accenture consulting

Insight Driven Health

External IT Review
National Bowel Screening Programme (NBSP)

Final Report

17 August 2016

High performance. Delivered.

Strategy | Consulting | Digital | Technology | Operations

Content:

Introduction

The goal of the project was to conduct a rapid review in the following areas:

- Confirm required business outcomes – hence requirements
    - Assess the clarity and completeness of business outcomes/ requirements bearing in mind that this is central to an effective options appraisal and developing the optimal delivery approach

- Assess whether the recommended IT delivery solution and approach is sound
    - Review the options analysis and final recommendations
        - Determine whether any COTS products exist which could meet the needs of the NBSP
        - Review the recommendation to Build the future NBCP platform internally
    - Assess the underlying assumption and risks associated with the options and recommendations; suggest mitigation measures, where necessary

- Consider whether the overall NBSP is set up for success
    - Identify any major delivery risks or gaps and recommend actions required to address these

Key observations and recommendations were developed via on a series of interviews and document review during late July/ early August 2016. These are summarised in this report.

Content:

1. Introduction

2. Key findings from IT Review

3. Recommended way forward for IT Delivery

4. Wider recommendations: Mobilising for Success

Key Findings from IT Review

There are three major findings:

I. The proposed overall IT delivery approach is sound – that is, a phased rollout involving early deployment of an interim solution to select DHBs (hence early benefits realisation), followed by development and national development of a long-term IT solution

- This dual platform approach is unavoidable if the first rollout is to be achieved in mid 2017

II. Further work is required to validate the proposed IT solutions

- There needs to be a shared understanding of the "desired end state" (i.e. how the future screening service will operate and the role of IT in supporting this). This should inform the requirements – hence the options appraisal.

- It makes sense to enhance the current pilot solution as an interim solution, subject to appropriate 'due diligence'. However, the specific nature of development needs to be confirmed, along with hosting and support requirements.

- Further analysis is required in terms of longer-term options.   In particular, the current recommendation of In-House Development (over Commercial Off the Shelf, COTS, and outsourced delivery) warrants further consideration

III. The programme is not yet effectively mobilised

- There is an evident lack of alignment between the Business and IT. This is a serious deficiency for a programme of this nature – i.e. IT-enabled business change.

- More broadly, there is a need to put in place the right structures, governance, resources, approach and delivery disciplines for a programme of this size and complexity. This needs to happen urgently.

The findings are elaborated upon in the following pages.

Key Findings

1. **We believe that the overall proposed IT delivery approach is sound**
   - This involves a phased development and rollout, with an interim IT solution initially being deployed to selected DHBs (3) while a long-term IT solution is developed and then deployed nationally
   - We support enhancing the Pilot IT system (supplied by Argonaut) to provide this interim IT solution. This is likely to be the most cost effective and low risk approach for meeting the July 2017 timescale – hence starting to rollout the National Bowel Screening Programme.

2. **However, further work is required to validate the proposed long-term IT solution and delivery approach – that is, In-house Development**
   - The initial options analysis was limited by lack of documented requirements.
   - There was insufficient evidence to warrant excluding other key options (i.e. extend interim, COTS and/or outsourcing)
   - The assumptions and risks associated with In-house Development have not been fully assessed
   - Sufficient questions have been raised to warrant a more robust options appraisal. This may lead to the same conclusion – however, a different recommendation is also possible.

3. **The programme needs to 'create the space' to allow a more robust options appraisal**
   - Several respondents highlighted looming delivery deadlines as the reason why a more comprehensive analysis hadn't been undertaken. Space must be found to enable this to happen.
   - The start of the NBSP rollout can't change. However, we believe that it's both possible and desirable to delay selection and rollout of the long-term IT solution pending clarifying the business requirements. This could be achieved by further enhancement and rollout of the interim IT solution. For example, subject to due diligence, the interim platform could be deployed to a further 4 DHBs from Jan 2018.
   - This would allow the long-term IT solution to be delivered six months later – i.e. July 2018 instead of Jan 2018. Pushing this delivery back by six months would give the programme the time it needs to make a suitably informed decision (including potential market assessment).

Key Findings

4. A more effective options appraisal hinges on developing greater clarity in terms of the 'goal state' architecture – i.e. how the future screening service will operate and how IT supports this.

- The programme needs to bring key stakeholders together to develop a shared vision of the future service
- This shared vision should start with the future operating model and key business processes (i.e. Business Architecture). This can be achieved by working together via a process of co-design.
- This business architecture should inform the development of an Information Architecture – i.e. identifying the type of information involved and how this move between the parties (including the role of IT in supporting this).
- This understanding is required to develop the Technical Architecture and/or the selection of an IT solution that meets the requisite business requirements.
- *Linking architecture concepts in this way helps create the necessary alignment between the Business and IT.*
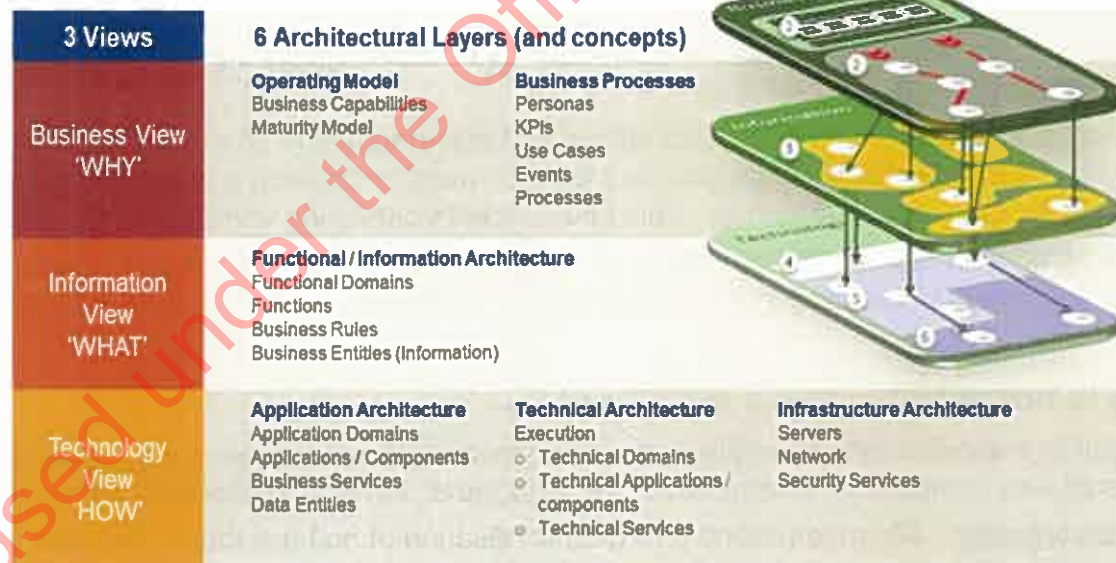
Key Findings

