 1 is set at zero as the capital and operating costs for Options 3 and 4 are incremental costs above the existing programme funding baseline.

Table 15: Economic Analysis of Options

	Option 1: Do Nothing (maintain current state)	Option 3: Source New RIS to maintain current state safely	Option 4: NSS for coordinating & monitoring BSA + new RIS
Appraisal Period (years)	20	20	20
Whole of Life Capital Costs (discounted) $m	$ -	-$ 25.73	-$ 25.73
Whole of life Operating Costs (discounted) $m	$ -	-$ 130.84	-$ 130.84
Total Whole of life Costs (discounted) $m	$ -	-$ 156.57	-$ 156.57
Cost-benefit analysis of monetary costs and benefits:			
Present Value of monetary benefits	$ -	$ -	$ -
Present Value of non-project costs	$ -	-$ 156.57	-$ 156.57
Net present value	$ -	-$ 156.57	-$ 156.57
NPV Rank	1	2	2
Multi-criteria analysis of non-monetary benefits:			
Criteria 1: Investment Objectives (20%)	1.00	9.42	9.88
Criteria 2: Net Present Value (10%)	0.00	-10.00	-10.00
Criteria 3: CSFs (70%)	4.60	9.07	9.33
Overall Weighted Score (out of 10)	3.4	7.2	7.5
Preferred option			✓

Option 1 was rejected as it will not deliver the require service stability. s 9(2)(c), s 9(2)(e)

[text redacted]

Option 3 was rejected as whilst it will provide a minimum level of stability to maintain service safety, it will not deliver any further benefits to the programme. The specialised nature of the required solution means that an off-the-shelf solution with no customisation is not possible. Due to the age of the current system, any new RIS is likely to have improved tools. Without careful planning and reference to future strategic directions for screening, these customisations and tools will not meet future requirements. Due to the specialised ICT requirements, it is unlikely that this option will provide significant cost savings compared to a fit for purpose system that includes future adaptability. The opportunity to deliver programme improvements incrementally or strategically will effectively be inhibited or lost altogether.

Option 4 will ensure BSA programme sustainability and the protection of personal data. This solution will take a considered and strategic approach to ensure future requirements for BSA (including adaptability to technology and best practice changes) could be accommodated. The system will be integrated with the NSS and align with the NSU vision for integrated ICT for screening programmes. This option was recommended as it will achieve programme stability as well as enabling adaptability and best practice changes and will enable targeted activity to improve equity.

Note: The NSS platform was leveraged during the COVID-19 pandemic to support multiple critical services[31]. Analysis of the NSS performance has concluded that separation between the NSS (Coordination and Monitoring across the population) and the RIS (delivery of clinical services locally) is key to a quality and sustainable outcome for the BSA. This approach will be in line with the approach Te Whatu Ora follows for NBSP (BSR and Provation) and NCSP (CSR and Gynaeplus).

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[31] Including Contact Tracing, Border Management, Border Worker Testing and the COVID Immunisation Register.

Risk and Uncertainty

As agreed with the Central Agencies, no Quantitative Risk Assessment was undertaken.

4.6 Recommended Way Forward

Based on the evaluation of the presented options, the recommended preferred way forward is **Option 4: Leverage the NSS to support the coordination and monitoring of the BSA nationally and source new RIS able to meet future strategic requirements.**

- Leverage the NSS as the Screening Population Health Platform to support national coordination and management of the screening pathway.

- Implement a national system to support the management and reporting of clinical processes and decisions for the BSA programme (as a replacement of the legacy cBS RIS solution).

A conceptual overview of the proposed architecture for the BSA programme is shown in **Figure 5.**
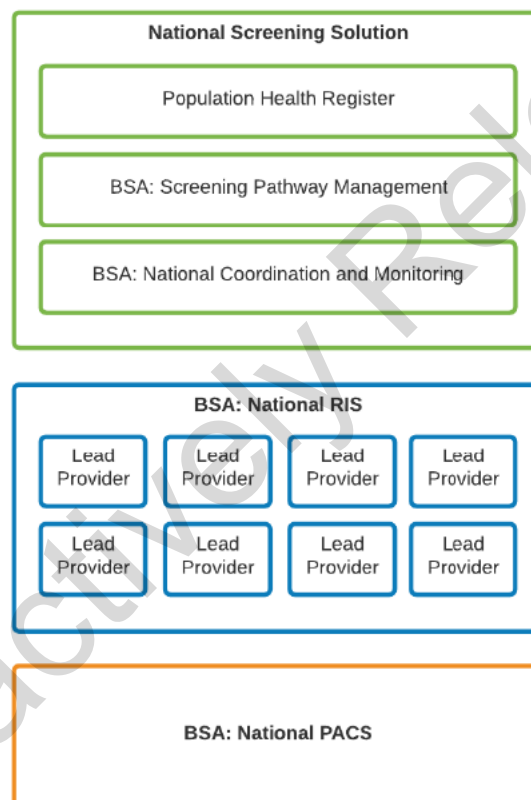

Figure 5: BSA Proposed Conceptual Architecture

5 Equity by Design

In designing the approach to delivery, the NSU has taken into consideration Te Tiriti o Waitangi principles. The principles and approach to design are summarised in Table 16.

Table 16: Te Tiriti o Waitangi Principles and Approach to Delivery

Principles	Approach to Delivery
Tino rangatiratanga: The guarantee of tino rangatiratanga, which provides for Māori self-determination and mana motuhake in the design, delivery, and monitoring of health and disability services.	The NSU is committed to ensuring that: • Project Steering and Governance groups provide for external NSU Te Tiriti partners to be represented at the decision-making groups. • the ICT supports alignment with emerging Māori data sovereignty approaches for health data. • provide new ways for screening participants to engage with the screening programme to support improved access to the screening services and respect for participants preferences and needs.
Equity: Requires the Crown to commit to achieving equitable health outcomes for Māori.	The NSU will: • Take active consideration of equity in development of the ICT approach, meaningful data collection and invitation strategy. • Provide tools to support the future development of campaigns to raise awareness of breast screening, in partnership with Māori.
Active protection: Requires the Crown to act, to the fullest extent practicable, to achieve equitable health outcomes for Māori.	The NSU is committed to: • Providing a system that supports the identification of inequities and interrogation of data to identify barriers to accessing screening services • Offering tools to better reach unscreened, un-enrolled and under-screened participants.
Options: Requires the Crown to provide for and properly resource kaupapa Māori health and disability services.	The NSU is committed to: • improved access to breast screening information and tools for Kaupapa Māori health services for providing support to screening services.
Partnership: Requires the Crown and Māori to work in partnership in the governance, design, delivery, and monitoring of health and disability services.	The NSU is committed to: • supporting project delivery by ensuring that Steering and Governance groups provide external NSU Te Tiriti partners representation at the decision-making point. • the ICT supporting identify and targeting priority groups with messaging about participation in breast screening, providing the opportunity to partner with Māori and Pacific providers and community leaders to design approaches that are tailored to wāhine Māori with content that was culturally responsive.

6 Commercial Case

6.1 Procurement Approach

Requirement

Based on an assessment of operational, clinical, ▉s 9(2)(c), s 9(2)(e)▉ and technical risk, the options assessment recommended that the current state platform cannot safely maintain the BSA programme. It was recommended that a new RIS solution is sourced. Investment in a new RIS solution will mitigate the current limitations and operational risks of the cBS based solution. As detailed in section 4, the preferred solution is Option 4.

Due to the time that has lapsed since the announcement of this Budget 21 initiative and subsequent appropriation of phase 1 funds, procurement has progressed so that further information could be gathered to inform the implementation business case.

Sourcing Approach to Delivering Option 4: Request for Information (RFI)

To determine the preferred approach to sourcing a new RIS, in December 2018 the Ministry issued an RFI to the market. This was supported by high-level requirements for a RIS technology solution that will be able to support BSA. Specifically, the Ministry sought to gain a better understanding of what products and services may be available in the market to support the BSA RIS requirement, and how these products and services could be used to improve the technical operations of the BSA and potentially meet future strategic requirements for BSA and the Ministry.

Many responses to the RFI were received. These have proven valuable in understanding the technologies available to support the RIS requirements and the supplier capabilities that exist to support its delivery. Multiple options are available to the NSU for a new technology solution for BSA, including specialised off the shelf RIS solutions; imaging solutions adapted to meet the RIS requirements; extending the NSS to support BSA[32]; and Customer Relationship Management (CRM) technologies customised to support RIS specific requirements.

Procurement Plan

A Procurement approach was approved by the Ministry of Health in October 2021. The approach was informed by the 2021 ROI process and previous procurement of the NSS in 2017, which anticipated the application of the NSS for future population register dependant programmes. A competitive procurement process (Request for Proposal) was undertaken in 2022 find a partner/s who could provide a replacement RIS and adapt the NSS to include a population register for breast screening.

Functional and non-functional requirements for BSA technology platform were defined and tested through the RFP process. Upon completion of the detailed design in Phase 1 of the procurement, agreements for the build, test and migration phase will be negotiated.

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[32] The RFI also confirmed that the NSS is a viable potential option for supporting the end-to-end technology requirements for BSA.

Attractiveness to Market

Te Whatu Ora believed that there were suppliers in the market who will be interested in delivering the required solution. Through the market engagement process, Te Whatu Ora sought to maximise its attractiveness to potential suppliers for the RFP process. The Government Procurement Rules include a requirement to consider Broader Outcomes, which are secondary benefits which can be derived from a procurement. Rule 17 Increase Access for New Zealand Businesses has ICT as a designated contract for this priority area and therefore agencies must consider how they can create opportunities for New Zealand businesses when they are procuring ICT services. The new Broader Outcome Rules 16-17 states agencies must consider and incorporate where appropriate. Opportunities for New Zealand companies to compete will be considered for any future procurement.

6.2 Required Services

The required services are as per the scope defined in Section 3.4, i.e., source new RIS and achieve ICT improvements to enable more efficient identification and invitation of women, reduce labour intensive work arounds and failsafe checks and create efficiencies to enable resources to be redeployed.

6.3 Contract Provisions

The form of contract, payment mechanisms, contract length and key contractual clauses will be agreed with the technology partner as part of the contract negotiations. The allocation of risk between the parties will be negotiated with the technology partner. A risk allocation table will be generated, identify the risks within the programme and allocating 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.

6.4 Key Procurement Timeframes

Procurement planning for the RFP process commenced in early 2022. High level requirements for both the RIS and NSS adaptions were developed in order to inform the market process. Once a preferred vendor was agreed, the programme worked collaboratively with the vendor to refine the requirements as necessary, deliver a detailed design, costings and implementation timeframe. This then informs the subsequent agreement for the build, test and delivery of the solution.

Procurement Activities

A single stage RFP process, in line with the Government Procurement Rules, was followed. This was by way of an open advertisement on the Government E-Tendering System (GETS). This process assumed that there was a small market for this type of system and therefore a Registration of Interest (ROI) process was unnecessary as this will introduce an unnecessary time delay to eventual award. Table 17 indicates the timeframes for a single stage process (RFP only).

Table 17: Indicative Durations - Single Stage Process (RFP Only)

Activity	Timing
Preparation of RFP (Including all technical specifications)	Jan-Mar 2022
RFP Release	March 2022
RFP Evaluation	April-May 2022
Contract Award	June 2022
Contract for detailed design commences	July 2022
Detailed design complete	November 2022
Prototype RIS built and demonstrated to stakeholders	March 2023
Subsequent agreements for build, test and implementation negotiated	March 2023

Requirements and Evaluation

Formal requirements, including functional and non-functional specifications, were developed in parallel with a formal procurement plan. The evaluation approach included Te Whatu Ora business, clinical and technical experts and Māori user representation.

Governance

Governance is under the formal BSA governance structure (as described in Section 8).

7 Financial Case

7.1 Overview

The proposed investment in BSA over the 20-year modelled period is $156.57 million. This is comprised of a capital cost of $25.73 million and an operating cost of $130.84 million.

The financial analysis in this section reflects the recommended preferred way forward, i.e., new technology services to support BSA to be sourced, which meets future strategic requirements. Investment in a new RIS solution to mitigate the current limitations and operational risks of the cBS legacy system. This investment is not intended to deliver a financial return.

The funding model is based on assumptions and therefore the figures, although based on previous experience, are only high-level estimates. Further refinement of the costs is planned to be undertaken during Phase 1, and therefore a phased cost model has been developed. The project implementation funding is sought in two phases. The funding required for Phase 2 will be finalised following the completion of design in Phase 1 and will be detailed in the implementation business case due in March 2023.

