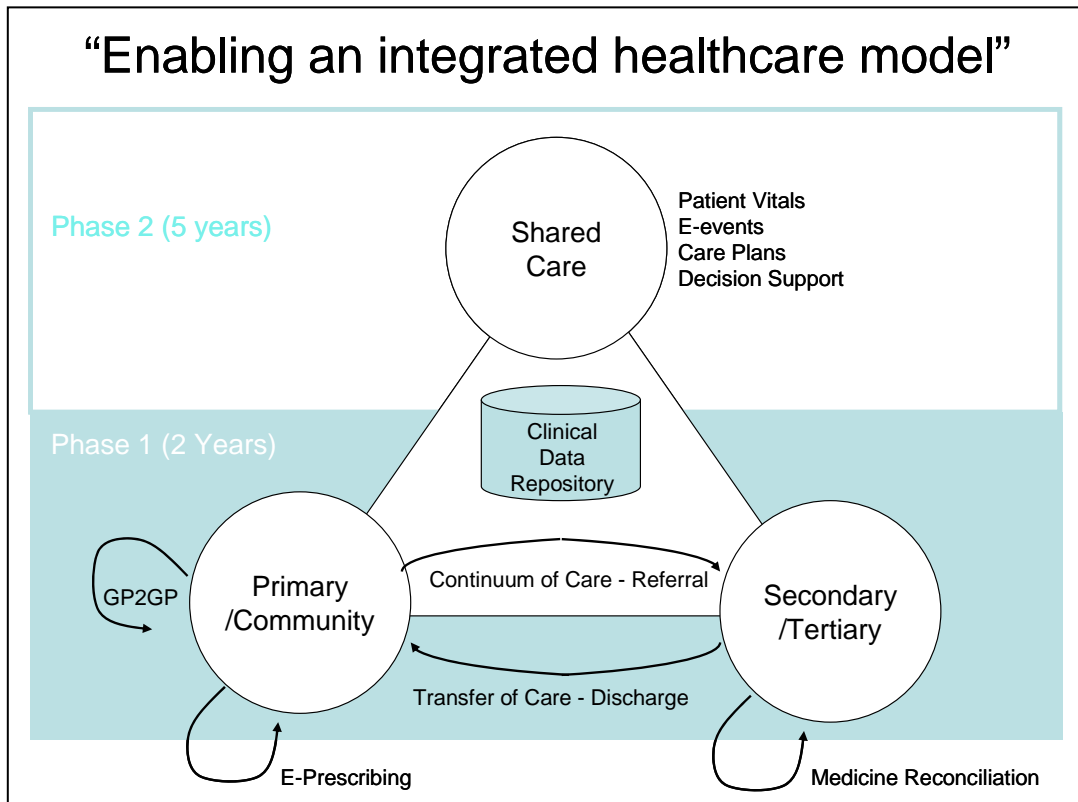


National Health IT Plan

Draft for Discussion

April 2010



ITHealthBoard

Authors: Graeme Osborne
Tony Cooke

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1 Introduction

The Minister of Health, Hon Tony Ryall received advice from the Ministerial Review Group Report in July 2009 that the leadership of health IT must be strengthened within the context of improving the overall performance of the health system. In October 2009 the Minister directed the newly formed National Health IT Board to create the first National Health IT Plan for the sector, based on achieving the eHealth Vision¹:

*“To achieve **high quality health care and improve patient safety**, by 2014 New Zealanders will have a core set of personal health information available electronically to them and their treatment providers regardless of the setting as they access health services.”*

The National Health IT Board understands that it will take more than a national plan to achieve the vision. Equally, without a plan we will fail. The challenge therefore is to create a plan that drives a culture of innovation, partnership and respect to support health sector leaders to make appropriate health IT investments in the context of the whole sector. Like any long term plan we must build a strong foundation first.

Person-centred healthcare has been a mantra within clinical circles for more than 10 years, yet the information solutions to support this have not materialised. Every day clinicians are managing patient care, while working around the fact that information is held in separate locations, creating barriers to a better, sooner and more convenient health experience. The plan recognises the critical role clinicians play in leading the development of integrated clinical pathways to improve the design and operation of health IT solutions.

New Zealand does not have the luxury of continuing with the fragmented, organisation centric approach to health IT investments. Economics, demographics and scientific discoveries are stressing health systems both here and around the world. The benefits on offer to the health system by utilising information more effectively must be captured by: enabling new models of care, improving patient safety, or, through other general productivity improvements. We must also develop the human capability to identify opportunities and achieve desired outcomes.

Many insights have been gleaned from formal meetings with leadership groups and informal discussions with individuals who have extensive front line experience in the health system. I trust that we have reflected your ideas appropriately in this first draft of the National Health IT Plan and that after reading it you will see some of your own thinking in it. Most importantly, I hope you are engaged in the challenge of achieving the eHealth Vision.

Please take time to read this plan and understand both the priorities set out as well as the impacts it could have on the way healthcare is delivered in your part of the health system. I welcome your engagement and feedback on this, the draft National Health IT Plan.

Graeme R. Osborne, Director - National Health IT Board

PS. To the members of the National Health IT Board, thank you for your support and guidance.

¹ National Health IT Board (formerly HISAC) eHealth Vision Statement, Feb 2009

2 Strategic Drivers

On a range of measures, the public funded New Zealand health system compares relatively well internationally.

In the past 30 years, strong uptake of information solutions by individuals and organisations across the health sector helped to create a health information system which was the envy of the world. A National Health Index (NHI) since the early 1980s, a national cancer register dating back to the 1930s, and by the end of the 20th century almost universal usage of computer systems by General Practitioners, are a few examples.

However, the investment in the next generation of health information solutions has reached a plateau and the way forward is not so clear. Early adoption and successful use of early generations of health information solutions may mean that it has taken longer for the sector to recognise the lack of recent progress.

The Ministerial Review Group Report (July 2009) states that we can do better. In particular the sector has a significant way to go in transforming its services into 'patient or person-centred' and has not made the most of the opportunity to gain healthcare service improvements through the leadership of clinicians and their clinical networks. In addition, the fragmented nature of the relationship between healthcare service delivery; and the managers of capital investment, workforce planning and health IT solutions are holding back the potential of the NZ health system.

Health sectors around the world are challenged by the increasing cost of healthcare caused by a range of drivers. The most significant are:

- aging populations
- global competition for an increasingly expensive medical workforce
- increases in the prevalence and complexity of chronic illness
- advancements in medicine and science
- increased public, consumer and patient expectations.