5. There is currently insufficient alignment between the business and IT

- There was general agreement that the programme should drive the technology, not the other way around This is not currently happening and needs to be corrected.
- Unless this is addressed, there is a danger that the IT solution that is ultimately delivered won't support the future desired ways of working as well as full realisation of the target benefits
- The key to addressing this is two-fold: strengthening IT leadership within the programme team AND developing a shared, business-led vision of the 'goal state' architecture

6. Delivering the IT solution required for the NBSP is paramount. However, it should be possible to do this in a way that aligns with and supports the wider Digital Health Roadmap

- We recognise that the broader digital health roadmap is not yet defined, although some national eHealth capabilities already exist and are being used in the health system (e.g. NHI number).
- Despite this, we don't accept that the goals of delivering the NBSP and aligning with and supporting the wider digital health roadmap are inherently mutually exclusive.
- Delivering on time and budget for the NBSP is both critical and non-negotiable. As far as possible and without compromising this, we recommend that the programme look for ways to develop a solution that is aligned with and enabling of the emerging digital health roadmap. This could include delivering components to be used more widely.
- Pushing back the required delivery date for the long-term IT solution for the NBSP should enable potential synergies to be explored. Again, this needs to be done in a way that neither diverts from, nor compromises the NBSP.

7. The programme is not yet effectively mobilised

- There is a need to put in place the right structures, governance, resources, approach and delivery disciplines for a programme of this size and complexity. This needs to bring together key stakeholders including the DHBs.
- This needs to happen urgently.   We recommend a target mobilisation of no later than 1 October 2016.

Content:

1. Introduction

2. Key findings from IT Review

3. Recommended way forward for IT Delivery

4. Wider recommendations: Mobilising for Success

Recommended Way Forward for IT Delivery

Recommend a phased development and rollout, with an interim IT solution initially being deployed to selected DHBs (up to 6) while a long-term IT solution is developed and then deployed nationally.

◢ *Migration required*

All DHBs

Up to 6 DHBs

3 x DHBs

1 x DHB

NBSP

All DHBs move onto the long-term NBSP solution (Release 2)

BSP+

Enhance pilot system to support new DHBs (Releases 1a and 1b)

BSP

Bowel Screening Pilot system

Early adopter DHBs to utilise the interim IT solution for a minimum of 18 months, then migrate to the long-term solution

▲ **Today**　　▲ **Jul 2017**　　　　　　▲ **Jul 2018**　　▲ **Mar 2019**

10
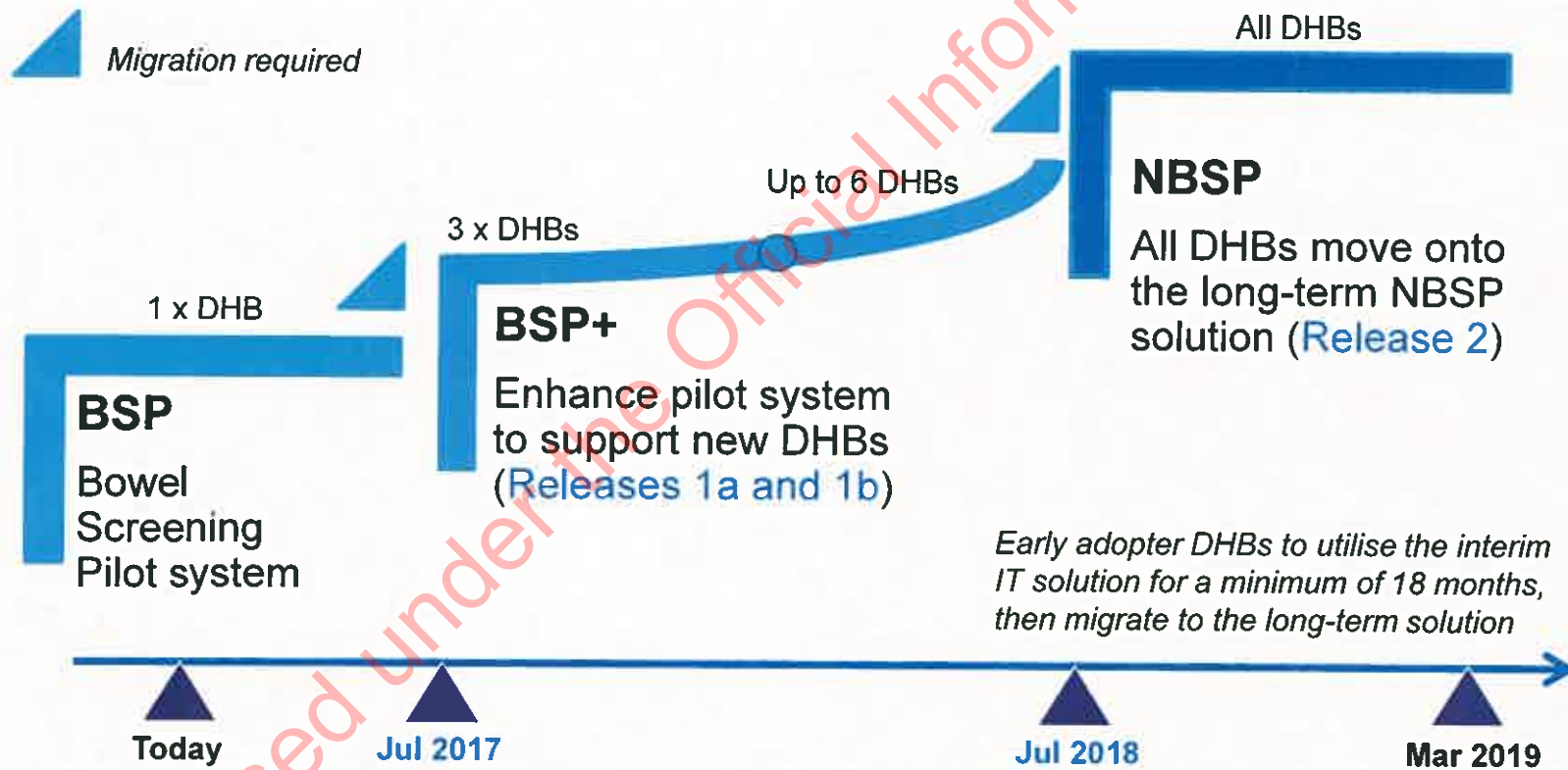
Recommended Way Forward for IT Delivery