7.2 Financial Costing Approach

Approach and Assumptions

The financial model is over a 20-year period and includes capital and operating expenditure.

The investment is being sought to fund an ongoing population-based screening programme. Because there is no natural end to this investment, the cost modelling covers a 20-year period from 2021/22 to 2040/41 which is the limit of population forecasts. The 20-year modelled period comprises four years of project costs to implement the changes (capital and operating), with incremental ongoing operating costs over a 16-year period (note there is an overlap in the final year of project costs and first year of operating costs).

The financial costings are indicative at this stage. To allow for current uncertainty, the project costs include contingency, with the bulk of the costs identified as tagged contingency which will be drawn down through an implementation business case. The financial analysis will be revised and revalidated at the end of Phase 1. If the work in Phase 1 identifies significant variation beyond the financial modelling, the project will present options to the Ministers of Health and Finance. At this point indications are that costs will fall within the available tagged contingency funds.

The costing approach factors in the cost of running the existing programme plus the additional costs incurred from investment in upgrading the ICT system.

The programme costs are built up from several sources, including the NSS development, internal Te Whatu Ora and sector expertise and cost estimates. The cost estimates for capital have been prepared in discussion with the project team and are based on costs for similar programmes/projects. The cost estimates for operating expenditure have been prepared by the project team, with clinical and operational input. The financial projections include depreciation and capital charges.

The key assumptions for the cost model are provided in Appendix 8.

Total Capital and Operating Costs

The baseline cost (Status Quo) of operating the programme over the 20 years is forecast to be $1,216 million (excluding cost pressures). The forecast additional cost for the programme is $156.57 million over the 20-year modelled period.

The funding required to support the programme and ongoing costs, phases 1 and 2 combined by financial year, is summarised in Table 18 and further detailed in Appendix 8[33].

Table 18: Indicative Expenditure by Financial Year

Financial costs $m	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	10 yrs	Total 20 yrs
Total CAPEX	12.60	11.68	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.73	25.73
Total OPEX	3.26	6.43	10.43	9.50	7.61	7.61	7.61	7.61	7.61	7.61	75.28	130.84
Total	15.86	18.11	11.88	9.50	7.61	7.61	7.61	7.61	7.61	7.61	101.01	156.57

7.3 Proposed Funding Approach

Funding Source

As outlined in the Economic Case, the preferred option is Crown funding by appropriation. The financial narrative and the analysis relate to this preferred option.

The proposed timeframe for requesting the funding to support the implementation is shown in Table 19[34] and is detailed in Appendix 8. Note that the initial Phase 2 costs cross two financial years, 2021/22 and 2022/23.

- **Phase 1: Design and Development**: This phase is for requirement gathering and design activities for the replacement ICT solution. At the end of this phase, an implementation business case will be prepared confirming the remaining investment required to implement this project.

- **Phase 2: Implementation and ongoing costs**: This phase will deliver the new ICT solution to support the BSA programme.

Due to the phasing of the investment and where costs lie, some baseline funding will need to be spread across multiple years. Further given the recent changes to the accounting treatment of some aspects of Software as a Service (SaaS) implementation costs, there might be a need to convert some of the capital funding into operating. The potential impact on the operating and capital expenditure split will be confirmed in the implementation business case.

Table 19: Financial Costing Model - Phased Funding Requirements

Financial costing model, $m	Phase 1	Phase 2 – All years	Total – 20 years
Total CAPEX	$3.17	$22.57	$25.73
Total OPEX	$2.19	$128.65	$130.84
Total Expenditure	$5.35	$151.22	$156.57

7.4 Financial Projections and Affordability

Overall affordability

The proposed cost of the investment is $156.57 million over the 20-year modelled period. The affordability will be determined by the availability of Crown funding, which will be required to meet the incremental costs forecast.

There will be minimal cost to the sector (arising from integration of ICT systems); these will be met through existing funding arrangements.

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[33] Costs refer only to those related to this initiative. The BSA programme is subject to ongoing evaluation, including assessment of cost pressures over time.

[34] Due to rounding, columns and rows may not add to the totals. Totals are correct.

- **Capital Affordability:** The total capital cost of $25.73 million is only affordable with Crown funding. As the costs presented in this business case are indicative there is a risk that there will be some variation between indicative and final costs once detailed design is completed. In order to manage this, project contingency has been included and the design work will be completed prior to seeking drawdown of the bulk of project funding requested (Phase 2). Standard project management procedures will be in place to minimise scope creep and to ensure that project costs are contained within the budget approval. The overall project actual and anticipated spend will be actively monitored through the governance structure as detailed in the management case.

- **Operational Affordability:** The existing screening programme is funded to maintain the current ICT support. This investment will provide one off funding for implementation costs, and ongoing baseline funding to support the new ICT capability going forward. The total additional operating cost of $130.84 million over 20 years is only affordable with Crown funding.

Contingencies

A 30 percent contingency is built into the ICT costs. The contingency will be reviewed in the implementation business case, at which time initial market engagement and detailed design work will have been undertaken. The contingency will be refined prior to seeking Ministerial approval to draw down the bulk of the project funding for phase 2.

8 Management Case

8.1 Governance and Management

Governance Arrangements

The governance structure and reporting arrangements are shown in Figure 6. Governance is through the NSU NCSP and BSA Governance Group (the Governance Group), which reports via the Senior Responsible Owner (SRO) to the Chief Executive. All governance groups operate as clinical-operational partnerships, with clinical representation across all groups.

The project governance structure is shown in Figure 6. This structure encompasses both the BSA and NCSP-HPV projects. The aim of this approach is to achieve synergies between the projects and minimise duplicated work and effort and ensure effective management of resources across the two projects.
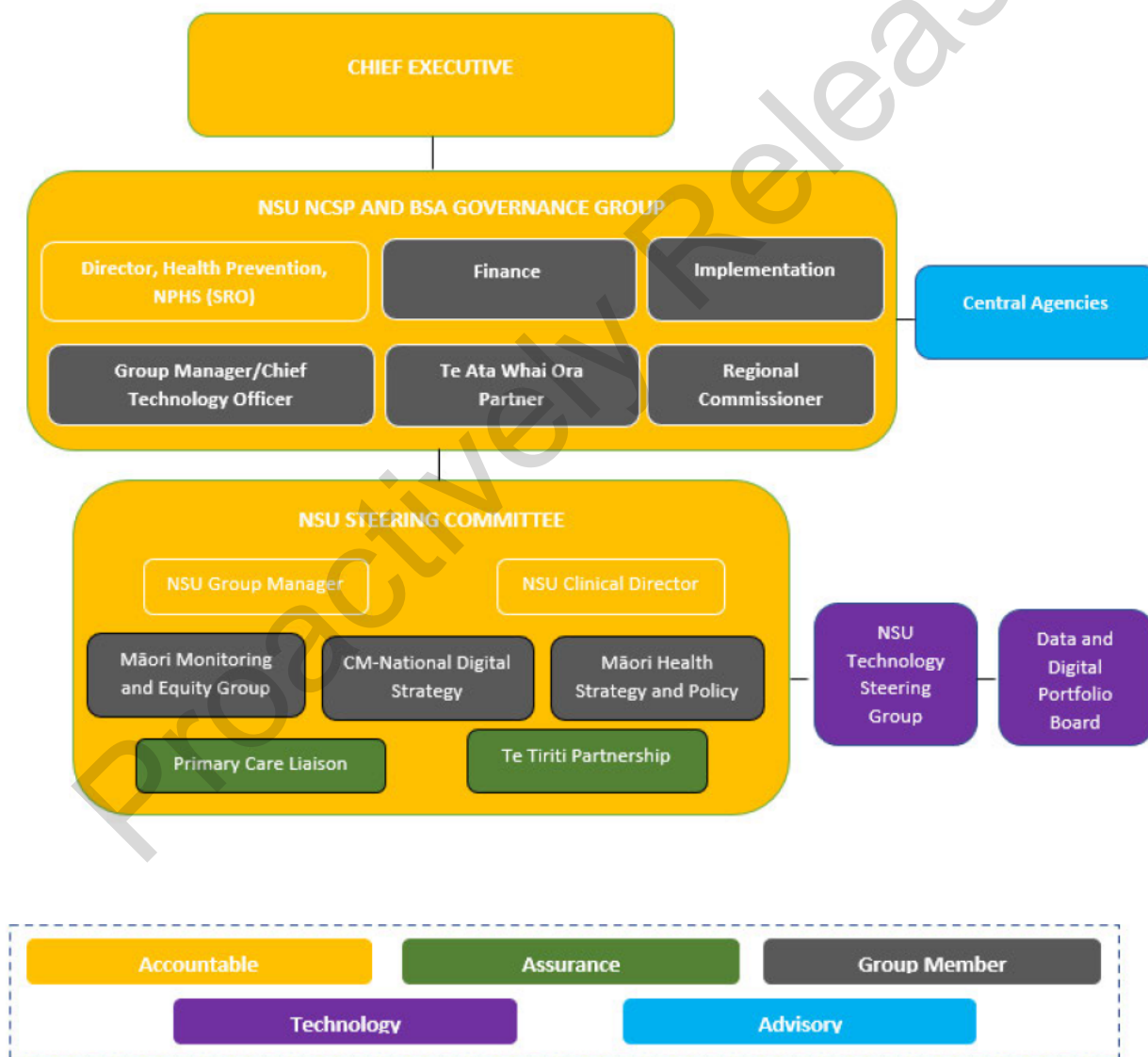
Figure 6: BSA Sustainability Governance Structure[35]

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[35] Note that roles in the governance structure are based on Ministry of Health roles/titles, as functions transfer to Health New Zealand and are confirmed these will be updated.

The BSA programme's governance advisory and operations groups are shown in Figure 7. As with the governance structure shown in Figure 6, this diagram shows BSA and NCSP shared technology and advisory groups.
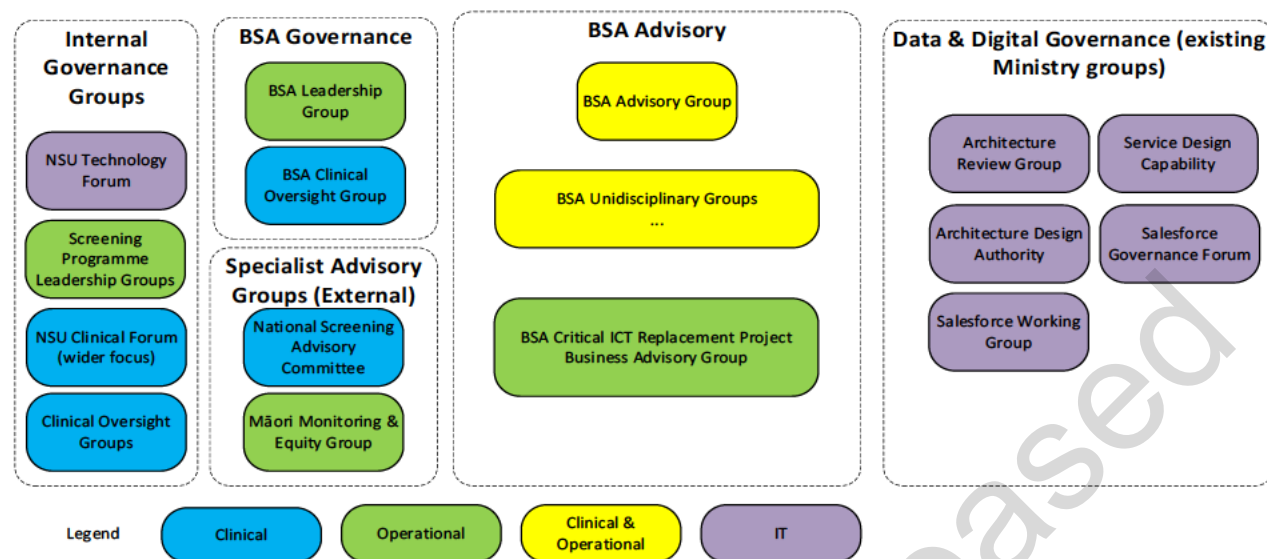
Figure 7: BSA Sustainability Extension Group

The key programme roles and groups and summarised below, with further detail attached as Appendix 9.

