BCG

NEHTA Review

For attention of NEHTA Directors

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THE BOSTON CONSULTING GROUP

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1 Executive summary

1.1 Context

Since the late 1990s Australian federal and state governments have shown increasing interest in using information technology to improve patient continuity and care, avoid medical errors and reduce duplication and waste. The Australian Government made its first major commitment to this area by publishing *Health Online: A Health Information Action Plan for Australia* in 1999 and the establishing HealthConnect — a division within the Federal Department of Health and Aging, to facilitate eHealth records and communication.

In 2003/4 the Boston Consulting Group (BCG) undertook a joint study for the National Health Information Group (NHIG) to evaluate efforts to establish eHealth in Australia. Our report concluded that there were too many small, loosely coordinated initiatives underway. Many of these had been funded by HealthConnect, but were not interoperable or scalable. The report recommended that a single central body be set up instead.

Federal and state governments thus moved to establish the National eHealth Transition Authority Ltd (NEHTA), a collaborative enterprise owned by the Australian federal, state and territory governments, to identify and jointly develop the necessary foundations for eHealth. NEHTA's brief was to advance the Australian eHealth agenda — specifically through the development of standards, clinical terminologies and patient and provider identifiers — by mid-2009. To do this, it received an initial $23m in base funding in 2005, followed by $130m in COAG funding in February 2006. NEHTA's brief was intentionally kept narrow to allow early gains on the foundation elements of eHealth for uptake by pending jurisdictional projects. Unsurprisingly, however, many stakeholders imbued NEHTA with a far larger set of expectations, including catalysing and supporting eHealth implementation across the country

At its inception, a two-year progress review was envisaged to revisit the need for such a body, to confirm that it was making the desired progress and to recommend any changes needed going forward. BCG has been asked to undertake this review which has three key objectives:

- To evaluate the achievements of NEHTA to date and assess whether it is on track to deliver its current brief (i.e. up to mid-2009)
- To make a set of recommendations that will enable NEHTA to deliver on this brief successfully
- To identify the steps required to define the role for NEHTA and other agencies beyond 2009

A summary of our findings and recommendations is provided below.

1.2 Evaluation of achievements to date

BCG evaluated NEHTA's achievement and progress against its founding objectives, as well as the expectations of its stakeholders and international peers, where

applicable. To conduct this assessment, we reviewed NEHTA's written output and operational documentation (for instance, board papers and minutes), elicited submissions from stakeholder organisations and interviewed over 70 external parties, Board members and staff.

Overall, we found that NEHTA had brought significant focus and raised the profile of eHealth in Australia, whilst building substantial individual skills as well as a highly functioning and highly task focused organisation. Judged against its mid-2006 workplan, NEHTA is making good progress in developing eHealth foundation elements such as standards, identifiers and terminologies, although some workstreams have been slightly delayed (around 3-4 months). Earlier Pre-COAG-funding (pre-February 2006) milestones were substantially more ambitious, and many were significantly delayed. The fact that they were not met is not surprising, but failure to engage stakeholders effectively, manage expectations and publicly release work that has been completed has created perceptions of under delivery, and may jeopardize the uptake of final products.

The following section highlights the main achievements of NEHTA as well as its shortcomings.

The entity and organisation structure

- **NEHTA has significantly advanced the agenda of eHealth in Australia.** Most of the stakeholders we interviewed felt that NEHTA had succeeded in focussing attention on, and bringing a visible profile and sense of purpose to the eHealth industry. A considerable amount of local capability has been built in Australia - both in terms of individual skills as well as setting up NEHTA as a well-functioning, task-focused program-design organisation. Virtually none of the stakeholders interviewed expressed a desire to return to the pre-NEHTA loosely coordinated eHealth arrangements.

The scope and work program

- **At the broad work program level, NEHTA has been working on the right areas.** The critical building blocks that NEHTA has focused on align closely with BCG's original recommendations for NEHTA, the priorities of most stakeholders and the experience of other countries further advanced down the eHealth path. Before 2004 there was considerable frustration with the failure to endorse a single Australian solution for all clinical terminologies, healthcare secure messaging, and patient and provider identification. These three have constituted the major part of NEHTA's work program and will have consumed 69% of its budget to the end of 07/08.

- **Some critical standards have now been agreed and endorsed** – The endorsement of two critical standards, SNOMED CT for clinical terminologies and HL7 V2x for messaging, has created some certainty for software vendors and program managers where previously this did not exist[1]. Both standards are strongly aligned to global trends, and NEHTA has played a significant role in securing global licensing and governance

[1] Although attempts had been made to endorse these in the past, for example by NHIG and Standards Australia, neither entity had the designated authority or machinery to make this happen.

for SNOMED through the IHTSDO. Two important 'next steps' have now emerged which need to be addressed:

- Refinement of both of these standards still needs to occur through 'proof-of-concept' implementations.

- A software testing, accreditation and integration support unit needs to be established to ensure HL7 and other technical and semantic standards are correctly implemented for interoperability.

- **Initial workplans from 2005 were very ambitious, and have generally not delivered on time**

  Targets presented to the October 2005 Board were generally not delivered on time, due primarily to

  - Overly ambitious targets at the outset, particularly given the sensitive and complex nature of these topics.

  - Significant increases in the scope of work, driven by receipt of COAG funds, adding the international standardisation dimension to clinical terminologies work, and the incorporation of the Australian Catalogue of Medicines.

- **NEHTA's recalibrated workplan from mid-2006 is largely on track.** Approximately 90% of updated work program milestones have been met for 06/07, however, some of the larger deliverables (e.g. around UHI implementation) are still untested. Persistent underspend on budgets and many unfilled posts suggest that alternative approaches to resourcing are needed. This remains the main risk to on-time delivery of documentary outputs. Exhibit 1 summarises the objectives for the major workstreams in 2004 and their current achievements along key dimensions (both by workstream and overall).

Exhibit 1.

Broad agreement that NEHTA had made a significant impact, despite problems with governance and stakeholder engagement

Non-capability-specific parameters:

	Overall Impact on eHealth Agenda	Organisation fit for purpose?	Appropriateness of Prioritisation	Funding & Resourcing	Engagement & Communication	Governance
Performance						

Capability-specific parameters[1]:

			Performance				
Major Capabilities	Targets identified in 2004 Report	Additional targets identified/achieved by NEHTA	Work output Quality & Scope	Work output Timing	Within Budget?	Stakeholder engagement	Implementability
Patient and provider identification	**Drive implementation** **Facilitate adoption**	**Interim Provider authentication solution included in deliverables from Medicare**					
Terminologies	**Develop & agree standards** **Facilitate adoption**	**Established IHTSDO to secure and manage IP rights globally** **Expanded scope to include medicines and devices**					
Secure Messaging	Facilitate adoption Facilitate application re-use (Not on NEHTA work program)	Initiation of domain package projects to apply secure messaging					
Shared EHR	Provide proof of concept Facilitate adoption	Production of detailed design, standards and business case documentation					
Supply chain	None	National Product Catalogue eProcurement hub and associated Business Intelligence solution					

Good – meets or exceeds expectations Fair – Some problems, now recovered or recovering Poor – requires changes or additional efforts to recover

1. Assessed for top 5 capabilities by funding level

Engagement and Communication

- **NEHTA's engagement with the majority of stakeholders has been ineffective and has created a cycle of criticism, defensiveness and isolation**

  - There has been significant dissatisfaction with the level and quality of engagement with NEHTA. A majority of external and jurisdictional stakeholders thought NEHTA had engaged poorly with their organisation. Many important stakeholders, such as clinical specialties, were barely engaged at all during the first two years of NEHTA's existence

  - Where engagement did occur, it appears often to have been one way, with little acknowledgement of stakeholder requirements or suggestions, and little patience with their lack of pre-existing understanding. Two thirds of stakeholders said that NEHTA did not acknowledge or respond to their feedback when they had engaged.

  - Poor engagement with existing health informatics practitioners led to a relatively slow start on some workstreams, and created a cycle of criticism, defensiveness and isolation that now needs to be reversed.

- **Transparency around the workplan, delivery timetable and interim deliverables has been lacking and may slow adoption**. This lack of communication is a frequent complaint of stakeholders and has impaired their ability to build NEHTA deliverables into their plans. Two thirds of external stakeholders complained that NEHTA was not transparent

enough. NEHTA has also delayed seeking important feedback from users until relatively late in the process, potentially missing out on practical advice how to make solutions work in local contexts, or over-engineering aspects of them beyond what was required.

- **External stakeholders have unrealistic expectations of NEHTA's brief, at least partly as a result of a lack of transparency and communications by NEHTA.** NEHTA's task is to develop key standards and core common infrastructure, such as identifiers. However, many constituents wrongly describe its progress as a failure because it has made no impact in areas such as advocacy, implementation and policy formulation — areas not part of NEHTA's brief. This is at least partly due to poor communications by NEHTA and its members about the scope of its brief.

Resourcing

- **NEHTA's progress to date has been achieved at substantially less expense than comparable countries** such as Canada, the UK and the US. For example, where NEHTA plans to commit approximately A$100m to its Unique Identifier services, the UK has spent approximately A$500m on a similar set of administrative services in its 'Spine'. Lower costs are mainly due to NEHTA's 'fast follower' strategy of adopting global standards and then leveraging the outputs of countries further down the development path. Resources have been appropriate for the designated scope of this first 'design' phase of eHealth delivery, but ongoing funding at this relatively low level will result in outcomes that lag significantly behind leading countries.

- **Failure to recruit sufficient skilled program staff remains a significant delivery risk**. NEHTA has underspent significantly on its budgets during the first years of its existence. Part of this is due to delays to setting up the Medicare Contract for Unique Identifiers, which will result in a significant transfer of funds to Medicare Australia. In other workstreams, however, difficulties in hiring suitable staff have been the main cause. Continuing to grow staff at its current rate will result in delays to delivery, and supplementary recruiting and outsourcing approaches are required.

Governance

- **NEHTA has achieved a marked improvement in the alignment between the eHealth objectives of state and federal health departments.** There was deep mistrust between these two groups in 2004, resulting in a stalemate preventing further substantial progress. NEHTA has become an example of successful commonwealth-state collaboration in an industry generally plagued by inter-jurisdictional suspicion and blame. Testimony to this trust has been NEHTA's success in securing substantially increased funds for eHealth coordination and standardisation through COAG. There remains some tension between lower levels of State and Federal health departments, and with NEHTA itself, however, where competing activities still need to be aligned.

- **The fact that all board members are jurisdictional heads limits the ability of the board to support the engagement of non-jurisdictional stakeholders**. While having the heads of the jurisdictional health departments has helped ensure critical state and federal govt support for NEHTA, many stakeholders perceive that board members' dual role creates bias against private sector and primary care needs. Although we could find no evidence of bias, this perception could still impair uptake of NEHTA products. Furthermore, board members' tenure is typically short (average is 18 months), limiting the degree to which they can fully grasp NEHTA's complex work program to provide useful direction internally. Board members already have demanding jobs and are not remunerated, nor given time release for their role as NEHTA board members, so they do not have significant time to commit to the task. Their positions as directors of health departments also limits their ability to act as advocates for NEHTA in the public arena and therefore they are limited in their ability to share the burden of effective engagement with stakeholders.

These are significant issues and if not addressed will jeopardise the impact of NEHTA deliverables and consequently the national eHealth agenda. Documentary milestones may still be completed, but their impact will be severely restricted because they will not be fit-for-purpose, and will often not be included in current implementation programs by jurisdictions. The following recommendations section deals primarily with changes that are needed to make deliverables fit for purpose and address the stakeholder engagement issues.

1.3 Recommendations for successfully delivering NEHTA's current agenda

NEHTA's first priority must be to continue the current momentum to deliver its COAG objectives — the creation of unique, individual and health care provider identifiers, and clinical terminologies. Delivery of these objectives requires not only that high-quality designs are clearly documented on paper, but also that they are 'fit for purpose', which requires that they are:

1. Endorsed as the chosen set of clinical terminologies and health care identifiers and become the national standards

2. Tested and proven to work effectively in typical local contexts

3. Accepted by stakeholders with an in-principle commitment to adoption.

Our recommendations focus mainly on how to achieve these objectives, particularly the latter two:

1. **Create a more outwardly-focused culture.** To support a broader program of engagement, NEHTA will need to significantly change its culture to become far more transparent regarding interim outputs and workplans. NEHTA will also need to be more accessible for informal opinions and advice. This was intentionally avoided early on in NEHTA's existence in order to focus on rapid delivery. However, we believe the organisation and its managers now have sufficient knowledge, insight and confidence to positively incorporate and respond to any resulting feedback and build more constructive links with stakeholders as a result. NEHTA should develop communication materials to

articulate the scope of its brief and concrete and practical descriptions of the end-products. These should be communicated by conducting periodic briefing sessions with broader eHealth industry. Culture change will require far more than simply improvement in external communications. Changes in core organisational objectives, performance disciplines and staff motivations will be essential to achieving the desired culture changes.

2. **Reorient the workplan to deliver tried and tested outputs through practical 'domains'.** NEHTA's original workplan was focused largely on the delivery of completed standards and infrastructure. It is now becoming clear, however, that these will be incomplete without taking the next steps to implement them in 'proofs-of-concept', incorporate feedback regarding implementation in local contexts, refine the designs and only then finalise the specifications. Two activities are important to make NEHTA standards implementable

    a. Establish end-to-end proofs of concept - NEHTA has already taken initial steps to do this through 'package domains', but these need to be considerably strengthened and accelerated to make a difference. Some of the elements of NEHTA's current workplan, such as interoperability and clinical Information, should be integrated into domain package workstreams.

    b. Establish a software integration testing and accreditation function - In order to engage with software vendors and enable them to incorporate standards and identifiers, we recommend that NEHTA set up an authoritative software testing and accreditation capability . Experience in the UK Connecting for Health Program, and in Australia (e.g. Medicare's online billing initiatives) suggest that significant integration and accreditation support will be needed. eHealth implementation will be delayed if this is not available to test solutions on behalf of jurisdictions who want to implement them.

3. **Raise the level of proactive engagement through clinical and technical leads.** While transparency will go some way to easing tensions with external stakeholders, obtaining useful input, co-operation and building trust will require additional efforts. We believe this should be targeted at specific influential stakeholder groups, and operate at two levels:

    a. Establishing a group of clinical leads, where around four to five senior individuals with the appropriate background are hired to act as primary liaison points for high priority stakeholder groups, as well as internal sounding boards for NEHTA design teams. These groups should include:

    - Primary care practitioners – doctors and paramedical staff
    - Specialist physicians and diagnostics providers (these might need a separate lead)
    - Pharmacists
    - Health care institution managers/CEOs.

    b. Fostering a technical community that will disseminate standards and best practice amongst IT practitioners. This would be coordinated by a technical

lead, but rely heavily on increasing informal contact between lower level technical practitioners through question and answer sharing, interest group moderation and a few resources committed to solving common technical problems.

4. **Accelerate resourcing through outsourcing, offshore recruiting and more creative contractual arrangements.** Almost all of the NEHTA workstreams (excluding UHI) are operating between 20 and 50 percent under budget because of recruiting delays. It is critical that NEHTA commence alternative approaches to sourcing skilled staff if it is to meet COAG-funded deadlines. Approaches to investigate should include outsourcing where work programs are suitable and have clearly defined scope, insourcing of expert teams from systems integrators, hiring of higher-paid and skilled temporary contractors who typically shun salaried appointments, and offshore recruiting. These recruiting initiatives will be considerably assisted by some form of underwriting of contacts by one or more of NEHTA's Members (subject to performance) for a period at least up to mid-2009.

5. **Reshape the NEHTA organisation structure to address revised workplan priorities.** Despite wanting to minimise disruptions to the organisation, especially for COAG-deliverable workstreams (UHI and Clinical Terminologies) some organisation change is needed to achieve a more outwardly focused, implementation-oriented NEHTA:

   - A clinical-lead function reporting to the CEO should be established.

   - Domain workstreams with appropriate leads and teams will need to be established for at least the top four priority domain workstreams:

     - Referrals

     - Discharge summaries

     - Prescribing

     - Pathology

   - Shared EHR should be reconstituted as a domain workstream. Staff on a number of the smaller workstreams such as clinical information and interoperability should be reassigned to these domain workstreams. Developing and testing domain solutions is too important to exist only as a 'virtual' overlay structure and warrants its own dedicated workstreams.

   - An integration and accreditation centre should be established. This would be the main interface with the medical software industry and would perform both a support function (through a comprehensive testing environment) as well as a certification function for products that meet requirements. This is necessary to enable jurisdictions to stipulate and then manage compliance in their contracts with vendors. NEHTA is the only body that currently has the in-depth knowledge of health IT standards to perform this function.

6. **Add a number of independent directors to the NEHTA Board to be broader advocates of eHealth, and to counter stakeholder perceptions of conflict of interest.** We recommend the addition of two to three

independent directors, with more available time and different expertise, who would improve engagement by:

- Providing additional senior advocates who can connect with stakeholders in support of the role played by NEHTA management
- Improving continuity
- Potentially providing a more direct voice for the private sector into NEHTA's strategy
- Increasing confidence in NEHTA's impartiality.

We believe that if the recommendations described above are implemented in a timely manner, NEHTA will be able to deliver on its brief by mid-2009. They will have some funding implications. We have estimated the cost of accreditation, domain packages and the clinical leads function to be $15.8m over two years. Of this, approximately $10.1m is not covered by existing, overlapping initiatives and will hence need to be raised or diverted from other programs.

Most urgently, NEHTA contracts (including employment contracts) and core funding will need to be guaranteed to mid-2009 by one or more jurisdictions or AHMAC to ensure current recruiting efforts are not hampered. Failure to make this guarantee could jeopardise on-time delivery of the work program. The most important recommendation is to ensure improved engagement, as this will be the critical ingredient in translating theoretically correct technical specifications into appropriate, fit for purpose eHealth solutions. Exhibit 2 outlines the likelihood of creating such impact for major work programs if recommendations are implemented.

Exhibit 2.

Most work programs have good chance of delivering real impact if recommendations are followed

Work Program	Likelihood of delivering impact[1] by Mid '09 if recommendations followed	Remaining Risks & Dependencies (if recommendations followed)
UHI	Good – comprehensive design and specification work done but actual implementation by Medicare	Medicare priority & ability to deliver Required legislation may be delayed
Clinical Terminologies	Excellent - if proofs of concept begin soon so that familiarity is generated and uptake facilitated	Delay in acquiring adequate software tools
Secure messaging	Good – providing accreditation and integration function can be set up to facilitate incorporation of standards in software	Inadequate resourcing levels Jurisdictions not making standards part of purchasing decisions
SEHR	Poor[3] – This stream is unlikely to deliver implementable products by 2009 and should focus rather on building the case for SEHR – both with the broader community and with funders for subsequent implementation	No significant work on proof of concept yet, and significant resources not yet budgeted Will require preceding work programs to complete Privacy objections and associated negative publicity
Supply Chain	Excellent - products already being taken up and used.	Failure to revise purchasing processes in states to enable use of NPC Suppliers slow to populate NPC Poor maintenance of NPC causes it to be replaced by non-standard supply chain offerings
Remaining NEHTA work streams	Good for authentication as this is a generic product in the marketplace[2] Fair for Privacy standards – will depend on timing of legislation and political climate at the time	Delays to UHI program Failure to maintain focus in parallel with other workstreams Political sensitivities which delay legislation

1. Overall BCG assessment – requires completion of design and some degree of adoption by users
2. Assuming UHI completes
3. NEHTA has not committed to achieving impact through Shared EHR solutions, nor would this be appropriate at this stage. Instead it should be focused on generating support and funding for this longer term goal, as well as providing sufficient proof of concept that the ideal is feasible

1.4 Maintaining momentum beyond the current work program

Although the 'T' in NEHTA stands for 'Transition' the work in eHealth coordination will be far from finished when NEHTA's current agenda comes to an end in 2009. A considerable body of output, capability and momentum will have been built up, but relatively few of the benefits harvested. Even if NEHTA itself does not continue, it is critical that the investment currently being made is brought to completion and the benefits reaped. Our view, and the view of most stakeholders interviewed, is that central coordination by a NEHTA-like body will be essential to maintain and build upon this foundation.

However, the precise role of this NEHTA-like body, and those of other stakeholders cannot be determined in isolation from the broader five to 10 year vision for eHealth in Australia, specifically:

- How much funding will be committed and through which funding channels?
- Where will public funding be focused?
    - Standards vs central infrastructure vs institution-based IT systems
    - SEHR vs more immediate, but less comprehensive functionality e.g. discharge summaries, ePrescribing
- How much will be implemented once, centrally as opposed to by jurisdictions and private organisations?
- How urgently do we need to deliver specific outcomes?

These will be addressed by a separate piece of work to be commissioned by AHMAC. Clarity will need to be provided to NEHTA prior to mid-2008 to enable planning for the last phase of the current workplan.

Once the above questions have been answered, a secondary set of questions emerge around the role for NEHTA or a similar body, specifically:

- What role(s) will the entity play in implementing both publicly funded and privately funded eHealth initiatives:
    - Certifying authority?
    - Technical adviser?
    - Systems integrator?
    - Incentivising agency?
- Will it continue to be 'transitional' or will it take on the ongoing maintenance of standards or infrastructure?
- How should the entity be funded and governed?

Although these cannot be answered now, we have included (as appendix 5), some of our preliminary thinking on the options given different funding scenarios.

* * *

NEHTA is currently at a crossroads. Its first priority must be to continue the current momentum to deliver its COAG objectives. It should be well positioned to achieve this by 2009 provided that it implements the above recommendations.

In parallel, planning for the next phase of eHealth coordination and implementation needs to commence now or momentum could be lost. An eHealth strategy and eHealth policies need to be developed. Further analysis and debate by NEHTA and its members on the future vision for eHealth and the role of a central agency (as described above) is needed now to generate a plan by mid 2008. Regardless of the funding scenario and any future role of NEHTA II, we believe that the ‘transition’ NEHTA is tasked to support has at least another five to ten years to run.