It is clear that health IT solutions can and will play a significant part in supporting, enabling, and in some cases creating, sustainable healthcare solutions for the future. For example involvement of patients in their own care can only be enabled through access to their own information.

One of the weaknesses of the health system is that we do not take the time to design, make explicit and implement better models of care. Information solutions are both a barrier and an enabler. They are a barrier because they are not delivering required information to the clinician and patient at the point of care. They are an enabler because they are a prerequisite to supporting an integrated model of care.

Another weakness is that there are too many initiatives and individual projects without taking the context of the whole "system" into account. A stronger sense of the direction has been created recently by the Minister of Health, in response to a scarcity of resources and the need for sustainability in the face of increasing demand. Our only option is to rigorously prioritise our work plans in order to maximise available resources and progress.

2.1 Prioritisation

We have established links to the following health sector priorities as part of the planning process:

1. Minister's six health targets:
 - Shorter stays in emergency departments
 - Improved access to elective surgery
 - Shorter waits for cancer treatment
 - Better help for smokers to quit
 - Increased immunisation
 - Better diabetes and cardiovascular disease service.
2. National Services and Vulnerable Services
3. Better, Sooner, More Convenient initiative
4. Shared Services Opportunities.

The plan will support these health priorities, although notes that one investment in a health information solution often supports a number of health priorities, however the links are not always direct. Conversely, several information solutions may be required to support one priority.

The plan uses 'focus areas' to make the link between these priorities and the projects that make up the plan.

3 Purpose

“The next generation of health information solutions must be person-centred, optimising the patient’s experience as they engage with the health system through a range of clinical pathways.”²

The principal challenge of a health IT strategy is not necessarily the strategy itself but how it is delivered. Previous strategies have gained support and international recognition and yet implementation of the information solutions identified, have been problematic and have fallen short of expectations.

The National Health IT Plan sets out to meet the implementation challenge by drawing together the diverse strands that make up the health sector IT today, and placing them into a coherent programme of work over the next 5 years.

The plan will define and progress the development of a sustainable, effective nationwide information and technology environment that

- fosters safety and quality care
- is person-centred
- is provider-friendly
- increases productivity of the system as a whole.

² *Innovators Prescription* – Clayton Christenson, 2009

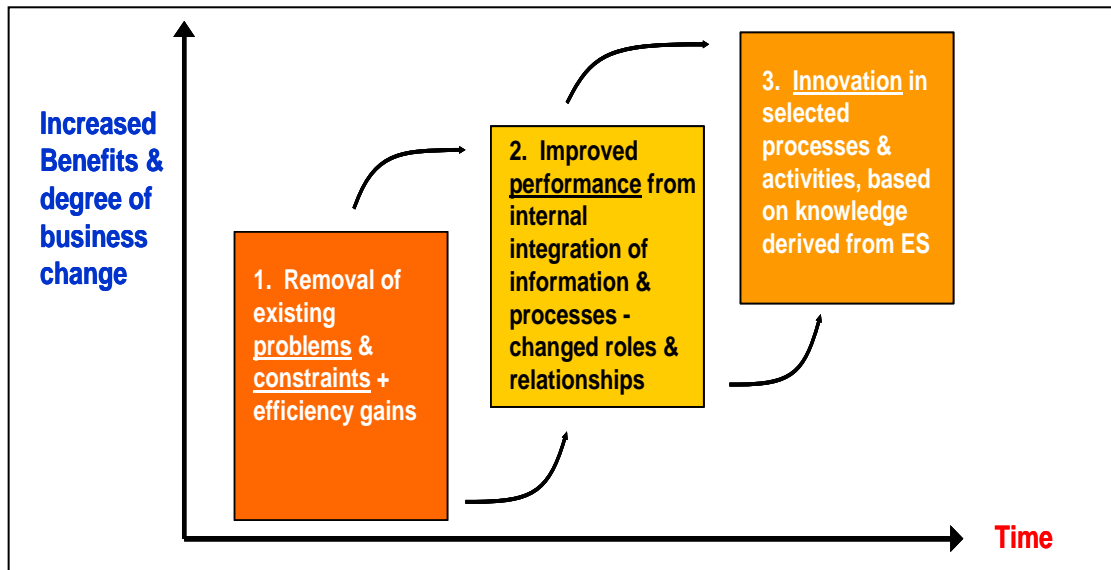
4 Our Approach

The National Health IT Board has identified the following success factors:

1. The engagement of clinicians and health workers in identifying opportunities for healthcare quality improvements and in solving related problems by agreeing on new or improved models of healthcare delivery
2. Engaging with healthcare IT vendors in an open and transparent way to develop health information solutions that enable the new models of healthcare delivery
3. Information solutions must be certified against agreed standards to ensure information can be shared securely and safely.

What is different about this plan is:

1. It is strongly aligned to the plans of the National Health Board, and plans of the other NHB sub-committees responsible for workforce and capital, the future Quality and Safety Commission and the Shared Services Establishment Board
 - a. Information solutions need to support the long term planning framework for health service design
 - b. Investments will be focused on a small number of key projects coordinated across the District Health Boards, Primary Healthcare and the Ministry of Health.
2. Clarity of thinking around sharing patient information and involvement of consumers. The principle is that health information is owned by the individual person / patient, with clinicians and health organisations having the role of custodians of that information. However, this principle does not change the understanding that clinicians should share information to maintain continuum of care for patients (using their professional judgement).
3. Accountability for delivery of the plan is owned by sector leaders. The plan works on the basis of tight-loose-tight. It is tight on priorities and expectations of what is required and who is accountable. How the deliverables in the plan are achieved is the responsibility of the owner of each initiative/project in the plan. The IT Board will be tight again on monitoring and reviewing the benefits and results of each initiative and the plan as a whole.
4. A planning approach which understands that incremental change leads to transformational change. The three phase interactive planning model developed by Dr Peppard of Cranfield University illustrates in the following diagram.



The approach acknowledges that there is a high level of frustration in achieving a national approach to person-centred health information. We must learn from previous approaches to investing in health IT solutions over recent years that have not achieved the results expected. In New Zealand that has included: WAVE (2001), the Health Information Strategy (2005) and most recently Key Directions and the National Systems Development Programme.

We need to learn from international efforts in similar countries to ourselves, namely Canada, Denmark, Scotland and Wales, and engage with them where appropriate.

