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# The Coalition's Policy
# for E-Government and
# the Digital Economy

**August 2013**

# Key Points

Information and communication technologies (ICT) are transforming the way we work and driving change in many industries. Governments everywhere understand their decisions can assist or impede businesses and families adjust to an increasingly digital economy and society.

Since 2007, Labor has presided over a sharp fall in Australia's ranking as a digital economy according to the World Economic Forum, the International Telecommunications Union, INSEAD and the Organisation for Economic Co-operation and Development (OECD), among others.

If elected, the Coalition will support investment in ICT skills, use technology more effectively in the public sector and encourage innovation and research.  Together with the Coalition plan to reduce regulation, these policies will lift productivity and economic competitiveness.

Policies across many portfolios and at all levels of government affect the economy's capacity to absorb and benefit from ICT.  A range of these are discussed, but the measures summarised below fall within the scope of the Department of Broadband, Communications and the Digital Economy (DBCDE) and the Department of Finance and Deregulation (DoFD).

## Policy measures

We will provide leadership on the digital economy, make more effective use of ICT in departments and agencies and ensure more convenient Government services are accessible anytime anywhere with policies to:

- accelerate the digital economy by working with the private sector to coordinate enabling infrastructure such as online identity, digital mail and payment systems;

- accelerate Government 2.0 efforts to engage online, make agencies transparent and provide expanded access to useful public sector data;

- reduce the cost of government ICT by eliminating duplication and fragmentation. Government will lead by example in using ICT to reduce costs, lift productivity and develop better services.  Light user agencies with insufficient IT scale will move to shared or cloud solutions.  Heavy user agencies with complex needs will retain autonomy but improve accountability;

- create a better model for achieving whole-of-government ICT goals that acknowledges the decentralised Australian Public Service and differences in scale and capabilities across agencies; and

# Introduction

## 1. Leadership

One of the Coalition's core principles is a preference for markets, because markets typically produce better outcomes than governments. But government can play a valuable leadership role in the economy, particularly in periods of structural change. If elected, a Coalition government intends to play such a leadership role in driving Australia's transition to a digital economy and recognising the importance of prioritising investments in ICT.

The centrality of ICT to productivity, innovation and growth is beyond dispute: it shows up in the data, in business and in our everyday lives.

McKinsey Global Institute has calculated around a fifth of GDP growth in advanced economies over the past five years has arisen from the Internet and associated technologies – with 75 per cent of this growth occurring in sectors not traditionally seen as 'technology' industries.[1]

But under Labor, Australia has fallen to the rear of the advanced economies in recognising these opportunities and adjusting accordingly. We invest less, use what we invest less effectively and increasingly adopt enterprise technologies more slowly. This is allowing competitors to steal a march on us.

Government can play a leadership role to change this. Although it is businesses and workers that primarily benefit from higher investment in ICT, government can contribute to Australia' use and adaption of technology becoming a strength across the economy.

By investing in its own ICT environment, government can demonstrate economic and productivity benefits, set an example for smaller or less digitally aware businesses, provide better services to consumers and deliver improved value for money for taxpayers.

## 2. The Digital Revolution

For four decades, but particularly since the turn of the century, advances in ICT have transformed societies and economies. Digital technologies and networks have become pervasive in workplaces, homes and everyday life.

Most Australians use smart phones, tablets and PCs to access applications and information over the Internet – to pay bills, look up timetables, watch videos, engage with family or friends and collaborate with colleagues or classmates. Most of us are connected

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[1] McKinsey, 'Internet Matters: The Net's sweeping impact on growth, jobs and prosperity', McKinsey Global Institute, May 2011, Available: http://www.mckinsey.com/insights/high_tech_telecoms_internet/internet_matters

most of the time.[2] Few could easily adjust to doing without mobile access to capabilities that even a dozen years ago were barely imaginable.

Rapid change will continue and perhaps accelerate as innovators and entrepreneurs, find new ways to leverage technology, digital data and analytics to reduce costs, save time, generate new value or solve old problems.

Labor has claimed that the National Broadband Network (NBN) is a pivotal government policy response to these changes. Labor's costly, delayed plan to upgrade broadband has dominated the public policy digital agenda for the past six years. Many Australians have been misled into thinking that unless we get Labor's NBN we cannot be a successful, sophisticated 21st century economy.