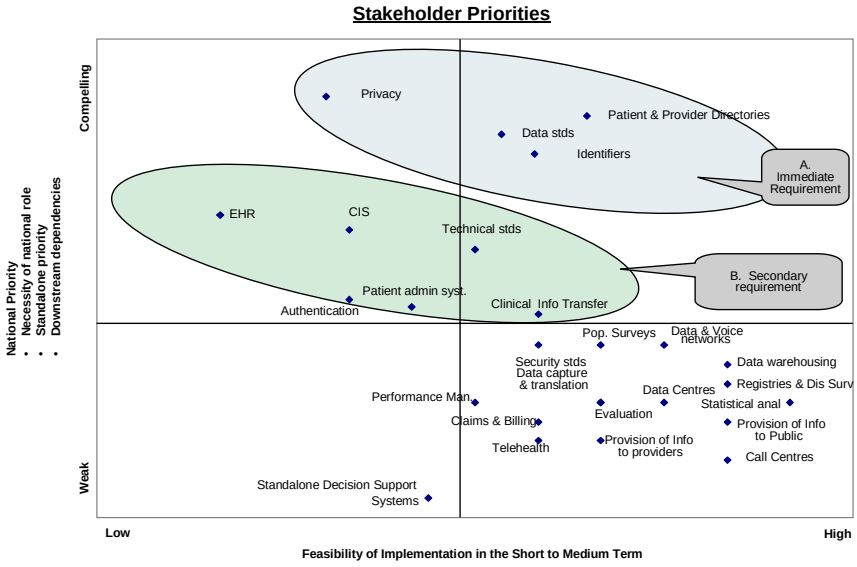
2 Background and context

Since the late 1990's Australian state and federal governments have shown a significant interest in using electronic health records to improve patient continuity and care, avoid medical errors and reduce duplication and waste. This situation has been paralleled by similar efforts in the UK, Denmark, Holland, Canada and some of the large vertically integrated funders in the US such as the VHA and Kaiser Permanente. The Australian Government made its first major commitment to this area by publishing *Health Online: A Health Information Action Plan for Australia* in 1999 and establishing HealthConnect — a division within the Department of Health and Aging — to facilitate eHealth records and communication.

In 2003/04 BCG undertook a study for the National Health Information Group (NHIG). Our report concluded that there were too many small and loosely coordinated initiatives underway, all with little chance of ever being scalable or interoperable, and with few linkages to large state-based hospital system implementations. Many of these had been funded by HealthConnect, but were not interoperable or scalable. The report identified a set of priority core standards and infrastructure – so called 'Building Blocks' — that needed to be put in place first before health IT solutions could be expected to interoperate (Exhibit 3).

Exhibit 3

Priority 'Building Blocks' identified from 2004 review



(Source: National Health Information Management and Information and Communications Technology Strategy (April 2004)

The report also recommended that a single central body be set up to focus on jointly delivering these building blocks. With these in place, state and private sector-based implementation efforts were much likely to be able to transfer information between them, and eventually use a common electronic health record.

Federal and state governments thus moved to establish the National eHealth Transition Authority Ltd (NEHTA), a collaborative enterprise owned by the Australian federal, state and territory governments, to identify and develop the necessary foundations for eHealth. It existed as a 'virtual organisation' for approximately seven months prior to its formal establishment in mid-2005, with the CEO and a core set of staff being hired and commencing work on the workplan. The first seven months of NEHTA's formal existence were quite uncertain because of some hesitation by governments to provide the approximately $88m of funding required to deliver its objectives of standards and core identification infrastructure. An initial $20m of base funding was however provided. NEHTA then successfully applied directly to COAG for the needed project funds in February 2006 and was allocated $130m to deliver standard clinical terminologies and provider and patient identification services by mid-2009.

At NEHTA's inception a two-year progress review was envisaged to revisit the need for such a body, confirm that the desired progress was being made and recommend any changes needed going forward. This document reports the findings of that review. It is divided into three main sections:

- An evaluation of progress thus far, and an assessment of the likelihood of delivering on the current agenda
- A set of recommendations to enable completion of the current work program
- Potential future roles for NEHTA or other central bodies in coordinating eHealth development.

2.1 The scope of NEHTA's work

In order to assess NEHTA's progress we need to make some assumptions regarding what it set out to do. Two dimensions of NEHTA's scope are important as they are a source of confusion and dissatisfaction amongst stakeholders:

- **The sectors covered** by NEHTA (i.e. does it cover only the public sector, or does it need to cover the private health sector as well)
- **Its work deliverables** in terms of standards, core eHealth infrastructure, and distributed eHealth applications

NEHTA's scope has not been explicitly defined and documented, but rather evolved over time as management and the Board sought deeper understanding of the field. Nevertheless, a number of facts can be inferred from key establishment documents such as the NEHTA constitution and NEHTA's submission for COAG funding:

Sectors covered

Although not addressed specifically in NEHTA's constitution[2], section 3 of the constitution contains a number of indirect references supporting the assertion that NEHTA's scope covers the entire health sector, both public and private:

> *'….to support connectivity and interoperability of electronic health information systems across Australia'* *3.1*

[2] Constitution of National E-Health Transition Authority Limited.
ACN 114 638 336 ;1 March 2006

'…across the whole of the health sector in Australia' *3.2.2*

'…providing knowledge-sharing and expert advice to the public and private sectors' *3.2.11*

In no place does the constitution explicitly restrict the scope of NEHTA standards and infrastructure to only the public sector. It thus seems safe to assume that NEHTA's deliverables pertain to all Australian health sectors.

Furthermore, the documentary submission in support of its COAG funding application specifically identifies a scope that includes the private sector:

'Access to the system for all remaining authorised users will be completed, bringing in aged care facilities, private hospitals and private health insurers' (In relation to IHI)

' This will include private sector health organisations such as aged care facilities, private hospitals and insurers.' (in relation to HPI)[3]

Work deliverables

NEHTA's constitution does not specify scope of work, but instead defines its objectives in section 3 of the constitution as:

3.1 To provide the critical standards and provide and manage the development of infrastructure, software and systems required to support connectivity and interoperability of electronic health information systems across Australia;

3.2 To research, develop and implement national health information projects including (but not limited to):

- *3.2.1 clinical data standards and terminologies including the development of standards, and common terminologies for health information for clinical service delivery, planning, policy-making and research purposes and communication between health systems in Australia;*
- *3.2.2 patient, provider and product/service standards and directories/indexes that contain information necessary to uniquely identify patients, providers, products and services and other relevant information across the whole of the health sector in Australia;*
- *3.2.3 identification standards to define the data structure and specification for the capture and storage of information required or the identification of patient, provider and product/services in Australia;*
- *3.2.4 a product services directory which contains information for identification of products and services;*
- *3.2.5 consent models governing collection and handling of electronic health information;*
- *3.2.6 EHR standards;*
- *3.2.7 technical integration standards to define the structure and rules by which information is exchanged between systems and users;*
- *3.2.8 supply chain efficiencies, including exploring options such as common forms of procurement, standard contracts and common purchasing processes;*
- *3.2.9 user authentication and access control to ensure compliance with privacy laws and the consent models which have been developed;*
- *3.2.10 EHR secure messaging and information transfer, including identifying and managing the development of a national security model for messaging and information transfer between health care providers' systems;*

[3] ISSUES PAPER: Accelerating work on a national electronic health records system. Recommendation to COAG. Feb 2006.

3.2.11 a knowledge centre, providing knowledge-sharing and expert advice to the public and private sectors on business case development and implementation requirements for health information systems so as to meet national standards and architectures; and

3.2.12 to encourage health information industry reform and to facilitate opportunities in driving technological reform in health information technology, so enabling consistent interoperability and implementation of national health information technology priorities.

3.3. Any additional object which 100% of Members determine should be included in this Constitution at a General Meeting.

Of note, it includes:

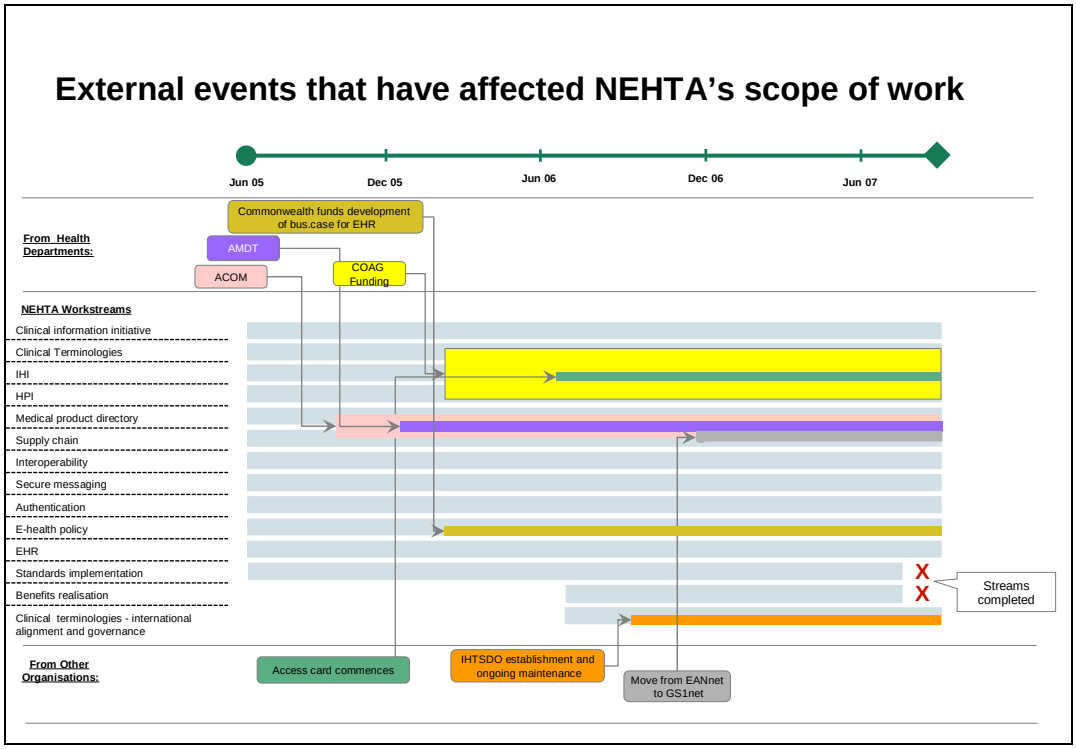
- Both design and implementation work
- Advocacy - ***'…****to encourage health information industry reform'*
- Any other objectives agreed unanimously by the board

It is thus unlikely that any eHealth objective agreed by the board could be deemed technically 'out of scope' for NEHTA. Inclusion or exclusion of activities from the workplan can hence only be based on:

- The priorities accorded by the NEHTA board
- The funding provided to the organisation, and any limitations placed on their use.

NEHTA's workplan was thus defined at its first board meeting – and focussed on the delivery of twelve work programs (exhibit 4). Since then there have been a number of reworks to scope, funding and approach. This, combined with the fact that the initial scope was never broadly publicised, has contributed to some confusion about its brief, the briefs of other parties, and how gaps and overlaps between agendas have been handled. Exhibit 4 summarises the evolution of NEHTA's scope from July 2005 onwards.

Exhibit 4



We can expect similar changes to continue to occur for some time. Most other countries are having similar experiences, and none have yet discovered the 'correct model'. This emphasises the importance of communicating clearly and, managing expectations, in order to minimise the degree of waste while still adopting lessons learnt.

3 Evaluation of NEHTA's performance to date

The purpose of this review to provide a sufficiently detailed evaluation of NEHTA's performance to inform the next steps in eHealth development in Australia. It is not exhaustive, nor specific enough to be used for:

- Individual performance assessments
- Audit purposes
- Quality assessment of individual outputs and deliverables.

We adopted a framework that measured performance across each of the major NEHTA work programs, comparing a set of organisation wide and program-specific parameters against the original milestones set for NEHTA, the expectations of stakeholders, and the achievements of similar initiatives internationally (Exhibits 5 and 6).

Exhibit 5

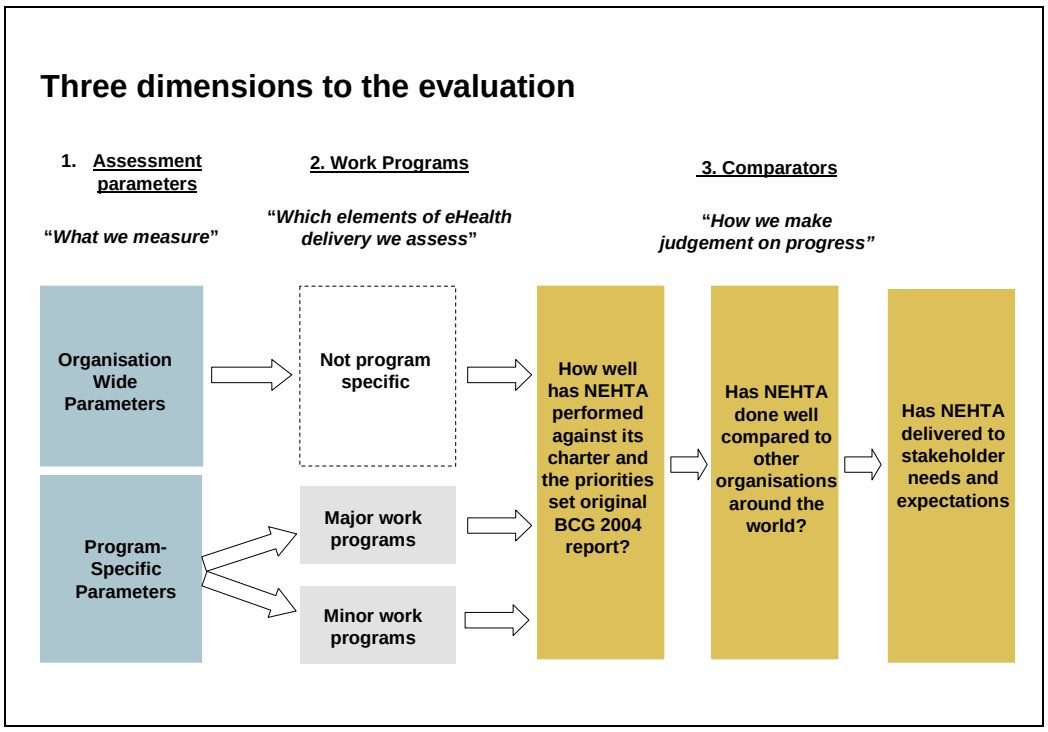
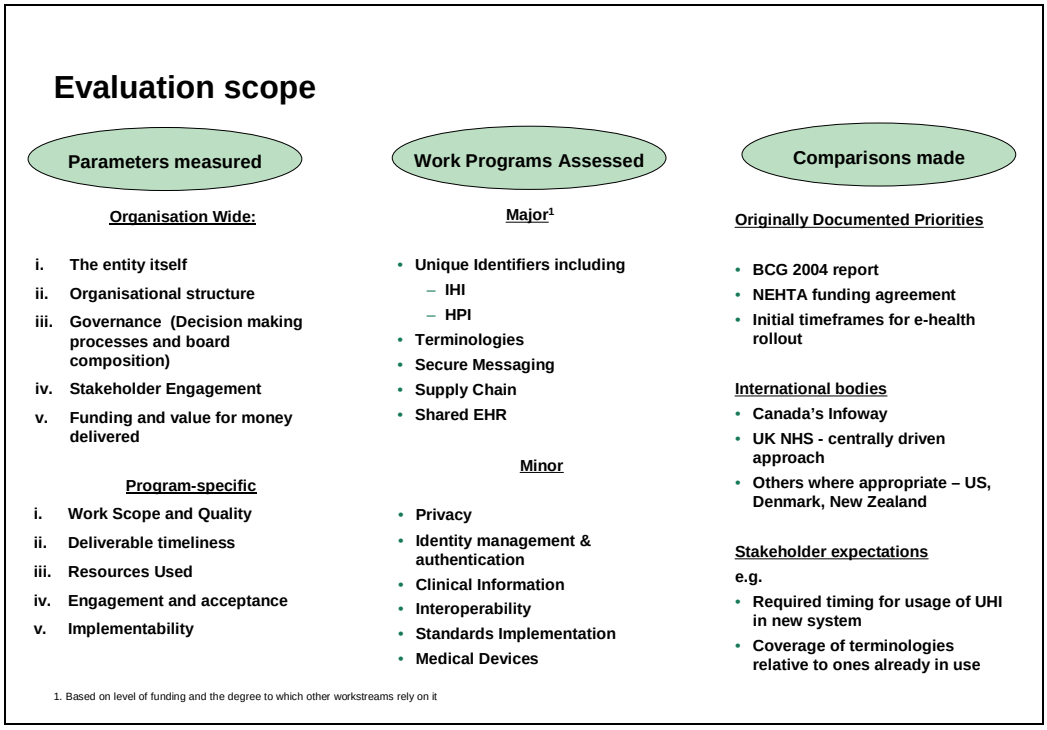


Exhibit 6



The assessment used three sources of data:

- Documents produced by NEHTA and other organisations, including published reports, internal briefings and board minutes
- Interviews with and written submissions from over 70 individuals from within and outside NEHTA. (A list of the stakeholders and organisations who provided input is contained in appendices 1 and 2)
- A structured questionnaire answered by most of the stakeholders interviewed. A copy of the questionnaire and a full set of survey responses by stakeholder group are contained in appendices 3 and 4.

3.1 Assessment of NEHTA-wide characteristics

3.1.1 The entity itself

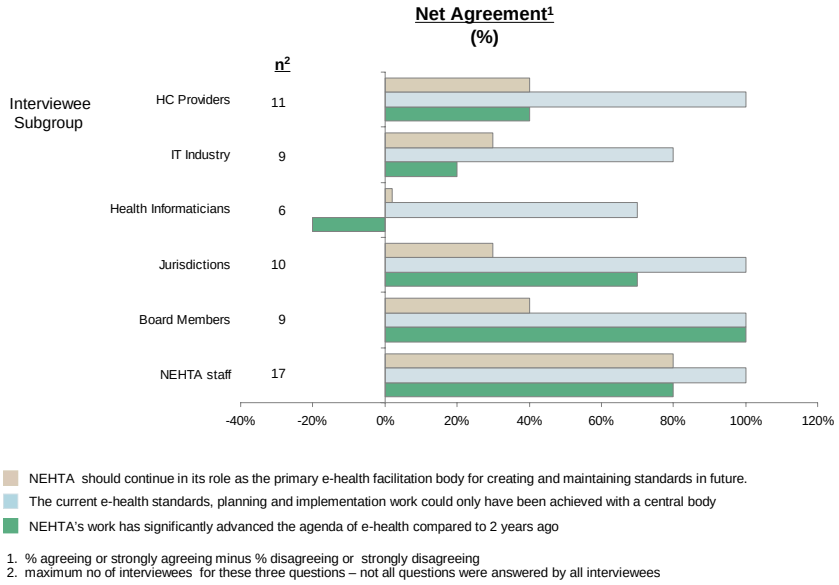
NEHTA represents something of a unique experiment in the Australian Health Sector. As a corporation limited by guarantee, it is not subject to a range of restrictive hiring, remuneration, work scope and information provision requirements placed on government departments. At the same time, with a board constituted of the heads of each of the state and federal health departments, it has very ready access to senior decision makers in the public health sector in order to achieve real changes.

However, the financial commitments to NEHTA are substantial and represent a significant risk for all of its members if things go badly. Furthermore, the content NEHTA has to deliver is very complex and is largely uncharted territory for local and international health systems. Expectations of stakeholders are high. For many years, they have been accustomed to online banking, universal email access, and being able to ‘Google’ virtually anything. Shifting the world of health from paper to online can appear to be a trivial undertaking. Finally, the health care industry is notoriously difficult to steer, being both structurally fragmented in public and private sectors, and having a tradition of fierce independence all the way down to the level of self-sufficient general practitioners.

Regardless of specific criticisms of its work, the support for NEHTA as an entity has been very strong. Exhibit 7 shows the overall assessment of NEHTA by stakeholders surveyed.

Exhibit 7

Majority of stakeholders supported central involvement in eHealth and an ongoing role for NEHTA



1. % agreeing or strongly agreeing minus % disagreeing or strongly disagreeing
2. maximum no of interviewees for these three questions – not all questions were answered by all interviewees

3.1.2 Organisation Structure

NEHTA currently has a simple but effective organisation structure based largely on its program workstreams. Staff interviewed were clear about their accountabilities, very positive on the working atmosphere, and appreciated the healthy level of internal scepticism and the quality of collaboration with their colleagues. However, there was broad support for two changes to the structure going forward:

- A more implementation-based focus where some teams would have end-to-end responsibility for delivering integrated functionality for areas such as ePrescribing and Referrals
- Greater flexibility for collaboration with external partners, particularly jurisdictions, on 'proof of concept' implementation projects

These changes are discussed further in the recommendations section.

3.1.3 Work-program

NEHTA's work program follows the priorities of the original BCG report of 2004 quite closely, with all of the top four priorities included in scope, and four out of six secondary priorities in its workplan (NEHTA has not been involved in PAS and CIS system activities). One NEHTA work program, Supply Chain, was not identified as a

priority in the 2004 report. In retrospect, however, it appears to be a useful addition with significant synergies with the terminologies work program.

Stakeholders are also very supportive of the program priorities. External stakeholders were generally happier with the way NEHTA had allocated its funds between workstreams, however (Exhibit 8), with the most common 'top three' priority being unique identifiers. Jurisdictions allocated this a lower priority, possibly because, having better information on progress, they felt it was already well underway and the focus could be shifted to the next goal, that of Shared EHR.