4.1 Alignment with other plans

This plan aligns with the National Health Board plan by:

- Prioritising health IT investments that support the delivery of national services
- Aligning this plan with the DHB regional planning
- Engaging in the long term planning of health services

This plan aligns with the Workforce plan by enabling:

- Greater efficiency of human resources
- Supporting change in practices eg. Nurse prescribing
- Job satisfaction and safer medical practice
- Pooling of scarce human resource eg. enabling remote access and access to specialised skill sets.

This plan aligns with the Capital plan by:

- Consolidating to less instances of high cost information solutions
- Consistent long term planning for a capital intensive part of the sector
- Reallocation of existing capital investment intentions to a reduced number of longer term sustainable investments.

5 Governance

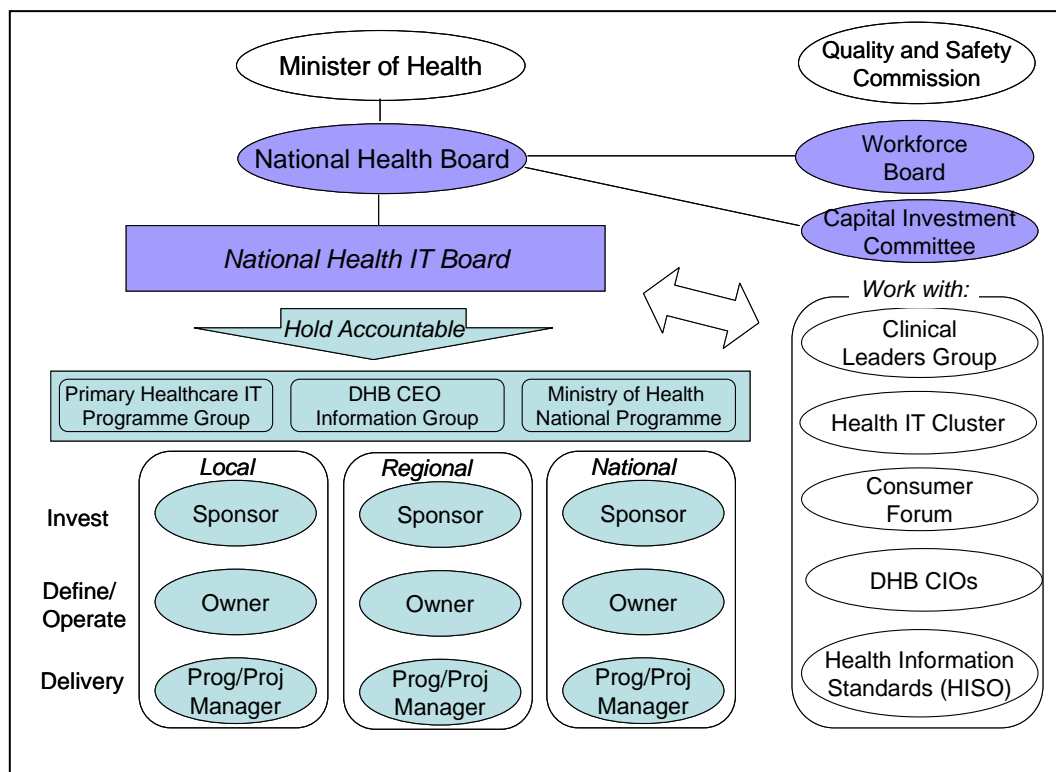
Overall governance of the National Health IT Plan is the responsibility of the National Health IT Board, supported by a number of key sector groups representing: clinicians, consumers, DHBs, primary care and vendors.

Governance is about leadership and oversight. The challenge for governors of this plan is to:

- ◆ Encourage, shape and bring together diverse opinions to create a clear sense of direction
- ◆ Have the courage to sustain investments over a period of time to provide the platform of transformational change.
- ◆ Maintain energy and interest amongst stakeholders and remove barriers to progress.

There are three bodies accountable for delivery of the plan: DHB CEO Information Group, Primary Healthcare IT Programme Group and Ministry of Health National Programme.

The following diagram represents the groups that the board will work with and hold accountable to achieve the Health IT Plan.



It will be critical that national standards are agreed for new or improved models of care, clinical pathways and information. This is why the Clinical Leadership Group has been established reporting through to the National Health IT Board.

A strong partnership with health IT vendors is important for the success of the plan. The Health IT Cluster and the National Health IT Board are working together to establish a joint understanding of priorities, plans, standards and opportunities.

6 The Plan

Ministerial Review Group Recommendation (July 2009):

“The National Health IT Board will, on behalf of the NHB, work with the sector to develop a National IT Plan (including a national IT architecture framework) to advance HISNZ. This plan will be a rolling plan with local, regional, and national views, and a short, intermediate, and long-term perspective that it is aligned with the National Health Workforce Plan and National Health Capital Plan”³

More recently the government has stated that it is “committed to ensuring that New Zealanders get better, faster and more convenient health services and information technology has a key part to play in enabling us to achieve this.”⁴

6.1 eHealth Vision drives a Two Phase Plan

*“To achieve **high quality health care and improve patient safety**, by 2014 New Zealanders will have a core set of personal health information available electronically to them and their treatment providers regardless of the setting as they access health services.”*

In order to achieve this vision, we have developed a two phase approach:

Phase 1 Consolidate, Co-operate and Foundation

(Jan 2010 – December 2011)

Focuses on delivering key solutions to provide the:

- easy access to health information
- transfer of health information between healthcare organisations
- capture of clinical event information into a regional clinical data repository
- improvement of primary healthcare practice management systems
- consolidation of systems used in secondary and tertiary settings into regional platforms.