The next 4 months are critical. The IT workstream needs to progress two areas:

I. Complete "due diligence" on proposed interim solution and mobilise for delivery

- Work with proposed Early Adopter DHBs to determine essential features and functionality required to achieve "minimum viable product" – finalise R1a and R1b scope, noting that this scope will be refined over time

- Work with current IT vendor (Argonaut) to determine how and when this can be delivered, including agile development. Confirm delivery timescale and approach is acceptable, taking into account risks and mitigations

- Confirm hosting and support requirements to handle up to 6 DHBs (including budget) - determine interim hosting arrangement and support model

- Mobilise this work effort – target start of 1 October 2016

- *Outsource this work as far as possible to free up capacity to focus on defining and delivering long-term solution. Avoid over-investing in the interim solution: recognise and accept the limitations of a minimum viable product*

II. Determine long-term solution and associated delivery approach

- Work with the wider Programme Team to develop a clearer, shared understanding of the desired "goal state" (that is, how the future screening service will operate and the role of IT in supporting this). One way to achieve this is by conducting a Model Community as a part of Blueprinting – i.e. bringing the various parties together to engage in co-design, including prototyping the proposed future IT solution.

- Develop a Solution Blueprint capturing short and long-term requirements (to inform R1a, R1b and R2 scope)

- Reassess longer-term solution options in light of these requirements – consider Fast-track competitive dialogue (selected suppliers only) to inform option analysis.

- Develop recommendations in terms of long-term solution and associated delivery approach for inclusion in Implementation Business Case – target completion of analysis by 15 December 2016.

- Prepare to either Go to Market for an external supplier or mobilise In-House Development from January 2017

Leverage relevant local and international experiences

For example, the Australian Department of Health recently procured a National Cancer Screening Register. The required IT solution here comprised five high level capabilities:

1. The Core Register;

2. Data exchange;

3. User Interface;

4. Business intelligence; and

5. Integration

We anticipate significant overlaps with the capabilities required to support the NBSP, notwithstanding the end solution(s) will differ to reflect the NZ health IT ecosystem.
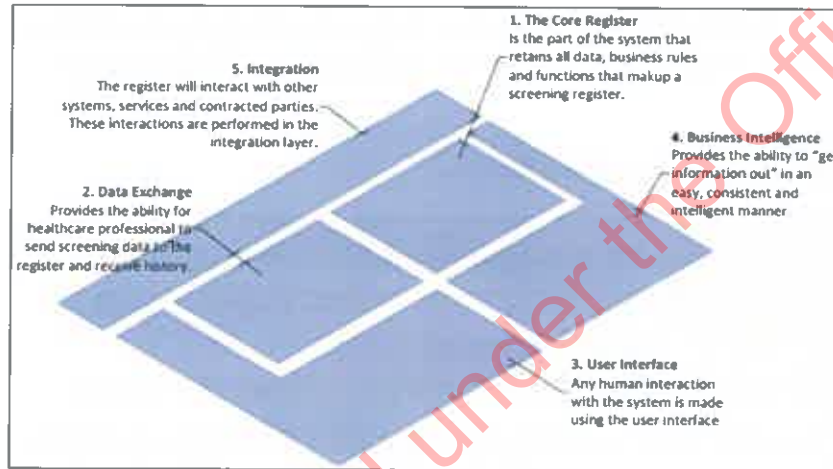

5. Integration
The register will interact with other systems, services and contracted parties. These interactions are performed in the integration layer.

1. The Core Register
Is the part of the system that retains all data, business rules and functions that makup a screening register.

2. Data Exchange
Provides the ability for healthcare professional to send screening data to the register and receive history.