That is not true. Nevertheless, broadband – particularly achieving universal access as soon as possible – does matter.  That is why the Coalition will upgrade broadband for households and businesses with poor connectivity as soon as possible and ensure all Australians can participate in the digital economy.

## *Australia's declining rankings*

In its obsessive pursuit of the NBN, Labor has dropped the ball elsewhere. As a result, Australia's competitiveness as a digital economy has slipped badly in recent years according to most measures:

- On the World Economic Forum's Global Information Technology index, which scores the readiness of governments and firms to absorb IT, Australia was ranked 9th in 2004, but 18th in 2012. [3]

- According to the International Telecommunications Union's ICT Development index, Australia was ranked 15th in 2007, but only 21st in 2012. [4]

- INSEAD's latest Global Innovation Index ranks Australia 11th for inputs into areas which generate innovation, but a dismal 32nd for 'innovation outputs' – patents, knowledge or content which have a real economic or social impact. [5]  The poor ratio of inputs to outputs means Australia is 116th on INSEAD's 'innovation efficiency' league table – at the bottom of the advanced nations.

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[2] ACMA data for 2012 found Australia's 23 million residents had 30 million mobile accounts.  In Dec 2012 the ABS reported 17 million handsets with Internet access plus 6 million wireless broadband subscribers: 23 million wireless Internet devices in total.  There were also 6 million fixed broadband subscribers.  ACMA, 'Communications Report 2011-12', Nov 2012.  Australian Bureau of Statistics , 'ABS 8153.0, Internet Activity, Dec 2012', Canberra, Apr 2013.
[3] Latest WEF GIT ranking: http://www.weforum.org/reports/global-information-technology-report-2013/
[4] Figures at ITU website: http://www.itu.int/ITU-D/ict/publications/idi/material/2012/IDI-ranking.pdf
[5] Available at: http://strat-staging.com/content.aspx?page=data-analysis Note decisions to boost public expenditure on some inputs (e.g. school funding and university places) will worsen this imbalance unless the additional gains in output per additional unit of input match or exceed the average return on previously available resources.

- Uniquely among OECD members, the share of Australians using the Internet for their most recent interaction with government *declined* between 2009 and 2011, according to data collected by the Australian Government Information Management Office (AGIMO). [6]

Ironically, the nation's performance on similar rankings focused more narrowly on broadband has been equally poor – proving Labor's failure to deliver anything substantive in regard to broadband policy:

- Akamai's most recent *State of the Internet* report found Australia had fallen to 40th place in a league table of actual average download speeds across nations. Australia's ranking has been slipping since the survey was introduced in 2008.[7]

- OECD figures show that in June 2007 Australia ranked 12th for fixed broadband penetration, with a take-up rate 121 per cent of the OECD average. By December 2012, Australia's ranking for fixed broadband penetration had tumbled to 18th and take-up was 96 per cent of the OECD average.[8]

- Remarkably, five years after Labor gained office and four years after the creation of NBN Co, Australia ranks only 23rd in the OECD for the fibre share of broadband. In December 2012 NBN Co accounted for barely a third of the 1.6 per cent of Australian broadband users on fibre. [9]

In spite of Labor's rhetoric about the NBN, the reality is that Labor's policies are rapidly turning Australia into a digital also-ran. Only a Coalition government will encourage a sophisticated digital economy built on knowledge and productivity.

## *Innovation and the digital economy isn't just about broadband*

A more digital, networked economy is about far more than broadband. It is about tumultuous change in workplaces – and the skills and capabilities individuals and firms need to succeed.  Many Australians already work in settings that require robust digital skills. According to the OECD, 22 per cent of us are currently engaged in ICT-intensive jobs.  This is a slightly lower proportion than the UK or Scandinavia, the same as Germany or Canada, and fractionally higher than the US. [10]