Phase 2 Shared Care (March 2010 – December 2014):

Will commence with a design and proof of concept phase and will deliver a Shared Care capability covering:

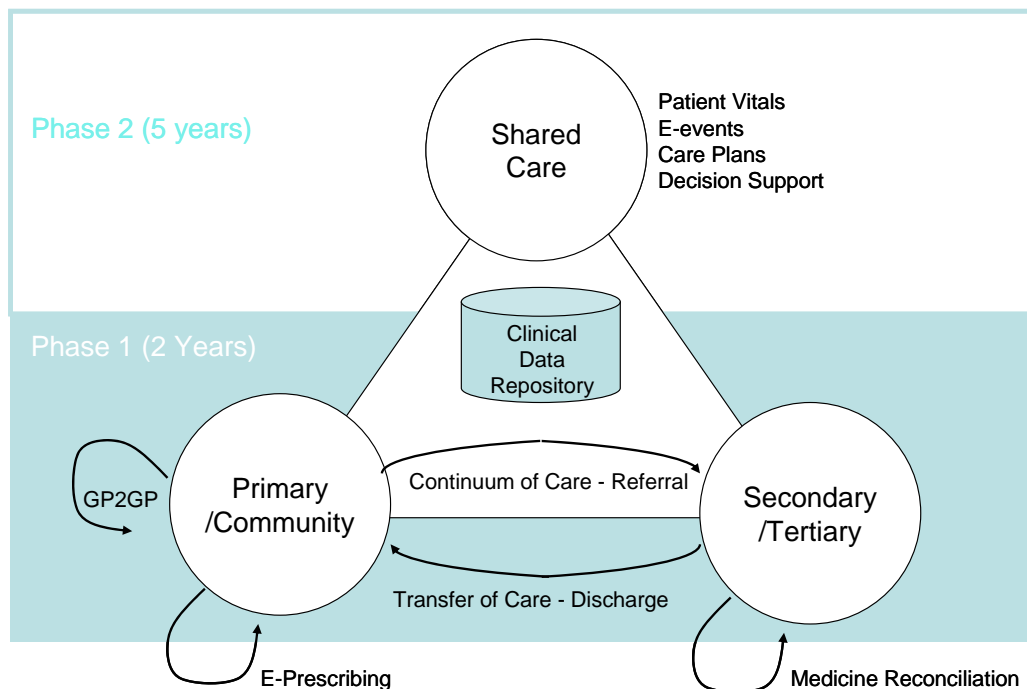
- Patient Vitals: This is historical patient information eg. Demographics, problems, medications, warnings and access to more detailed e-events (labs, radiology and medication history)
- Care plans: This is future patient information that captures the plan for the patient’s future course of care. The single plan incorporates the need for a multi-disciplinary approach to support integrated care
- Decision support: Supporting reference information to support the optimal delivery of care and clinical risk assessment.

³ MRG Report, Annex 3 Recommendations, July 2009

⁴ Jonathan Coleman, 2 October 2009, Speech to open Health Informatics NZ Conference

The eHealth Vision is based on the assumption that over the next 5 to 10 years, a shared care record is complementary to the health IT solutions utilised by healthcare organisations to operate their business.

“Enabling an integrated healthcare model”



In Phase 1 we continue to support the current activity in the sector focusing on the Continuum of Care which includes: e-referrals, transfer of care, safer medications management and improving primary care systems. This will create a standard set of interfaces that will feed into regional clinical data repositories.

Phase 1 has a stretch goal of ensuring each region has a foundation set of systems and platforms. There is a recognition that not all health care organisations, or their regions, are starting from the same position. This phase is about bringing each of the regions up to the same level.

We think that this is achievable in an 18 month to 2 year period, but we will reassess this target after the regional plans have been developed.

In Phase 2, we start to develop the concept of a shared care record. Based on the experience in Denmark, the creation of a core set of personal health information that can be trusted by an individual and their carers, is directly related to the quality of the information being transferred (event information) between healthcare organisations. This is the function of the regional clinical data repository.

It is expected that this phase will be a series of iterative steps where multi-disciplined care teams agree specific health pathways for specific conditions. Possible early candidates for this approach are maternity care, early childhood, and chronic conditions.

The benefits that will be enabled by this approach include:

- Measuring the outcomes of care and make it visible to clinicians.
 - This information will act as a catalyst for changes in practice
- Information to support consist of diagnosis and treatment
- Reducing rework, retesting and multiple data entry
- Facilitating patient self management, remote monitoring and telemedicine
- Providing a means to generate follow-ups, alerts and medical warnings.

6.2 The six focus areas of the Plan

The plan focuses on six process areas that we believe will generate the most benefits and where there is the greatest opportunity to make an impact. Therefore the emphasis is on developing clinical information solutions. The selection has been made to balance support for current initiatives, while also setting a direction for the future. The areas cover key needs in the delivery of information and applications.

Quality Information for Primary Healthcare

The information models for the health sector need to change from a fragmented approach to a 'bottom up' model that recognises the different ways information can be utilised by different users. The key principle behind this focus area is that each healthcare organisation is responsible for investing in the right information solution needed to support their service. It recognises the custodian role each organisation plays to safely, collect, store, make available and maintain patient information according to agreed standards.

Projects of interest: Quality Improvement for Primary Healthcare, Practice Management System requirements study, Map of Medicines review, new screening initiatives.

Benefits: Reduces Transcription error, reliable communication and transfer of patient information, Improves quality of patient information.

Continuum of Care

This is a foundation for shared care. Health Information solutions need to recognise that healthcare is continuous, however there are also recognised hand-over points. This focus area starts to drive the development of standards for the core patient summary data and a safe clinical process for the hand-over of care. It also includes a component of medication information.

Projects of interest: GP2GP Information Transfer, e-referrals, e-discharges, after hour's access to primary healthcare information, GP access to hospital based clinical information.

Benefits: Measures quality, Improves co-ordination between practitioners, Supports improved skills and knowledge.

Safe Medications Management (SMM)

A programme called safe medication management is already in place to address significant issues with the safe use of medications. The initial goal to implement electronic medicine reconciliation at the point of entry and exit to/from hospital care. This plan supports e-prescribing, dispensing, medicine reviews in the hospital and extends it into the community.

Projects of interest: Medicine reconciliation, e-referrals (medicine information), e-discharges (medicine information), community e-prescribing.

Benefits: Reduces adverse medication events, Improves use of medicines.

Clinical Support

Information solutions are required to support a single sign-on, fast, easy to use, common view of detailed clinical data to support diagnosis and treatment. While supporting access to information for all authorised clinicians, this area mainly focuses on secondary and tertiary care.

Projects of interest: Clinical workstations, clinical data repositories, RIS/PACs, laboratory systems, specialist clinical systems.

Benefits: Improves access to diagnostics, Cost savings through reductions in repeat tests, Better use of workforce (after hour's radiology).

Safe Sharing of Information

Safe sharing of health information is only possible with a robust and reliable data and network infrastructure. This will involve the implementation of the already agreed policy on the safe sharing of information (Health Information Security Framework).