4. Business Intelligence
Provides the ability to "get information out" in an easy, consistent and intelligent manner

3. User Interface
Any human interaction with the system is made using the user interface

Figure 1 - High level Register capabilities
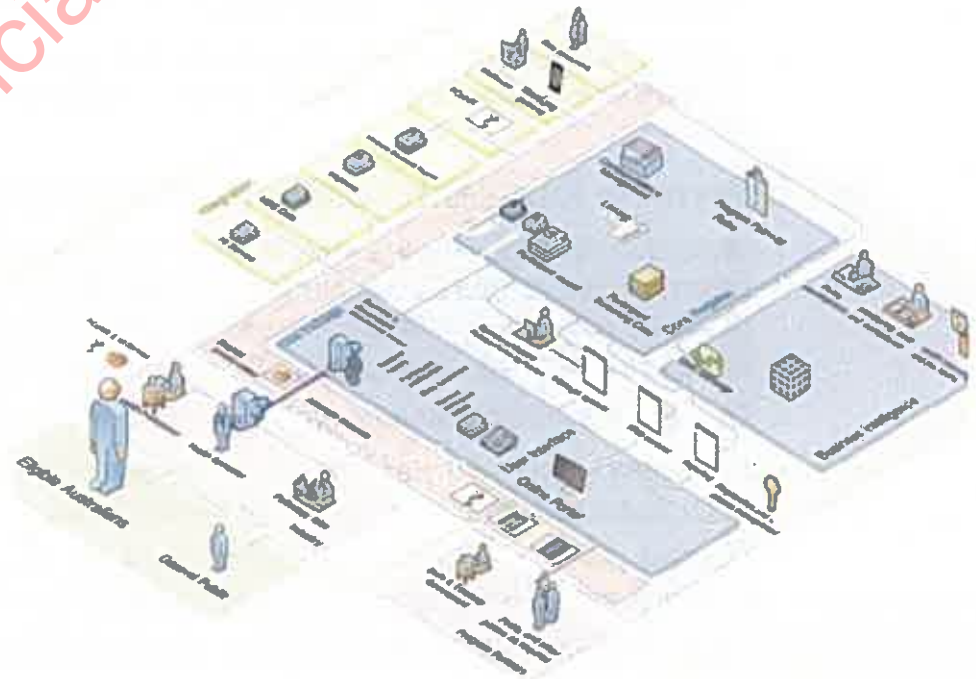
Figure 2 - Design on a Page

Progress Interim and Long-term Solutions in parallel

Indicative work plan. Note two parallel streams of activity: (I) delivering the interim solution, subject to due diligence, and (II) determining the long-term solution and how it's delivered.

13
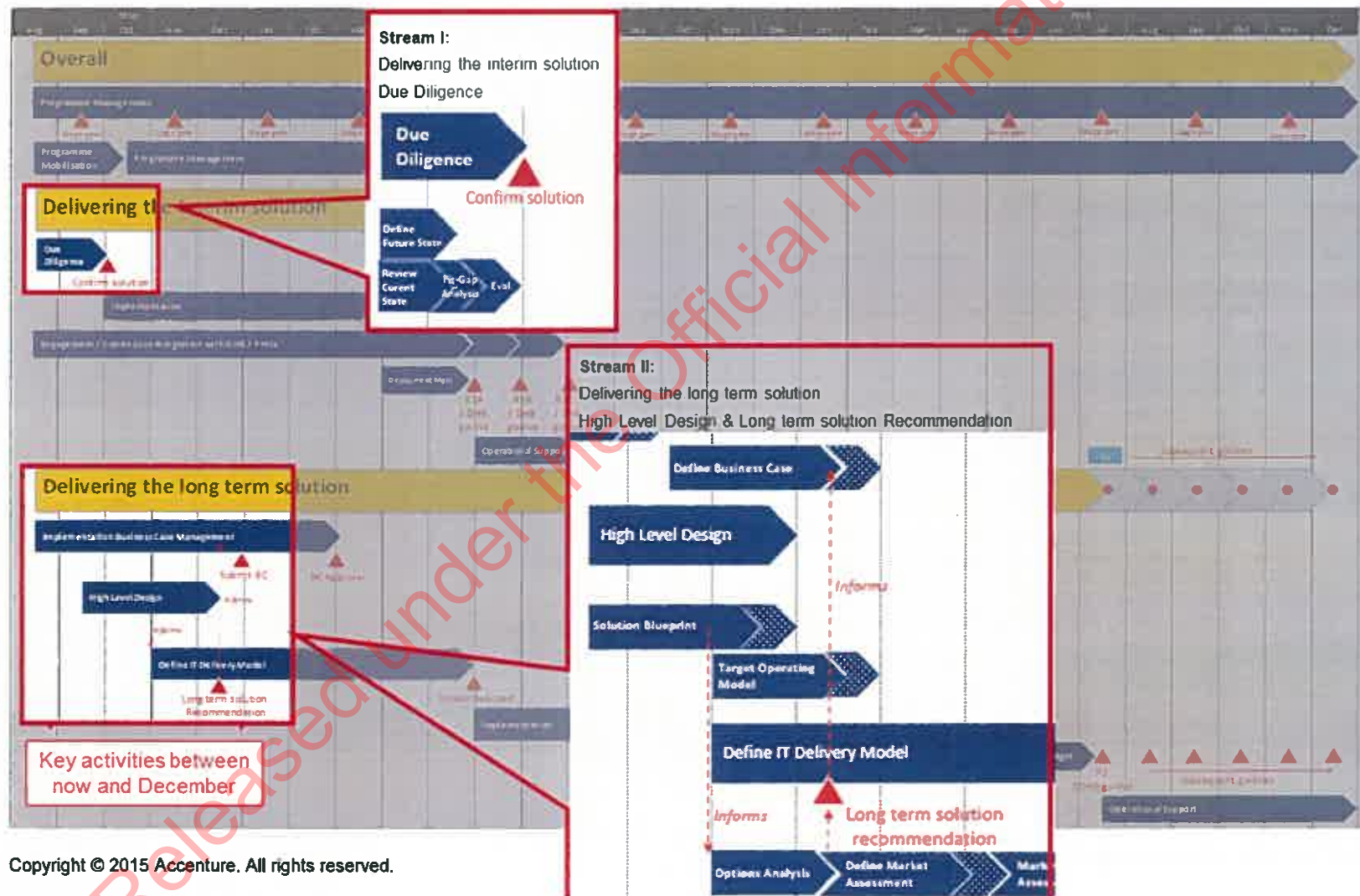
Progress Interim Solution

Interim IT Solution: 'Due Diligence' and mobilise for delivery – *indicative timeline**