Exhibit 8

NEHTA fund allocation has been aligned with external stakeholder priorities

Annual Expenditure
($000s)

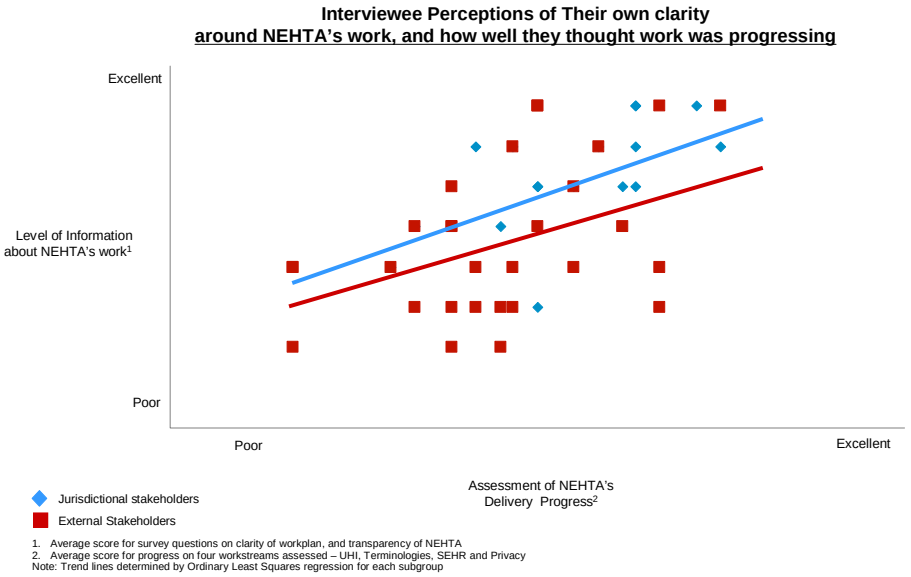
Core Work Streams	05/06	06/07[1]	07/08 E	Total	% interviewees who felt this was a top 3 priority[3]	
					Jurisdictions	Ext. stakeholders
Identifiers	1,331	6,110	25,088	32,530	36%	65%
Terminologies	1,168	6,195	13,646	21,010	21%	46%
Secure messaging	520	334	1,561	2,414	14%	46%
Shared EHR	539	449	1,253	2,243	50%	23%
Supply chain	226	326	727[2]	1,280	14%	8%
Remaining workstreams	5,710	3,562	9,876	14,546	Highest < 10%	
Total	9,496	16,977	52,154	78,628	-	-

1. Updated forecast for remainder of year from Jun 07 board paper (Apr data). Numbers are A$000s
2. Medical product directory stream moved into terminologies workstream
3. External and jurisdictional stakeholders only
Source: NEHTA Board papers; Stakeholder Interviews

Opinions differed widely on the extent to which NEHTA had successfully delivered against its work program. To a significant degree this was shaped by stakeholder expectations and their level of visibility of the workplans. Interviews suggest that poor perceptions of NEHTA's work progress were correlated with a lack of knowledge of what NEHTA was doing, especially for external stakeholders (Exhibit 9).

Exhibit 9

More informed interviewees tended to rate NEHTA's work progress more positively



From within NEHTA, however, it was clear that the work program was suffering from its isolation from real-world implementation. Many standards and specifications had got to the point where they were 80% complete, but could not be confidently 'released' without testing their implementability, and applying the last 20% of development accordingly. NEHTA staff were generally in favour of changing the organisation's scope to include more involvement in implementation, but were aware, that the organisation was not structured to manage this type of work activity.

Specific needs identified were:

- The designated authority, funding and staff allocated for accreditation of software
- Partnership models whereby NEHTA could assist jurisdictions with implementation at no extra cost to the jurisdiction, and without needing to take over.
- Workstreams that were oriented to delivering working eHealth tools, rather than documented designs or concepts

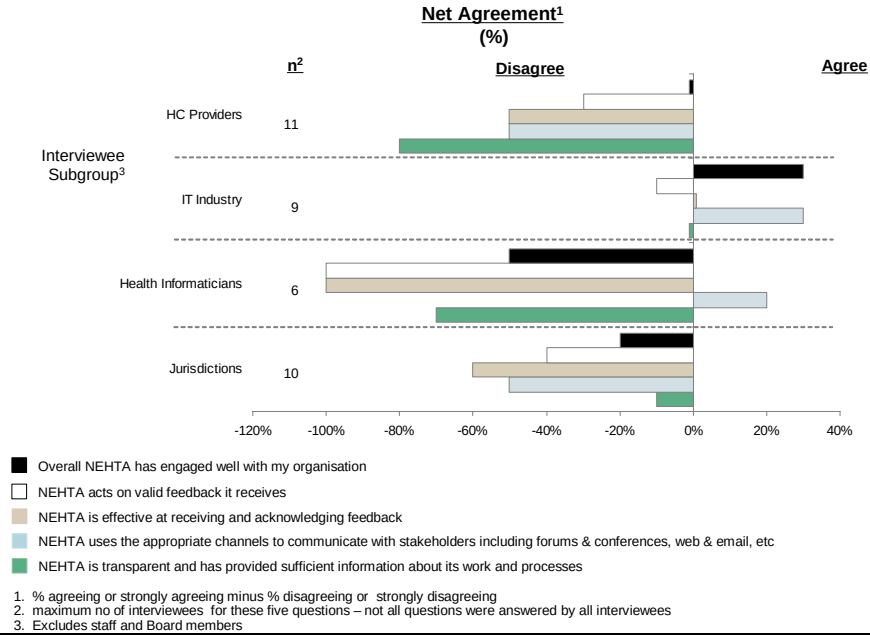
A detailed assessment of the major work programs is provided in section 3.2.

3.1.4 Engagement and Communication

Most stakeholders have felt the quality and quantity of engagement received from NEHTA was inadequate. This feeling was most pronounced amongst health informaticians and healthcare providers, particularly in primary care (Exhibit 10).

Exhibit 10

External stakeholders typically dissatisfied with NEHTA's transparency and engagement



1. % agreeing or strongly agreeing minus % disagreeing or strongly disagreeing
2. maximum no of interviewees for these five questions – not all questions were answered by all interviewees
3. Excludes staff and Board members

External stakeholders detailed a number of specific engagement and transparency issues, including:

- A tendency to communicate one way only, and failure to elicit and incorporate the needs of end users. A number of interviewees mentioned that they had been approached very late in standards development processes, and were accused of being disruptive they questioned methodologies that they were seeing for the first time
- Ignoring or reinventing existing knowledge within Australia, especially regarding working EHR designs and models developed within the private sector or by HealthConnect. One interviewee described his surprise when he learned that NEHTA had taken almost 6 months to detail a specific industry specification that his industry had already been using for a number of years. Most participants felt that international experience had been taken notice of.
- Poor transparency and reluctance to disclose some of their outputs until late in the process, especially where stakeholders own projects were depending on early insight to NEHTA direction
- A particularly dogmatic engagement style whereby NEHTA staff were perceived as being aloof and defensive.

Amongst its international peers, NEHTA was not alone in constraining engagement, at least until crucial momentum-giving decisions had been made. This is a frequently-voiced complaint about the UK NHS Connecting for Health program. NEHTA senior executives interviewed were comfortable with having favoured progress on the work program in exchange for less than full engagement in NEHTA's initial stages. NEHTA staff, on the other hand, were divided on whether it had been an appropriate approach or not, with some expressing frustration at their inability to obtain broader

stakeholder input, and others of the view that stakeholder engagement was an unnecessary luxury they could not afford.

On the positive side, however, a significant number of stakeholders remarked that there had been a noticeable improvement in engagement with them personally in the last 8 months or so. This was manifested in proactive meeting invitations, requests for input and to sit on working groups, and invitations to collaborate on joint projects.

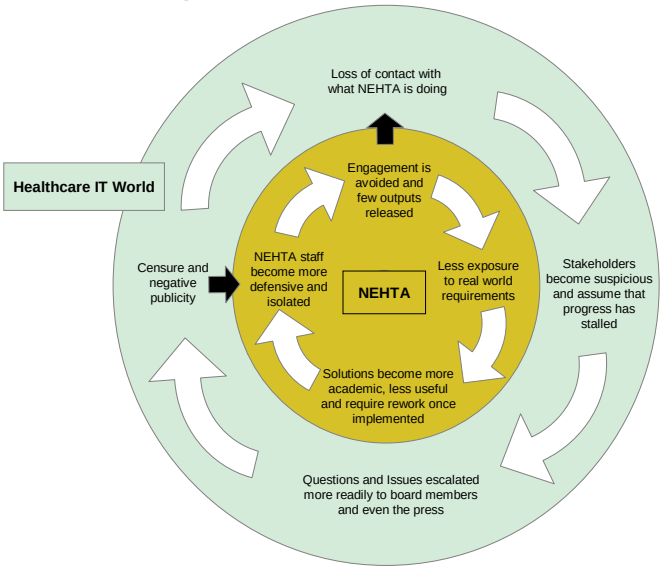
Where NEHTA did set up substantial engagement forums (for example a two day workshop on Privacy and Consent) , stakeholders thought they were highly successful, and were impressed with the knowledge of NEHTA program leads

Implications of Poor Engagement

Perhaps more than any sector, health-care reform strikes fear in the hearts of all but the bravest of politicians and bureaucrats. The sector is notoriously difficult to engage constructively and forge a common direction. It is highly fragmented, and clinicians in particular are often not used to working in collaborative, team-based settings, where compromise is essential. Opting out of engagement is not an alternative, however. Furthermore, failing to do the 'hard yards' of engagement (whatever the effort or cost) is a strategy ultimately doomed to failure, because those who manage and work in the health sector have a very specific monopoly on understanding the processes involved, and this understanding is needed to make sure recommendations will work. Exhibit 11 provides a simple depiction of the potential results of ineffective engagement in the case of NEHTA.

Exhibit 11

Reduced engagement ultimately diminishes quality and timeliness of output



Ineffective engagement not only slows ultimate adoption, but it also results in poor quality deliverables and disenchanted staff who feel their good work is never recognised.

3.1.5 Funding, resourcing and value for money

Funding

Securing $130m dollars from COAG to deliver clinical terminologies and unique identifiers was seen as NEHTA's defining achievement. Irrespective of NEHTA's actual performance, stakeholders and staff saw this as a very positive indication of government's long-term commitment to eHealth.

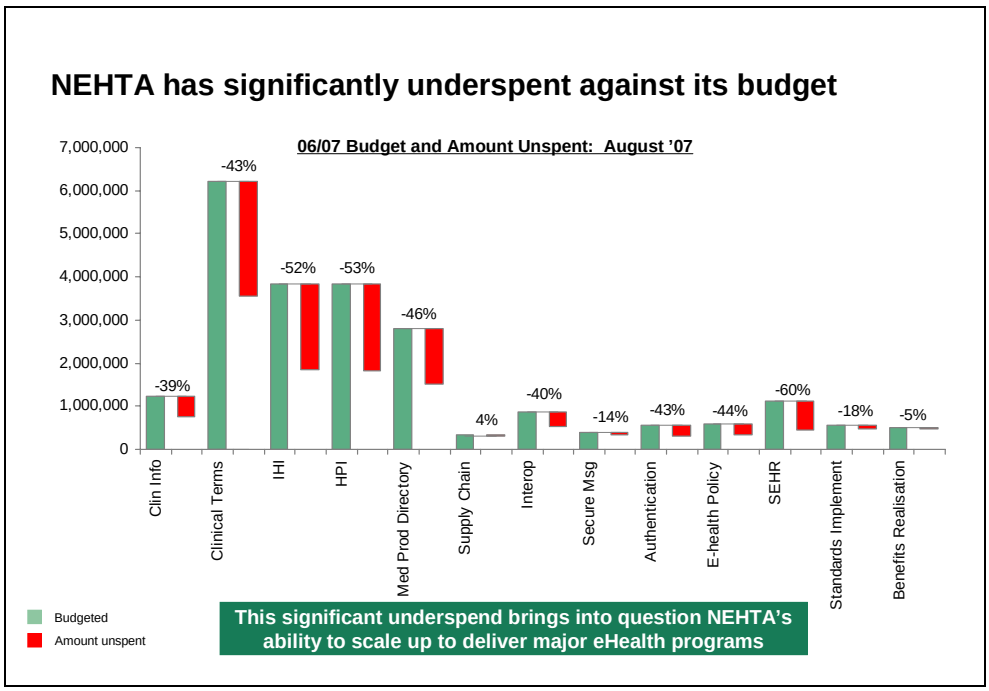
Internal and jurisdictional stakeholders generally felt that NEHTA did have sufficient funding for its current brief (78 percent of staff and 100 percent of jurisdictions). However, external stakeholders had quite a different view, with only 30 percent feeling NEHTA was adequately funded. This was primarily because they saw NEHTA as being responsible for far more than just standards and national infrastructure. As a result, they felt it should be spending similar amounts to the UK NHS and Canada Health Infoway. A number of private entities openly stated that their own involvement would be more likely if they were allocated funds within an enlarged funding pool.

Recruiting and sourcing

Probably NEHTA's main difficulty over the first two years has been in successfully using allocated funds to recruit suitable staff, or contract out major implementation tasks. The increase in resources required of NEHTA is extraordinary — roughly a doubling of personnel spend every year is required up until 2009. NEHTA is having difficulty scaling up at this rate, and there has been a significant underspend on the most recent financial year budget (Exhibit 12).

A major cause of the total shortfall is the delay to the IHI/HPI contract with Medicare. This is likely to be signed soon. Even if this had been concluded, however, internally executed workstreams such as clinical terminologies, and the Medical Product directory suffer from significant staffing shortfalls. Ongoing shortfalls during the current financial year are likely to cause irreversible delivery delays.

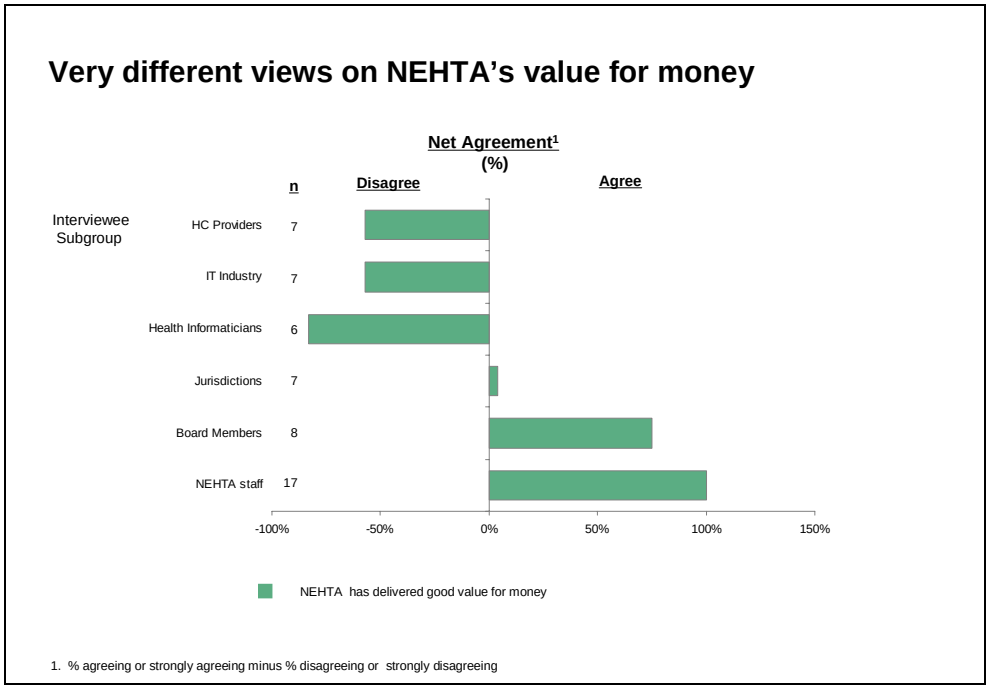
Exhibit 12



Overall value for money achieved

Although stakeholders were asked about the value for money achieved by NEHTA, many felt they could not answer the question, either because they did not know what had already been spent, or because the value dimension could not be accurately assessed before the work was implemented.

Exhibit 13



Perceptions, however, differed widely between stakeholder groups, largely along internal versus external lines (Exhibit 13).

It is impossible to prove value for money at this stage of the program because, as building blocks, NEHTA's output needs to be assembled and used to generate benefits. However, current cost estimates reflect favourably on NEHTA when compared to international peers for similar programs of work (Exhibit 14). NEHTA executives have articulated a 'fast follower' strategy, whereby NEHTA would use the experience gained in countries such as the UK and Canada to deliver eHealth at a significantly lower cost.

Exhibit 14

'Fast-follower' approach allows Australia to achieve good value for money, but benefits will commence later

Example: Progress achieved Internationally on Unique Healthcare identifiers

Parameter	Australia (National Coverage)	UK (National Coverage)	Canada (State level coverage)
Estimated Total Spend (A$m)	98	485	308[2]
Estimated spend per capita (A$)	$4.66	$7.95	$9.40
Completion[1] date	2010+	2002	2008
Expected or actual time to deliver (years)	5 (Expected)	7 (Actual)	8 (Expected)

1. Expected or actual population coverage >80%; In the UK coverage is already almost 100%
2. Based on $154m Infoway spend and assumes 1:1 matching funds from states as per Infoway rules
Source: >2015: Advancing Canada's Next Generation of Healthcare 2007; Stakeholder interviews

3.1.6 Governance

NEHTA is governed by a board constituted of the Secretaries and Directors General of each of the state and federal health departments (that is, NEHTA's funders). This structure was established to ensure joint federal-state ownership of standards and infrastructure that would be developed. The board has undergone an external review[4] which pointed out that NEHTA was a new organisation in a largely uncharted territory, and so it would be expected that some adjustment of the governance arrangements would be necessary over time.

Corporate governance experts typically agree that effective boards are driven more by attitudes and behaviours than by compositional rules[5]. In NEHTA's case, board members typically expressed a high level of alignment with their colleagues. This is a

[4] Cameron Ralph 2006. National eHealth Transition Authority – Governance Practices Review
[5] Back to the Drawing Board – Designing Corporate Boards for a Complex World. Colin B Carter & Jay W Lorsch. Harvard Business School Press 2004.

significant achievement, given the mistrust that existed previously between the Federal Department of Health and the states. Board processes were acknowledged to have improved significantly over time, but it was felt there was still room for improvement[6]:

- The volume of technically rich materials provided to the board was too great to easily digest. Management could be distilling this down to what is required for key decisions

- Board members were sometimes required to act as both directors and customers. To the extent that signoff is required on deliverables, this should probably be done by end users, and the results presented to the board

- Too much of board member time was focused inwardly on checking and validating NEHTA internal processes, rather than on strategic decisions enhancing NEHTA's interface with the outside world.

- In some instances, important decisions were dropped on board members very suddenly, without the opportunity to consider them adequately

However, the main problem of NEHTA's Governance lies in the way the Board is perceived by the eHealth stakeholder community. Notwithstanding the benefits of having state and federal CEOs engaged and supporting standards, a significant number of stakeholders raised doubts about the Board's composition. Even if these are incorrect, they need to be addressed because otherwise they will prevent uptake of NEHTA standards and infrastructure by the offended groups. Four main issues were raised from both within and outside the organisation:

- **NEHTA lacks an independent chair and/or board members to assist with senior stakeholder engagement.** Despite the fact that they rarely had contact with board members, many external stakeholders blamed the board for NEHTA's lack of transparency. Direct engagement from the board would help to dispel some of the more pervasive conspiracy theories that circulate about NEHTA, especially in primary care and the IT Industry.

- **The board members have a potential conflict of interest between their jurisdictional roles and supporting NEHTA** and favour public sector, hospital-based initiatives over the private sector and primary care. As pointed out earlier, NEHTA was established to support both public and private sector eHealth efforts. However, whilst the public hospital system is represented by the people who run it, the private sector is represented by the Commonwealth alone – essentially a purchaser of its services. Unsurprisingly, many private sector stakeholders did not feel the Commonwealth was valid representation. 41 percent of external stakeholders interviewed felt that NEHTA was insufficiently independent to fulfil its role, and 67 percent felt any future NEHTA should have broader board representation. The general feeling was that it was excessively focused on the public hospital sector because of its board structure, and that this prevented engagement with the private sector, primary care and associated IT vendors. Two jurisdictional respondents complained that NEHTA was too independent and needed to be brought into line with broader government policies.

[6] Based on comments from current and ex-Board Members

- **Board members do not have the necessary time or depth of technical expertise** to provide strategic direction to management on some topics. .

- **The rapid turnover of board members** prevents them from building the expertise and relationships required. Directors on company boards often only become effective advisors and decision makers in their second or third three-year term. Because of the rapid turnover of Health care CEOs, current NEHTA board members have a current average tenure of only 13 months, with only two of the nine having been on the board for the full 27 months of NEHTA's official life. This places almost all responsibility for continuity on the management team.

3.2 Program-specific assessments

3.2.1 Background to NEHTA Work Program

BCG has selected the five major work programs for detailed evaluation as they represent the majority of NEHTA's effort and budget. The following section outlines the purpose and objectives of each work program and our assessment of the work progress for these building blocks, and, given planned activities, whether or not a successful outcome is likely. Timelines have been judged against the August 2006 workplan unless otherwise stated. Generally timeliness was the most difficult progress marker to assess because of changing deliverable descriptions and planning extending only one year ahead.

3.2.2 Unique Healthcare Identifiers (UHI)

Purpose and objectives

The unique health identifier (UHI) stream is regarded by stakeholders as the most important building block required to implement functional eHealth systems. Its purpose is to accurately identify an individual (Individual Healthcare Identifier - IHI) or healthcare provider (Healthcare Provider Identifier - HPI) with a unique number. Once an individual is uniquely identified, systems will be able to link patient care records to eventually build up to a shared EHR. Similarly, unique identifiers for healthcare providers will form the cornerstone of access control, reporting of test results, prescribing and many other clinical functions. There are six core tasks associated with the identifiers workstreams:

a. Design and business case

b. Sourcing of accurate basic data including name, address and date of birth to assign the identifier

c. Implementing the central database

d. Implementing the data services and communications infrastructure to connect to it

e. Defining desired business processes around entering and maintaining the data

f. Giving support to jurisdictional and private sector teams to integrate identifiers into their applications and databases.

Progress Made

The 2005 workplans for UHI followed the above six objectives, with the planned allocation of the IHI numbers due by December 2006 and the HPI initial solution build and test scheduled for June 2007. This was not a realistic target, nor were the funds available at this stage. (In the UK, despite some early infrastructure being in place,

this effort took around seven years to achieve greater than 90 percent coverage of the population).

The sourcing of COAG funding for this workstream in 2006 provided the resources required to achieve its goals. A revised workplan was published focused on an external procurement strategy for objectives b., c. and d. above. To date only part a., listed above, has been completed. Negotiations are currently underway with Medicare in co-ordination with contractors to carry out parts b., c. and d.

Exhibit 15 summarises BCG's assessment of this workstream thus far.