This area is made up of a set of enabling investments that underpin the other focus areas. It is a necessary pre-requisite for the development of a shared care plan.

Projects of interest: Recipient and Provider Identity (NHI, HPI replacement), Connected Health, Shared Care Plan

Benefits: Allows interoperability through identifiers and standards enables shared care record, increases patient responsibility through access to their own record.

Patient Administration

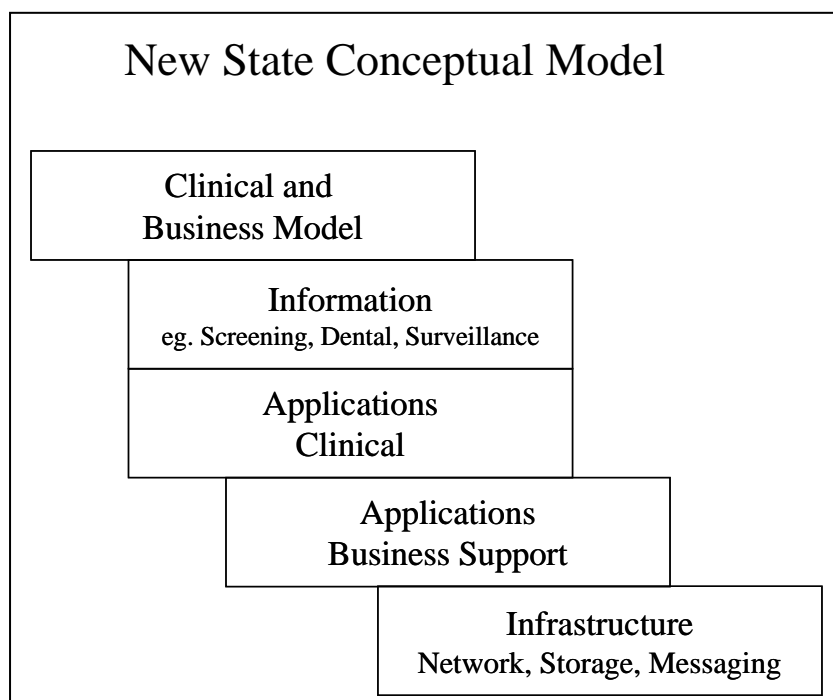
There are a number of DHBs who operate patient administration systems which will shortly no longer be supported by the vendor. These are core systems within that manage patient information including: demographics, appointments, medical records coding and tracking where the patient is in hospitals. It is difficult to build clinical information systems without getting this core application in place. These are large and complex projects that typically take up to two years and require significant investment. There are opportunities to consolidate on a limited number of software solutions and move towards consolidated solutions at a regional level.

Projects of interest: Replacement of legacy Patient Administration systems, improvement of business processes to optimise the patient journey.

Benefits: Reduces the costs and risks of legacy systems, enables more streamlined patient services.

6.3 Conceptual Model

A new way of conceptualising the overall information solution for the health sector is to understand it as a series of stepped components all linked to one another. One component cannot exist without the other. The top components drive the configuration/shape of the lower components. Typically, many functions of the lower components are required to support even a single component at the top level.



The conceptual model has been utilised to split the plan into digestible components as set out in the diagram above and described more fully in the following table.

Component/Layer	Description	Example(s)
Clinical and Business Model	This describes how clinical and business work flows at a high level. It defines how national, regional and local services will be delivered.	Integrated Care Model
Information	This is the information required to support the clinical and business model. It helps build knowledge and capability in the workforce.	National Collections Screening, Patient information, Decision Support
Applications	These are the applications which working together support the information required to support the clinical and business model. There are two classes of applications; clinical and business support	Electronic Health Record HR/Payroll
Infrastructure	This is the supporting infrastructure required to run and access the applications	Hardware, operating system, network, security, datacentre, data standards

Example: information requirements for Cardiothoracic Surgery

Firstly, in the top component, there is a requirement for a clear and consistent model of clinical care which involves screening and access to cardiothoracic services, surgical treatment, followed by rehabilitation and lifelong maintenance.

Then, the clinical information to support this model will be a set of data which has the following components:

- Vital patient data – required as common reference information on the patients medical condition eg current medications, current problem list, current allergies
- Speciality patient data (tests, co-morbidities) – required to treat heart disease
- Sub-specialty patient data – required specifically for cardiothoracic surgery.

In addition a clinical pathway will help define the journey that a patient with this condition should make through the health system (regardless of location or referred practitioner). This will form the basis for the patient's customised shared care plan.

Given that this is a national service, the information needs to be available to clinicians wherever they are practicing, and to patients wherever they are living. Clinicians and patients will therefore need a "view" of the patient's information which is tailored to their needs.

The data itself will be collected at source, and added to the regional clinical data repository where the patient resides. Clinicians (even if outside the region) will have access to this information, and also to a combined national view if the patient has relevant information sitting in more than one region. The clinical applications which support the process of treatment may be different, but will nevertheless store the data in the regional repository in a standard way. The regional repository will then "present" a view in a standard way to applications wanting to access the patient's data.

Some of the infrastructure required to support this scenario will require a common patient identifier (the NHI), an authorised user (verified through the HPI), a standard view which is based on standard data item types (common list of medicines or procedures, etc) delivered over a national network which is available 24 hours a day, 7 days a week. Also an audit trail of access will be created to allow the patient visibility on who has accessed or updated their data and when.

6.3.1 Clinical/Business Model

The clinical and business model which health sector information solutions need to support are discussed in other sections of this plan, however some of the highlights are:

- Reduce patient harm
- Improve timeliness of preventative actions and interventions
- Reduce unnecessary medical and/or surgical intervention
- Develop standard clinical and business models for national services

- Enable patient self-management – make patients co-producers of their own health care to take the burden away from a diminishing and aging health workforce
- Multi-disciplinary care plans to manage complex long term conditions
- Greater standardisation and consistency of service delivery to improve quality and efficiency
- Economies of scale to achieve sustainable and cost effective services in the face of growing demand.

6.3.2 Information

Information is an essential ingredient of an effective clinical and business model. Information acts as the aide memoir to good health care. Computerised information management allows data to be selected, and presented in the right context and the right time to make it useable. Information supports good clinical decision making; it enables a planned approach to the patient's care; it enables practitioners to measure outcomes and improve their clinical practice over time; it enables research into new and better treatments.

The plan endorses information solutions which support the following functions and their associated outcomes.