Task	What is expected	When
Due Diligence		
The Due Diligence stream is a quick five (5) week assessment to confirm the scope of the extended pilot system and to determine if the current system is capable to support this. Part of this work would be done in conjunction with the current pilot IT vendor (Argonaut). This stream will also be involved in assessing which of the additional DHBs may be ready and willing to rollout an interim solution.		
Requirements Verification (Interim solution)	This involves clarifying scope of the interim IT system, assumptions and business priorities of the enhancements. This requires careful balancing of the cost to fix the manual workarounds vs the effort associated with the workaround; focus here is on delivering the minimal viable product for early DHBs.	3 weeks (Start 22 August, Complete 9th Sept)
Current Capability Assessment (Pilot Screening)	This involves assessing current business processes (including manual workarounds), business performance, application, technical environments,, performance support products, application support capability, and other capability elements impacting the new application. Further consideration may be given to having the vendor to provide end-to-end IT support.	3 weeks (Due 9th Sept)
Fit-gap analysis	Identify key gaps between the current capability (pilot system/ service) and the required capability (interim system/ service across multiple DHBs). Determine how these gaps can be addressed (e.g. system development or manual workaround); assess the risks and identify risk mitigation measures.	1 week (Due 16th Sept)
Develop recommendations	Address the following questions/ topics: • Should MoH extend the current system to support the national roll-out of NBSP beginning July 2017? • Does Argonaut have the capacity and technical capability to support the extended pilot? • Should Argonaut be responsible to provided the end-to-end support of the system? • Deployment candidates – confirm set of DHBs that are prepared to go-live using the Interim IT solution • Identify issues, risks, and impacts that may affect our ability to deliver on the deal; recommend mitigations to these. • Confirm the delivery schedule and cost to this work	2 weeks (Due 23rd Sept)
Key Risks	1. The current pilot solution cannot be extended to support wider DHBs 2. The interim IT system becomes the permanent solution for National Bowel Screening Programme. 3. The pilot vendor is incapable to deliver the extended solution (e.g. resource constrained) 4. The cost of enhancing the pilot system is prohibitively high for an interim solution 5. Difficulty getting DHBs to go onto the interim solution due to manual workaround / upgrading their system twice	Low Medium Medium Low Medium
Key Deliverables	• An approved scope for the interim solution – based on MVP requirements • A fit-gap analysis to the current pilot IT solution • A recommended way forward in relation to the interim IT solution including delivery plan, hosting and support arrangements • A work order and a workplan for the required services to enable rapid mobilisation - to follow within 3 weeks of Board approval	Target: funding and approval secured so dev starts on Interim solution by 15 October

*Timeline to be confirmed based on available resourcing

14

Long-term IT Solution: Determine solution and delivery approach – *indicative timeline**

Task	What is expected	When
	This is a 14 week piece of work to more clearly define how the future National Bowel Cancer Screening service will operate, including the IT capabilities required to enable this – hence the enable a more robust assessment of solution options and delivery models. A better understanding of the IT requirements (mandatory, desirable) would both inform the interim solution design (minimum viable product) as well as options analysis for the long-term solution. The key output from this phase is a recommended way forward in terms of the long-term IT solution.	
'Goal State' Business Architecture	IT must support, rather than dictate, the desired future way of working. To achieve this, the future way of working must be defined. This comprises a number of elements (as illustrated on page 7) including the: • Target Operating Model – this describes the key capabilities that will comprise the future NBCS service (e.g. NCC). • Business Processes – this describes the key roles (personas), processes , KPIs and interactions (typically described through use cases) • IT-enabled activities – this shows how and where IT needs to support the future ways of working. This needs to be described at a level of detail that is sufficient for IT requirements to be understood – hence to feed into the definition of future IT capabilities required to support the future service. As previously noted, one way to develop this is by running a Model Community.	8.5 weeks (Start 1 Sept, Complete 28 Oct)
Solution Blueprint	This identifies the key IT capabilities that are required to support the future service, including elements of the existing NZ health IT ecosystem that will be leveraged vs. the new capabilities that must developed/provided. The output is a NBSP IT capability model (see page 12 for an example) including capabilities descriptions/ requirements. This model provides a framework for the IT option analysis.	3 weeks (Due 28 Oct)
Options Analysis for Long-term IT solution	Options Analysis uses the Business Architecture (or future operating model and business processes) and IT capability model as inputs to decide on the most suitable longer term IT solution and IT delivery approach to support the roll-out of the long term National Bowel Screening Programme. The Options Analysis will take into account the future state capability model, functional and non-functional requirements, scope, budget, resources, timeframe and delivery risk into consideration to evaluate and recommend a fit-for-purpose IT solution that supports the programme. The recommendation for the IT solution should include: • Commercial-of-the-shelf (COTS) vs custom build solution • Delivery approach – e.g. go to market for an external supplier vs In-House Development • Infrastructure hosting and support models The output of this will inform the Implementation Business Case and define the Market Assessment criteria as part of IT delivery.	8 weeks (Due 14th Dec)
Key Risks	1. Delayed start – unable to assemble stakeholders and complete work in specified timeframe 2. Difficulty securing agreement in the time available on the future service design (business architecture and IT capability) 3. The Solution Blueprint creates unrealistic expectations in terms of the IT solution. 4. Insufficient buy in from business stakeholders in terms of the future operating model (e.g. DHBs / PHOs) 5. Insufficient time to fully assess COTS options	High Medium Medium Medium Medium
Key Deliverables	• An approved 'Goal State' business architecture, with a number of use cases illustrating how national screening will operate in the future including how the IT solution supports the interim and long-term service • A set of functional and non-functional requirements drawn from the Solution Blueprint, linked to IT capabilities • A recommended way forward in terms of long-term IT solution and delivery approach – for Programme Board endorsement	Target: recommendation to go to Board for approval on 15 Dec

Content:

1. Introduction

2. Key findings from IT Review

3. Recommended way forward for IT Delivery

4. Wider recommendations: Mobilising for Success

Mobilising the Programme for Success

- There is strong support for the programme across the various stakeholders. However, widespread support doesn't guarantee success.

- Many things that can go wrong with a programme of this nature – that is, a high profile clinical programme involving IT-enabled business change deployed nationally:

  - Cost over-runs and/or schedule delays = reputational damage and business case undermined

  - Adverse, unintended impact on existing health services = resource drain

  - Insufficient capacity to deal with positive screening results = delayed testing and treatment

  - Patient safety or privacy compromised = reputational damage and/or public harm

  - Loss of confidence in the screening program = limited support from clinicians and reduced uptake by consumers

- The chances of success are improved with Early Mobilisation

  - Setting off on the right foot as early as possible helps preserve schedules and budgets.