The **NSU NCSP and BSA Governance Group** will be in place for the duration of the BSA critical infrastructure and NCSP-HPV projects. It is chaired by the SRO, with membership including senior Te Whatu Ora and health sector leaders with ex-officio attendance by the selected Independent Quality Assurance provider. The Governance Group:

- Governs the programme to achieve the agreed objectives and provides advice, leadership and strategic direction to the SRO.

- Provides the SRO with guidance, recommendations and support to make the best decisions for the implementation of the programme.

- Ensures that the programme delivers the expected benefits and outcomes and that it is completed on time, within budget and to an acceptable quality.

The **SRO** has authority and responsibility for approvals and decisions affecting the programme delivery within the constraints set by the approved business case. The SRO works closely with the Chief Technology Officer.

The **NSU Steering Committee** provides direction, monitoring and support for in-scope projects.

The BSA **Leadership Group** provides guidance and decisions to the programme manager and team, within constraints agreed with the governance and steering groups.

The **Technical Reference Group (TRG)** and **BSA Advisory Groups** provide sector operational and clinical advice to the programme.

The **Clinical Oversight Group (COG)** provides clinical guidance specific to each screening programme. COG makes recommendations on clinical matters for the Leadership Group to consider and decide on appropriate actions.

The **Central Agencies** (Treasury, NZGPP and GCDO) provide an external assurance and oversight function, to monitor programme progress and provide advice to the programme and Ministers as required.

Project Management Approach

The programme is being managed in line with standard programme and programme methodologies. The project will be managed using a combination of delivery approaches that merge waterfall (PRINCE2) with some Agile SPRINT approaches.. These approaches will ensure effective management of scope, budget, time, human resources, quality, communications and risk.

A proposed management structure has been developed to oversee delivery; at the end of the delivery phase this structure will be dismantled, and management will continue through the 'business as usual' structure.

The proposed ICT replacement is one of a number planned to support programme change within the NSU, and more widely across Te Whatu Ora. Within the NSU, the NSS has been completed for the NBSP but the proposed investment in BSA may create an overlap with the design and build of a new ICT platform for the NCSP. The design and build for NCSP and BSA will be undertaken by two separate teams and therefore any overlap is not likely to result in a conflict. The NSU will take a portfolio/programme approach to governance, management, and ICT delivery. Oversight of the two projects will be through the Governance Group to ensure that no issues arise.

There are several other projects underway or proposed throughout Te Whatu Ora, which will impact on the ICT and wider resource. As summarised in Appendix 10, detailed planning will be undertaken during Phase 1 to maximise effectiveness of resources across BSA and NBSP (subject to final Budget approval that both projects will proceed). The resourcing risk is captured in the project risk register, and management/resourcing alignment with NBSP is one of the key mitigating actions. In a broader sense, the resourcing impact of ICT projects across Te Whatu Ora /Data and Digital is being considered and additional recruitment is being planned as required.

8.2 Benefits, Risk and Change Management

Benefits Management

The benefits expected to be realised are described in Section 3.5. A Benefits Management Plan and Benefits Register have been developed, detailing the benefit measures, baselines and targets.

Identification, measurement and tracking of benefits will be undertaken to ensure that the expected outcomes are realised. During the project implementation period, the benefits register will be maintained by the NSU. Once the initiative has been fully implemented and transferred to business as usual, all monitoring of benefits realisation and the management of disbenefit mitigation will be carried out by the NSU Screening Insights and Analytics Team.

Benefits reporting will be as per the timeline agreed with Te Whatu Ora (and Central Agencies, as required). Reporting is expected to begin one year after the initiative has commenced and will continue until the full benefit of the initiative has been realised.

A review of the benefits will take place periodically to assess the on-going relevance of the benefits, capture any emergent benefits, assess the rate of realisation, and introduce corrective actions where necessary, re-baseline the realisation schedule if required, ensure responsibilities are being carried out as expected, and assess the format and effectiveness of benefits reporting.

Risk Management

Te Whatu Ora's standard risks and issues management methodologies will be used during the implementation period. This will assure stakeholders and monitoring agencies that Te Whatu Ora's implementation team is proactively identifying and mitigating risks.

The Risks and Issues Register will be updated regularly to reflect the current status of all risks and issues. Risks will be assigned an owner and mitigation actions identified, implemented and monitored. Issues will have an escalation plan. Key risks, those which have changed significantly, or which need urgent attention, will be reviewed each month by the Governance Group. Risks requiring escalation will be taken to the ELT or directly to the Director General, as necessary.

The key risks and issues identified for improving sustainability are summarised in in Section 3.6.

Change Management

Change control will be managed as per agreed scope and delegation, with escalation of out-of-scope conditions and change requests to the Governance Group as required. Effective change management is critical for the successful implementation of the changes, to ensure readiness for go-live and monitoring in the immediate post go-live period. This will ensure that any risks are identified and managed in advance of the changes being implemented, and that any issues that develop are successfully resolved.

Change management will be coordinated with service providers, to ensure readiness for change and timely transition from existing to new ICT. Te Whatu Ora will liaise directly with service providers to plan the implementation of new ICT support, to ensure appropriate training to deliver a seamless transition.

8.3 Communications and Engagement

The high-level stakeholder communications and engagement plan created as part of preparation for this business case will be further developed during the detailed planning for implementation. The plan will be informed by detailed stakeholder analysis and will utilise existing communication channels and platforms. New communication and engagement opportunities will be developed to facilitate sharing of information in preparation for the planned changes.

Communications on the changes will be led by the NSU. Effective communication will be critical in achieving successful implementation.

The approach for stakeholder communication and engagement will be to identify stakeholders and understand their needs, develop an appropriate strategy which will meet these needs, plan and then execute communication and engagement activities.

The key principles for communication and engagement are:

- **Accountable and transparent** – focused on improving the quality of engagement, being mindful and confidential.
- **Clear purpose, scope and outcomes** – stakeholders are aware of constraints and conditions.
- **Open and collaborative** – open and genuine communication is fostered through a variety of channels.
- **Inclusive and balanced** – engagement processes and opportunities allow fair, equitable participation.

Communication will be proactive, timely and consistent. The communication objectives are to develop clear, accurate and consistent messages that meet the needs of different stakeholders. A summary of the Communications and Engagement Strategy and key messages are attached as Appendix 5.

8.4 Assurance, Monitoring and Evaluation

Assurance

The project was initially assessed as 'High' risk on the NZ Treasury Risk Profile Assessment, based on the broader scope originally envisaged (a combination of ICT changes and extension of the screening age range). A Gateway review was undertaken in May 2019 and a follow up Targeted Investment Review was

undertaken in November 2019. Both reviews were focused on the programme age range extension, which is no longer in scope for this project.

Following the descoping of age range extension, the project risk profile assessment was revised to 'Medium' risk. This means that the business case must follow the Treasury process and procurement activities must comply with Government Procurement Rules. Based on the revised scope and reassessment, no further Gateway reviews are required unless the project risk profile changes.

Internal quality assurance will be provided by the Leadership Group and the Governance Group. Independent Quality Assurance (IQA) will be provided by an All of Government (AoG) Consultancy Services panel member, selected using a closed procurement process. External oversight will be provided by the Central Agencies through regular and specific engagement. Te Whatu Ora has recently been using real time assurance, which is better suited to more agile projects, utilising this approach will be reviewed by the project team.

As there may be alignment with the ICT support systems for BSA and NCSP, there is a single SRO across the two initiatives. Overall governance is provided by members of the ELT, to ensure consistency and alignment of the service delivery model and technology solution.

Monitoring and Evaluation

Internal monitoring will be through the workstreams and Leadership Group, with close oversight from the Clinical Lead and BSA manager. Progress towards implementation and monitoring of impact in the immediate post-implementation period will be undertaken to inform project management and governance groups, and for communication as required to external stakeholders.

Post-change evaluation will be undertaken within twelve months of implementing the final changes to the ICT support. The evaluation will include both process and outcome evaluation (these may be split into two, with process evaluation being completed earlier than outcome evaluation).

Reporting

Business as usual reporting and monitoring is undertaken across the BSA to assess overall programme performance, safety, and equity. This includes monitoring reports, completed annually by an external agency. Reports are publicly available through the NSU website.

8.5 Key Milestones

The proposed timeline was developed based on the recommended implementation approach summarised in Section 4.6. The implementation project is expected to conclude with handover to the NSU for 'business as usual'. The go-live is expected to be completed in 2024 with the implementation of change complete by 2025. A high-level programme plan (Gantt chart) is included as Appendix 11.
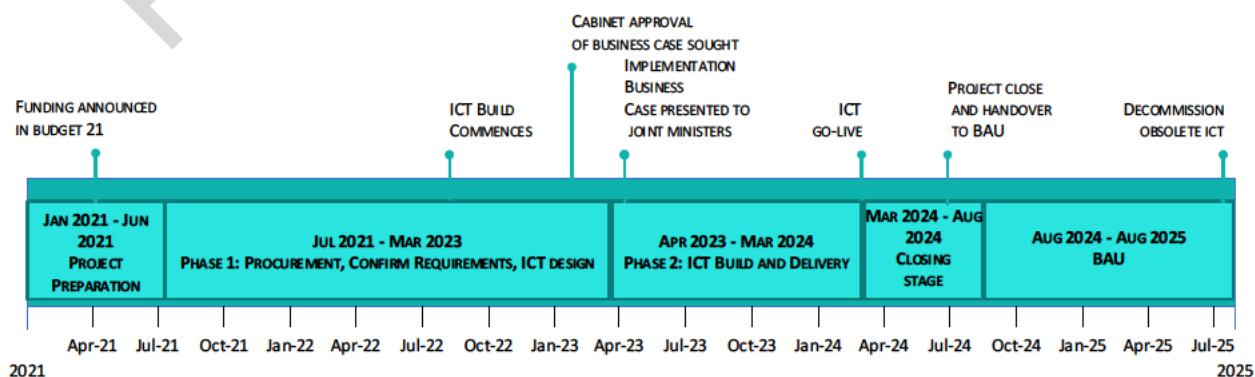
Figure 8: Indicative Timeframe for BSA Critical Infrastructure Replacement

Appendix 1: Current State Technology Assessment and Options Analysis

Table 21: cBS Significant Risks, Issues and Weaknesses

Risk Area	Summary
Operational and Clinical	If current operational failsafe and manual processes are not consistently and accurately executed, the operational and clinical safety of the BSA programme will be compromised. The BSA service is reliant on many manual processes and workarounds, implemented by the Lead Providers to ensure women are not missed. Although these failsafe processes are cumbersome, they dramatically reduce clinical risk resulting from the technical limitations of the cBS solution for BSA. There is an increased risk of process and quality divergence across each of the Lead Providers, where each Lead Provider develops their own operational procedures for breast screening. This divergence will increase over time and may result in a lack of consistency across Lead Providers, compromising the integrity of the end-to-end breast screening service. Any variation in consistency of screening practice across the Lead Providers cannot be effectively monitored and managed. The cBS system does not support current clinical practice and is unable to record all information required by the BSA service. While this does not impact the safety of screening of individual women, within current constraints, it does compromise the effectiveness of the programme at a national level.
Technical Suitability	If there is a requirement to change current screening operations, that requirement may not be able to be delivered using the current BSA technology platform resulting in additional out of system processes and/or manual workarounds. s 9(2)(c), s 9(2)(e)

s 9(2)(c), s 9(2)(e)

Risk Area	Summary
s 9(2)(c), s 9(2)(e)	
Adaptability	**If cBS cannot be adapted to meet changing requirements, this will constrain future changes to the BSA programme.** The current version of cBS cannot be adapted to meet any future requirements as the application software and hardware, as well as the integrated software, is now end of life and unsupported. This will constrain, or prevent, changes to the programme which require technology solution support.
s 9(2)(c), s 9(2)(e)	

s 9(2)(c), s 9(2)(e)

s 9(2)(c), s 9(2)(e)

s 9(2)(c), s 9(2)(e)