- Clinical decision support – providing the practitioner with a clear set of diagnostic or treatment options
- Clinical pathways – providing the practitioner with an evidence based plan on which to base the patient's individual care plan
- National collections – measuring outcomes; recording use of procedures and medications; recording mortality and cancer incidence
- Screening – checking otherwise healthy individuals, and referring for early intervention where appropriate to help prevent the onset of chronic illness or loss of life
- Immunisation – applying preventative treatment to avoid the onset of communicable diseases
- Quality indicators and clinical audit – measuring the quality of care and benchmarking the practitioner or practitioner team to a recognised standard of care
- Primary Care – recognising the importance of high quality primary care data and processes as the anchor for the delivery of effective patient care.

6.3.3 Applications

Applications are the software tools used to process and manage information. They are the modus operandi of computerised data collection and digital presentation.

Applications typically perform specialised functions and support specific processes which are required to be adhered to. Hence a finance system enshrines the doctrine of double sided bookkeeping and helps “freeze the process” around this methodology to prevent arithmetic errors. Administrative and medical applications have the potential to do the same, except the rules are not yet clearly defined. Medical applications are in a period of rapid development and increasing functionality. The

downside of this evolutionary process is that it is hard to pick winners, and the requirements keep changing as the script is only partially written.

Applications are divided into two broad types; clinical applications which support patient care, and business support applications which support traditional business functions such as financial accounting, payroll and procurement.

The plan has been selective about the clinical applications it wants to focus on as it endeavours to tackle those investments of most overall value to the sector. Five focus areas have been selected for further investment and standardisation over the next two years.

6.3.4 Infrastructure

Infrastructure is the foundation upon which applications are run. They are the roads and railway tracks of computer systems. Without strict standards in this area, chaos can ensue. To illustrate this point, imagine a NZ with three different gauges of railway track. This means that each engine and carriage can only run on its bit of track. When moving to a different sized track, the wagons have to be unloaded and then reloaded on to a different track. Engines and carriages cannot be re-used on other tracks and without considerable delays and costs involved in conversion. This is why a nationally standardised infrastructure is so important.

6.4 Current State

The NZ health ICT sector is characterised by a large number of individual systems dispersed amongst DHBs, central government agencies, primary care, Private Hospitals, Rest Homes and a large number of Non-Government Organisations (NGOs). All are “patient-centric” in their own right, but when attempts are made to view the information about a patient as a whole, it is quickly apparent that the information is so fragmented and inconsistent that, like assembling a jigsaw puzzle with missing pieces, it becomes an impossible task.

Even where larger, more integrated systems exist within DHBs, there is much duplication of data and function. Information is retrieved and processed in an inconsistent manner leading to unnecessary variation. Furthermore, the same system implemented at a number of providers is not necessarily compatible. This is because of the ability to customise the configuration and data within the same type of system. Often customisations are introduced to support local requirements which have grown up in response to local knowledge and circumstances rather than in response to good practice and standards.

Investment in information systems has been uneven. Some health organisations have achieved significant gains and clinicians have a high dependency on systems which then drives further demand and investment, especially on the infrastructure required to support an increasing number of users, storage and availability. Other organisations continue to soldier on despite under-investment and a lack of resources or scale. However this leads to constant fire-fighting where success is counted as keeping your head above water rather than making any forward momentum.

However some gains have been made, especially through convergence within regions on a common set of systems. This has enabled a degree of co-operation and knowledge sharing amongst IT staff supporting the same type of software.

Regional networks are in place, and recent years have seen an increasing number of systems hosted externally.

Some of the risks and barriers to progress in the current state have been recognised as;

- A complex suite of systems which all try to co-exist but do not readily talk to one another. The affect is that of an island archipelago rather than an intact “land” mass of information. Such fragmentation has led to independent development of many solutions to essentially the same set of problems.
- An unmet demand for improved infrastructure to support 24 x 7 access to information by clinical users who are critically dependent on the computer systems to perform their tasks. In many organisations, items such as lab results, clinic letters, and images are only held electronically.
- A lack of clear direction and consistency in approach. DHBs have operated as autonomous entities each making decisions about their own system solutions and configuration. There is no master plan which recognises the investment and effort which needs to be made for all health care organisations.
- A lack of recognition and understanding from executive leadership about IT priorities and long term investment requirements.
- Maintaining a balance of skilled and knowledgeable staff in a climate where such skills are sought after by other organisations willing and able to pay more. Also such specialist skills are hard to find outside of the major urban areas.



A survey of the current systems environment (primarily for the 21 DHBs) has been conducted. The survey identified 90 different functional categories, each of which represents a system or a functional module of a system.

The diagram above breaks down this complex picture into meaningful focus areas. It maps applications/systems into seven broad areas of similar functionality.

The difficulty this presents for health sector information management is that if each functional area represents a system, then to achieve an integrated care model, the number of interfaces becomes very large and complex resulting in an environment which is very complex and costly to maintain and modify to changing requirements.

6.5 Future State Goals and Objectives

One way of reducing this complexity is to reduce the overall number of instances of each application, and thus the number of interfaces that have to be maintained. This is a key design objective of this plan.

To migrate from current state to future state the plan sets the following goals:

1. Population Health and Shared Care functions need to be delivered as national systems.
2. Some Public Health functions such as screening need to stop building separate systems and instead develop registers, and supporting processes, based on populations of interest (eg. children under 5 years of age). They need to leverage data from existing clinical information systems.
3. Clinical Support, Clinical Management, and Patient Administration functions need to be delivered regionally.
4. Business Support functions need to be delivered as one or two instances nationally.
5. Infrastructure needs to be delivered as a mix of national, regional and local components all working according to the same technical and operational standards.

In the following tables, italics are used where the project is planned but not yet approved or scoped.

6.5.1 Information Objectives

The plan seeks to address major gaps in good quality information across the sector. The focus is on standards for primary health, and national standards for all categories of health information.

The following investments in **Quality Information for Primary Healthcare** are proposed.