The value of Early Mobilisation

Setting off on the right foot as early as possible helps preserve schedules and budgets

- Every project starts with incomplete information and a great deal of uncertainty. As the project progresses, the level of understanding grows -- thus decreasing the uncertainty.

- Things are typically fluid at the start of a project, and it's possible to make changes to the scope, the design or the plan. As a project progresses through its various stages, the cost of making a change increases along with the impact on the schedule.
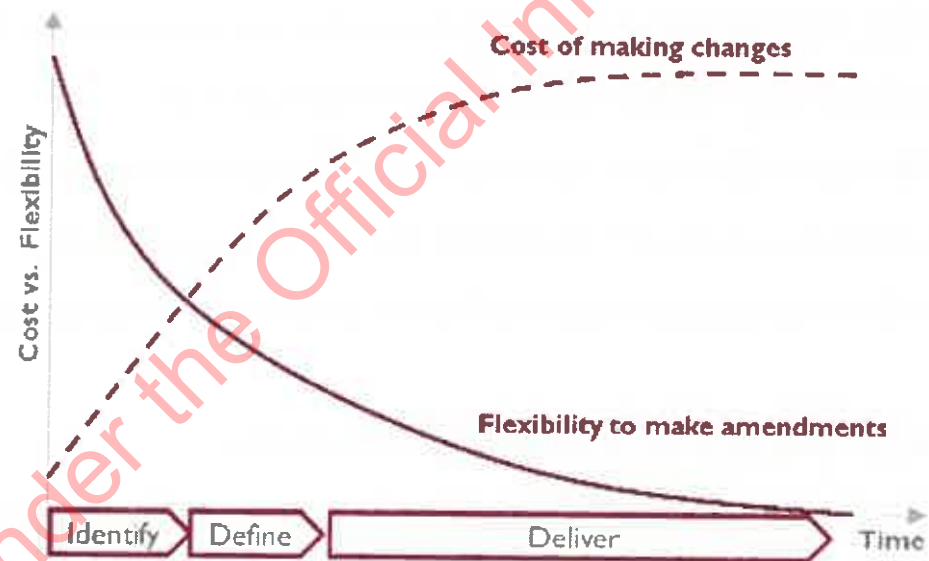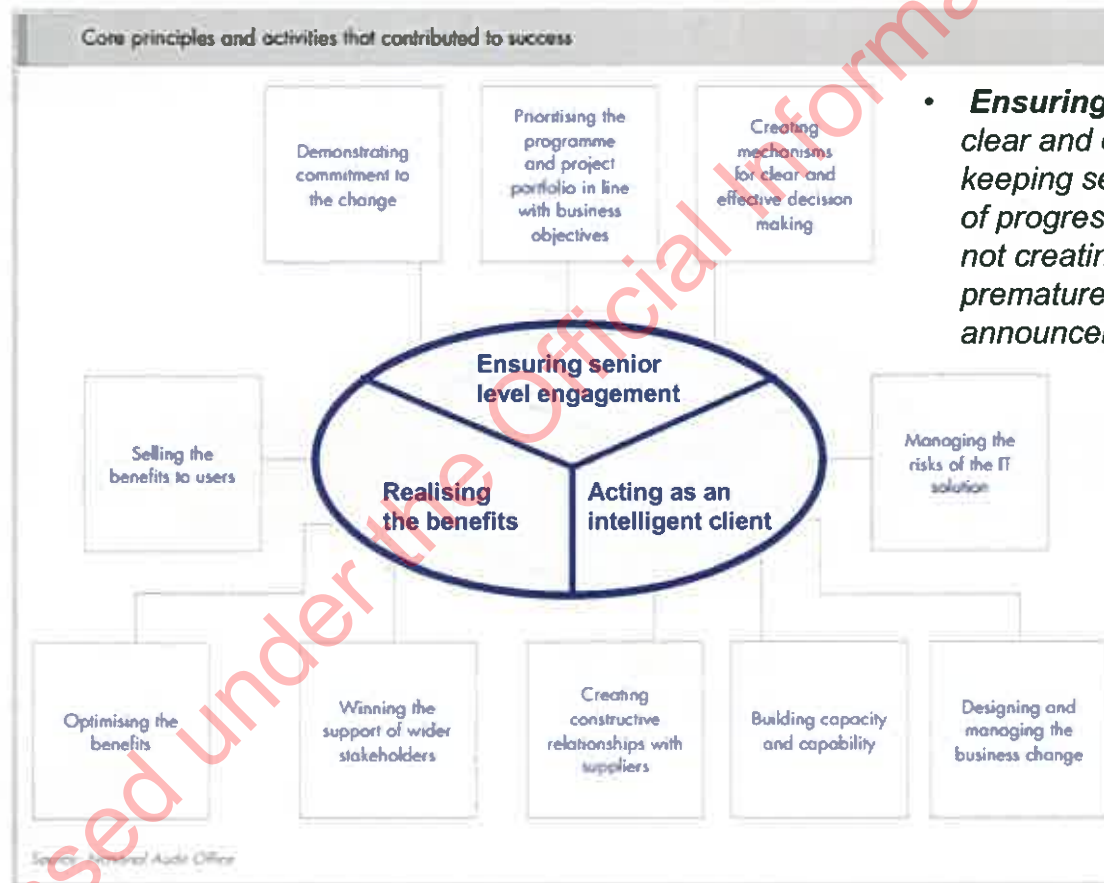

The key is **take action to increase certainty as close to the start of the project as possible** to minimise the cost and impact of changes.   But many actions are possible ...