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[6] AGIMO, 'Interacting With Government – Australians' Use & Satisfaction With E-Government Services', Canberra, Dec 2011, p.15.  The report shows from 2009 to 2011 the share of Australians who used the Internet for their most recent interaction with Government fell from 38 to 35 per cent.  OECD data for 2009 and 2011 are not available, but from 2005 to 2010 no member recorded a fall in use of the Internet to interact with government.   OECD, 'Government at a Glance: Ways of Delivering Public Services', Paris, 2011, p.172.
[7] 'Australian web speeds ranking dwindles to 40th place', Available: http://www.news.com.au/technology/state-of-the-internet-australia-web-speeds-ranking-dwindles-to-40th-place-globally/story-e6frfro0-1226560992748
[8] Data at OECD Broadband statistics portal: http://www.oecd.org/internet/broadband/oecdbroadbandportal.htm
[9] OECD Broadband Portal: http://oecd.org/sti/ict/broadband
[10] OECD, 'Share of ICT-Intensive Occupations in the Economy', 2010: http://www.oecd.org/sti/ieconomy/oecdkeyictindicators.htm

It's about expanding options and opportunities for individuals, whether as consumers, workers or entrepreneurs.

And perhaps above all else, it's about increasing productivity – using digital data and technology to work smarter, and by doing so deliver higher quality, greater value or more output from a given set of inputs. As the Australian economy moves beyond the investment peak of the resources boom, an urgent task exists to lift the nation's rate of productivity growth and drive higher real incomes.

## *The role of government*

The digital transformation of recent decades has been almost entirely driven by dynamic, competitive markets and inventive entrepreneurs – no government ever told Apple to build a particular product, or Facebook to supply a certain service, or Intel to fabricate and sell semiconductors of officially-determined specification. Consumers and markets have been sovereign.

And while governments in many places have attempted to use policy intervention to build technology-intensive economies or nurture national champions in hand-picked industries, the overwhelming majority have found success elusive, ephemeral or excessively costly – underlining the importance of evidence and pragmatism in appraising the role the public sector can play.

In the first instance governments contribute most by providing the unexciting but essential fundamentals that favour economic growth generally: robust institutions, macro-economic stability, open and competitive markets, efficient investment in human capital, infrastructure and research, and taxes low enough to preserve incentives for innovation and growth.

Governments can be directly supportive by grasping some recurrent features of digital markets – such as strong network effects, high switching costs, or the challenge of verifying identity. And by responding quickly if these result in outcomes that are anti-competitive or otherwise economically harmful, or lead to conduct that is unlawful or contrary to community standards.

Governments can and should lead by example in their own use of ICT to provide services or engage with citizens – as they have in the Scandinavian and East Asian nations with the most mature and sophisticated digital economies (South Korea, Denmark, Sweden and Singapore). [11] Likewise, the US and UK have recently adopted aggressive public sector ICT and digital transformation strategies.

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[11] Boston Consulting Group's e-Intensity index, a measure of the 'relative maturity of Internet economies,' ranked South Korea, Denmark, Sweden and the UK as its four leaders in 2012. Australia ranked 18th:

In some of these nations, particularly those in East Asia, prescriptive industry development objectives and quantifiable economic and social targets have *prima facie* been a central part of successful digital strategies.

In others, such as the Scandinavian countries, a less obtrusive but highly integrated and carefully planned role has been played by the public sector, with closely co-ordinated whole-of-government actions a feature in common.

Australia's institutions, economic circumstances and contemporary history are different, however, and there is broad agreement that government's role should be more constrained.  This is partly because so much responsibility for service delivery resides at State and Territory level.  But it also acknowledges the lesson of the past thirty years, which is that economic openness, a preference for private rather than public ownership and provision and competitive markets have provided Australians with a more assured path to prosperity than previous alternatives.

## Scope of this document

Numerous policies and choices across all levels and functions of government have the potential to influence how rapidly households, businesses and agencies adopt digital technologies; how skilfully and productively they use them; and where such technologies have the greatest impact.

Some key areas include school and university education, taxation, infrastructure, intellectual property laws, privacy and information-handling laws, public sector procurement, funding for scientific and medical research, skilled immigration criteria, economic openness, competition regimes, workplace relations regulations, and many international treaties.

It has become problematic to speak of a discrete 'digital economy' in an era when ICT is changing every industry.  Likewise, it is unclear which policy areas to exclude from any discussion of digital transformation.