Projects	Objectives	National/Regional Implication	Lead Agency	Delivery Date	Milestone
PMS Requirements Study	Define a set of requirements for General Practice Management Systems.	The 5 main PMS systems will be certified against these requirements.	GPNZ	Jul-2010	Requirements agreed
	<i>Implement changes to PMS systems and certify them.</i>	<i>New standards will become part of general practice systems</i>	<i>Vendors</i>	<i>Jun-2011</i>	<i>National rollout completed</i>
QI4GP	Design and implement a primary healthcare information model.	A set of health data for primary care which can be used to maintain quality indicators	RNZCGP	Jun-2011	Dataset agreed
Map of Medicine evaluation	Evaluate Map of Medicines for use in the New Zealand primary healthcare environment	Evaluation may recommend use of the tool	RNZCGP	Jul-2010	Evaluation completed
<i>Clinical Pathways</i>	<i>Development of standard clinical pathways across primary and secondary sectors</i>	<i>A common approach to the development of clinical pathways co-ordinated regionally</i>		<i>Jun-2012</i>	<i>Clinical Pathways in use</i>
Data Concepts Dictionary	Define a common set of data elements used throughout the health sector, focussing on the high value clinical information initially. Use GP2GP and SMM projects as starting points.	Standardised clinical dataset published and available for use in data collections and systems. Forms the basis for standardised interfaces between systems.	NHBBU	Sep-2010	Initial set of standards HISO endorsed and published
<i>Core National Data Standards</i>	<i>Embed core national data standards for reporting and transfer across all health care systems</i>	<i>Common data standards are widely used throughout systems in the NZ health sector</i>	<i>Vendors</i>	<i>Jun-2014</i>	<i>Core standards in use</i>

6.5.2 Clinical Application Objectives

The plan has been selective about the clinical applications it wants to focus on as it endeavours to tackle those investments of most overall value to the sector.

The following investments in **Continuum of Care** are proposed.

Projects	Objectives	National/Regional Implication	Lead Agency	Delivery Date	Milestone
GP2GP	Transfer a patient's healthcare record from one GP system to another electronically.	Patients can move their complete health record between any GP in NZ	GPNZ	Nov-2010	Electronic transfer in use
E-Referrals	Phase 1: Implementation of electronic referrals on a regional basis.	Centre of excellence for e-referrals. Will use similar approach in other regions.	Auckland DHBs	Nov-2010	GPs can refer electronically to all services
	Phase 2 & 3: End-to-end e-referrals solution including decision support		Auckland DHBs	Dec-2011	End-to-end electronic use
	<i>Standardised e-referral templates available</i>	<i>All GPs have the capability of generating an e-referral to secondary care</i>	<i>All DHBs</i>	<i>Jun-2012</i>	<i>E-referrals in use</i>
E-Discharges	Develop a transfer of care standard between secondary and primary	Clinically led national standard agreed	CLG	Jun-2010	Standard specified and agreed
	<i>Implement transfer of care standard. Allow GPs to upload information from the discharge summary.</i>	<i>GPs will see the same format for discharge summaries across NZ</i>	<i>All DHBs</i>	<i>Jun-2011</i>	<i>E-Discharge standard in use</i>

The following investments in **Safe Medications Management (SMM)** are proposed.

Projects	Objectives	National/Regional Implication	Lead Agency	Delivery Date	Milestone
Universal List of Medicines	Create Universal List of Medicines	ULM becomes embedded within information systems in the sector	Pharmac/ Medsafe	Jun-2010	Pilot use in pharmacy systems
Medicines Reconciliation	Pilot of electronic medicines reconciliation using Medchart (iSoft) and eDS (Orion)	Will provide lessons learnt for electronic MR for other DHBs	Taranaki/ Counties		Pilot use in two DHBs
E-Medications	Pilot of E-Medications (e-prescribing, administration and review)	Will provide lessons learnt for e-medications for other DHBs	Otago		
<i>E-Medications Rollout</i>	<i>E-Medications rollout across Primary and Secondary services</i>		<i>SMM</i>		

The following investments in **Clinical Support**, **Safe Sharing** and **Patient Administration** are proposed.

Projects	Objectives	National/Regional Implication	Lead Agency	Delivery Date	Milestone
Hospital Laboratory	Replace old hospital laboratory system.	Three other DHBs in Midland requiring to replace their systems will use this instance	Waikato		New system in use
Regional PACS	Implement PACS archive (Carestream) for Central Region allowing images to be shared, and economies of scale for DR/Backup		Cap Coast		
Regional PACS	Implement common RIS and PACs solution (Agfa)		Auckland DHBs		One instance in use in 3 DHBs
Oncology	Investigating one national system				
Cardiothoracic	Investigating one national system				
Renal	Investigating one national system				
Shared Care Plan	Develop prototype for shared care plan in partnership with lead vendors				
Safe Sharing Policy	Develop policy for shared care in conjunction with prototype and Consumer Forum				
Recipient Provider Index	Replace NHI and HPI and Address Register with new national system	Allows reliable access to patient and clinician identifiers nationally	NHBBU	Jul-2012	Old NHI & HPI system replaced
Connected Health	Allow clinical users to sign-on once to allow access to patient information across a region		Midland		
Patient Administration	Patient Administration System Replacement	Replace obsolete PAS systems in DHBs			

6.5.3 Business Support Application Objectives

Business Support Application Investments will be facilitated by the Shared Services Establishment Board, but co-ordinated as part of the overall National Health IT Plan.

Possible projects include Finance, HR/Payroll, Email, and Document Management.

Further information, not available at this time, is required in order to complete this part of the plan.

6.5.4 Infrastructure Objectives

Infrastructure investments will be co-ordinated and funded at both regional and national levels.

Possible projects include regional data centres, common authentication directory, implementation of security standards, national licensing for some infrastructure services.

Further information, not available at this time, is required in order to complete this part of the plan.

7 Implementation of the Plan

The National Health IT Board has presented in this inaugural Health IT Plan a new set of health IT priorities within the context of the National Health Board. It is therefore important that the board supports health organisations, at national, regional and local levels, to understand the expectations of the plan and the impact on current plans and commitments.

The plan will be finalised by 30 June 2010, after the discussion period with sector groups has concluded. The more detailed regional planning will be completed by 30 September 2010. Thereafter the regional and national plans will be reviewed annually. A communications plan with key messages and facts will be developed prior to release of the final version in July 2010.

The board will work with the three accountable groups (Primary Healthcare IT Programme Group, DHB CEO Information Group, and the Ministry of Health National Programme) during the period up to 30 September 2010, to develop detailed implementation plans. The initial focus of these plans will be to achieve Phase 1 milestones in the next 18 months.

Centres of Excellence

The approach to implementation will be to trial innovations in different settings where they are most likely to succeed. Support the development of people capability and leverage that capability for national rollouts.