Exhibit 15

Summary of identifier workstream assessment

Work quality & scope	Work timeliness	Resources Within Budget	Engagement and acceptance	Implementability
• Specification stages have delivered well • Selection of identifier provider is appropriate • Negotiation of contract with Medicare is also progressing well • Change management for jurisdicitonal support required	• Some l timeline creep has resulted in some interim targets not being met • Delays around policy, concept of operations etc as well as Medicare outsource contract • Stakeholders want faster delivery of system	• Funded principally through COAG (IHI $45m, HPI $53m) • Under budget due to staff sourcing and delay in contract negotiation • Good value due to leverage of existing infrastructure	• Poor transparency and expectation management for stakeholders • Stakeholders felt information actively withheld and were unsure about exactly what would be delivered and what they would have to produce themselves	• Lack of information may slow implementation • Anticipate it will be technically implementable, but significant legislative and adoption barriers may remain
International comparators				
• Canada: has 74% of population enrolled • UK: has near complete population enrolment • New Zealand: has >75% of population enrolled (including all children) – based on revitalising a pre-existing identifier	• Canada: central co-ordination model only with relative light-touch planning approach • UK: High priority program – delivered well in advance of other eHealth functionality (commenced 1995)	• Canada: cost of $154m for full delivery • UK: cost of ~$500m, fully delivered • US: private sector implementations (e.g. Kaiser Permanente) have been significantly more expensive per capita	• UK : Similar public perception on lack of engagement and involvement in this area. However, project was successfully implemented regardless • Canada: Much broader acceptance, probably because of its decentralised nature and very different approach to information provision	• Canada: not a central project - states are responsible, IHI 75% implemented; HPI 35% implemented • UK: IHI >90% implemented
Good	Fair	Good	Fair	Fair

Good – meets or exceeds expectations/ Fair – Some problems, now recovered or recovering Poor – requires changes or additional efforts to recover

While there has been significant delay in both the planning and implementation phases of the UHI program compared to the October 2005 Plan, the post-COAG funding plan from August 2006 appears largely on track (see Exhibit 16).

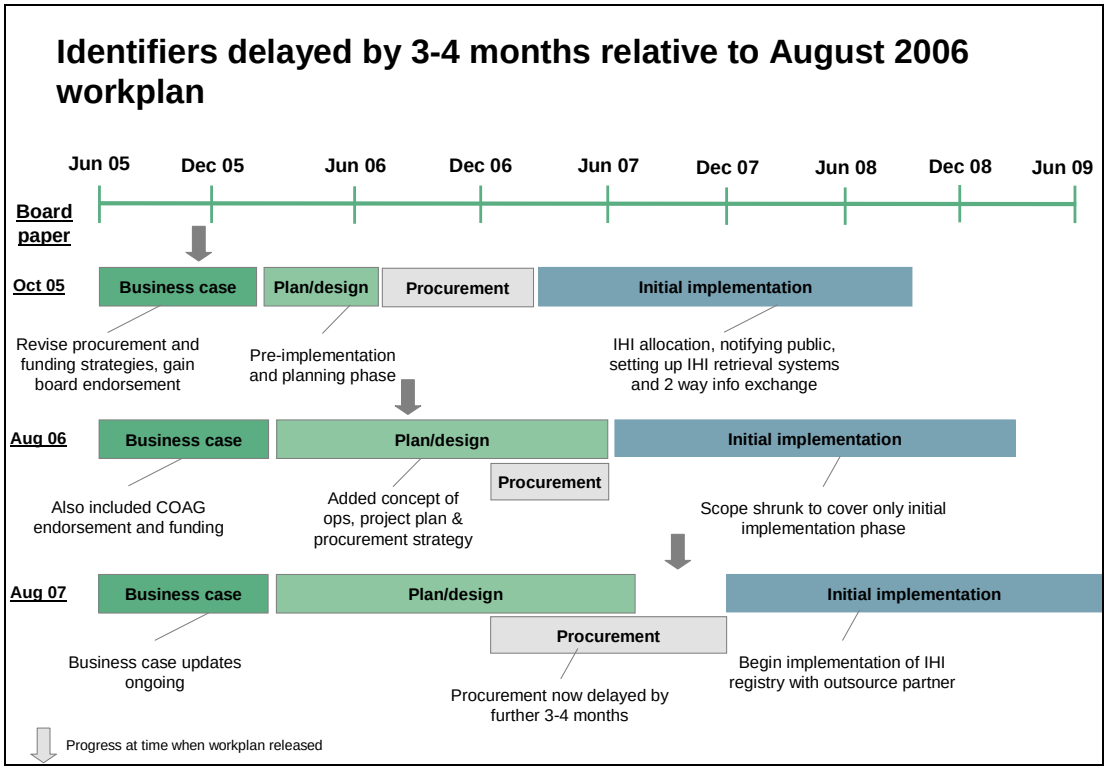
Minor delays relative to the August 2006 workplan have been caused by:

- A board request to reassess NEHTA's initial recommendation to use Medicare as the UHI provider which added to the timeline
- Longer than expected contract negotiations with Medicare
- A need to assess the impact of the Access Card project on UHI.

Very few stakeholders knew about the underlying work progress on the UHI stream, partly because of communication restrictions brought about by the contract

negotiations. Those who have seen the specifications have been very complimentary, although somewhat sceptical that these will be entirely followed once the pressures of implementation prevail.

Exhibit 16



Likelihood of success

The path forward for the identifier program is now well established and includes:

Deliverable	Duration	Expected Completion
Establishing the contract with Medicare[7].	3 mths	Nov 07
Supporting Medicare database and comms infrastructure implementation (with use of outside contractors where necessary) (delivering objectives b. to d.)	12 mths	Nov 08
Create an internal accreditation capability to ensure that the UHI will interoperate with the outputs of other workstreams	6 mths	Dec 08
Support to other NEHTA teams as well as vendors in integrating their solutions with the identifiers and establishing the required enrolment and consent processes (objectives e. and f.)	Ongoing	

[7] Much of the funding still available for this work will need to be allocated to Medicare for both startup and ongoing services.

We believe there is a strong likelihood that the identifiers stream will deliver functioning IHI and an HPI services within 2 years of signing the contract with Medicare (i.e. October 2009 at the earliest). The immediate risks are probably external to NEHTA and in Medicare now. Strategies and supporting infrastructure need to be put in place to make their task more manageable. These would include direct access for Medicare and vendors to the NEHTA IHI technical staff, perhaps through regular roundtables. Integration with other applications, and successfully facilitating business process change are more difficult to predict, but will likely take considerable effort and time. A couple of working proof-of-concept activities using identifier services would be a good target to aim for by the end of 2009.

3.2.3 Clinical Terminologies

Purpose and objectives

The clinical terminologies work program will create a unified approach to describing a broad range of clinical items from drugs to tests to anatomy. The objectives of this work program are to:

a. Create the early business case and plans for the program

b. Negotiate an Australia-wide SNOMED licence for developers and end-users

c. Work with other countries to establish the IHTSDO

d. Develop software tools to manage the terminology work

e. Localise a set of clinical terminologies for national use, covering the domains of:
    - Pathology
    - Radiology
    - Medicines
    - Clinical diagnoses, procedures and so on

f. Encourage uptake of these into software packages in clinical use.

Progress made

A summary of the progress on this work program is provided in Exhibit 17. Objectives a. b. and c. (above) have now been met by the program. While the need for a set of unified terms has been acknowledged for many years, until recently there had been little international co-operation on a comprehensive integrated system. A number of separate terminologies have grown out of functional needs in areas such as pathology, medicines and epidemiology, which has compounded the problem of unification. Simply creating a unified set of all medical terminologies is an enormous task, which could never be justified until the emergence of the electronic health record. NEHTA has contributed to two significant achievements in this area — neither of which had been envisaged in the 2004 BCG report:

- Opening up the best current foundation terminology (SNOMED CT) to a public licensing arrangement, allowing practitioners around the globe to collaborate on the same base structure

- The establishment of a global standards management body (the IHTSDO) that enables sharing of SNOMED improvements in an interoperable manner, so that countries do not have to each invest in their own.

While these have been important developments, they did slow NEHTA's initial efforts to localise SNOMED CT. Subsequent delays to this workstream have been due to:

- A significant underestimation of the complexity of the localisation and adaptation task

- The incorporation of the clinical aspects of medicines terminology (from the former Australian Catalogue of Medicines project (ACOM)

- Uncertainty regarding what localisation other countries would be undertaking, and NEHTA could therefore reuse, rather than undertake itself

- The lack of available terminology development and management tools. The initial approach was to buy a packaged software product called Apelon, which was not suitable for medicines terminology. A new tool is now being developed in-house. This will constitute a substantial contribution from NEHTA to the global terminologies community. Looking back, a more aggressive approach to tooling decisions was probably warranted, given that there was a 59 percent underspend relative to budget for clinical terminologies work in general for 2006/7, and the fact that this workstream has been delayed by the absence of this application.

Exhibit 17

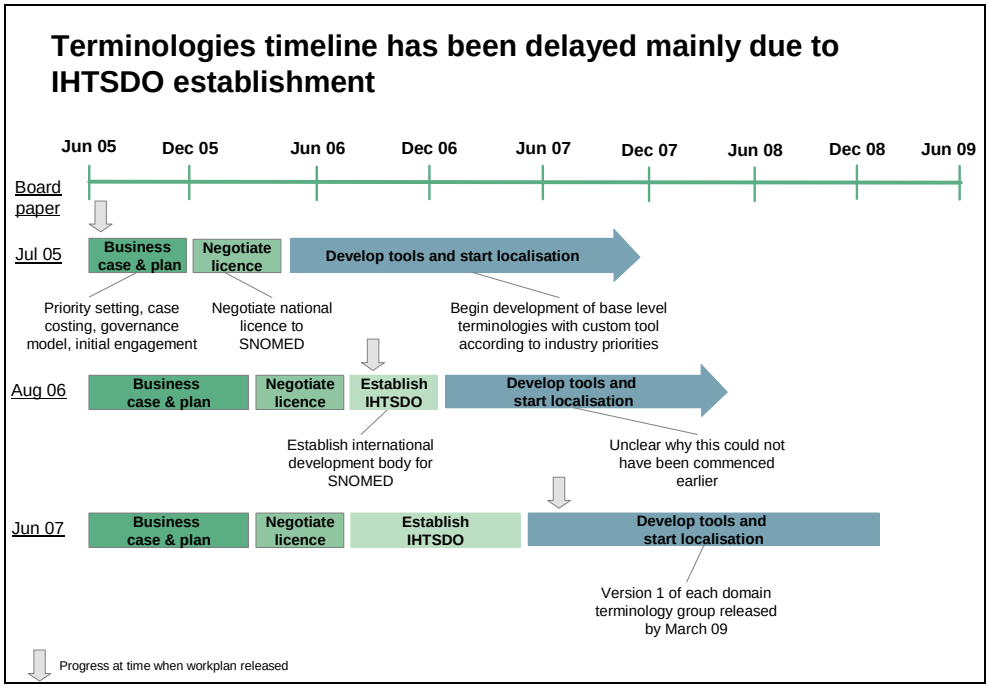
Terminologies work stream assessment summary

Work quality & scope	Work timeliness	Resources within budget	Engagement and acceptance	Implementability
• Negotiated SNOMED licence • Helped establish IHTSDO • Poor management of acquiring tool sets • Work has begun on localisation but little tangible output to date	• Timeline creep, eg commence maintaining terms 6 months late • Major delays around formation of IHTSDO, staffing, licensing & tooling • Scope has increased due to a number of inclusions • Complexity significantly underestimated	• Funded principally through COAG ($24.3m) • Under budget mostly due to slower than expected recruitment of qualified staff	• Jurisdictions engaged but want help implementing • Some clinicians poorly engaged • Industry poorly engaged, want samples & timelines to base their own planning around but have waited considerable time for these	• SNOMED has been implemented in many systems globally, so there should be no significant technical implementability hurdles • Uptake and usage by clinicians once implemented remains a significant risk however
International comparators				
• UK & Canada have similar programs to Australia and are waiting to see Australian created toolsets	• Both Canada & UK have established dedicated programs to localise SNOMED at a similar pace to Australia • US: Significantly behind Australia	• Canadian SNOMED customisation budget is higher due to the requirement for a French version • UK resource use is being carefully coordinated with Australian activities to reuse their products	• Canada: engaged with states to fund projects and industry to help implement • UK: strong engagement with broader terminologies community	• Similar implementation issues faced worldwide in replacing entrenched terminology systems
Good	Poor	Good	Poor	Fair

Good – meets or exceeds expectations/ Fair – Some problems, now recovered or recovering Poor – requires changes or additional efforts to recover

As a result, August 2006 milestones have slipped by up to six months for some tasks such as the commencement date for maintaining terminologies (Exhibit 18). This work stream is an ongoing activity, as new drugs are released and other modifications are required.

Exhibit 18



Likelihood of Success

Deliverable	Expected Completion
▪ Pathology terminologies	Mar 08
▪ AMT	Jun 08
▪ Devices	Sep 08
▪ Adverse reactions and allergies	May 08
▪ Diagnoses	Dec 08
▪ Procedures	Jun 09

There are a number of risks to on-time, complete delivery of the terminologies stream.

- **A shortage of suitably skilled staff** — both terminology coders as well as knowledge areas managers

- **Failure to develop the tools and processes** needed to edit, augment, and maintain the terminologies database, both for its base international form and its Australian extension set. SNOMED requires a long-term commitment to maintain the data integrity and to release updates periodically. These tools and processes will ensure the longevity of the terminologies, regardless of who is responsible for maintenance

- **Vendor reluctance to take up standard terminologies** because of fears that users will baulk at the change, costs and effort required

- **Failure to ensure quality clinical input.** NEHTA has a significantly lower level of internal clinical staff than the NHS, and reference groups need to be set up to reflect the specific way Australian clinicians work

However, there is a good likelihood that this stream will deliver its committed deliverables by mid-2009. Delays may arise as new complexities are uncovered during the coding phase and as new edits are released from the IHTSDO, but these should not significantly affect NEHTA's ability to deliver the core terminologies needed by users. One reason is that most of the value in localisation would be created through relatively few, high impact modifications, so that 80 percent of the benefits could probably be produced by only 50 percent of the effort. Even with some delays due to staffing and tooling, achieving this 80 percent is a very manageable task.

3.2.4 Secure Messaging

Purpose and Objectives

The work program commenced in late 2005 centred around five main objectives:

a. To identify the industry areas which were likely to be the critical users of secure messaging systems

b. To develop a business case for developing and implementing a solution in each of these sectors starting with the highest priority industry areas

c. To select the appropriate standards – both for:
   i. message content , and
   ii. message carriage

d. To begin developing the technical solutions based around standards for the high priority industry areas, such as discharge, referral and e-prescribing

e. To design a compliance, certification and accreditation (CCA) program to ensure that co-existing systems from a variety of vendors can interoperate according to the technical standards.

Progress Made

Progress for this workstream is summarised in Exhibit 19.

Exhibit 19

Secure messaging workstream assessment

Work quality & scope	Work timeliness	Resources within budget	Engagement and acceptance	Implementability
• Decision to use HL7 2.x was sound, but potentially over-engineered and took too long • Good pragmatic decision outcome • Integration with domain work such as e-prescribing and referral systems under resourced but necessary	• First step of ratifying HL7 v2.x took longer than expected (+20 months compared to early plans) • This delay caused a number of stakeholders to delay or cancel their own initiatives • Pathology service integration marginally behind time	• Small budget from base funding ($2.4m, 05 to 08) • Budget not yet spent on accreditation or vendor support activities	• Minimal engagement with any party prior to HL7 decision, now much better • Engaged around domains such as referral standardisation • Engaged with AAPP	• Standard is increasingly widely adopted worldwide which should result in a relatively smooth implementation path
International comparators				
• US, UK and Canada all made the decision to incorporate HL7 earlier than Australia. Systems now being implemented that use HL7 in The Netherlands, New Zealand, UK, Canada and the USA.	• UK & Canada have used their local HL7 organisations for a more integrated planning and prioritising approach to deliver more quickly	• In UK, Significant resources (~15 people) committed to testing & accrediting messaging interoperability	• UK and Canada had some engagement with decision making process much of which was around selecting HL7 v2 or v3	• HL7 v3 more difficult to implement (UK and Canada) than v2 in Australia
Good	Poor	Good	Fair	Good

Good – meets or exceeds expectations/ Fair – Some problems, now recovered or recovering Poor – requires changes or additional efforts to recover

To date parts a., b. and c.i. listed above have been completed. Part c.ii. is scheduled for November 2007. Part d. has begun in conjunction with the clinical information initiative stream and will require a significant amount of effort going forward. In areas such as compliance, progress has been slow and the CCA program still requires significant additional work. Exhibit 20 shows how timelines have shifted for this workstream.

Slow delivery of objective c. — standard selection and a lack of transparency regarding the process, resulted in significant negative stakeholder reaction. The initial assessment of which standard to deploy for secure messaging content came down to two broad candidates.

- The health-specific protocols (HL7 2.x & 3.x), versus
- Generic protocols such as XML.

The decision made by NEHTA to endorse HL7 took until March 2007 to be announced. Prior to this, there was scant engagement with HL7 Australia (the administering body) and little transparency about the decision-making process. The final decision — to endorse HL7 v2.x for now with an intention to move to HL7 v3/CDA — has been broadly supported by stakeholders, and is in line with global counterparts.

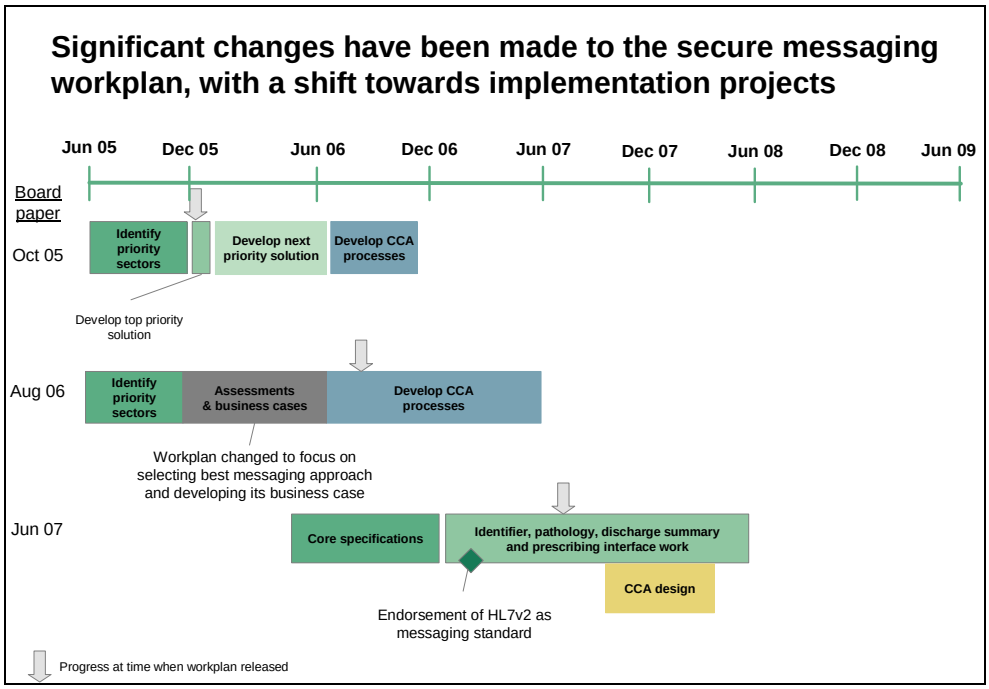
The reasons for delays to this workstream were:

- Under-resourcing — with only a spend of just under half a million, this stream has not been adequately resourced to engage with the full range of potential users and standards bodies, or build up accreditation and compliance

functions that will be needed in the future. Resources have been significantly increased to over $1.5m for 2007/8.

- The standards selection model created was complex and probably over-engineered for the task at hand — which was largely judgement-based in the end anyway.

Exhibit 20



Likelihood of Success

This workstream has already delivered its first major deliverable — an agreed standard. The future work-program for the secure messaging stream consists of developing messaging specifications for specific domain packages, and developing the CCA function:

Deliverable	Duration	Expected Completion
Pathology service specification	12 mths	June 08
Pathology proof of concept	12 mths	June 08
Identifiers CCA design document	6 mths	Dec 07

These are imminently achievable objectives. However, the low levels of resource committed to the latter objective are worrying given the already mounting levels of demand for this capability. There is a good likelihood of delivery providing that accreditation activities start getting the focus they deserve.

Stakeholders and NEHTA staff are increasingly looking for evidence that specifications can be practically applied, and the secure messaging stream is the glue that holds these together. To meet this requirement, NEHTA has proposed a set of end-to-end 'Domains' that will integrate multiple building blocks produced by other work programs into a focused 'product'. An example would be the electronic discharge summary used by hospitals and GPs. This domain requires a specific discharge content and process specification, but also relies on individual identifiers, provider identifiers, secure messaging and terminologies to work effectively. Priority domain packages are identified in Section 4.

In our view, the secure messaging stream will only deliver successfully if two significant changes are made:

- Firstly, there needs to be an organisational and functional change to reflect the new focus on delivering domains, with corresponding funding and deliverables
- Secondly, a far more significant effort and resource needs to be put into the CCA development activity, with the need to provide test environments and technical support as well as just certification, and the resulting requirements to go back and change.

These are described more fully in the recommendations section.

3.2.5 Shared Electronic Health Record

Purpose and Objectives

A uniform shared electronic health record is the ultimate goal for health efforts globally. The purpose of NEHTA's SEHR work program is to generate national consensus around the purpose and content of an electronic health record. This entire stream is thus planning, engagement and high-level design oriented. The broad objectives are:

a. Agree on the priorities for an EHR and cost the various options
b. Develop high-level specifications documentation and assess operational requirements
c. Developing the enterprise architecture which will be required to support interoperability of the records
d. Build the standards required from above work
e. Consult around issues on both technical and policy fronts
f. Combine the above into a compelling case for national collaboration to develop an Australian shared EHR.

Progress Made

Progress is summarised in Exhibit 21. However, progress towards a SEHR has been difficult to assess since it is a very early stage of its lifecycle, and largely conceptual.