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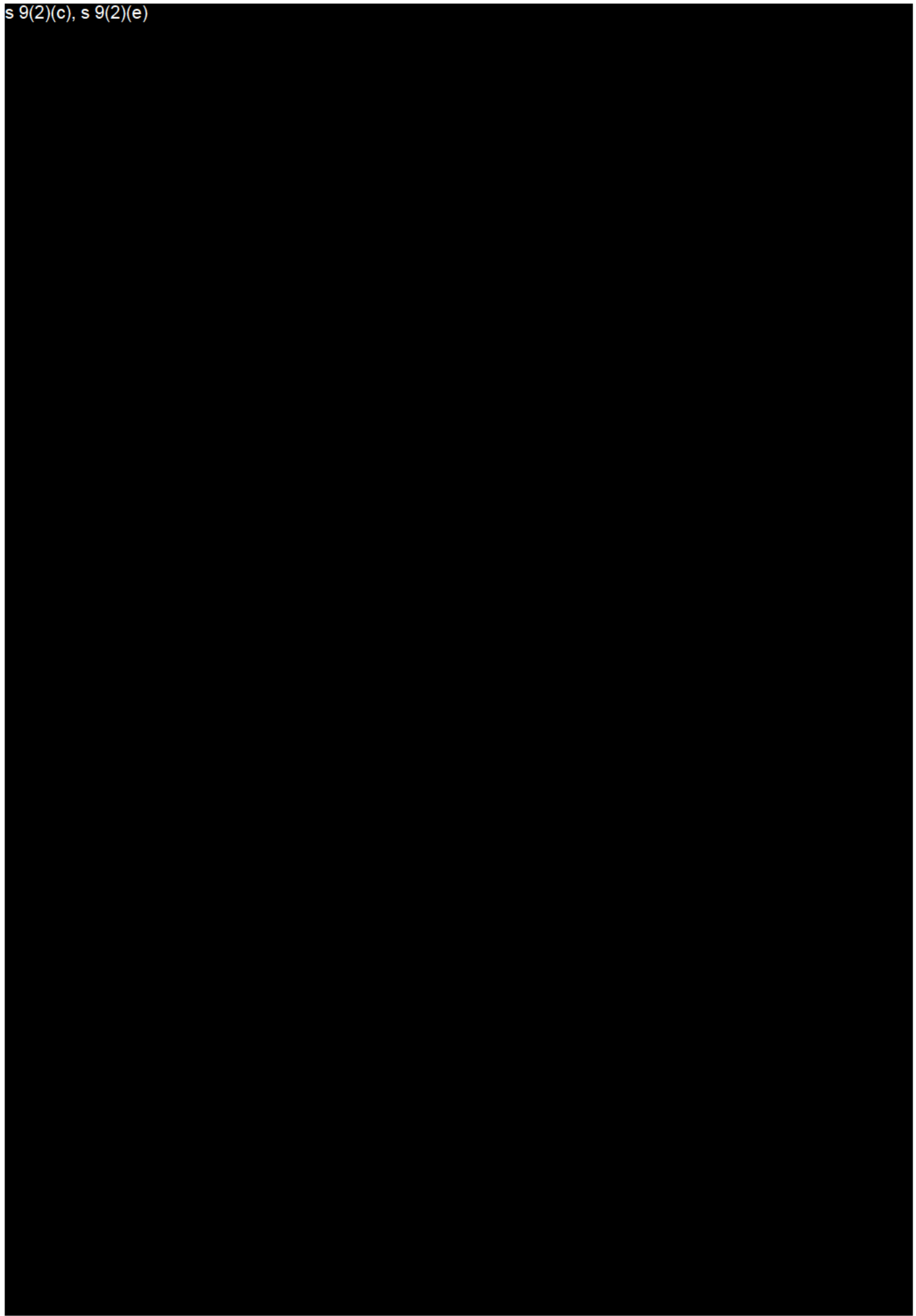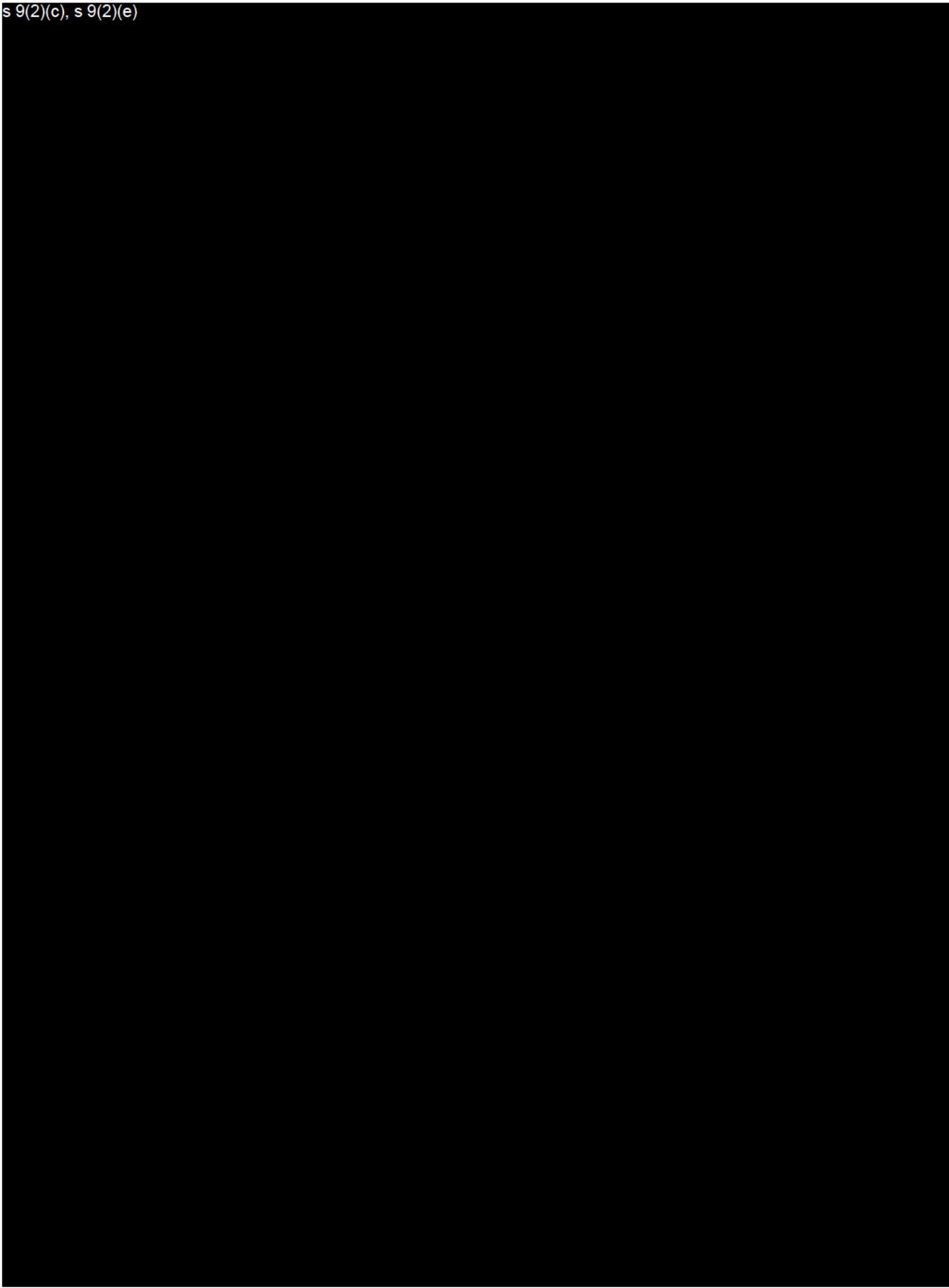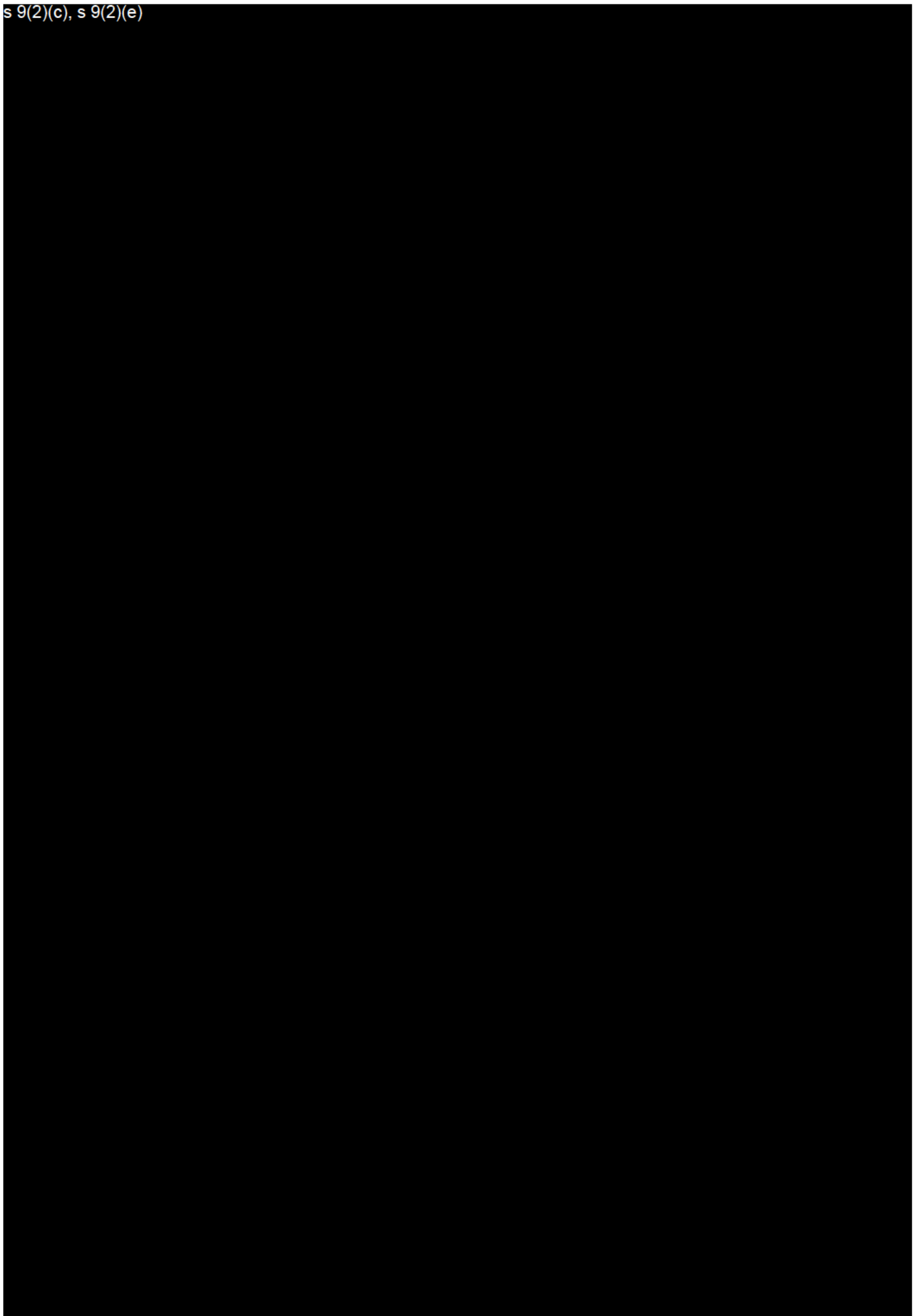
Appendix 3: Investment Objectives

Existing Arrangements and Business Needs	
Investment Objective 1	**Ensure the BSA programme has a robust and fully supported ICT platform with minimal risk of ICT failure which will compromise the ongoing delivery of the BSA service, from 2025**
Existing Arrangements	• Changes to current screening operations may not be able to be delivered using the current BSA technology platform, resulting in additional out of system processes and/or manual workarounds. The current ICT infrastructure is not sustainable in the medium-long term. • s 9(2)(c), s 9(2)(e) • s 9(2)(c), s 9(2)(e) If the breast screening service is unavailable for an extended period of time (three months or longer) this will have a detrimental effect on the early detection of breast cancer and mortality from breast cancer in New Zealand. The recent experience with COVID-19 shut-downs showed that significant effort and funding is required to ensure women who had appointments cancelled can receive a new appointment. If the system fails to the point where it cannot be recovered, sourcing and building a new system will take significantly longer than three months. • Increased complexity for support in an incident, due to different instances of the system being supported by different vendors. Incidents can have significant clinical impact and a timely and coordinated approach to incident management is required to ensure the safety of all screening participants. • The current standalone approach to ICT support for BSA is not aligned with the business vision for ICT support to screening programmes. The proliferation of stand-alone technology platforms and infrastructure within Health has been identified as a significant contributor to the fragility of Te Whatu Ora technology assets.
Business Needs	• A fit for purpose system which supports safe ongoing service delivery, including targeting support for priority group women to increase equity. • A fully supported ICT system which can adapt to meet the changing needs of the BSA programme and fully support the clinical safety of women participating in the breast screening programme.