This document will canvass some of the broader issues, but focuses on policy measures within the remit of the DBCDE, the DoFD and the AGIMO.

## 3. The Economic Impact of ICT

As a high-cost high-regulation high-income economy, Australia's most pressing challenge is to reduce regulation and increase the level and rate of growth of productivity (which has lagged other OECD nations since the early 2000s).

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https://www.bcgperspectives.com/content/interactive/telecommunications_media_entertainment_bcg_e_intensity_index/

According to the Productivity Commission, multi-factor productivity – the portion of output growth that isn't due to more hours worked or capital invested – is driven by: "incentives (competition, government assistance and regulation), flexibility (labour arrangements and regulations impacting on production decisions) and capabilities (skilled people, knowledge systems and infrastructure)."[12]   Measures encouraging the diffusion of ICT or strengthening the capabilities of individuals and organisations to utilise these technologies fall into the third category.

While many factors influence the productivity of different workplaces, industries and countries, use of advanced technology is among the most important.  Globally, the companies, industries and countries with the highest productivity tend to be rapid adopters and intensive, skilful, innovative users of ICT; many are major originators of these technologies.

The statistical evidence confirms ICT has been a crucial contributor to higher productivity and rising living standards since the early 1990s, although there is debate over how large the contribution has been.[13] Capital spending on ICT improves labour productivity and assists innovation and appears to have added about 0.2 percentage points to multi-factor productivity in Australia in the 1990s.[14]

## A General Purpose Technology

Economists describe the broad array of technologies for creating, processing, storing, communicating and consuming digital information that fall under the ICT umbrella as a 'general-purpose technology'.

By this they mean ICT is (or could be) driving fundamental change in virtually every part of the economy – just as networked electricity and the innovations in business processes and consumer products that accompanied its spread transformed almost every part of industrial economies in the early 20th century.

McKinsey Global Institute has calculated that around a fifth of GDP growth in advanced economies over the past five years has arisen from the Internet and associated technologies – with 75 per cent of this growth occurring in sectors not traditionally seen as 'technology' industries, testament to the broad applicability of these technologies.[15]

Equally clear is the pivotal role of information technology (and the new business models, process efficiencies, productivity improvements and customer analytics ICT has

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[12] Productivity Commission, 'Annual Report, 2007-08', p.16.

[13] See OECD, 'Broadband & the Economy' – Ministerial Background Report, June 2008, pp.14-18.

[14] Productivity Commission – 'ICT use and Productivity: A Synthesis from Studies of Australian Firms' – Productivity Commission Research Paper, Canberra, 2004, Available: http://www.pc.gov.au/research/commission/ict-use

[15] McKinsey, 'Internet Matters: The Net's Sweeping impact on Growth, Jobs & prosperity', McKinsey Global Institute. May 2011: http://www.mckinsey.com/insights/high_tech_telecoms_internet/internet_matters

enabled) in contemporary business. Regardless of their industry, leading global companies increasingly tend to be ingenious users and adapters of ICT. Australian firms are unlikely to be internationally competitive unless they operate in a market of sufficient technological sophistication to ensure they possess similar skills.

## Cloud services and the utility model

As well as each being a transformative general-purpose technology, there is another parallel between ICT in the early 21$^{st}$ century and electricity a hundred years earlier. That is the way their economic impact is in each case amplified by becoming deliverable as a 'utility'.

Over the past decade computing and networking have matured, standardised and evolved in ways that allow many of the capabilities they provide to be offered as a service rather than a product – as tasks performed in the 'cloud' (somewhere else) and offered to end users as shared, metered, scalable utility over the network. Users consume what they need and pay only for what they use, much like earlier utilities such as electricity or telephony.

The power of utilities, like those that generate electricity, is that they allow users with variable needs to share the resources needed to serve their peak usage – by pooling variable demand and sharing the costs of acquiring, managing and operating capacity across many users, economies of scale can be achieved and overall demand can be met at lower cost using fewer assets. Utilities also 'scale down' the ability to access a capability, allowing it to be purchased in smaller increments and lowering barriers to entry that might otherwise exclude smaller organisations.

Small businesses, for instance, will be able to take advantage of sophisticated applications offered as a service over the network in modest volumes that would not be economic if they had to host a stand-alone instance of the application themselves.