The focus of the work program has changed a number of times as a result (exhibit 22). Objectives a. to d. above are well advanced. However, specifications documents are subject to ongoing updates and modifications, and little has been published. The documents take into consideration a vast number of potential factors including:

- Political requirements
- Privacy debate and legislation
- Anticipated funding levels
- Integration with legacy systems
- Unforseen complexity.

In the absence of physical examples of SEHR, none of these can really be resolved. Our high-level assessment suggests a very high level of quality, comprehensiveness and attention to detail in the (unpublished) documentation, but there is little that could be used to convince health service executives to commit to implementation.

Furthermore, many stakeholders believe NEHTA has stopped actively working in this area altogether because of the paucity of published materials released. We believe that the design and specification dimension of this workstream has progressed as far as it reasonably can without intensive engagement and building of consensus around the impacts it will have (objectives e. and f.), and this, together with building the case for funding, needs to be the sole priority.

We would therefore support the recent switch of focus of this workstream towards building the business case for SEHR. This will be a wholly different exercise to the specifications work done thus far, however, and will require resources with practical clinical experience and keen political sensitivities. In the UK and Canada, there has been a significantly higher level of engagement with the medical and broader communities around SEHR.

Exhibit 21

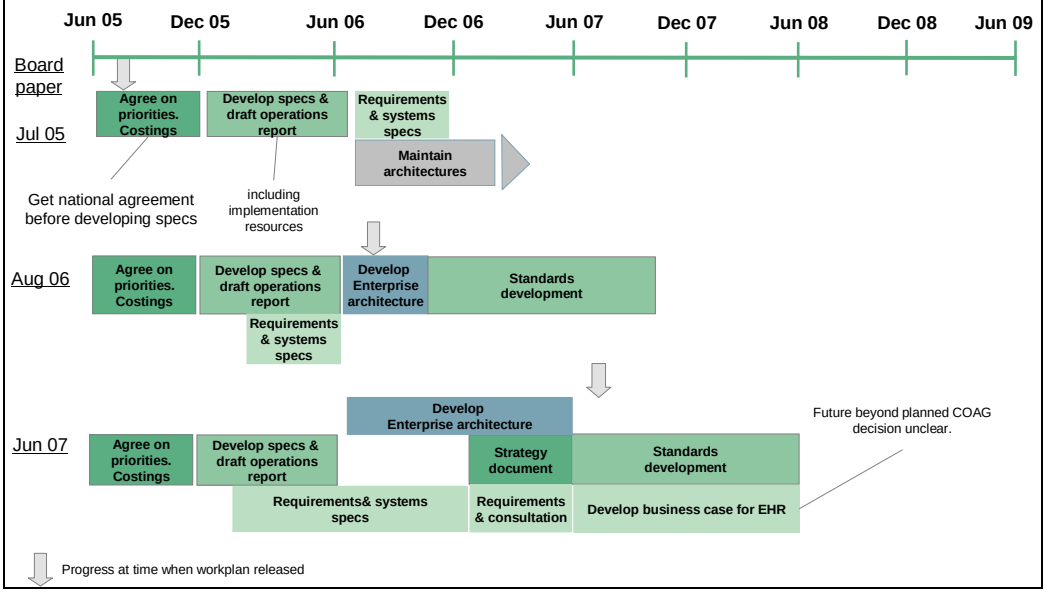
EHR workstream assessment

Work quality & scope	Work timeliness	Resources within budget	Engagement and acceptance	Implementability
• Minimal published work to date, However extensive body of high quality unpublished design work completed • Privacy and policy work around the EHR has been well received • Broader public advocacy should be expanded, current output too academic and needs proof of Concept	• Some work 6mths behind original schedule • Difficult to confirm due to: •Frequent milestone changes and rescoping •The apparently near-complete state of much of the documentation	• Limited resources deployed to date ($2.3m, 05 to 08) • No funds provided for implementation	• Little engagement or advocacy to the broader community • Have engaged with technical committees • Stakeholders seek tangible plans on how EHR relates to them • Good work produced but very little published or tested with external audiences	• Largely unknown but assumed to be complex. • Requires proof of concept work – has not yet been initiated • Integration with legacy system issues will be major constraint to implementatbility
International comparators				
• EHR is a high priority worldwide and other countries have undertaken similar planning processes but typically with more implementation funds to deliver more quickly	• Canada has begun implementing interoperable EHR in most provinces • US: has isolated islands of EHR systems within RHIOs • UK has small pilot (approx 0.3% of GP practices trialling SEHR)	• Canada Infoway will have have spent C$195m by 2010 with total expected expenditure of ~C$2bn for completion • Kaiser Permanente spend of $1.8bn for 8.4m enrolees	• Canada in particular has engaged extensively with providers and the broader community • The UK has recently acknowledged the need for much broader engagement on this topic	• Implementation worldwide requires pre-cursor building blocks to be in place. • Implementation is hugely complex in all countries who have begun work.
Fair	Fair	Good	Poor	Poor

Good – meets or exceeds expectations/ Fair – Some problems, now recovered or recovering Poor – requires changes or additional efforts to recover

Exhibit 22

EHR workstream delayed by ~6 months on architecture & standards development



Likelihood of success

The EHR stream is currently focused on completing its standards and specifications deliverables and developing a business case for future funding. Specific tasks include:

1. Completing SEHR standards development
2. Completing interoperability specification
3. Advocacy to both funding decision makers and the broader community
4. Refining plans and costings as new data and international precedents become available.

Activities 1, 2 and 4 should be easily achievable given current progress. There remains a significant gap to achieve objective 3, however, in terms of:

- Socialising and achieving buy in to the business case for shared EHR. Our interviews with states suggest that they are still some way off from supporting this
- Publishing easily digestible documents outlining the nature of the shared EHR and the implications for providers, patients, administrators and IT professionals.

This is not officially part of NEHTA's role. But without it, the detailed specifications and standards developed will potentially never be used. Successfully engaging the outside world on EHR is thus a critical activity for the coming year.

3.2.6 Supply Chain

Purpose and Objectives

While the supply chain work stream was not part of the original BCG 2004 report's core set of deliverables, there are significant savings which can be realised by the jurisdictions with the deployment of an efficient system of purchasing. As a consequence this seems a worthwhile addition to NEHTA's scope. The key element of the proposed supply chain solution is a single product catalogue (the National Product Catalogue or NPC), with all suppliers entering the product information on one side and the hospitals connecting their purchasing systems to this catalogue on the other.

The objectives of the stream are to:

a. Design the National Product Catalogue solution
b. Design the procurement hub system
c. Design the business intelligence solution
d. Implement the supply chain solution by June 2008.

Progress Made

The supply chain workstream has advanced far further than most others towards implementation, but exists in a more mature and well developed realm. Progress is summarised in Exhibit 23.

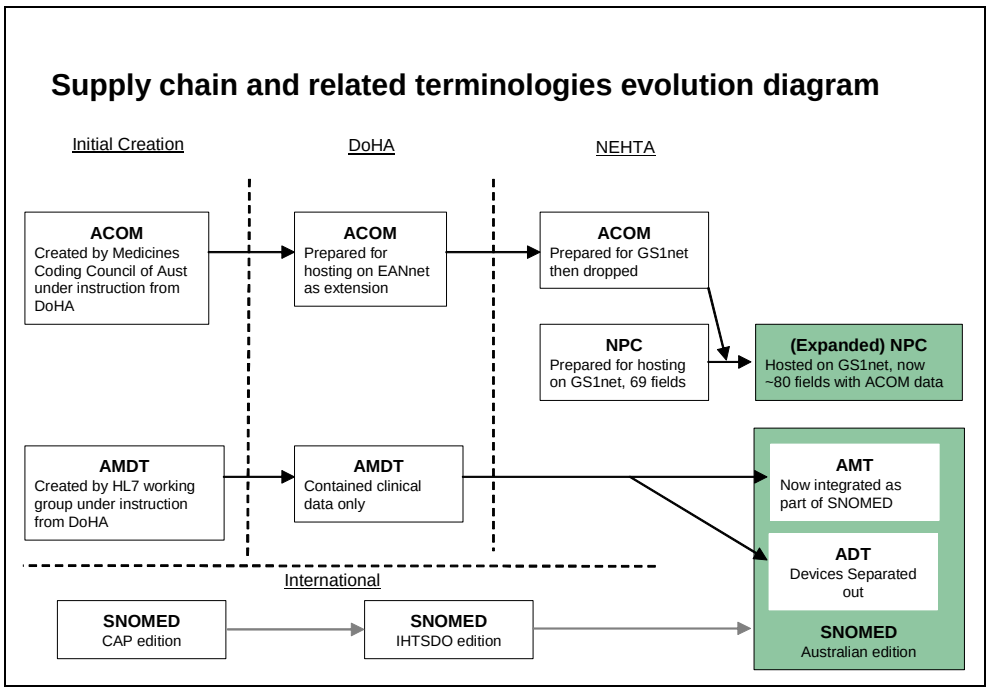
Exhibit 23

Supply chain work stream assessment

Work quality & scope	Work timeliness	Resources within budget	Engagement and acceptance	Implementability
• Workplan has generally been focused and pragmatic • Data requirements have shifted over time, though, as a result of incorporating other projects (e.g. ACOM) • Stronger planning needed around encouraging initial take-up of NPC for both juris and suppliers	• Design work has progressed slightly behind milestones • Delays have been caused by trying to align the NPC with ACOM which has since been abandoned and the move to GS1net	• Under budget due to insufficient staff ($3.8m) • stream will provide good value considering upside savings to jurisdictions	• Engaged well with GS1 to set up administration body, but: –Jurisdictions not all sufficiently engaged to use NPC yet –Some suppliers very upset about process taken to create the NPC and are refusing to populate it	• Technically relatively simple for jurisdictions to access, although difficult to implement where there is decentralised purchasing • Already in WA, NSW and QLD specifications • Shifting data requirements for suppliers has been a barrier to implementation
International comparators				
• Other countries in a similar position to AU. Fragmented legacy systems in Australia are likely to make deployment slower, OS planning has been more organic leveraging existing legacy systems		• Few funds specifically for supply chain identifiable in other programs internationally		• Widely implemented in Healthcare and other industries globally
Fair	Fair	Good	Poor	Fair

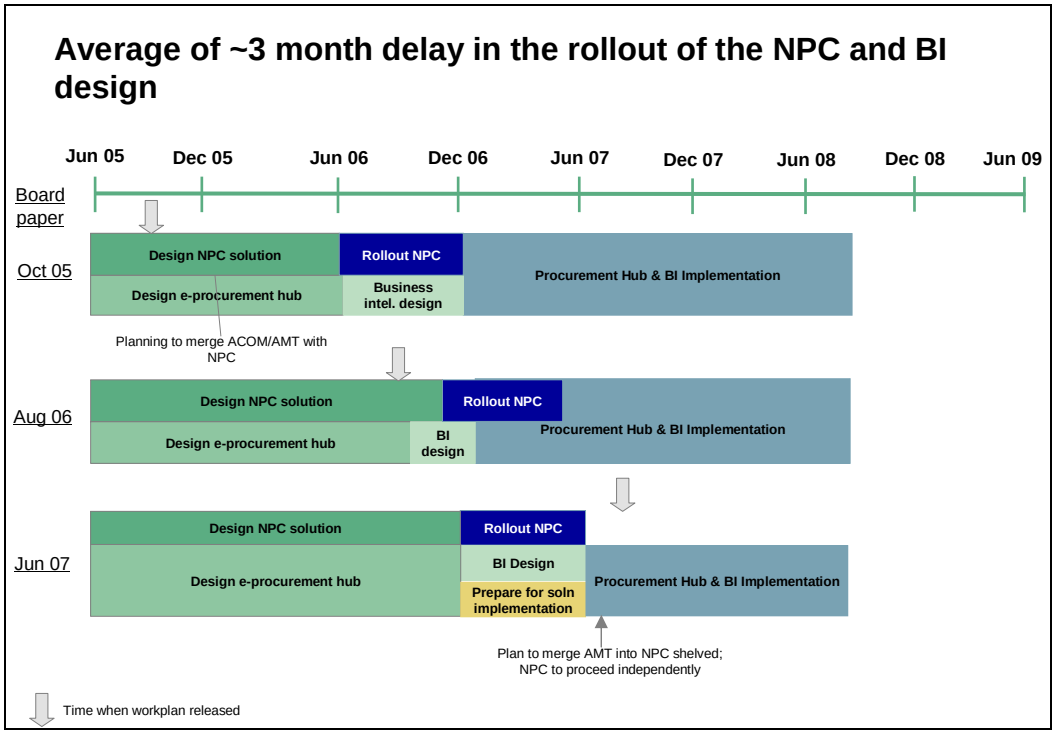
Jurisdictions had commenced supply chain work through the Australian Catalogue of Medicines (ACOM) before NEHTA commenced. With the establishment of NEHTA, a number of jurisdictional supply chain initiatives were added to the NEHTA program. This has affected both NEHTA's scope and timelines for delivery of their supply chain stream. Exhibit 24 traces the history of these initiatives.

Exhibit 24



The supply chain workstream is currently on schedule according to the August 2006 workplan (Exhibit 25), with minor slippages in some interim deliverables.

Exhibit 25



Likelihood of successful delivery

The path forward for successful implementation of the NPC depends on:

- **Uptake by the jurisdictions** —This process may require NEHTA to implant their own staff into client sites for periods of time or possibly make the centralised knowledge base within NEHTA more accessible to middle managers within jurisdictions. A number of jurisdictions have already specified use of the NPC in tender documents so uptake by 2009 looks very likely. Where there are decentralised purchasing arrangements (such as in Victoria) uptake may take longer, but it is difficult to envisage the NPC not being implemented at all

- **Population by suppliers** — Some suppliers are disenchanted with the NPC because not all data collected by them ended up being included. NEHTA reports show that 80 percent of the top 80 suppliers have now entered their data. However, a number of the larger drug suppliers indicated to us their reluctance to provide the required data. Nevertheless, it is very likely that the balance can be persuaded to participate over the next year or so as public hospitals adopt these standards

- **Coordination of data flows and sources** — These must be aligned over time so that the TGA, the NPC and SNOMED clinical terminologies databases are kept in sync and updates fed into state and institutional ERP systems. This will be a major achievement and a considerable rationalisation of the healthcare information management realm. By 2009 we would envisage a superficial level of alignment between these databases through mappings, but complete integration is likely to take longer.

3.2.7 Other workstreams

Progress Made

We have undertaken only a high level assessment the remaining workstreams. This is presented below:

Workstream	Milestones achieved	Deliverables planned	Likelihood of success
Clinical Information Initiative	Domain specifications including, adverse reactions terms, radiology data groups, referrals.	Pathology reporting, discharge summary, eMedication chart, ePrescribing, CCA processes.	**Good** – if work is focused on concrete working deliverables via domain packages and CCA function.
Medical Product Directory	Complete specs and 1st release for the AMT. Resolve future of ACOM.	AMT/ACOM/NPC work with supply chain stream, devices specs, ACOM to NPC data exchange.	**Fair** – is closely linked to clinical terminologies work with the same risks and dependencies.
Interoperability	CCA support and consultancy come from this stream to other streams internally within NEHTA. Produced framework documentation including information and business architecture processes and policies.	Finalise CCA guidelines. Continue work on Interoperability framework and enterprise architecture documents.	Interoperability Framework – **Good**, as work is already well advanced Functioning CCA unit is more important now and has only a **Fair** chance of success given its delayed start.
Authentication	Identity management planning, UHI authentication service specs, certificate specs, discharge summary authentication documentation. Draft concept of operations for authentication service.	External consultation process, identity management resource set, Business case in supporting UHI.	**Excellent** – Will leverage 3rd party expertise to deliver on time; provided UHI is delivered.
E-health Policy	UHI privacy management strategy, governance models for strategy, policy development, advice to other internal streams, SEHR privacy strategy.	Continue privacy management strategy for identifiers and SEHR.	**Good** – ultimately depends on AHMAC delivering legislation.
Standards Implementation	Liaison with Stds Aust & industry events, work on resource centre, work on CCA program, procurement support.	No future deliverables as a standalone stream.	Stream merged into other activities.
Benefits Realisation	The BR study has been published and discussed.	No future deliverables as a standalone stream.	Stream merged into other activities.

Fair = 40-60% probability; Good = 60-80% probability; Excellent = >80% probability.

* * *

These are significant issues and if not addressed will jeopardise the impact of NEHTA deliverables and consequently the broader eHealth agenda. Documentary milestones may still be completed, but their impact will be severely restricted because they will not be fit-for-purpose, and will often not be included in current implementation programs by jurisdictions. The following section deals primarily with changes that are needed to make deliverables fit for purpose and address the stakeholder engagement issues.

4 Immediate recommendations to complete current work plan

NEHTA's first priority must be to continue the current momentum to deliver its COAG objectives — the creation of unique individual and health care provider identifiers, and clinical terminologies. Delivery of these objectives requires not only that high-quality designs are clearly documented on paper, but also that they are 'fit for purpose', which requires that they are:

- Endorsed as the chosen set of clinical terminologies and health care identifiers and become the national standards
- Tested and proven to work effectively in typical local contexts
- Accepted by stakeholders with an in-principle commitment to adoption.

Our recommendations focus mainly on how to achieve the latter two objectives, without which NEHTA will have failed in its task.

Recommendation 1: Create a Culture of Transparency and outward focus

NEHTA's execution model thus far has been to focus primarily on the delivery of internally-determined standards and infrastructure. While this provided some protection of the young organisation, enabling it to formulate its position on topics, produce core documentation and build an effective program delivery organisation, it is critical that it now focuses far more externally. This should be done through providing greater transparency, increasing engagement at multiple organisational levels and working on addressing user needs.

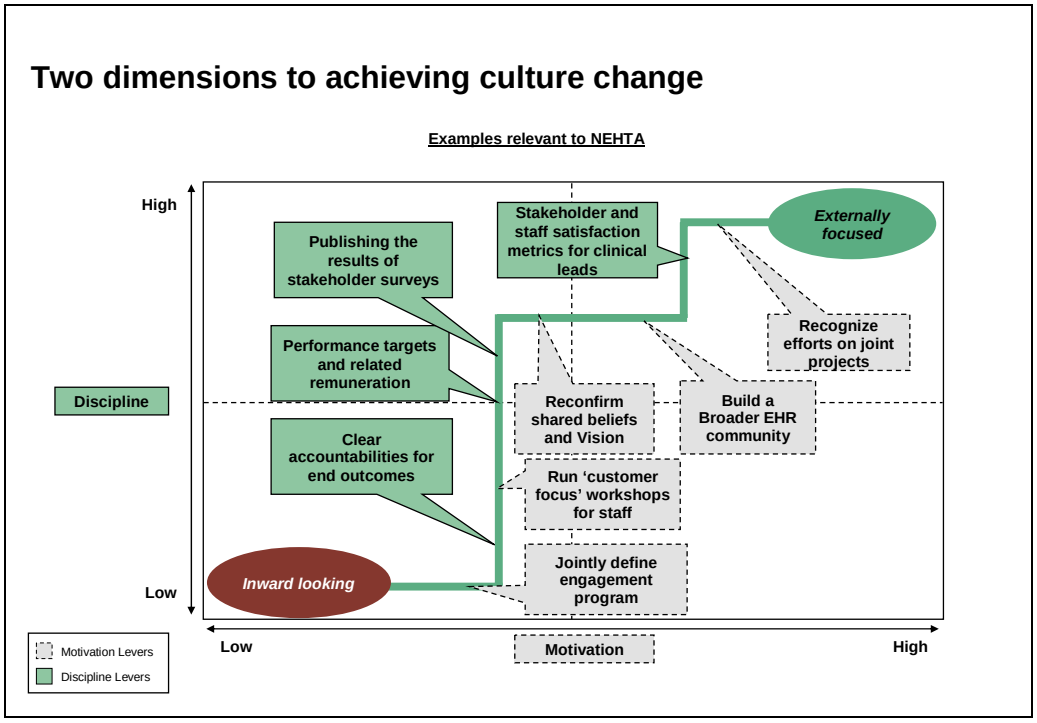
To address this problem NEHTA needs, first, to start or strengthen a number of communication-related activities:

- Communicate what NEHTA's goal and scope is and what it is not. This will need to happen across multiple stakeholder groups and on a regular basis, due to the turnover of external stakeholders

- Articulate what the end-product or vision is for each workstream in practical and concrete terms, including how it can be used or adopted in practice
- Publish interim milestones and describe in tangible terms the output, what feedback is sought from stakeholders and when and how the revisions will be released
- Conduct half-yearly briefing sessions with the broader eHealth industry to inform everyone about its progress and discuss challenges. Draw in proof-of-concept partners to speak at these forums
- Proactively push technical update information to expert communities as the information becomes available — such as design templates and schemas to solution architects doing state-based implementations

Second to execute culture change, NEHTA will also need to instil new performance disciplines and motivations for staff. Examples of the levers that could be applied are shown in Exhibit 26.

Exhibit 26



For NEHTA, potential levers to apply would include:

- For performance disciplines:
    - Clear accountabilities for end outcomes (including buy-in), not just documentation, for both building block and domain workstreams
    - Stakeholder and staff satisfaction metrics for clinical leads
    - Related performance targets and remuneration (for example, accreditation lead-assessed on number of packages accredited or

clinical terminologies lead-,assessed on number of systems using SNOMED CT

- including outcomes in reports, such as publishing the results of stakeholder surveys in reports

- For embedding motivation:
  - Reconfirming shared beliefs and the vision for eHealth
  - Building an eHealth community
  - Paying special attention to recognizing joint efforts with outside entities
  - Defining and agreeing an engagement approach that senior management are all comfortable with by seeking out and engaging key stakeholders
  - Conducting a set of 'customer focus' workshops
  - Running an internal communication program that equips staff to engage on their own specialist topics.

Typically, we would expect companies undergoing such a culture change program to pick 3-5 levers they think will work for their workforce. Detailed decisions about which levers to pull would hence need to be agreed in collaboration with senior management. However, virtually every program will require some verifiable performance targets. In the case of NEHTA, these need to cascade down from overall performance targets set for the senior executives.