	• Alignment with business vision for an ICT solution that enables the nationwide delivery of screening programmes. In the long term, Te Whatu Ora envisages that the NSS will be the ICT solution that enables the nationwide delivery of screening programmes. This strategic direction for the NSS is supported by the Central Agencies. Integration will mean the breast screening solution is no longer a stand-alone system. • Sustainable ICT, which supports the continued improved health outcomes through early breast cancer detection for women participating in the breast screening programme through reduced risk of IT failure impacting BSA service delivery. BSA currently achieves the expected mortality benefit from providing a breast screening programme (Morrell et al 2015) where mortality is reduced by a third for the population of women screened, compared to women not screened.
Investment Objective 2	**Meet Government requirements** s 9(2)(c), s 9(2)(e)
Existing Arrangements	s 9(2)(c), s 9(2)(e)
Business Needs	
Investment Objective 3	Improve the invitation and recall process of priority group women, to reduce programme inequities and progress improved cancer outcomes
Existing Arrangements	• Māori and Pacific women have disproportionately high breast cancer incidents and deaths compared to non-Māori and non-Pacific women. Evaluation has demonstrated that the BSA programme has been effective in reducing mortality and morbidity from breast cancer. However, access to screening services is not equitable. The screening coverage target (70%) has not been met for wāhine Māori aged 45 to 69, and in some regions the coverage target has not been met for Pacific women. • Organised and targeted breast screening programmes have been shown to reduce mortality from breast cancer, and outcomes for Māori and Pacific women who have screen detected cancer are similar to Other women. • Programme priority is to improve equity and while improvements have been made new ways of working and technology to support this are needed.

Business Needs	• Enable identification of eligible women and automatic enrolment. • Provide opportunities to utilise a population register to invite women. Integration with the NSS will provide a population register for the breast screening programme. This will be especially significant for improving equitable access to breast screening as it provides another tool to identify and invite Māori and Pacific women to access screening services. • Enable collection and recording of disability data so that services can be tailored to improve access for disabled women • Digital tools that could reduce barriers to access and free up staff to focus on engaging with priority women and removing other barriers to access. New tools will also allow the programme to deliver a more consumer and whānau centred service experience.
Investment Objective 4	**Allow more timely and cost-effective adaptation of the BSA programme in response to programme, technology, and best practice changes, from 2025**
Existing Arrangements	• The Current State Technology Assessment and Options Analysis for the BSA technology platform confirmed that the status quo for the RIS is not sustainable and the system will not allow the flexibility and stability required for a significant programme change such as extending the age range. • Screening programme best practice changes over time, as does the technology used in screening. The current ICT is not able to be changed or adapted easily to meet these changing requirements. • s 9(2)(c), s 9(2)(e)
Business Needs	• ICT that enables the screening programme to better adapt to changes, such as extending the screening age range, changes to best practice and the introduction of new screening and service delivery technologies. • ICT which provides opportunities for efficiencies through centralising services or freeing up resources. and utilising modern tools for engaging with screening participants. • A considered and strategic approach to the solution chosen to ensure future requirements for the breast screening programme, including adaptability to technology and best practice changes. • An information rich, data-driven system, and tools that are easy to use, inclusive and provide confidence to consumers and clinicians. • ICT that supports more effective service access, delivery and participant experience, for the approximately 270,000 mammograms preformed every year. • ICT that supports improved programme timeliness. Timeliness is important to maximise the benefits from early detection and for reducing screening participants anxiety when waiting for results or further investigations.

Appendix 4: Benefits Map and Measures

BSA Critical Infrastructure Replacement - Benefits Map

Benefit	KPI	Measure	Baseline	Target
s 9(2)(c), s 9(2)(e)				

Benefit	KPI	Measure	Baseline	Target
Maintain improved health outcomes from breast screening	Maintain reduced mortality from breast cancer	Mortality gains from breast screening maintained (women 45 to 69)	34% lower breast cancer mortality than women never screened	34% lower breast cancer mortality than women never screened
	Maintain increased early breast cancer detection	Early detection from breast screening are maintained for women 45 to 69	Localised cancer (63%)	Localised cancer (63%) Rates maintained
Reduced inequity in breast screening access and health outcomes	Decreased inequity in access to BSA	Equity gap eliminated between Māori/Pacific and Other in screening and rescreening rates	Coverage gap: 6.3% (Māori compared to Other)	Significant decrease in equity gap in coverage
	Decreased inequity in breast cancer outcomes	Increased proportion of breast cancers diagnosed at earlier stages Māori/Pacific	Localised cancer (59%)	Localised cancer >59%
Improved experience for participants	Improvement in screening programme timeliness	Improvements in programme timeliness indicators	86% of women offered their first assessment within 15 working days (target 90%)	90% of women offered their first assessment within 15 working days

Figure 11: BSA ICT Investment Benefits Map

BSA Critical Infrastructure Replacement – Quantified Benefits

Domains / Benefit	Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring frequency	Reporting mechanism
s 9(2)(c), s 9(2)(e)									

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[38] The Controls Validation Assessment makes 37 recommendations to address the gaps between the BSA system and the NZISM standards. The Ministry is currently considering the recommendations made in the Controls Validation Assessment. Any work to remediate or replace the system will demonstrate measurable progress against this list of recommendations and the Benefit Realisation Plan may be updated to include further measures related to this work.

Domains / Benefit	Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring frequency	Reporting mechanism
Health (primary) Maintain improved health outcomes	Maintain reduced mortality from breast cancer	Mortality gains from breast screening maintained for women 45 to 69 who participate in screening	Women aged 45 to 64, who are eligible for publicly funded health services, who participate in screening. Whānau and friends	**Baseline:** For women ever screened by the programme, the death rate from breast cancer is reduced by about a third, compared to women never screened by the programme. **Target:** Mortality reduction maintained **How big:** High	10 years post full implementation	International clinical trials. BSA mortality study	High	Single report - 10 years post implementation	10 years post implementation Mortality Study
		Early detection from breast screening is maintained for women 45 to 69 who participate in screening	Women aged 45 to 64, who are eligible for publicly funded health services, who participate in screening. Whānau and friends	**Baseline:** Ever-screened women diagnosed with breast cancer have more favourable prognostic indicators than never-screened women, with a higher proportion of localised cancer (63 compared with 46%), a higher proportion with a well-differentiated tumour (30 compared with 18%), lower risk of multiple tumours (RR=0.48) and smaller median tumour size (15 mm compared with 20 mm) **Target:** Early detection rates maintained **How big:** High	5 years post full implementation	International clinical trials. BSA mortality study BSA monitoring reports Royal Australasian College of Surgeons audit	High	Single report 5-10 years post implementation	Evaluation of staging data from New Zealand Cancer Registry.

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Domains / Benefit	Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring frequency	Reporting mechanism
Health (primary) **Reduced inequalities in screening access and health outcomes**	**Decreased inequity in access to BSA**	Equity gap eliminated between Māori/Pacific and Other in screening and rescreening rates	Unscreened/ under-screened Wahine Māori and Pacific women aged 45 to 69, who are eligible for publicly funded health services	**Baseline**: Coverage Gap: Māori compared to Other 6.3% (Based on coverage as at 31 Dec 2018: 66.3% Māori, 73.4% Pacific, 72.6% Other) Rescreening: Māori compared to Other: 15.3% Pacific compared to Other: 15% (Based on rates as at 31 Dec 2018: Māori 51.6%, Pacific 51.9%, Other 66.9%)) **Target**: Significant decrease in equity gap in coverage 6 years after changes Significant decrease in equity gap in rescreening 6 years after changes **How big:** High	6 years	International clinical trials. New Zealand research.	High	Monitored Quarterly - reported annually	Annual benefits report
	Decreased inequity in breast cancer outcomes	Improved early detection of breast cancer for unscreened or under screened Māori and Pacific women aged 45 to 74	Women aged 70 to 74, who are eligible for publicly funded health services, who participate in screening. Whānau and friends	**Baseline:** Localised breast cancer 59% Average tumour size screened Māori 9mm smaller compared to never screened Māori. Average tumour size screened Pacific 13mm smaller compared to never screened Pacific **Target:** Significant shift in stage distribution of breast cancers in 6 years **How big:** High	10 years post full implementation	International clinical trials. BSA mortality study BSA monitoring reports	High	Single report 10 years post implementation	Evaluation of staging data from New Zealand Cancer Registry

Domains / Benefit	Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring frequency	Reporting mechanism
Health (primary)	Improvement in screening programme timeliness	Improvement in screening programme timeliness indicators	Women aged 45 to 74, who are eligible for publicly funded health services, who participate in screening.	**Baseline**: Improvements in screening[39] timeliness standards for proportion of women offered their first assessment appointment within 15 working days **Target**: Screening timelines indicator (proportion of women offered their first assessment appointment within 15 working days) met between 2 and 7 years **How big**: medium	5 years	Programme quality monitoring international best practice.	High	Annual	Annual monitoring report
Improved participant experience									

BSA Critical Infrastructure Replacement – Unquantified Benefits

| Domains / Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring /Reporting
Health (primary)	**Participant and whānau satisfaction:** The investment will contribute to greater participant satisfaction, as the ICT system will, over time, support improvements to appointment bookings and workflow management.	MoH, BSA providers, those eligible for breast screening.	**Baseline**: Unquantified - Screening participation is voluntary, but benefits of screening are greater when participants continue to screen so the programme service needs to be acceptable to participants. **How big**: Low	3 years	Observational evidence from screening participants and complaints.	Low	N/A
Participant satisfaction	**Less intensive treatment:** Early detection is associated with less intensive treatment and increased likelihood of successful treatment.	Unscreened/under screened women aged 45 to 74, who are eligible for publicly funded health services, who participate in screening.	**Baseline**: Unquantified - This will not be measured directly but should be seen in improved early detection of breast cancer for unscreened women.	3 years	International research	Low for women 70 to 74	N/A

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[39] Excludes treatment timeliness indicators as these are outside the scope of investment.

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Domains / Benefit	Impact(s) Description	Who is Affected	Magnitude of Impact	Realised in	Evidence base	Evidence quality	Monitoring /Reporting
Health(primary) **Dynamic and adaptive ICT**	**Redeployment of staff to higher value activities** **More responsive ICT** **Improved programme reach through improved ICT**	MoH, BSA providers, those eligible for breast screening.	**Baseline**: Unquantified – Current state assessment highlights the shortcoming in the current ICT. Expected benefits of improved ICT are based on the experience of other screening programmes and advice from those with experience in this area. **How big**: High	3 years	Current state assessment Experience of other screening programmes Advice from those with experience in this area.	Medium	N/A
Central and local government (secondary) **Increased trust**	**Increased trust in MoH and screening services**: Increased confidence in the BSA programme due to a more adaptive and responsive service, contributing to increased trust in NZ public service.	Screening participants and their friends and whanau	**Baseline**: Unquantified - Through an increased trust and confidence in the breast screening programme other screening programmes will gain trust resulting in improved participation **How big**: Moderate	7 years	BSA is nationally coordinated by Te Whatu Ora. Improved services should lead to increased trust in public services.	Low	N/A
Work, care and volunteering (secondary) **Avoided lost work and productivity**	**Avoided lost work, productivity and time caring for others**: Reduced disruption from the impacts of breast cancer	Eligible women in employment or who provide childcare of other support roles, who participate in screening	**Baseline**: Unquantified - Reduced disruption from the impacts of breast cancer, due to detection of cancers at an earlier stage and reductions in mortality from breast cancer. **How big:** Moderate	10 years	International clinical trials. New Zealand research.	Low for women aged 70 to 74	N/A

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Appendix 5: Stakeholder Engagement

The following sections are a summary extract from the <u>Stakeholder engagement and communications plan</u>.[40]