Where to focus: Critical Success Factors

By analysing examples of IT-enabled change, the National Audit Office (UK) identified three core principles which contribute to delivering successful IT programmes and projects:

Core principles and activities that contributed to success

- Demonstrating commitment to the change
- Prioritising the programme and project portfolio in line with business objectives
- Creating mechanisms for clear and effective decision making
- Selling the benefits to users
- Ensuring senior level engagement
- Realising the benefits
- Acting as an intelligent client
- Managing the risks of the IT solution
- Optimising the benefits
- Winning the support of wider stakeholders
- Creating constructive relationships with suppliers
- Building capacity and capability
- Designing and managing the business change

Source: National Audit Office

- **Realising the benefits:** selling the benefits to users, winning wider support for the change, and assessing whether the programme or project has achieved what it set out to do
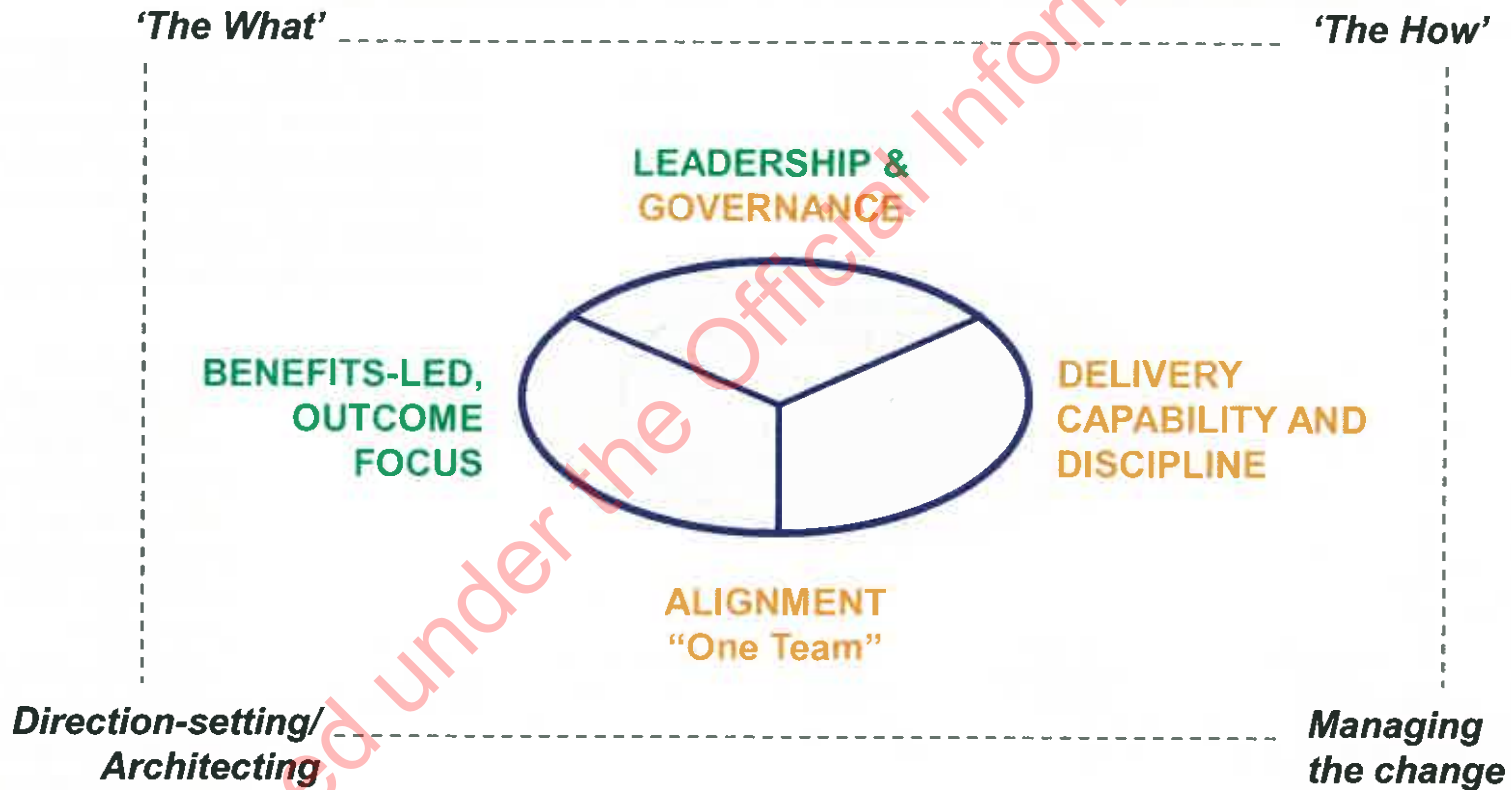
- **Ensuring senior level engagement**: clear and engaged board leadership, keeping senior decision makers informed of progress and risks and, for example, not creating undue pressure by making premature and unrealistic announcements about delivery dates

- **Acting as an "intelligent client":** understanding the business process the department is aiming to change, having the right programme management skills, training the staff and creating effective & equal relationships with suppliers

Take action to increase certainty as early as possible

Priority areas to address:

'The What' -- *'The How'*

LEADERSHIP &
GOVERNANCE

BENEFITS-LED,
OUTCOME
FOCUS

DELIVERY
CAPABILITY AND
DISCIPLINE

ALIGNMENT
"One Team"

Direction-setting/ -- *Managing*
Architecting   *the change*

# Take action to increase certainty as early as possible

Five imperatives for mobilising the NBSP early and effectively:

I.   Put the mobilisation delivery team in place

   - Appoint a core group that will provide leadership and the right capability from Day 1

II. Quickly establish pragmatic best-practice governance and controls

   - Embrace PRINCE2 methodology (or equivalent)
   - Gain early visibility and control of risks. Construct a risk escalation and resolution procedure to provide maximum visibility and earlier issue resolution.

III. Find your North Star (goal state definition)

   - Develop a shared vision of the future screening service to inform IT requirements (interim vs. end state)
   - Consider rapid service design or prototyping – e.g. run a Model Community

IV. Establish scope stability early and develop a realistic delivery plan

   - Validate schedule assumptions
   - Develop a Project Initiation Document for Programme Board approval (target 1 Oct 2016).

V.   Foster a "one team" approach

   - The IT workstream needs to be fully integrated into the programme – not operate as a separate supplier(s)
   - Need to create open communication and an alignment of interests so that the team works quickly and effectively towards a shared goal, the desired business outcome.