Recommendation 2: Reorient the workplan to deliver tried and tested outputs

NEHTA has a dilemma regarding how it structures its workplan for the remaining two years of its current funding. On the one hand it needs to focus in a disciplined manner on its committed deliverables before it 'earns the right' to play a role in the next phase of eHealth development — implementation. On the other hand, it is quickly becoming evident that 'proofs of concept' need to have started before NEHTA and its customers can confidently say the existing deliverables are complete.

Currently, NEHTA are working on the following building blocks — UHI, Clinical Terminologies, Secure Messaging, SEHR, Supply Chain, and other workstreams (see Exhibit 26, 'Current NEHTA Workstreams'). The next step is for these building blocks to be linked together to form working applications. These applications would be implemented to serve a particular clinical process such as referrals. There was a strong perception among the stakeholders interviewed that NEHTA itself should become involved in implementation support. This way it can experience its standards and infrastructure products from the user end, and modify them to make them fit for purpose.

We believe there are two activities that are needed to bring NEHTA standards and specifications to the point where they can be confidently implemented by all:

- Developing end-to-end proofs of concept for specific eHealth applications, such as referrals, discharge summaries and ePrescribing.
- Developing a testing and accreditation function that enables NEHTA to work with software vendors to incorporate standards into existing applications

a. Develop end-to-end 'proofs of concept'

NEHTA board and management have already proposed a set of 'domain packages' — workstreams aimed at tying the eHealth building blocks together to deliver an integrated application set that could be implemented as a proof of concept in a given jurisdiction or organisation. Four domains have already been nominated for priority development:

- ePrescribing and dispensing
- Referrals
- Discharge summaries
- Pathology order entry and results.

Thereafter, a further three domains have been targeted:

- Clinical registries
- GP desktop
- E-consulting and decision-support.

We would support this change and the priority domains chosen. The three 'secondary' domains should only be commenced once the top four are well underway.

Furthermore we believe that a more decisive shift towards an implementation-focussed workplan is necessary. Domain packages should be set up as fully-fledged projects with hard deliverables and accountable project managers. Each domain will need one or two partner jurisdictions who commit to jointly developing and refining the domain package together with NEHTA. A number of existing workstreams — for example, Clinical Information and Standards Implementation should be merged into the relevant domain workstreams to allow the staff involved to 'test out' the concepts they have been working on.

Supply Chain and SEHR are really also domain packages (they combine building blocks to create end-to-end functionality) and should be managed as such. The supply chain work already operates in this fashion. The implications for the SEHR domain are that (subject to funding) it would need to take on a much more hands-on, experimental role than it has currently.

b. Establish a software integration testing and accreditation function

An 'Accreditation and Integration' workstream should be urgently established within NEHTA to support and then certify software vendors with regard to NEHTA standards. Our reasoning is as follows:

- For most smaller healthcare providers and institutions, standards and specifications will need to be implemented via packaged software. While the vendors of such software often claim to be compliant with various standards (including some that NEHTA has endorsed, such as HL7), this is rarely the case. For example, all three major pathology messaging hubs in Australia currently claim to be HL7 compliant, yet they are still not interoperable.

- Experience both locally and overseas suggests that an authoritative testing capability is necessary to ensure applications can interoperate on shared eHealth activities, at least for the first few years. Medicare Australia experienced similar problems when it tried to incorporate online direct billing capabilities into provider desktop applications. In the end, it set up a support and testing facility to support vendors in incorporating standards. In the UK, the risk of one or two applications degrading the performance of the NHS 'Spine' meant that a standard and rigorous testing process was needed before allowing access. Their 'sandpit' – a full copy of the NHS spine and end user system environment – allows a new package to be tested and certified efficiently and reliably.

- The fact that a number of States have already stipulated 'NEHTA Compliance' in recently signed contracts makes the creation of this capability an urgent priority. If it is not in place before deployment begins, jurisdictions will have to either:
  - Perform the accreditation themselves – which will be very costly and time consuming;
  - Waive the NEHTA compliance stipulation – and hence risk being unable to use national eHealth standards and infrastructure; or
  - Delay their projects until an accreditation capability exists

- NEHTA is best suited to operate this service currently.
  - It is not linked to any software products in the market (unlike many systems integrators) and hence is less likely to be accused of bias.
  - It has staff with the right specialist skills – and it is unlikely that any other organisation in Australia could match this
  - It is the only body that is intimately familiar with the latest versions of the standards to be tested
  - Only NEHTA is in a position to change a standard which, during testing, turns out to be impractical or counterproductive
  - Having this role creates an incentive for NEHTA to ensure that its standards are implementable

Other existing candidates typically cannot fulfil many of these criteria. For example, Standards Australia does not have full time staffing or technical infrastructure to run such an operation, nor the knowledge of health care applications to be integrated with. In the long run, however, it is quite possible that the Accreditation Function could be transferred out of NEHTA to a suitably equipped public or private entity.

Between 70 and 80 people work in this area on the NHS Connecting for Health Program, although we would suggest 10-15 would be appropriate for NEHTA to aim for by mid-2009. Ideally they would have practical systems integration experience, and be pragmatic realists, rather than obsessive perfectionists. The assistance of an external systems integrator for the first few months of setting up this function would probably be worthwhile obtaining, but the medium term goal should be to have all skills in house.

Each workstream needs to commit to a target for achievement by the end of the COAG funding period (that is, two years hence). This applies to Building Block and Domain-Based workstreams, and should includes:

- What the final written deliverables will look like
- What levels of acceptance, uptake and proof of concept will be achieved
- What interim deliverables will be produced along the way, and to what degree their usefulness will have been tested.

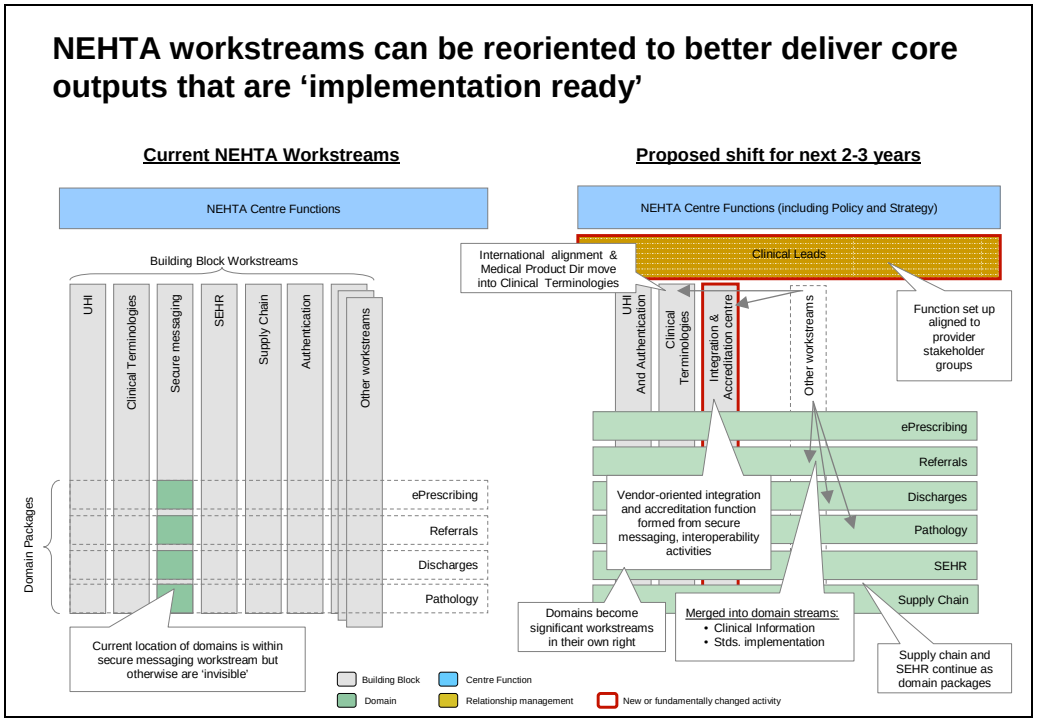
This will be an important element of creating transparency and encouraging stakeholders to use these deliverables. The current approach to work planning provides lots of information on detailed activities, but little on the ultimate objectives.

Finally, remaining 'building block' workstreams should be focused on the two critical COAG deliverables:

- UHI (Including Authentication); and,
- Clinical Terminologies (Including the Medical Products and Devices stream)

The proposed changes are depicted in Exhibit 27:

Exhibit 27



Recommendation 3: Raise the level of proactive engagement through clinical and technical leads

Better engagement with external stakeholders will be *the* critical prerequisite for success going forward for two reasons:

- Testing and validating NEHTA standards — without engagement, NEHTA will not be able to deliver useful outcomes for its current brief as output will not be fit for purpose
- Ensuring their acceptance and uptake — even if an excellent product is delivered, barriers created by poor engagement will discourage uptake.

Now that work programs have achieved good traction and appear likely to deliver their documentary outputs, albeit on somewhat delayed timeframes, the most important objective is to make sure that these products are tested and accepted by potential users. In this case, the key to successful engagement is interaction that specifically targets each of the key stakeholder groups. A generic, mass engagement campaign would be inappropriate and is unlikely to work with the current fragmented, yet very specific set of interested parties.

Clinical engagement

Clinicians will be the key driver for eHealth uptake. Clinician groups interviewed felt they had been largely ignored by NEHTA thus far. Clinician engagement is best led

by someone very familiar with the work of that group, and with some degree of pre-existing trust from them. The likely groups warranting a clinical lead might include:

- Primary care practitioners – doctors and paramedical staff
- Specialist physicians and diagnostics providers
- Pharmacists
- Health care institution managers – public and private

One of the advantages of a dedicated clinical lead function is that it reduces the need for functional teams to create and manage their own engagement processes. This will avoid distracting them from their core deliverables. Besides, engagement management is often not often a well-developed skill. Our experience with such roles in the IT and Financial Services industries is that this role works best with a few highly skilled people who have deep domain knowledge and are typically hand-picked. Consequently, we would envisage a team of around four clinicians/managers, reporting to a head of clinical engagement with two or three support staff. In addition to first hand knowledge of the group concerned, a clinical lead will need a good working understanding of the NEHTA package domains that relate to their respective group, as well as familiarity with all of the building block programs. Perhaps most importantly, clinical leads would primarily be aligned to client groups, rather than particular projects.

Clinical leads would be accountable for:

- Collecting, synthesising and representing the needs, feedback and complaints of their respective stakeholder group to the NEHTA executive, and the relevant workstream leads
- Traffic control — when any specific output or analysis is required, this is directed to someone in one of the functional teams. Likewise, they would direct internal staff to the best stakeholder(s) to obtain an opinion on a given topic
- Acting as an accessible first port of call for stakeholders with specific questions
- Structuring and planning the overall engagement program with that group of stakeholders.

Technical engagement

While a clinical lead function will significantly improve the relationship with provider groups, an additional layer of technical engagement needs to occur to thoroughly test products and ensure uptake. This creates the compelling proposition where health care executives receive reinforcing messages from the NEHTA CEO and their own technical staff.

Technical engagement needs to be operated by technicians themselves. Its purpose, however, is simply to ensure rapid learning and dissemination of experience rather than to make decisions. This will require architects and analysts in NEHTA to engage with their counterparts in jurisdictions, healthcare software vendors and private institutions. Potential initiatives to foster technical engagement include:

- Building online technical communities around a common problem set. Some, for example around HL7, already exist whereas others, for instance around the AMDT, might need to be created. These should serve as forums where stakeholders can ask NEHTA technical staff and other community members any informal questions they may have

- NEHTA needs to encourage frank feedback and loosely governed forums. Clear rules around sharing criticism within the group, rather than outside are needed to maintain trust and participation. NEHTA, as moderator will have to enforce these — but without any hint of defensiveness. Early access to new standards, shared code for reuse and so forth can act as incentives to maintain membership

- Funded technical support from NEHTA for specific content research or support users are seeking, such as providing a ready-configured test environment, research into use of SNOMED on clinician data lookup times and optimal sort-order of search results for different specialties

- Jurisdictional secondments — whereby jurisdictional staff with eHealth responsibilities are seconded to NEHTA for discrete projects. The converse could also apply under a more implementation-focused work program

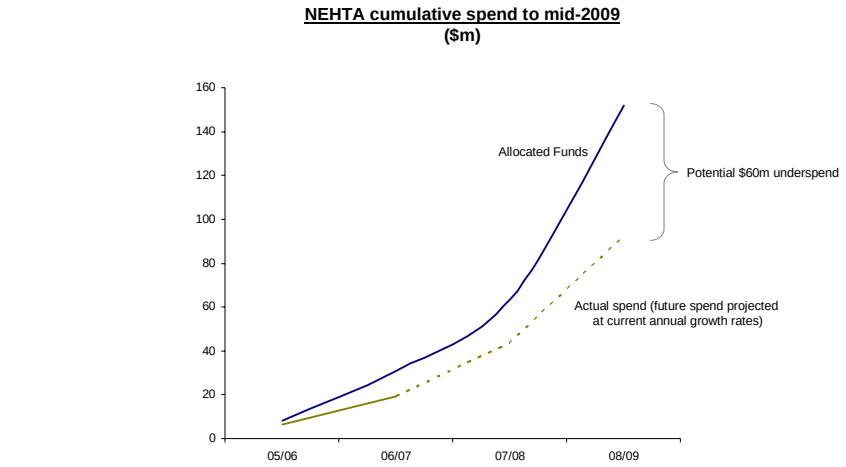
- NEHTA has a significant number of existing reference groups, not all of which are functioning well. We recommend that the members of each of these be surveyed as to their preferred involvement going forward. We would anticipate most would want some form of intermittent update, and consultation on major issues (possibly online), but only a few would desire frequent participation on more detailed technical questions. Creating voluntary two-tier structures could optimise reference group structures without offending anyone.

Recommendation 4: Accelerate resourcing through outsourcing, offshore recruiting and more creative contractual arrangements.

The most visible problem with funding of NEHTA's current program is its persistent underspend on budgets, and associated delays in delivery. While the initial timelines set by NEHTA to establish itself and begin its work program were probably too ambitious, the current timelines are more realistic. Even these new timelines, however, depend on NEHTA substantially increasing its ability to convert its budget into deliverables. Failure to scale up delivery quite soon might persuade funders that NEHTA may not be the body trusted to administer substantially larger eHealth implementation dollars (Exhibit 28).

Exhibit 28

At current spending growth rates NEHTA will underspend by $60m



Source: NEHTA Board papers through Aug 2007

NEHTA is currently underspending on its budget by approximately 40 percent, primarily because:

- The signing of delivery contracts, such as the UHI contract with Medicare, have been delayed
- NEHTA have had difficulties recruiting the right people in a timely manner.

We assume that once contracts have been signed, the executing parties will draw down funds in time to deliver. However, with regard to recruiting NEHTA will need to be more proactive, and alternatives are probably needed in addition to typical sweeteners such as pay, conditions, and flexibility. These could include:

- Capacity supply agreements with major systems integrators — under which NEHTA might contract, for example with a major systems integrator for five experienced solution architects for a year to work on the design of messaging within domains. This option would be particularly useful where NEHTA standards and designs are well established and the main need is for experienced implementers to apply these to real-world requirements and integrate with existing systems

- Contracting out of discrete functions — whereby an RFP is issued for, say, the establishment of an accreditation and testing facility. The successful bidder would establish and operate the entire function for a fixed period and be managed to measurable deliverables. For example, a given number of commercial packages made compliant with NEHTA standards.

- Offshore recruiting of experienced technical staff from countries which have major eHealth programs underway, including transfer incentives such as relocation allowances. Where feasible, short-term international secondments of experts from the UK, Canada or the US could also be beneficial where there are suitable local staff to learn from them

As the pace of implementation accelerates in jurisdictions and the private sector, NEHTA will risk losing skilled staff to higher-paid contracting and consulting opportunities. This is not necessarily bad, as these staff will take NEHTA objectives and standards with them, and will therefore be an important uptake and standardisation force. However, to deliver to the current plan it would be worth considering specific retention tools, such as deliverable-completion bonuses. Where NEHTA cannot sustain salary levels on a permanent staffing basis, or funding or delays in decisions generate uncertainty, higher paid consultancy options for tried and tested staff members with well defined deliverables might be a useful half-way house for retaining critical expertise.

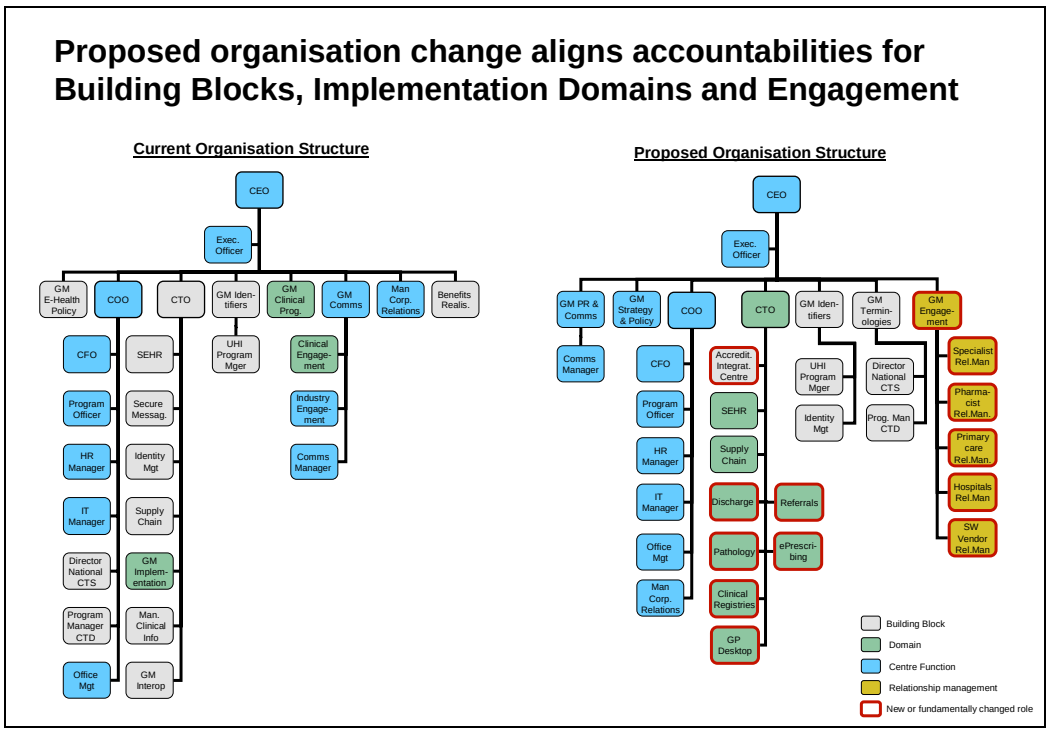
Recommendation 5: Reshape the organisation structure to address revised priorities

Organisational change can be disruptive, especially in an establishment that has a limited window in which to deliver. We believe that any structural change therefore needs to be limited and focused on achieving four objectives, in support of the above recommendations:

- Adapting to the evolution of objectives for a transitional organisation
- Increasing the focus on tangible deliverables — that is, functioning domain packages, in addition to the already committed building blocks
- Creating accountability for engagement and the flexibility to collaborate with outside parties — jurisdictions, software vendors and potential implementation partners
- Making the organisation more scalable to pick up the considerable increase in work that is likely to come through activities such as accreditation.

Exhibit 29 outlines the key proposed changes to the organisation structure.

Exhibit 29



The main changes to the organisation structure are as follows:

- The CTO takes on primary accountability for the enlarged domain package workstreams
- An accreditation and integration function is also set up, which may report to the CTO, or directly to the CEO
- The terminologies and UHI workstreams are managed by two different GMs focused on the COAG deliverables first and foremost
- Other ‘Building Block’ workstreams are reassigned to one of the above major programs of work — Domains, Building Blocks (UHI and Terminologies) and Accreditation.
- A new clinical engagement function is set up focused on a particular clinician group or hospital management responsibilities, rather than domains or building blocks
- A Communications and a PR function remains, focused on mass media and public communications rather than provider stakeholder groups, which are managed by the engagement function
- Benefits realisation and eHealth Policy are combined into a single ‘strategy and policy’ centre function
- Other centre functions are consolidated under the COO, who might continue to fulfil a ‘floating’ role across the deliverable workstreams as needed.

A refocusing of work programs around end-to-end deliverables would necessitate new domain leads and new clinical engagement leads, at the same time merging existing workstreams and consequently losing other stream lead roles. Given the requirements for organisational growth, however, there should still be plenty of opportunity for career progression for existing staff.

It is essential that accountabilities are carefully mapped out and clarified between engagement, domain, support and building block functions. Often the best way to do this is to identify a set of typical decisions that will need to be made and then mapping the various roles that need to be played for each against the organisational units. An example is shown in Exhibit 30.

Exhibit 30

Illustrative roles for NEHTA staff and board under proposed model

		Some example decisions			
Potential Involvement	What It Means	Selecting a new messaging standard	Finalising ePrescribing requirements	Signing off UHI solution	Signing a 2-year outsource contract for specialist resources
Responsible	Person who is responsible for making sure the call is made	Integration and accreditation Lead	ePrescribing Domain lead	CTO	COO
Accountable	Carries the blame if the decision is wrong	CTO	CTO	CEO	CEO
Right of Veto	Right to refer for reconsideration	Board	Pharmacist & GP clinical leads	Board	Board
Proposal	Putting forward a detailed suggested decision or providing key information	Technical reference group members; Technical staff	ePrescribing Reference Group	UHI Workstream lead	Board, Management team
Consul-tation	Individual kept up to date during decision process and asked for advice	Domain stream leads;	Other domain stream leads	Domain stream leads;	Affected stream leads
Information	Made aware after decision is taken	All staff; Broader stakeholder community	All staff	All staff; Broader stakeholder community	All staff; Broader stakeholder community

These are not comprehensive – NEHTA will need to identify the full set of decisions around which accountabilities should be specified

Recommendation 6: Add a number of independent directors to the NEHTA Board to be broader advocates of eHealth, and to counter stakeholder perceptions of conflict of interest.