Key Stakeholders
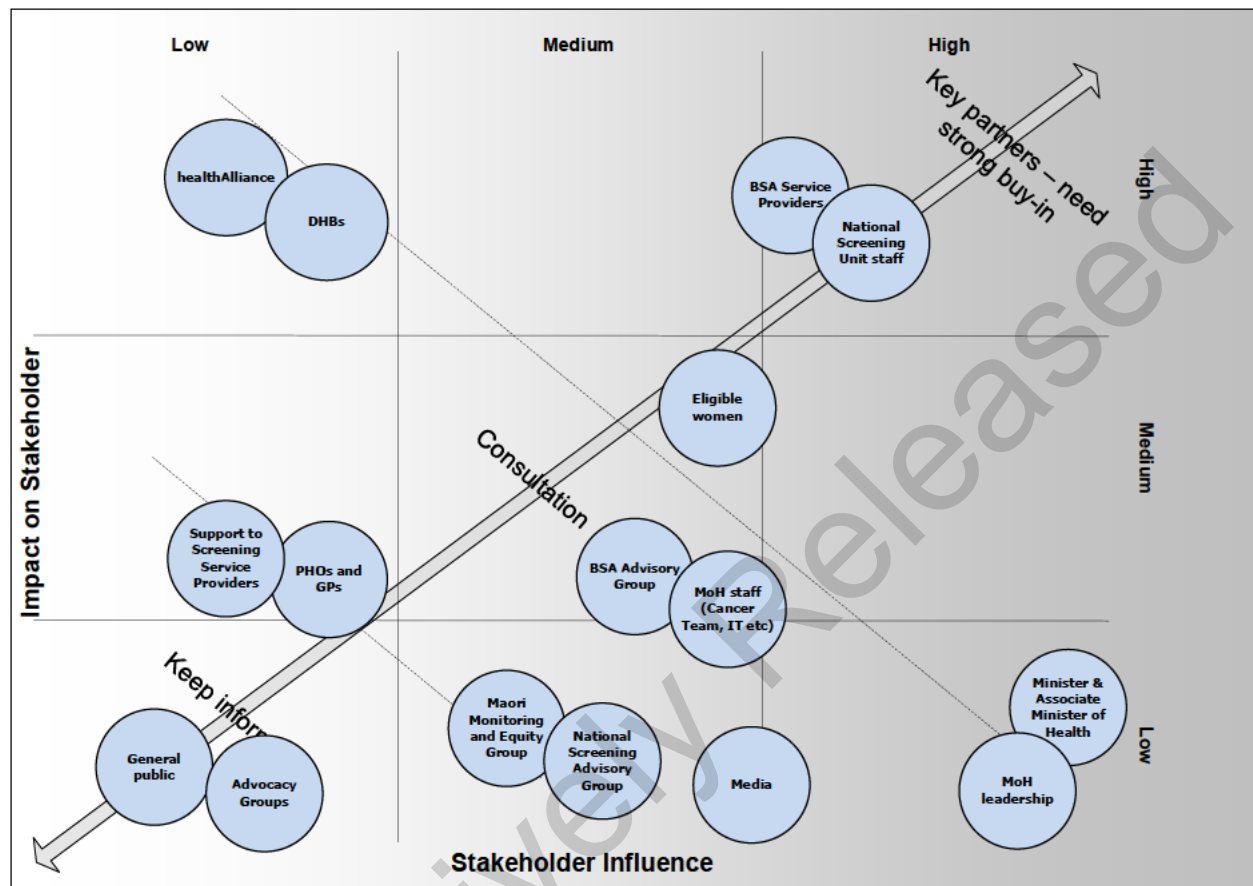
Stakeholder Communications and Engagement Plan

Purpose

The purpose of the communication plan is to describe the approach to managing communications about the project with stakeholders. strategy, timing, and mechanisms for communication with stakeholders. It outlines the target audience, channels, key messages and questions and answers. In this way, the programme can ensure the overall communication is planned and well executed, with more targeted communications and engagement with key stakeholders as and when required. The plan will be updated, with the necessary approval, in response to stakeholder feedback.

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[40] <u>BSA programme sustainability: Critical Infrastructure Replacement Stakeholder engagement and communications Plan</u> February 2021

Managing stakeholders and audiences

BSA major stakeholder groups include Ministers, BSA service providers and staff, Primary Health Organisations (PHOs) and GPs, BSA NSU staff, and the wider health sector. Communication activities will include (but are not limited to):

- Using a range of communication vehicles to suit the needs of different stakeholder groups, to ensure they are kept informed and updated about the changes planned and underway.
- Developing and distributing clear and accurate messages, to ensure all communications are aligned.
- Preparing and sending updates to different stakeholder groups as required.
- Preparing media releases providing updates on key developments and milestones.
- Providing background briefings where necessary.

Key Messages

For women
- The Government is providing an investment so that important components of the BreastScreen Aotearoa information and communication technology system can be upgraded.
- The national breast screening programme, BreastScreen Aotearoa, provides free mammography screening every two years to women aged 45 to 69 who have no symptoms of breast cancer.
- The programme depends on technology to run. This technology is used to invite women to screen and to recall them for further investigation, if necessary, store their mammograms (breast x-rays) and other information, and make sure the breast screening programme is of high quality.
- This technology includes:
  o central storage of women's digital mammograms (breast x-rays). This is called a central picture archive and communication system or PACS.
  o a database that radiologists use to keep track of women's information and images, as well as to invite them to screen and send out their results. This is called a radiology information system (RIS).
  o a data warehouse where information is stored that helps monitor the quality of breast screening.
- Some of the technology being used is out of date, which means – if it is not upgraded – s 9(2)(c), s 9(2)(e) the system cannot be adapted to meet the needs of the BSA programme in the future.
- The replacement and upgrading of technology will begin in June 2021 and is expected to be completed in 2024.
- Women who are part of BreastScreen Aotearoa will not notice any difference, as the upgrades taking place relate to how information is stored and shared, not to the actual process of having a mammogram.
- Following the upgrade, the BreastScreen Aotearoa programme will have a modern, more secure technology system. This system will also be better able to identify and provide breast screening to women who may not currently be part of the programme.
- Women are reminded that if they have any signs or symptoms of breast cancer, whatever their age, they should talk to their doctor as soon as possible. Women of any age with breast cancer symptoms remain eligible for publicly funded investigation with a doctor's referral.

For the sector
- The Government is investing so that the BSA information and communication technology system can be replaced and upgraded.
- The national breast screening programme, BSA, provides free mammography screening every two years to women aged 45 to 69 who have no symptoms of breast cancer.
- A core component of screening programmes is the information and communication technology (ICT) infrastructure.
- The ICT systems supporting screening programmes provide invitation and recall services, tracking of participants through the pathway and data for monitoring and evaluation.

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- Government has provided s 9(2)(c), s 9(2)(e) It cannot be adapted to meet the changing needs of the service.
- Within the current systems there are clinical, s 9(2)(c), s 9(2)(e), technical suitability, maintainability, and adaptability risks which need to be addressed to ensure safe and effective continued programme delivery, and to maintain user confidence in the programme.
- It is planned to deliver the new system in 2024. After an initial requirement gathering and procurement phase, designing and building a new ICT system for BSA, which will take a minimum of 18 months.
- Procurement will be required for the ICT support to the programme only, as the service delivery, screening technology and implementation elements will be managed through existing contract arrangements. An approach to the market for a radiology information system and supporting services will follow a single stage request for proposal (RFP) process in line with the government procurement rules.
- The sector will be updated regularly on the progress of this work.

Communication Channels

The communication channels listed below are a general list. The channel(s) used at each phase may vary and some of these channels may not be required:

- National Screening Unit website.
- Timetoscreen.nz website.
- Screening Matters (NSU stakeholder newsletter).
- Face to face.
- Emails and/or letters.
- Media releases.
- Provider communication channels e.g., provider newsletters.
- Briefings to Te Whatu Ora leadership
- Meetings and presentations, teleconferences and site visits.
- Ministerial briefings, ministers weekly report.

Appendix 6: Longlist Options Analysis

Critical Success Factors – Proposal Specific Criteria

CSF Broad Description	Proposal Specific Criteria
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.	• Solution Alignment with NBSP Investment Objectives. • Aligns with Government ICT Strategy 2015 Outcomes. • Enables 'Population Health Vision and Scope' Strategic Outcomes. • Aligns with Ministry on the Move.
Potential Value for Money: How well the option optimises value for money (i.e., the optimal mix of potential benefits, costs, and risks).	• Business Benefit: Improved Health Outcomes. • Business Benefits: Improved Service Delivery. • The ICT solution actively addresses and mitigates potential programme risk. • The cost of the ICT solution is within agreed estimates. • The whole of life cost of the ICT solution is within agreed estimates. • ICT infrastructure: Less support, maintenance and workarounds are required, than the current solution, which frees up resource for Te Whatu Ora and service providers.
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 achievability:** How well the option is likely to be delivered given the organisations ability to respond to the changes required and match the level of available skills required for successful delivery.	• Supplier products in the market that will support the proposed ICT solution. • Suppliers have the capability to deliver/support the ICT solution. • Suppliers have the capacity to deliver/support the ICT solution. • Suppliers in the market can support/maintain the ICT solution. • Solution can be delivered within known constraints. • Te Whatu Ora has the capacity and capability to support the delivery of the ICT solution. • The Sector has the capacity and capability and is actively engaged in delivering the ICT solution
Potential affordability: How well the option can be met from likely available funding and matches other funding constraints.	• The ICT solution is affordable for Te Whatu Ora and third parties (e.g., primary care providers). • The increased operational costs associated with the ICT solution are affordable.