Target: <u>fully mobilise*</u> the programme by 1 October 2016

Recognising that this will be challenging from a resourcing standpoint, but early and effective mobilisation is essential.
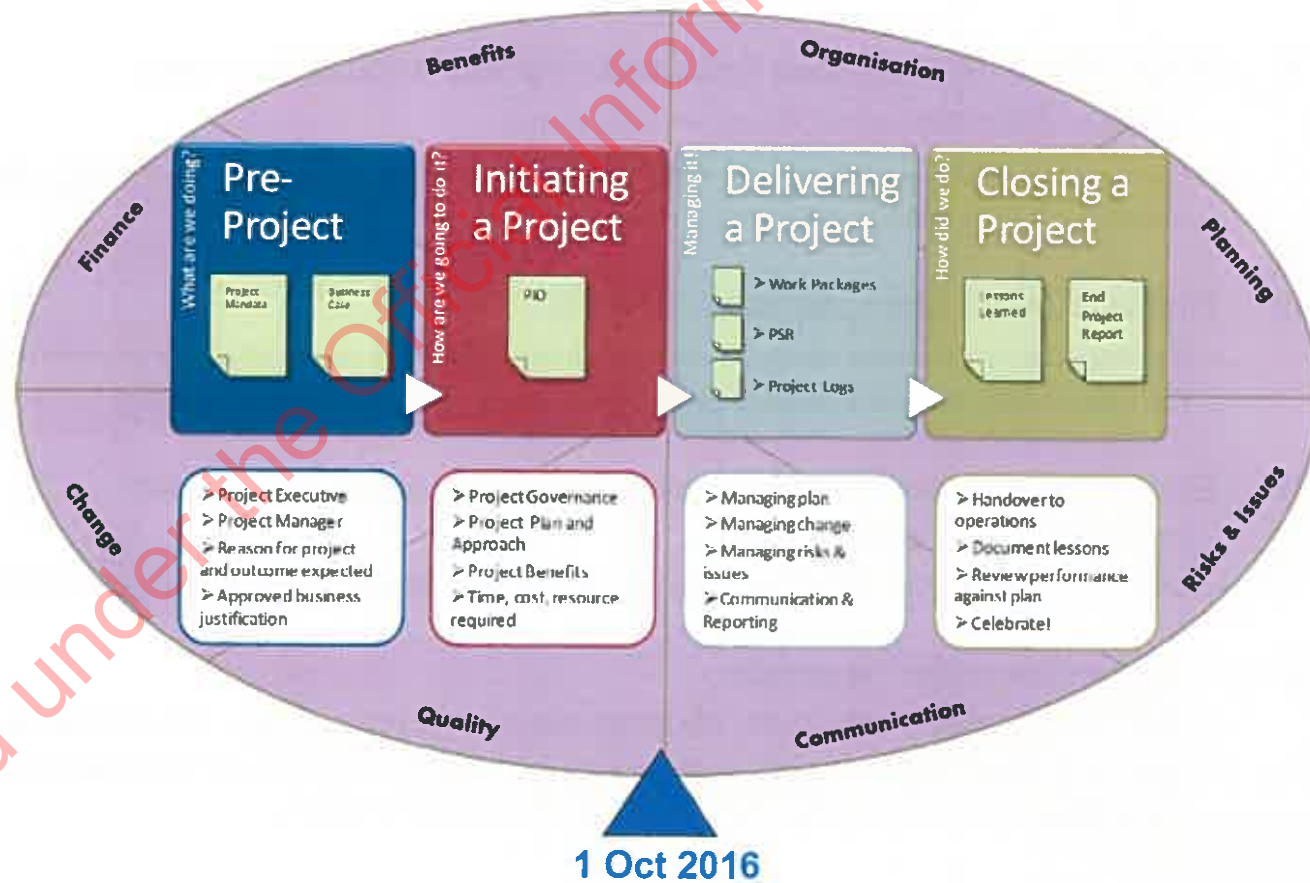
*Fully mobilised means the programme of work defined for the NBSP, relevant programme structure in place (with key roles filled) and programme governance established and functioning such that they can sign-off the NBSP Project Initiation Document (PID), per PRINCE2 Methodology.

1 Oct 2016

- This is a critically important programme for the people of New Zealand. All of the individuals and parties that we encountered in this review indicated that they understood its importance and want it to succeed.

> New Zealand has the highest rates of Bowel Cancer in the OECD with Southland being the worst affected area. Over 3000 Kiwi's will be diagnosed with bowel cancer this year and over 1,200 will die from it. Bowel Cancer is the most commonly diagnosed cancer in New Zealand, more than breast and prostate combined.
>
> 90% of patients lives can be saved if the bowel cancer is caught early enough.

http://www.bowelcancerfoundation.org.nz

- It's also a challenging programme from a delivery standpoint given the scale and nature of change involved, the range of stakeholders involved and likely media interest in the programme.

- The NBSP must be seen and managed as IT-enabled business change: information technology is integral to implementing Bowel Cancer Screening nationally. However, the programme must drive IT, not the other way around.

- The next 3-4 months is crucial. Time lost in the first 3 months can never be recovered. Conversely, rapid and effective mobilisation can provide the platform for the programme's success.

- We hope this report is of assistance to the Ministry as it mobilises for success.

Appendix

Acknowledgements

We wish to thank Giles Southwell (Chief Technology and Digital Services Officer) and Jill Lane (SRO) who co-sponsored this review for their helpful direction and assistance, as well as the following people who contributed to the review:

Team	Members
MoH	Deborah Woodley
MoH Screening Unit	Astrid Koornef, Jane O'Hallahan, Sian Farr
NBSP programme team	Stephanie Chapman, Karen Evison, Helen Gower, Eng Chew, Jessica Smaling and Dr. Susan Parry (NBSP Clinical Director)
Waiteemata Pilot Team	Gaye Tozer, Ann Buckley
Argonaut (Pilot system vendor)	Jason Reid
MoH IT team	Edwin Lau-Young, Martin Hunter, Jasmine and Pat Ryan
DIA	Sukhin Rai and Stuart Godwin