Sector Architecture

A group of sector architects has been formed to develop a detailed national information systems and infrastructure architecture. The group represented members from DHB, primary healthcare and the Ministry of Health to get a comprehensive approach.

Connection across other social services

We will also take opportunities to engage with other government agencies in the areas of Education, Social Development, Housing, and Local Authorities.

8 Measures of Success

Three critical measures of success for this plan are:

1. Clinical Governance:
 - ◆ Clinicians and Clinical Networks confidently lead the identification of quality improvements, the development of new or improved clinical pathways, and the design of information solutions
 - ◆ They partner with sector leaders and IT professionals to deliver 'fit for purpose' information solutions
 - ◆ Improvements in quality and overall health outcomes are measured openly and new improvements are identified for clinical pathways and related systems.
2. Agreed Work plan for health IT investments
 - ◆ A small number of major sector level health IT investments are under development each year based on the priorities identified in national plans and the benefit to the sector as a whole
 - ◆ Current information systems are leveraged to deliver on new clinical and business support requirements
 - ◆ People across the sector will have clarity on whether information solutions are delivered at a national, regional or local level.
3. Supporting Increased Self Care, Care Teams and Remote Support
 - ◆ Support for patient involvement and engagement in their health journey will be a design requirement for new health information solutions
 - ◆ The national shared care information solution will be the natural starting point for the delivery of new health IT solutions
 - ◆ Projects that support workforce issues, for example, effective remote access to specialist clinical expertise, will have a high priority.

9 Issues and Risks

There are a number of current issue and risks, including:

1. Healthcare organisations have already planned their health IT initiatives and projects for the 2010/11 year:

Mitigated by:

- ◆ Clear signals have been provided to DHBs from February 2010
- ◆ Regional planning will be the forum to address the prioritisation challenge.

2. Consumers will have a wide range of views in relation to a single health IT plan extending from frustration with the lack of progress to concern for the privacy of their information.

Mitigated by:

- ◆ The board will engage with consumers through the consumer forum and directly with community groups
- ◆ Privacy impact reviews will be completed on all health IT solutions
- ◆ Projects will need to ensure clinicians and patients are informed about changes to, and the operation of, health IT solutions.

3. Health IT Vendors have had mixed signals and are set up to work with a fragmented sector

Mitigated by:

- ◆ Vendor partnership meetings will be held on a 6 monthly basis to build relationships and reset the model of engagement between the sector and vendors
- ◆ This plan will generate new opportunities for those vendors who are able to demonstrate products and services that enable the objectives of the plan.

10 Appendices

10.1 Guiding Principles

Any successful health information solution has to harness people, process and technology in the right balance.

Overall principles.

- a) The plan is all-of-sector focussed
- b) The plan has a greater emphasis on regional and national systems
- c) The plan aligns strongly with other sector initiatives

The following set of guiding principles will help those directly involved to understand the approach. Many of these were developed as part of a draft Joint District Health Boards and Ministry of Health Work Plan for Information Management and Technology in April 2009.

10.1.1.1 People Guidelines

- The community will understand and support appropriate use of, and access to, electronically stored personal health information
- Health practitioners will have clearly defined roles when collecting, using and sharing personal health information.
- People will be more involved in the collection and use of their personal health information.

10.1.1.2 Implementation Guidelines

- Clinicians are integral to the development and ongoing use of personal health information solutions.
- Information improvements will be prioritised to enable clinicians to optimise their resources (time, facilities and equipment) and focus on the delivery of quality health care.
- Clinical networking and health care support functions (e.g payroll, financial and procurement, IT etc) will be facilitated on a regional or national shared basis.
- Administrative processes will be simplified and automated wherever possible
- Management information (for example, reporting against external contracts) will be a by-product of day to day administrative and clinical work processes (and not an end in itself)
- National consistency of key processes is maintained and information systems can work together seamlessly wherever possible.
- Information requirements for new or redesigned services will be taken into account early in the planning process.

10.1.1.3 Technology Guidelines

- Information will be recorded, stored, viewed and managed electronically throughout the health system.
- Electronic information is centred on each individual patient/person.
- Information solutions will use nationally adopted and agreed standards whenever possible
- Clinical delivery tasks will be made easier and safer through the use of supportive technologies (such as clinical decision support systems).

- Systems and processes will be consolidated and run as shared services wherever possible

10.2 Audience

The audience for this plan is wider than just the IT community. It will require considerable investment so it is targeted at key decision-makers. It will require the support of those who are directly affected by it. It will also be influenced by many parties involved in the use of information to improve the quality of healthcare.

Decision-makers (Funders)	Influencers	Directly Affected
Minister of Health National Health Board C level execs in DHBs (CEO, CFO, COOs) Primary Care Leadership Boards of DHBs Pharmac ACC MoH	Privacy Commission Health & Disability Commissioner Treasury Other govt ministries & ministers Academics Reference Groups Professional bodies (eg College of GPs, RAs) Other health committees	DHB CIOs CIOs of PHO/MSOs Health IT Vendors Shared Service Agency(s) NHBBU Information

10.3 Business Case Evaluation Criteria

The following criteria were developed to assist with the evaluation of business cases (all business cases with a capital value greater than \$500,000) by the National Health IT Board.

Criteria	Criteria Detail
Alignment with National IT Plan	Is this a good fit to the functionality required? Does it have wider implications for use elsewhere in health sector? Is it a mainstream application already widely accepted? Is this project an innovation where we are looking for innovation? Does it align with strategic NHB/IT Board priorities?
Clinical and management leadership and engagement	Does this project have strong sponsorship and buy-in from clinical leadership and management? Is a single project sponsor (accountable for delivery of benefits) clearly identified and supported? Does the implementation team demonstrate commitment and capability?
Project Risk	Is the project likely to succeed? Is there a robust project management approach and is there commitment to this? What is the organisation's past track record in delivering similar projects?
Vendor track record and reliability;	Does the vendor have a good track record of implementation and support? Consider reference checks and vendor one-on-one
Fit to application and technology architecture	Is this a good fit to existing infrastructure? Does it meet software certification standards, and interfacing standards? Does the solution reduce overall complexity?
Cost effective	Is this the most cost effective solution (capex & opex over 5 years)? Have other more cost effective options been considered (eg outsourcing)?
Risk if does not proceed	Is there a compliance risk? Is this a replacement for a system which is/will be no longer supported?

For more information please contact: enquiries@thehealthboard.health.nz