NEHTA has a board composed of representatives of each of its funders. This has the significant advantage of ensuring alignment between all jurisdictions, as well as making adoption by public health care systems more likely. However, there are also some limitations on the time that board members have to commit to NEHTA, the fact that their tenure is typically short, and that some stakeholders perceive them as biased in favour of the public hospital sector. To address these perceptions, we considered a number of potential changes to the board:

- Add more representatives — but at the risk of making the board slow and fractious. Given the fragmented nature of healthcare stakeholders, this could easily produce a 40-member board and still have some stakeholders claiming

to be under-represented. For this reason, this option was not considered further.

- Option 1: Add an independent chair to the existing board
- Option 2: Do not change the board composition but provide an additional expert advisory committee to advise the board on technical and clinical matters
- Option 3: Create a hybrid where some independent directors are added to what remains a representative board
- Option 4: Move from a representative board to an independent, 'expertise-based' board (this is the norm for public companies with diffuse shareholdings), on which there may still be a few current or ex-health CEOs, but not in a representative capacity.

The advantages and disadvantages of each of these are laid out in Exhibit 31. We have assessed governance options against two sets of criteria:

- Do they address the criticisms of the NEHTA Board
- Do they maintain the advantages of the current Board structure

Exhibit 31

Assessment of different governance options

	Parameter	Option 1: Independent chair	Option 2: Advisory sub-committee	Option 3: Add independent directors to current Board	Option 4: Expertise-based, paid independent board
Criticisms addressed	Perceived conflict of interest and bias towards public hospital sector	◑	◔	◕	●
	Lack of bandwidth and breadth and depth of experience	◑	◕	◕	●
	Short length of member tenure	◔	◔	◑	◔
	No natural board spokesperson who can engage senior external stakeholders	◑	○	◕	◕
Advantages maintained	Minimal disruption to COAG agenda delivery	◕	◑	◑	○
	Jurisdictional support and buy-in to NEHTA products	◑	◑	◔	◔
	Minimal dilution of funder representation	◕	●	◕	◔
	Board cohesion & effectiveness in making decisions	◑	◔	◑	◕
	Examples		NHS Care Record Service	Canada Health Infoway; ANZSOG	Most Public companies; National Health Call Centre Network (NHCCN)

● Fully addressed ○ Not Addressed at all

Clearly, there is no obvious solution that addresses all criticisms whilst still maintaining current advantages. In the long run, however, as eHealth permeates all sectors of health care, and the relative importance of central funding diminishes, we believe objectivity and a substantial time commitment will be critical in steering

oversight of implementation. Consequently, in the long run we would support our original recommendation from 2004 for an expertise-based board for NEHTA (Option 4). This could include two or three people with healthcare provision experience, one or two persons with IT implementation experience, and two or three current or past Health secretaries. This would allay existing stakeholder issues while ensuring better continuity and engagement capability. Members (that is, Health Ministers) would appoint board members, and would have the right to review board performance, say, at six monthly intervals initially, to address any issues. Ultimately, the members and their CEOs would still have the ability to direct the board, but would not have to participate in detailed planning, technical and resource allocations decisions where conflicts might prevail.

While option 4 would appear to offer the most desirable long-term option, it has some very significant disadvantages — the level of short-term disruption it would cause and the potential loss of support from jurisdictions if implemented before they have complete trust in the organisation. We would therefore suggest that this be considered for introduction once the current round of COAG deliverables are complete.

In the short run, therefore, we recommend adding two or three independent directors (option 3) to:

- Improve continuity, as long term contracts can be agreed that will not be impacted by electoral results or public service reshuffles
- Bring an additional expertise perspective to discussions, especially if they come from a non-public sector background
- Assist the CEO with managing crucial stakeholder groups and improving outside perceptions of NEHTA

This should not disturb the momentum that the current board have developed around the COAG deliverables. We recognise that option 3 is only a partial solution. However, it will provide a significant degree of continuity and potential for better engagement, and would be an important symbolic signal regarding the inclusiveness of the NEHTA agenda. At the same time, existing efforts to improve the process at board meetings, provide timely information to members and build a common sense of purpose, should continue.

Financial Implications of Recommendations

We believe that if the recommendations described above are implemented in a timely manner, NEHTA will be able to deliver on its brief by mid-2009. These are not additions to the scope of NEHTA, but are an integral part of producing standards and infrastructure that can and will be taken up and used by all jurisdictions.

They were not explicitly costed in the original funding given to NEHTA, however. Without a detailed understanding of spending already planned by NEHTA for these topics, it is not possible to accurately identify incremental funds required to implement these recommendations. Our initial estimates suggest that clinical leads,

accreditation and the four major implementation domains would cost approximately $15.8m over two years. They would overlap with approximately $5.7m of existing budgeted funds, leaving an increment of $10.1m to be raised, either through an additional funding request, or the reallocation of funds (including potentially, the underspend) from other programs.

Line Item	$(m)
Clinical Engagement[1]	1.7
Integration and accreditation[2]	6.7
Domain Packages[3]	7.4
Total Required	15.8
less funds already committed	*5.7*
Net increment required	**10.1**

1. Assumes five clinicians and three support staff
2. Assumes internal team of 15 achieved by 2008/9; assisted by three months work from four external expert contractors/consultants
3. Includes four team members for each of four priority domains, plus $1m for contractor/vendor fees

5 Maintaining momentum beyond the current work program

Although the 'T' in NEHTA stands for 'Transition' the work in eHealth coordination will be far from finished when NEHTA's current agenda comes to an end in 2009. A considerable body of output, capability and momentum will have been built up, but relatively few of the benefits harvested. Even if NEHTA itself does not continue, it is critical that the investment currently being made is brought to fruition. Our view, and the view of most stakeholders interviewed, is that central coordination by a NEHTA-like body (NEHTA II) will be essential to make the most of this opportunity.

However, the precise role of NEHTA II, and those of other stakeholders cannot be determined in isolation from the broader five to 10 year vision for eHealth in Australia, specifically:

- How much funding will be committed and through which funding channels?
- Where will public funding be focused?
    - Standards vs. central infrastructure vs. institution-based IT systems
    - SEHR vs. more immediate, but less comprehensive functionality e.g. discharge summaries, ePrescribing
- How much will be implemented once, centrally as opposed to by jurisdictions and private organisations?
- How urgently do we need to deliver specific outcomes?

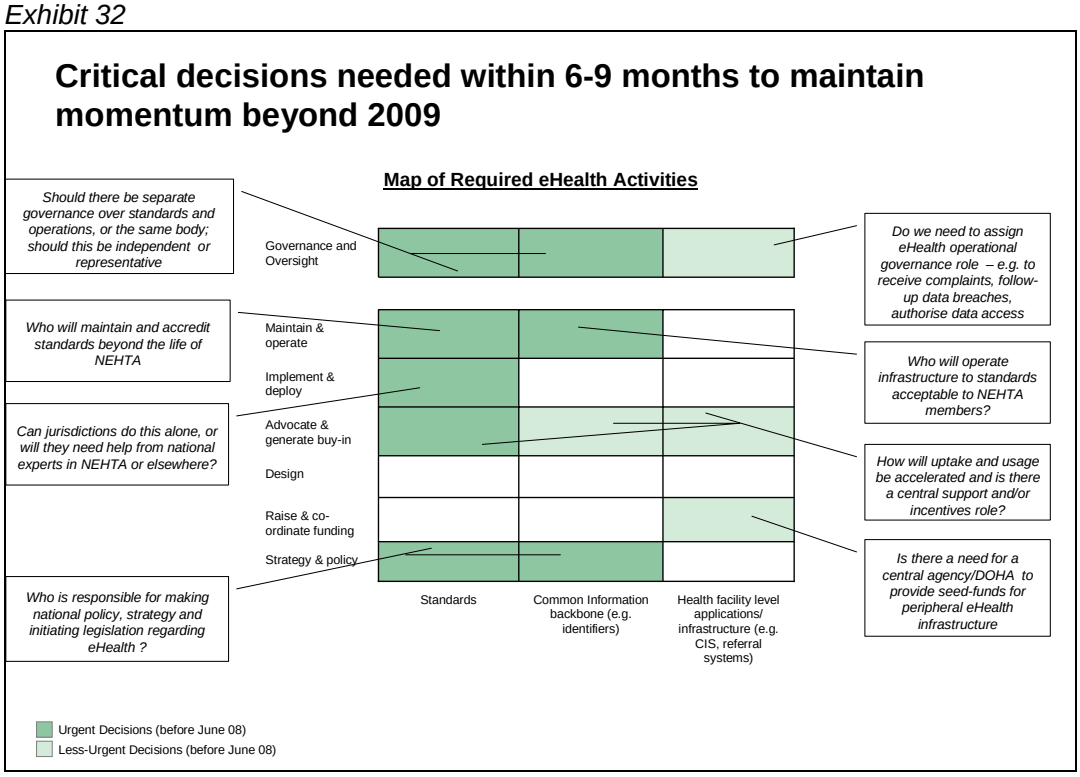
These will be addressed by a separate piece of work to be commissioned by AHMAC. Clarity will need to be provided to NEHTA prior to mid-2008 to enable planning for the last phase of the current work program.

Once the above questions have been answered, a secondary set of questions emerge around the role for NEHTA II:

- What role(s) will the entity play in implementing both publicly funded and privately funded eHealth initiatives:
    - Certifying authority?
    - Technical adviser?
    - Systems integrator?
    - Incentivising agency?
- Will it continue to be 'transitional' or will it take on the ongoing maintenance of standards or infrastructure?
- How should the entity be funded and governed?

A further set of questions on specific functions are shown in exhibit 32.

Exhibit 32



Although these questions cannot be answered now, we have included some additional data to facilitate discussion on possible coordinating roles:

- A summary of the responses of interviewees on the potential roles for a central agency and NEHTA going forward (appendix 4).
- Our preliminary thinking on potential roles for NEHTA II given different funding scenarios (appendix 5)

5.1 Immediate next steps

Our recommendations cover a range of changes needed to ensure better engagement with stakeholders and processes to ensure outputs are implementable and fit for purpose. Work should begin to put these in place immediately.
In addition there are two immediate requirements that NEHTA members and directors will need to facilitate in their external capacities:

- Existing NEHTA contractual arrangements should be underwritten until at least mid-2009, subject to performance and funding being available, with immediate effect. This is necessary to enable hiring staff and securing premises to complete the COAG workplan.

- Beyond setting NETHA on the path for successful delivery of its objectives, there is a broadly articulated need for someone to paint the vision and strategy for the next five to ten years of eHealth in Australia. This is not a NEHTA role, but still needs to embody the aspirations of federal and state governments and the private sector. This is needed to enable long-term planning and co-

ordination of the multiple related initiatives that touch on eHealth. Once the vision and strategy have been agreed, and appropriate post-COAG funding confirmed, the potential role for NEHTA, AHMAC, Standards Australia, Medicare and other bodies will become much clearer. To avoid loss of momentum, this vision and strategy need to be created and signed off to by mid-2008.

Appendices

Appendix 1: Interviewees

NEHTA Staff

Ian	Reinecke	CEO
Ian	Carmody	COO
Mark	Gibson	CTO
Lisa	Smith	General Manager Communications
Bridget	Bainbridge	General Manager E Health Policy
Roger	Glenny	General Manager Unique Healthcare Identification
Andy	Bond	General Manager Interoperability
Peter	Sprivulis	Manager Benefits Realisation
Kate	Ebrill	PL Clinical Implementation Group
Andrew	Goodchild	PL Shared EHR
Helen	Murray	PL Standards Implementation
Ken	Nobbs	PL Supply Chain
Gil	Carter	PL User Authentication
Paul	Frosdick	Director, National Clinical Terminologies
Karen	Gibson	General Manager, Clinical Terminology
John	McMillan	Manager, Secure Messaging

Current and ex Board Members

ACT	Mark	Cormack	CEO ACT Health
Federal	Jane	Halton	Secretary Department of Health and Ageing
NT	David	Ashbridge	CEO, Department of Health and Community Services
QLD	Uschi	Schreiber	Director General, Queensland Health
SA	Tony	Sherbon	CEO, Dept of Health
VIC	Fran	Thorn	Secretary, Vic Dept of Human Services
WA Board	Neale	Fong	DG, Dept of Health
SA	Jim	Birch	Previous SA DG of Health
VIC	Patricia	Faulkner	Previous VIC Secretary of Health & Human Services

Jurisdictional Reference Group (JRG) Members

ACT	Owen	Smalley	CIO
Federal	Philip	Davies	Deputy Secretary, with Richard Eccles
NSW	Mike	Rillstone	CIO
NT	Stephen	Moo	Deputy Secretary
QLD	Peter	Grant	Acting CIO with Tanya Harch
SA	David	Filby	ED Policy & Intergovernment Relations
TAS	Max	Gentle	Dir Info Services
VIC	Peter	Allen	Under Secretary, Portfolio Services & Strategic Projects, with Fiona Wilson, Jodie Geissler and Phyllis Rosendale
VIC	Andrew	Howard	CIO Dept Human Services
WA	Colin	Xanthis	ED, Health System Support, with Peter Collard

External Organisations

Qld Divisions of General Practice	Ann Maree	Liddy	CEO
Standards Australia	David	Rowlands	On secondment from NEHTA
Standards Australia	Pat	Gallagher	Chair - IT-014
Australian Medical Association	Peter	Garcia Webb	With John O'Dea and Wendy Lorincz
Consumers' Health Forum	Helen	Hopkins	Executive Director
HL7 Australia	Klaus	Veil	Chairman
Medicare Australia	Nic	van den Berg	GM IT with Pamela Spurr
Medicare Australia	Anthony	Honeyman	GM Access Card
National Coalition of Public Pathology	Roger	Wilson	Member
National Health Information Regulatory Framework Working Group	David	Watts	Assistant Secretary, Legal Services DOHA
Pharmacy Guild	Stephen	Armstrong	Economic Analysis & IT Division) with Tim Logan
Australian Health Information Council	Jim	Angas	Dean of Medical Sciences, Uni of Melbourne
Aust. Assoc. of Pathology Practices	Michael	Guerin	President, with Michael Legg
GS1 Australia	Maria	Palazzolo	CEO
Microsoft	David	Dembo	Health Industry Manager
Oracle Asia Pacific	Andy	David	Director, Healthcare & Life Sciences Industries,
Royal Aust College of GPs	Vasantha	Preetham	President
Society of Hospital Pharmacists of Australia	Yvonne	Allinson	Executive Director
Australian Privacy Foundation	Nigel	Waters	Representative
iSoft	Nigel	Lutton	ANZ MD
National Health Service	Richard	Granger	(Former) IT Director General

National Health Service	Debbie	Chinn	Head, NHS Integration Centre
National Health Service	Martin	Smith	Program Manager, NHS care Record Service
Partners HealthCare System, Boston	David	Bates	Director of Clinical and Quality Analysis
Health Level 7	Charles	Jaffe	CEO
Best Practice Software	Frank	Pyefinch	CEO
HCN	John	Frost	CEO
Medical Software Industry Assoc	Vincent	McCauley	President
Ministerial Advisory Group on E-Health	Roger	Allen	Chair
Pfizer	John	Vassallo	e-Business Facilitator, with Mary Whalan
CHIK Services	Sally	Glass	Director, with John Glass
Independent	David	More	Health informatician and writer
ACHI	Siaw-Teng	Liaw	President
Australian GP Network	Kate	Carnell	CEO, With Paul Giacommetti and Jan Robbins
Office of the Privacy Commissioner	Andrew	Solomon	Director of Policy, With Andrew Hayne
Health Informatics Society of Australia Ltd (HISA)	Brendan	Lovelock	General Manager

Appendix 2: Submissions received

Written submissions were received from:

Australian Health Information Council
Victorian Department of Human Services
ACT Health
Australian Medical Association
Health Infomatics Society of Australia
Patrick Gallagher
Oliver Frank
HL7 Australia
Consumer's Health Forum of Australia
Medical Software Industry Association
Microsoft Australia
WA Health Dept
iSoft Australia
Australian College of Health Infomatics
NSW Health
Australian Information Industry Association
Dr Ian Colclough with John Johnston
Dr David More
National Coalition of Public Pathology

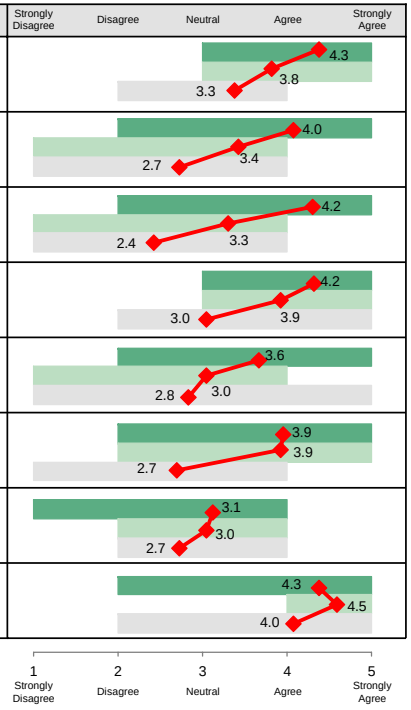
Appendix 3: Survey questionnaire and results

Results E-Health Survey Questionnaire (I)

NEHTA, Jurisdiction Board, Jurisdiction CIO

Questions 1-8

Category	Q #	Question
NEHTA Work Program	1	NEHTA has successfully established effective data products (eg clinical terminologies)
	2	NEHTA has progressed well in establishing patient and provider identifiers
	3	NEHTA has progressed well with planning for EHR
	4	NEHTA has worked effectively on privacy standards
	5	NEHTA has delivered its objectives quickly
	6	NEHTA is careful to avoid duplicating work done by other government bodies
	7	NEHTA's standards are generally implementable
	8	NEHTA's work has significantly advanced the agenda of e-health compared to 2 years ago

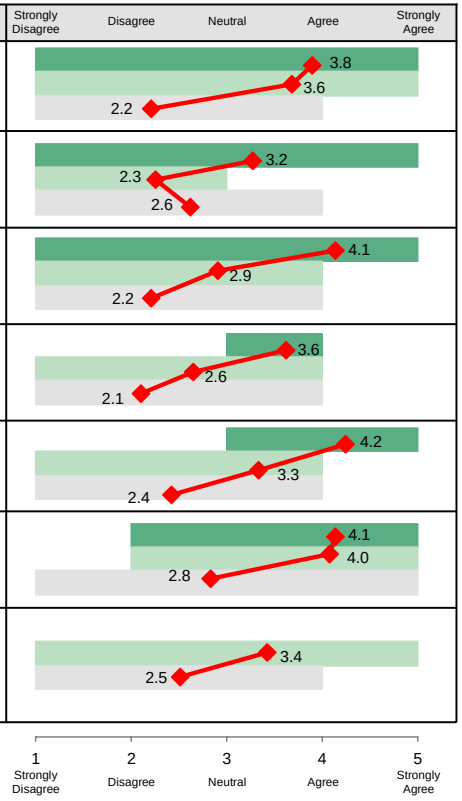


Results E-Health Survey Questionnaire (II)

NEHTA, Jurisdiction Board, Jurisdiction CIO

Questions 9-15

Category	Q #	Question
Stakeholder Engagement	9	NEHTA is sufficiently independent to ensure balanced e-health decisions for Australia
	10	NEHTA is transparent and has provided sufficient information about its work and processes
	11	NEHTA uses the appropriate channels to communicate with stakeholders including forums & conferences, web & email, etc
	12	NEHTA is effective at receiving and acknowledging feedback
	13	NEHTA acts on valid feedback it receives
	14	Should NEHTA be responsible for advocacy around SEHR more broadly (to doctors etc)
	15	Overall NEHTA has engaged well with my organisation

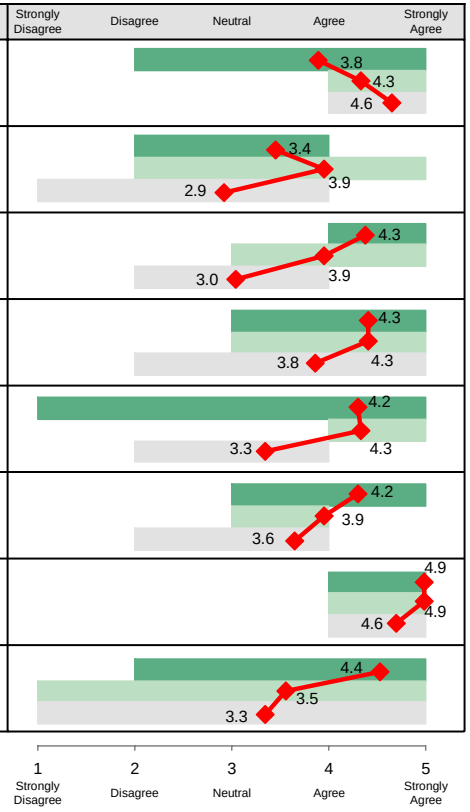


Results E-Health Survey Questionnaire (III)

NEHTA, Jurisdiction Board, Jurisdiction CIO

Questions 16-24

Category	Q #	Question
NEHTA Resource Usage	16	NEHTA has received sufficient funding to fulfil its charter
	17	The ratio of resources allocated across the mix of standards, systems planning and implementation has been appropriate
	18	NEHTA has delivered good value for money
	19	NEHTA has made effective use of experts in Australia and overseas
Future Work	20	I have clarity on NEHTA's forward program of work
	21	NEHTA does a good job of prioritising its work tasks
Organisation Future	23	The current e-health standards, planning and implementation work could only have been achieved with a central body
	24	NEHTA should continue in its role as the primary e-health facilitation body for creating and maintaining standards in future

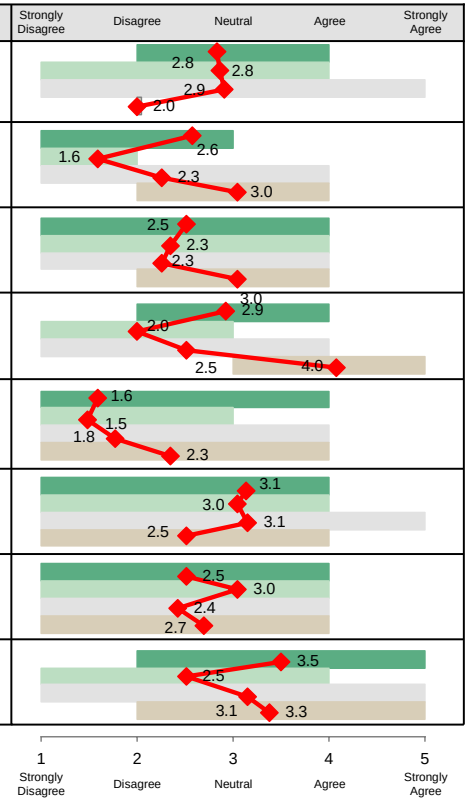


Results E-Health Survey Questionnaire (I)