Technology Options Longlist Analysis

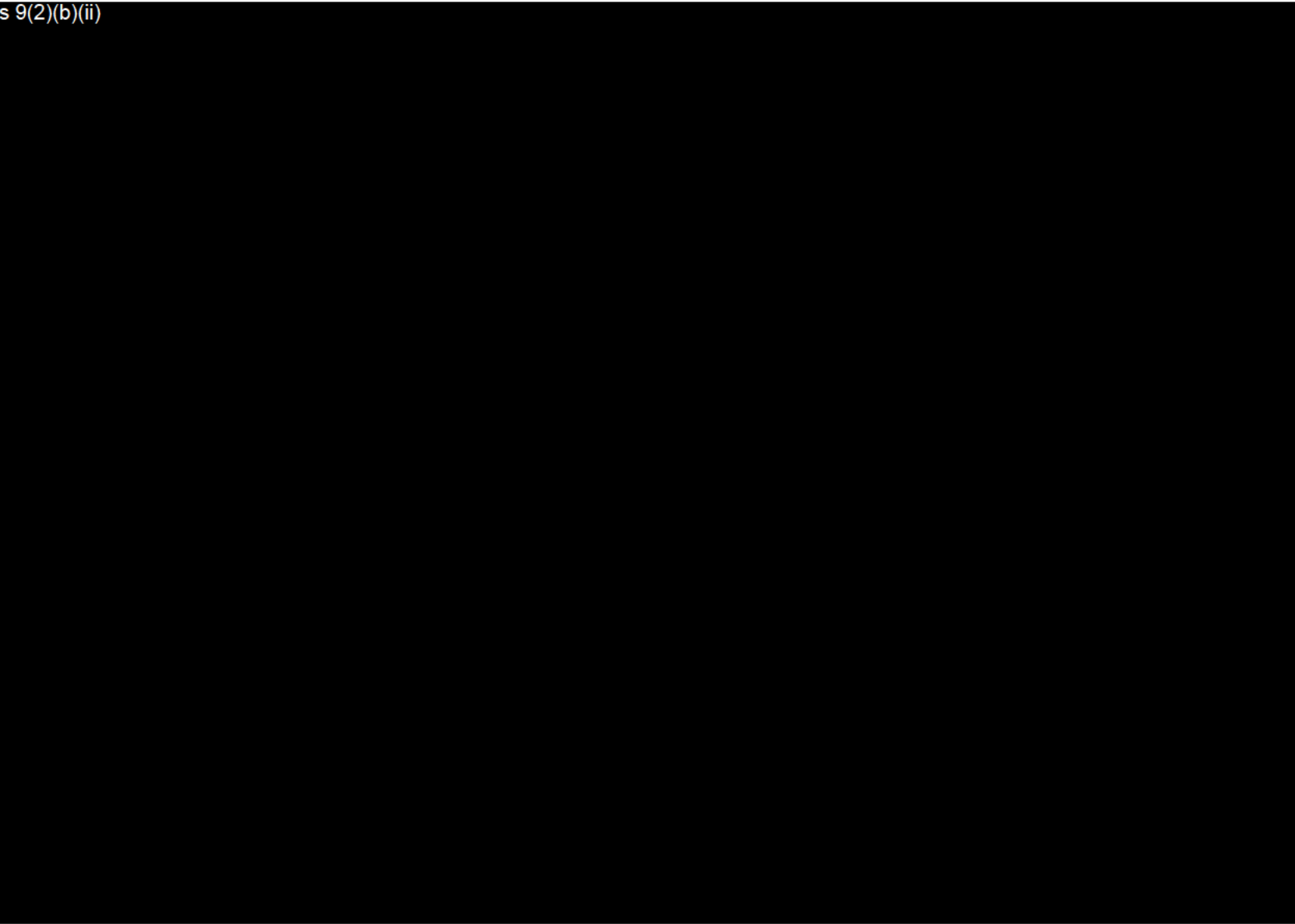| Level 1 ID	Success Criteria	Leve 2 ID	High Level Criteria	Level 3 ID	Detailed Criteria	Option 1 Score	Option 2 Score
1	Potentail Afforability	1.1	Technology Investment/ Costs The IT solution (incl. integration costs) is affordable for the Ministry and third parties.	1.1.1	The Ministry has access to sufficient funding to pay for the development and implementation of the solution.	Does not meet	Does not meet
				1.1.2	Third parties, such as Lead Providers, and other health care practitioners are able to invest to change internal processes and integrate with the solution.	Meets	Partially Meets
		1.2	Operational Impact The increased operational costs associated with the IT solution are affordable.	1.2.1	The increased operational costs associated with the IT solution are affordable, including IT service management, increased management, administration and participation in the screening programme.	Partially Meets	Partially Meets
2	Potential Achievablity	2.1	Solution Achievability. Solution can be delivered within known constraints (internally and externally).	2.1.1	Solution can be delivered within known technology constraints (internally and externally), including wider delivery commitments across Ministry and the health sector, and internal / external integration complexity.	Does not meet	Partially Meets
		2.2	Ministry Capacity and Capability. The Ministry has the capacity and capability to support the delivery of the IT solution.	2.2.1	Ministry has capacity and capability to support the delivery and ongoing operations of the IT solution.	Partially Meets	Meets
		2.3	Sector Capacity and Capability. The Sector has the capacity and capability, with available resources, and are actively engaged in delivering the IT solution.	2.3.1	The Sector and other health care providers have capacity and capability to support the IT solution delivery and operations.	Meets	Meets
				2.3.2	The IT solution encourages participation and has a minimal negative impact on sector and third party provider's operational workload.	Does not meet	Partially Meets
3	Strategic Fit and Business Needs	3.1	Solution Alignment with Investment Objectives. The IT solution enables the programme to fully meet the Investment Objectives in a timely manner.	3.1.1	To achieve a greater mortality reduction from breast cancer.	Partially Meets	Partially Meets
				3.1.2	To promote equity between population groups.	Partially Meets	Partially Meets
				3.1.3	To deliver breast screening, imaging and diagnostics in a manner that is acceptable and encourages participation.	Partially Meets	Meets
				3.1.4	To maximise benefits vs harm.	Does not meet	Meets
				3.1.5	To deliver a safe, high quality programme which is consistent nationally.	Partially Meets	Meets
		3.2	Enables 'Population Health Vision and Scope' Strategic Outcomes. The IT solution is interoperable and provides a national capability.	3.2.1	Provides a capability that can be used nationally without excessive change.	Partially Meets	Partially Meets
				3.2.2	Readily supports interoperability across the sector through the use of defined standards (e.g. HL7 / FIHR, SNOMED etc.).	Partially Meets	Meets
				3.2.3	Strategic alignment (integration with NSS / population health platform)	Does not meet	Meets
4	Potential Value for Money	4.1	Business Benefits: Improved Health Outcomes. The IT solution will enable the delivery of improved health outcomes.	4.1.1	Reduction in breast cancer mortality.	Partially Meets	Partially Meets
				4.1.2	Benchmarking improvement with international comparisons - variance with OECD average. (based on age range change)	Meets	Meets
				4.1.3	Increase identification of early diagnosis of breast cancer.	Meets	Meets
				4.1.4	Increase in 5 year survival rate for breast cancer.	Meets	Meets
		4.2	Business Benefits: Improved Service Delivery. The IT solution will enable improved service delivery across the Sector.	4.2.1	Reduction in the proportion of symptomatic breast cancers.	Meets	Meets
		4.3	Business Benefits: Clinical Safety and effectiveness. The IT solution will support current clinical guidelines and standards for breast screening.	4.3.1	The ability to meet current clinical standards / guidelines for breast screening assessments.	Partially Meets	Meets
				4.3.2	The ability to meet current clinical standards / guidelines for the recording of breast screening treatment information.	Does not meet	Meets
		4.4	Programme Risk. The IT solution is designed and delivered in a timely manner, nationally, and actively addresses and mitigates potential programme risk.	4.4.1	Addresses the risk that the programme is not available to deliver service. (availability / recoverability)	Does not meet	Meets
				4.4.2	Addresses the risk that delivery of the programme is delayed within the desired timeframes.	Partially Meets	Partially Meets
				4.4.3	Addresses the risk that required functionality to support a national programme is not sufficiently delivered.	Partially Meets	Meets
				4.4.4	Addresses the risk that any required sourcing activities are not completed in time to meet programme delivery milestones.	Meets	Does not meet
				4.4.5	Addresses the risk that integration costs are prohibitive to integrating with PACS, MoH systems and other third part systems.	Meets	Partially Meets
		4.5	Programme Cost. The cost of the IT solution is within agreed estimates	4.5.1	The IT solution can be delivered within agreed cost estimates. Not known at this time – further analysis required, including market scan.	To be scored	To be scored
		4.6	Whole of Life Cost. The whole of life cost of the IT solution is within agreed estimates.	4.6.1	The whole of life cost of the IT solution is within estimated cost envelope across the planned 10 year window.	To be scored	To be scored
5	Supplier Capacity and Capability	5.1	Supplier Product: There are products in the market that would support the proposed IT solution.	5.1.1	There are supplier(s) in the market with product(s) that meet the needs of the programme.	To be scored	To be scored
		5.2	Supplier Capability: There are suppliers in the market with the capability to deliver/ support the IT solution.	5.2.1	There are suppliers in the market with the capabilities required to meet the majority of the programme's needs.	To be scored	To be scored
		5.3	Supplier Capacity: There are suppliers in the market with the capacity to deliver/ support the IT solution.	5.3.1	There are suppliers in the market with the capacity (locally and/ or internationally) to deliver and support the required solution.	To be scored	To be scored
		5.4	Support and Maintenance: There are suppliers in the market to support/ maintain the IT solution.	5.4.1	There are supplier(s) in the market who are able to provide effective ongoing post-implementation support (or enable it through other mechanisms e.g. training or transfer of IP to MoH).	Partially Meets	Meets

Appendix 7: Shortlist Options Analysis

Options Shortlist

Service Delivery	Scale & Scope				Implementation		Solution				Service Delivery			Funding	
	Do Nothing, Maintain current state	Bare minimum replacement of core ICT to fix security, no further strategic enhancements	Replacement core ICT enhanced to meet programme strategic needs	Update Data Warehouse and reporting solution to integrate with new core ICT	Staggered Regional implementation	National implementation at one time	National RIS, no integration with NSS	National RIS, integration with NSS	Limited National RIS + Lead Provider solution for regional patient management	Local RIS (Lead Provider)	In-House (MoH) Development	External Provider - Off the Shelf, Customised	External Provider - Bespoke	Crown	Lead Provider + Crown
Reference	SCO1	SCO2	SCO3	SCO4	IMP1	IMP2	SOL1	SOL2	SOL3	SOL4	SD1	SD2	SD3	PRO1	PRO2
Investment Objectives															
Ensure the BSA programme has a robust and fully supported ICT platform with minimal risk of ICT failure which would compromise the ongoing delivery of the BSA service, from 2025	1	10	10	10	1	10	10	10	9	1	10	10	10	10	9
Meet Government requirements regarding the privacy and security of identifiable data held by the BSA programme, from 2025	1	10	10	10	1	10	10	10	9	9	10	10	10	10	9
Improve the invitation and recall process of priority group women, to reduce programme inequities and progress improved cancer outcomes	1	8	10	10	1	10	8	10	9	4	8	9	10	10	9
Allow more timely and cost-effective adaptation of the BSA programme in response to programme, technology and best practice changes, from 2025	1	8	10	10	4	10	5	10	4	1	10	8	10	10	9
Critical Success Factors															
Strategic Fit & business needs	1	8	10	10	1	10	3	10	7	1	10	10	10	10	10
Value for Money	1	5	9	9	5	9	5	9	8	5	7	10	8	10	6
Supplier capacity and capability	7	10	9	9	9	9	10	10	7	7	3	10	10	10	3
Achievability	10	8	8	9	5	9	9	10	8	1	3	9	9	10	3
Affordability	4	7	7	9	6	7	7	9	10	7	9	9	6	10	3
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 Nothing (Maintain Current State)	SCO1 Do Nothing														
Option 3: Source New RIS to maintain current state		Bare minimum replacement of core ICT to fix security, no further strategic enhancements			National implementation at one time		National RIS, integration with NSS				External Provider - Off the Shelf Customised			Crown	
Option 4: RIS for Strategic Requirements			Replacement core ICT enhanced to meet programme strategic needs		National implementation at one time		National RIS, integration with NSS				External Provider - Off the Shelf Customised			Crown	

Note that the options presented in the body of the business case have been further refined from the time of the options analysis. The changes are based on a greater understanding of the RIS requirement. For the purpose of evaluation and recommendation, these refinements are not material.

Appendix 8: Financial Analysis

s 9(2)(b)(ii)

Financial Costing Model: By Phase

s 9(2)(b)(ii)

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s 9(2)(b)(ii)

Appendix 9: Roles and Responsibilities

Role or Group	Purpose	Responsibility
Te Whatu Ora Board Chair	Escalation	The Board Chair is accountable to the Minister of Health for the Te Whatu Ora's operations and oversight of Vote Health. The is an escalation point for decisions that are beyond the SRO's authority.
NSU Governance Group	Governance	The Governance Group advises the SRO on governance for the overall project, assisting the SRO to achieve the outcomes agreed upon in the business case. The group will endorse project plans and monitor progress against plan; advise on issues that may impact successful delivery; endorse change requests; broker relationships outside the project; provide project resources; bring awareness of broader Te Whatu Ora and health issues.
NSU Steering Committee	Governance	The Committee provides direction, monitoring and support for in-scope projects.
Senior Responsible Owner (SRO)	Governance	The SRO is accountable to the Ministers of Health and Finance for programme success. The SRO will consult and take advice from the DG. The SRO has authority and responsibility for approvals and decisions affecting programme delivery within the boundaries set by the Ministers when approving the business case. The SRO works closely with the DDG Data and Digital to ensure alignment with the overall strategic direction for ICT within Te Whatu Ora.
Internal Governance Groups	Governance	The Groups have an oversight and governance function to ensure that project deliverables and progress meet expected standards.
Specialist Advisory Groups (External)	Advisory	The Specialist Advisory Groups are comprised of subject matter experts and key partners. The Groups provide input to the project team as required and ensure the approach meets the needs of stakeholders.
Data and Digital Governance	Governance	Responsible for ensuring that the technology to support the BSA is aligned with Te Whatu Ora vision and meets all required standards.
Project Team	Delivery	The Project Team is responsible for designing and executing the project deliverables. The Team works across the project management disciplines and liaises with subject matter experts and specialist advisory groups as required.
BSA Critical ICT Replacement Project Business Advisory Group	Advisory	The Business Advisory Group represents BSA IT system users; provides expert advice on needs, challenges, and opportunities for user groups and providers; and makes recommendations to the CIR Project Business Owner which supports successful outcomes for both BSA IT system users and Te Whatu Ora.
NSU Group Manager (NSU GM)	Programme oversight	The NSU GM is accountable to the SRO for operational decisions affecting delivery of the programme. Reports to the DDG PHP.
NSU Clinical Director (NSU CD)	Clinical oversight	The NSU GM is accountable to the SRO for clinical decisions affecting delivery of the programme. Reports to the DDG PHP.
BSA Manager	Programme oversight	The BSA Manager is accountable to the NSU GM and provides operational guidance and advice to the Programme Manager and workstreams.
BSA Clinical Lead	Clinical oversight	The BSA Clinical Lead is accountable to the NSU CD and provides clinical guidance and advice to the programme manager and workstreams.

| Role or Group	Purpose	Responsibility
National Screening Advisory Committee (NSAC)	NSU Strategic Advisory	NSAC provides strategic advice to the DDG PHP and Chief Medical Officer (CMO) on matters relating to the existing or proposed national screening programmes. NSAC meets 2-3 times per year.
Māori Monitoring and Equity Group (MMEG)	NSU Strategic Advisory	MMEG provides advice on equitable screening for Māori to the NSU GM and NSU CD. MMEG meets 2-3 times per year.
Clinical Oversight Group (COG)	NSU Clinical Advisory	COG provides clinical advice to the NSU CD. Members are drawn from the NSU clinical team, BSA Manager and NSU GM. COG is chaired by the NSU Clinical Director.
BSA Advisory Group (BSA AG)	BSA Advisory	BSA AG provides operational and clinical advice to the BSA Manager and BSA Clinical Lead. Members represent the Uni-Disciplinary Groups (UDGs).
BSA Lead Provider Managers Group	BSA Advisory	The Lead Provider Managers Group includes all 8 Lead Provider managers and advises the BSA Manager on operational matters. Meets 2-3 times per year.
BSA Uni-Disciplinary Groups (UDGs)	BSA Advisory	There are a number UDGs, each representing a specific workforce. They include Clinical directors (radiologists), Surgeons, Medical Radiation Technologists, Pathologists, Quality co-ordinators, Breastcare nurses, Medical Physicists. UDGs meet 2-3 times per year to advise the programme on operational and clinical matters affecting the workforce. UDG meetings are arranged by BSA and chaired by the BSA Manager or BSA Clinical Lead, as appropriate to the discipline.
BSA Sustainability Leadership Group	Programme Advisory	The BSA Leadership Group meets monthly or more often as determined by the NSU GM, who Chairs the group. Membership will include NSU Group Manager, NSU Clinical Director, BSA Manager, BSA Clinical Lead, Screening Insights & Analytics Manager, Clinical Lead Monitoring & Evaluation. The group provides operational advice to the NSU GM to support decisions on operational matters affecting the programme, supporting the programme to deliver to the agreed plan.
NSU Technical Steering Group (NSU TSG)	Programme Advisory	The NSU TSG is focused on NSU ICT delivery needs. Membership includes Group Manager National Digital Services, Group Manager National Collections & Reporting, BSA Manager. It is chaired by and advises the NSU GM. The group meets monthly.
NSU Design Authority (DA)	Programme Advisory	The NSU Design Authority meets as required to review and endorse ICT design proposals relating to programme ICT deliverables. Attendees are invited depending on the impacts of the design being considered and may include managers and subject matter experts from Data & Digital Services and NSU, programme manager, ICT Security Manager. The Design Authority recommends design decisions to the NSU TSG.
Architecture Design Authority (ADA)	Te Whatu Ora ICT approvals	The ADA approves ICT design proposals that have an impact on Te Whatu Ora operated or supported infrastructure. Members include key stakeholders from Data and Digital, Corporate Services and others as determined for specific design decisions. It is co-chaired by the Te Whatu Ora's Chief Technology Officer and Group Manager National Digital Services.

Appendix 10: Portfolio Approach

Te Whatu Ora has identified benefits in taking a shared portfolio approach across the planned technology replacement for BSA and NCSP, as the ICT requirements are aligned and both projects are funded in the same timeframe.

The Information Systems used to support both programmes are legacy systems: they are unstable, unsupported, and cannot be adapted to changing service needs or future demands. It is intended that a population health technology platform will be built on the NSS developed for the NBSP and in doing so leverage off this investment.

The NSS has been designed to provide a screening pathway framework that is common across all screening programmes. The core functionality is centred on the creation of a Population Health Register which is common to all programmes, and this common pathway can be adapted to support the specific process and data requirements across each of the different screening programmes.

The level of configuration and customisation across each of the process areas varies considerably across programmes as each screening programme has different screening pathways, tests, and diagnostic procedures. Figure 12 shows the primary phases of the common screening pathway supported by the NSS and the key activities that are realised across each phase.
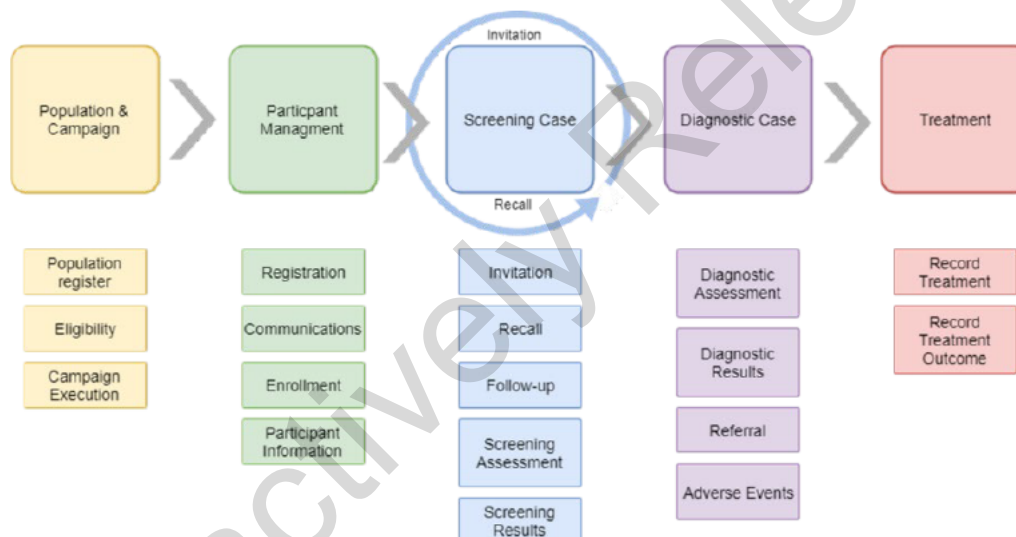

Figure 12: NSS Common Screening Pathway

This approach will allow Te Whatu Ora to reuse digital capability and functionality suitable for each programme[41]. Concurrent projects will be run within the ICT portfolio to develop the clinical, business and technology requirements specific to each programme.

A portfolio approach will be undertaken to establish an integrated team within Te Whatu Ora to deliver the technology platform and continuous improvement thereafter. A governance structure to support this portfolio will be established to oversee this work and governance structures and processes revised as the programme of work enters the implementation phase.

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[41] A high-level assessment of the reusability of the NSS architecture and functionality has been completed and is available on request (*NSS Reuse Opportunity*).

Appendix 11: Programme Gantt
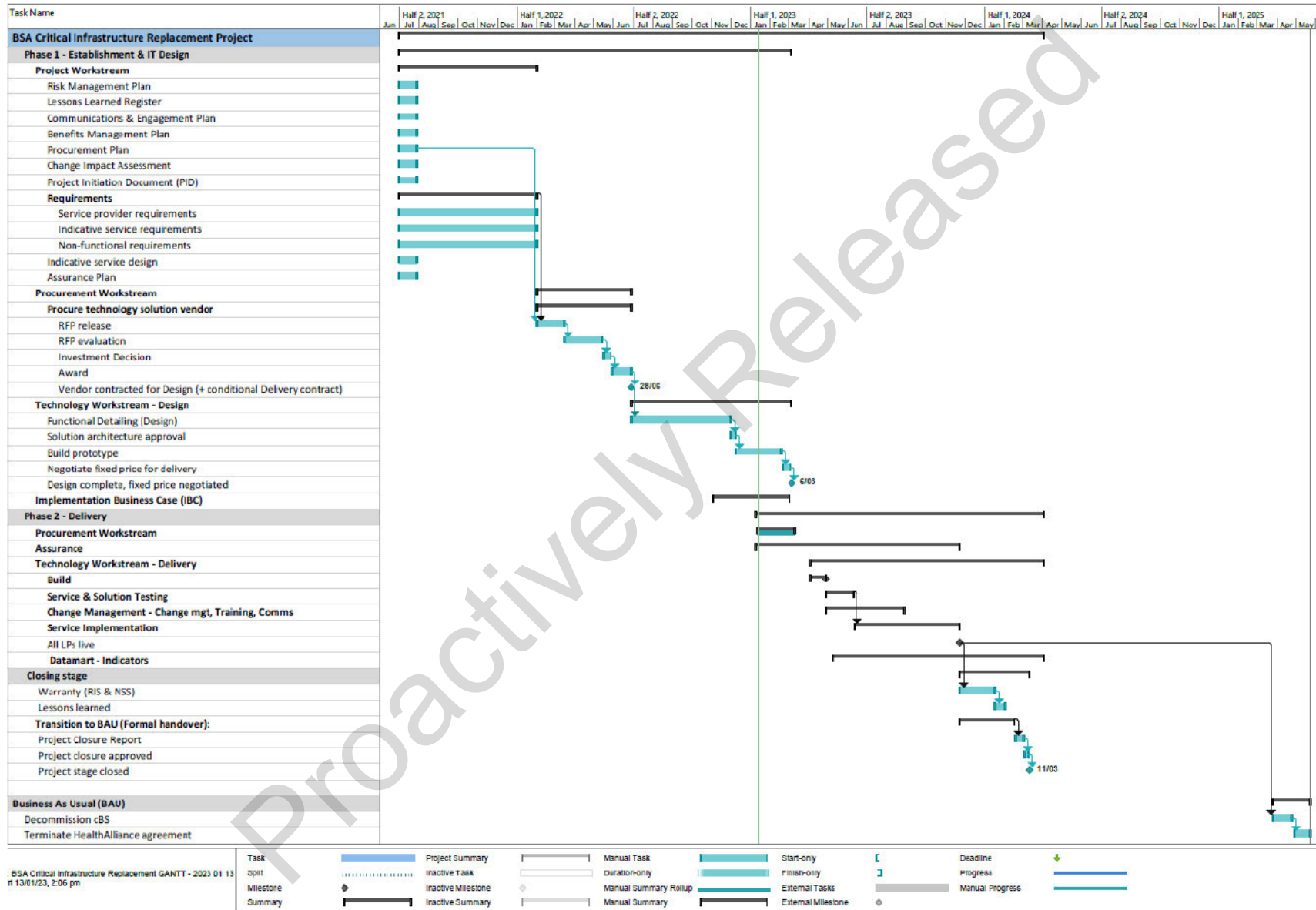
Appendix 12: Senior Responsible Owner's Letter

January 2023

To whom it may concern

BreastScreen Aotearoa Sustainability

This Business Case is a significant deliverable of Te Whatu Ora to investigate options to achieve sustainability of the existing BreastScreen Aotearoa programme, by investing in upgrading vital components of the ICT infrastructure which are out of support and no longer fit for purpose.

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 cost and benefit estimates of the proposal are sound and based on best available information.

- The financial costs of the proposal can be contained within the agreed and available budget, subject to budget confirmation by Government.

- Te Whatu Ora will have the ability to pay for the services at the specified price level, subject to budget confirmation by Government.

- Suitable contingency arrangements are in place to address any current or unforeseen affordability pressures.

This letter fulfils the requirements of the current Better Business Cases guidance. 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

Matt Hannant
National Director (Acting)
National Public Health Service

Appendix 13: Supporting Documentation

Version	Title	Date
0.4	Benefits Realisation Plan	15.07.21
0.1	Procurement plan	26.03.21
0.1	Change management plan	26.03.21
0.4	BSA programme sustainability: Critical Infrastructure Replacement Stakeholder engagement and communications Plan	06.02.21
0.4	Controls Validation Audit	21.12.20
0.2	Project Management Plan	26.03.21
1.0	Risk Assessment	16.12.20
0.2	Risk Register BSA Programme Sustainability Critical Infrastructure Replacement	25.03.21

Appendix 14: Glossary

Acronym	Description
ADA	Architecture Design Authority
AoG	All of Government
BSA	BreastScreen Aotearoa
cBS	Concerto BreastScreen
CoG	Clinical Oversight Group
CRM	Customer Relationship Management
CSF	Critical Success Factor
DDG	Deputy Director General
DHB	District Health Board
ELT	Executive Leadership Team
GCDO	Government Chief Digital Officer
GETS	Government E-Tendering System
HPV	Human Papilloma Virus
ICT	Information and Communications Technology
ILM	Investment Logic Map
IQA	Independent Quality Assurance
LSF	Living Standards Framework
MMEG	Māori Monitoring and Equity Group
NBSP	National Bowel Screening Programme
NCSC	National Cyber Security Centre
NCSP	National Cervical Screening Programme
NPV	Net Present Value
NSS	National Screening Solution
NSU	National Screening Unit
NZGPP	New Zealand Government Procurement and Property
PACS	Picture Archive and Communication System
PHO	Primary Health Organisations
PMS	Patient Management Solutions
RIS	Radiology Information System
RFI	Request for Information
RFP	Request for Proposal
ROI	Registration of Interest
SRO	Senior Responsible Owner
TRG	Technical Reference Group