HC Provider, Health Informatics, IT Industry, Privacy

Questions 1-8

Category	Q #	Question
NEHTA Work Program	1	NEHTA has successfully established effective data products (eg clinical terminologies)
	2	NEHTA has progressed well in establishing patient and provider identifiers
	3	NEHTA has progressed well with planning for EHR
	4	NEHTA has worked effectively on privacy standards
	5	NEHTA has delivered its objectives quickly
	6	NEHTA is careful to avoid duplicating work done by other government bodies
	7	NEHTA's standards are generally implementable
	8	NEHTA's work has significantly advanced the agenda of e-health compared to 2 years ago

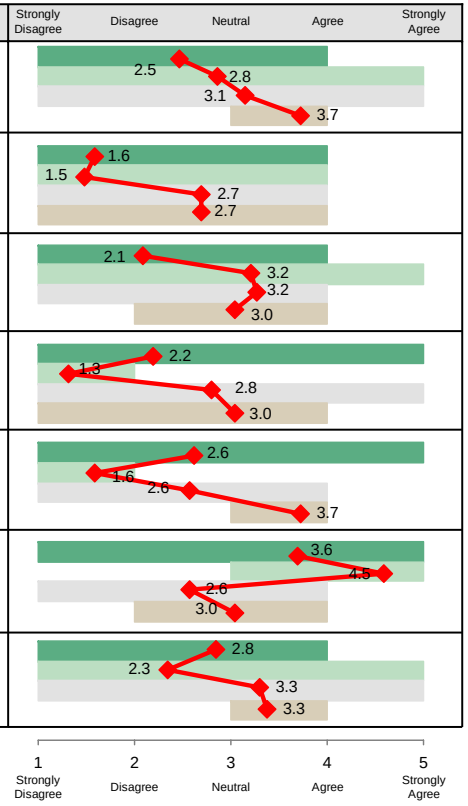


Results E-Health Survey Questionnaire (II)

HC Provider, Health Informatics, IT Industry, Privacy

Questions 9-15

Category	Q #	Question
Stakeholder Engagement	9	NEHTA is sufficiently independent to ensure balanced e-health decisions for Australia
	10	NEHTA is transparent and has provided sufficient information about its work and processes
	11	NEHTA uses the appropriate channels to communicate with stakeholders including forums & conferences, web & email, etc
	12	NEHTA is effective at receiving and acknowledging feedback
	13	NEHTA acts on valid feedback it receives
	14	Should NEHTA be responsible for advocacy around SEHR more broadly (to doctors etc)
	15	Overall NEHTA has engaged well with my organisation

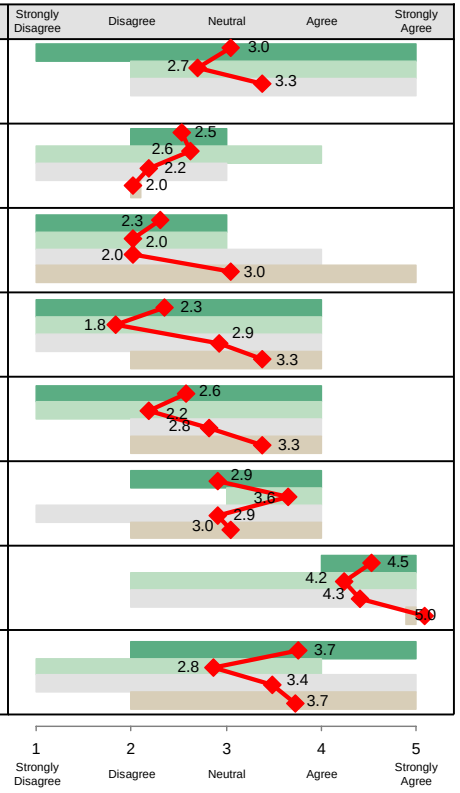


Results E-Health Survey Questionnaire (III)

HC Provider, Health Informatics, IT Industry, Privacy

Questions 16-24

Category	Q #	Question
NEHTA Resource Usage	16	NEHTA has received sufficient funding to fulfil its charter
	17	The ratio of resources allocated across the mix of standards, systems planning and implementation has been appropriate
	18	NEHTA has delivered good value for money
	19	NEHTA has made effective use of experts in Australia and overseas
Future Work	20	I have clarity on NEHTA's forward program of work
	21	NEHTA does a good job of prioritising its work tasks
Organisation Future	23	The current e-health standards, planning and implementation work could only have been achieved with a central body
	24	NEHTA should continue in its role as the primary e-health facilitation body for creating and maintaining standards in future



Appendix 4. Interviewee views on Central and NEHTA II roles going forward

Interviewees asked which eHealth activities needed to be done centrally, and if so should NEHTA do them

Question posed:

Place a 'C' in the box where you think that task should be carried out by one Central body.
Place an N as well if you think that body should be NEHTA

Activity	Standards	Common Information backbone/infrastructure (e.g. identifiers, registries)	Health facility level applications/infrastructure (e.g. CIS, referral systems)
Maintain & operate			
Implement & deploy			
Advocate & generate buy-in			
Design			
Raise & co-ordinate funding			
Strategy and Policy			

Type of eHealth component

Percentage of interviewees who believe the function should be centralised

	NEHTA Internal Staff			Jurisdictions			External Organisations		
	Standards	Common Infra-structure	Facility-Level Applic.	Standards	Common Infra-structure	Facility-Level Applic.	Standards	Common Infra-structure	Facility-Level Applic.
Maintain	67%	67%	0%	83%	83%	6%	76%	62%	7%
Implement	44%	72%	6%	44%	56%	6%	28%	55%	10%
Buy in	67%	67%	22%	78%	78%	17%	79%	79%	38%
Design	83%	94%	33%	94%	94%	17%	86%	86%	21%
Funding	78%	72%	22%	78%	67%	11%	86%	72%	21%
Strategy	89%	83%	22%	83%	83%	39%	93%	90%	52%

>75%
50-75%
25-50%
<25%

Percentage of areas requiring central input which should be done by NEHTA II

NEHTA Internal Staff

	Standards	Common Infra-structure
Maintain	75%	58%
Implement		69%
Buy in	92%	100%
Design	93%	88%
Funding	64%	62%
Strategy	63%	80%

Jurisdictions

Standards	Common Infra-structure
60%	47%
	40%
79%	36%
88%	71%
43%	25%
53%	33%

External Organisations

Standards	Common Infra-structure
45%	17%
	19%
74%	61%
52%	56%
48%	57%
59%	62%

<50% of respondents thought central involvement was necessary

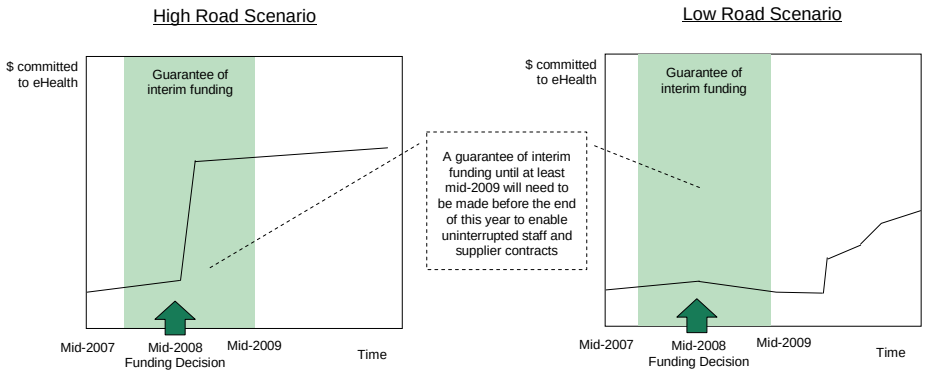
>75%
50-75%
25-50%
<25%

Appendix 5. Potential future roles for NEHTA beyond 2009

The precise role of NEHTA beyond the current work program cannot be determined in isolation from the broader five to 10 year vision for eHealth in Australia. However, to facilitate discussion, we considered two possible macro scenarios, with different levels of belief in eHealth and consequent funding :

- NEHTA obtains additional funding and their original scope of work is subsequently expanded (the “high road”)
- No additional funding is provided and NEHTA is charged with maintaining the momentum around standards under its current charter (the “low road”)

We anticipated two possible funding scenarios



- Common view on 5-10 year roadmap achieved
- Compelling value proposition put forward by states and private sector
- Business case for EHR accepted and significant additional funding committed

- Common view on 5-10 year roadmap not achieved
- Business case for EHR rejected or decision postponed
- NEHTA tasked to complete current work no commitment to ongoing funding
- Existing funding has to be stretched to a few years in the future when further funding might be sourced

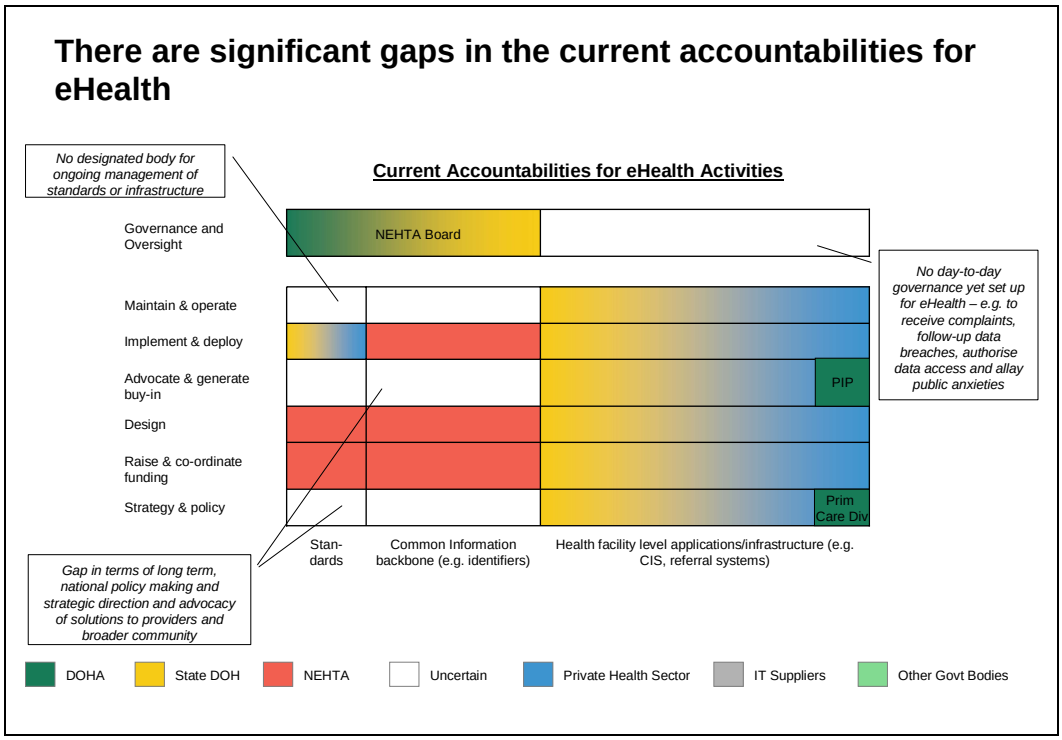
Models for central coordination in eHealth under a high-road scenario

We have used a simple classification matrix for all activities that need to be undertaken to achieve basic eHealth capability. The matrix takes into account:

a. The three main system achievements needed (standards, common infrastructure and applications, and facility-level infrastructure and applications)

b. The six steps that need to be completed across each of these system achievements, from the initial step of strategy and policy, through design and implementation steps to ongoing maintenance

The current role-matrix is shown below. We have also included stakeholder views on potential future models in Appendix 4.

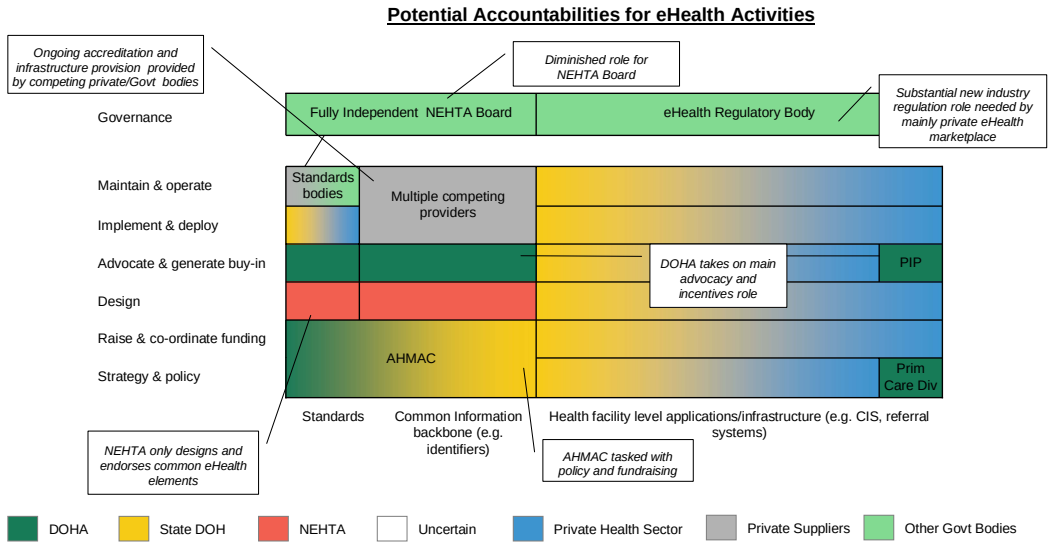


Perhaps the most striking current feature is the relatively narrow space occupied by NEHTA, with the majority of accountability lying with jurisdictions and the private sector. There are also a number of critical gaps — roles needed but not currently filled.

Under a high road scenario, we considered three models for NEHTA's role and that of other agencies. These models describe the activities in the eHealth space that would be the *primary accountability* of NEHTA and other organisations. These parties could still decide to outsource activities, but responsibility for delivery would lie with the assigned entity(ies).

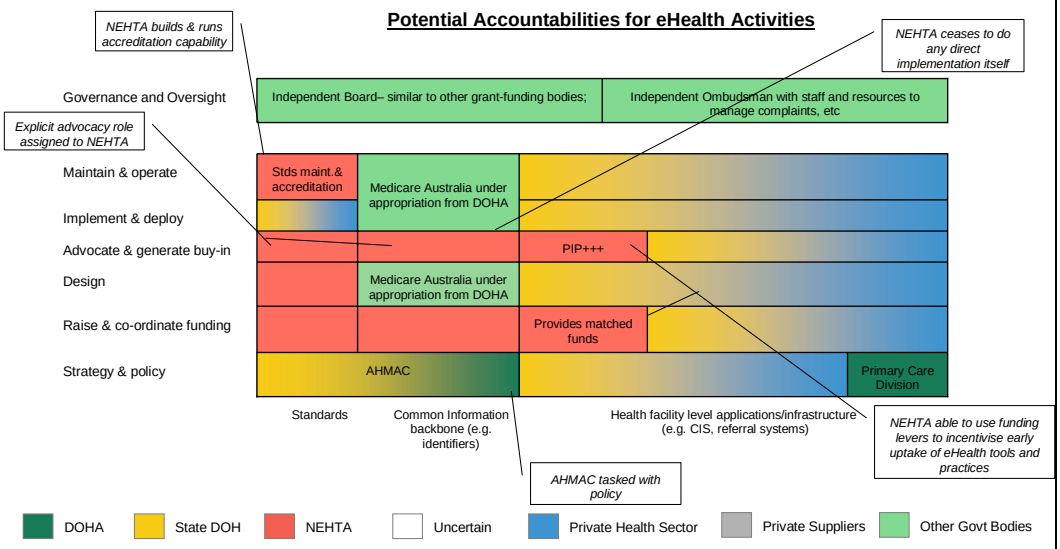
a. Laissez-faire model — NEHTA designs standards and shared core infrastructure in a way that ensures interoperability. The private sector and government bodies pick up implementation as and when the demand for eHealth eventuates from health care providers and their patients. Jurisdictions and private providers requiring compliance from their systems vendors adopt standards. Industry representative bodies perform ongoing support functions for standards such as maintenance and accreditation.

Laissez Faire Model – Provide the standards and suppliers will emerge to meet the demand



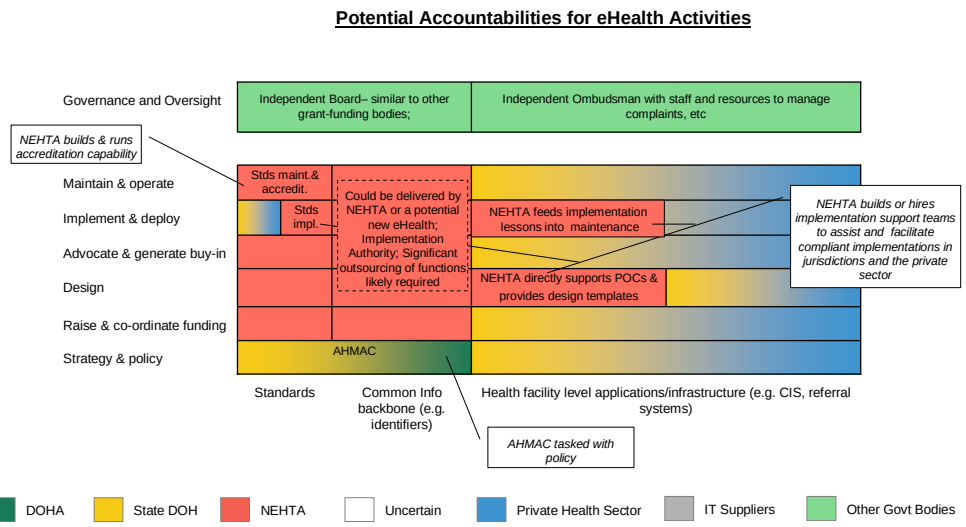
b. Carrot-and-stick model — NEHTA is tasked with design of standards and core infrastructure, and is given accreditation, compliance and financial incentive levers to ensure uptake. Direct central delivery activities, such as patient and provider identifiers, are removed from NEHTA's responsibility and given to Medicare to deliver via appropriation funding. Jurisdictions and private organisations are provided with focused incentives for interoperability delivery, providing they meet standards and utilise core infrastructure. The compliance lever is used to weed out residual pockets of incompatibility once majority uptake has occurred.

Carrot and Stick Model - Standards, accreditation and adoption incentives



c. **Implementation support model** — Under this model, NEHTA's role would be extended to cover implementation support and ongoing operation of standards and core infrastructure. NEHTA would provide skilled resources, design templates and create reusable code to enable jurisdictions and private organisations in creating proofs of concept. These 'implementation support' teams might be located within NEHTA, or be constituted as part of a 'sister' implementation organisation that has a different structure, funding and governance arrangements. Implementation support teams would feed back lessons to standards and core infrastructure development teams to refine the implementability of their deliverables .

Implementation Support Model – NEHTA Extended to provide direct delivery support for vanguard initiatives



Option Evaluation

A summary of our perspective on the pros and cons of each of the central coordination models is contained below. The laissez-faire model, while appealing from a 'non-interventionist' perspective, is unlikely to address most stakeholder concerns and would also be slow to deliver. Countries like the US have little choice but to adopt this model for the moment, but even those implementing it have little faith in its long-term potential.

The remaining two models require substantially increased levels of public funding and involvement. They will deliver more quickly, but will also involve more direct blame for governments if they fail. They cannot be recommended unless the Government of the day is prepared to persevere through at least the first five years before concrete benefits become broadly visible.

Carrot & Stick or Implementation Support models could accelerate delivery & satisfy stakeholders, but at higher public cost

Criteria	Current Model	Laissez-Faire	Carrot and Stick	Implementation Support
Essential Prerequisites				
	• Jurisdictions with full standards adoption and implementation capabilities • Ability to incorporate feedback and modify standards and designs • DOHA providing adoption incentives	• Comfort with incomplete and inequitable coverage for some time • Jurisdictional CEOs able to motivate for funding and drive implementation • DOHA providing modest adoption incentives	• Significant increase in funding levels • Scrupulous tracking of project funds and progress across multiple implementations • More independent Board	• Significant increase in funding levels • NEHTA is able to recruit sufficient numbers of skilled persons • NEHTA business model sufficiently flexible • Workable collaboration model established • More independent board
Trade-offs				
Quality vs speed vs cost				
•Interoperability	✓✓	✓	✓✓	✓✓✓
•Speed	✓	-	✓✓	✓✓✓
•Minimal up-front cost	✓✓	✓✓✓	✓✓	✓
Bottom-up ownership vs Top Down predictability	Top Down predictability	Bottom-up ownership	Bottom-up ownership	Top down predictability
Public sector vs private sector driven	Public Sector	Private sector	Both	Public sector
Degree to which main stakeholder criticisms addressed				
Bias against private sector	-	Yes	Yes	Somewhat
Poor Engagement	-	No	Yes	Yes
Lack of transparency	-	No	Yes	Somewhat
Slow to deliver	-	No	Somewhat	Yes
Insufficient implementation focus	-	No	Somewhat	Yes

Maintaining momentum under a low-road scenario

Under a low-road scenario, current COAG funding should be stretched out over an additional two years if possible. NEHTA is currently having difficulty spending at a rate sufficient to complete its work by mid-2009 anyway. This would allow the time to build self-sustaining institutions to pick up ongoing maintenance and operations or until the next tranche of funding becomes available.

To reduce the risk of losing already built infrastructure, NEHTA would probably need to be removed as an intermediary for dealing with Medicare on identifiers, with DOHA assuming responsibility for the overarching contract management and raising ongoing funding for identifiers as an appropriation. AHMAC and AHMC will need to become much more actively involved in setting policy, creating the business cases and publicising the eHealth cause. NEHTA's role would be focused solely on standards design and ongoing maintenance.

‘Low Road’ will require NEHTA to focus on upkeep of existing standards, whilst AHMAC & Medicare pick up other roles