## BOX 1: TECH INVESTMENT & ICT SKILLS LAGGING

Lifting productivity is one of the key challenges for the Australian economy. Peak business groups recognise technology adoption and investment are crucial for productivity and competitiveness. But they report investment in new technologies and the skills to make the most of them are lagging.

The Ai Group's recent national CEO Survey highlighted ABS data showing spending on new technologies grew strongly across the economy from 2002 to 2008, but fell away during the Global Financial Crisis and remains flat. CEOs cited rising costs, the uncertain post-GFC outlook, a high exchange rate and red tape as reasons to defer investment in new technology, although spending on ICT was a partial exception.

Yet the gains from technology capex are clear. Among firms planning to invest in new technology in 2013, 54 per cent anticipated increased labour productivity, compared to only 20 per cent of non-investor firms. AiG notes that ICT has fuelled a larger share of recent productivity growth in Australia than most OECD economies. It has been a key driver in a group of ICT-intensive sectors (information and communications, finance, wholesale and retail) that achieved gains of 40-45 per cent in labour productivity since 2000.

Yet the AiG Survey found a startling lack of preparedness for the NBN. CEOs at only 47 per cent of small firms and 40 per cent of mid-sized firms were confident of their readiness. Overall business confidence about high-speed broadband has fallen by half since 2008.

The 2013 *Connected Small Businesses* survey of 500 SMEs by Deloitte Access Economics for Google was no more reassuring – 35 per cent reported little or no digital engagement, outnumbering the 16 per cent of small businesses reporting high digital engagement by more than two to one. Underscoring the costs of not engaging, Deloitte found SMEs with high engagement were twice as likely to be growing, four times as likely to be hiring, and had more diversified revenues earned from a broader base of customers.

Taking advantage of the digital economy depends not only on investment and readiness, but also sufficient workers with ICT, digital or technical skills to meet demand for these capabilities.

Australia faces a tech skills shortage – in 2010-11, 20 per cent of firms told AiG access to skilled labour was impeding innovation. Student numbers in ICT declined 53 per cent from 2001 to 2011, and have fallen in science, technology, engineering and mathematics (STEM) disciplines. In ICT, the small pool of graduates is compounded by inadequate skills development and poor retention. These are daunting challenges for businesses seeking to use ICT as a source of competitive advantage.

*Ai Group – 'Ready or Not: Technology Investment & Productivity in Australian Business' – CEO Survey, June 2013*
*Deloitte Access Economics for Google Australia – 'Connected Small Businesses' – April 2013*

## 4. Policies to support a digital, networked economy

Governments around the world have responded to the growing importance of ICT and the Internet with various policies to accelerate the shift to a networked economy and equip citizens and businesses to succeed.

This is a broadening of the digital agenda that is badly needed in Australia. Over the past six years Labor has focused to such a degree on its NBN that many Australians believe the NBN *is* Labor's digital economy strategy.

Vast resources have been used to promote the NBN's technical merits and advertise to literally millions of Australians who are desperately waiting (in vain) for it to reach them.[16]

But there has been limited discussion about how this costly project can add directly to productivity, employment and the economic opportunities available to individuals and communities.

While the DBCDE has conducted numerous digital skills and awareness programs linked to the NBN – aimed at audiences including local government, regional development, SMEs, community users of ICT and cultivation of digital skills among the elderly – there is no public data on how (or whether) these have achieved their stated purpose.

At the same time, some of the areas of the economy where publicly funded better bandwidth might be expected to have the greatest impact have been neglected. For instance, Digital Business Kits offering detailed advice about the implications of high-speed broadband tailored to specific industry sectors or business types were published only recently, in mid-2013.

### *Range of policy tools*

The table at Appendix 1 sets out the main broad categories of policy activity in Australia and comparable nations that have been used by governments to encourage the development of a more networked, technologically sophisticated economy.

### *National Digital Economy Strategy*

The National Digital Economy Strategy (NDES) released in 2011 and updated in July 2013 contains a number of laudable goals of improving Australia's relative global

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[16] As of June 2013 NBN Co's rollout of all three networks had resulted in service being notionally available to about 2 per cent of Australian premises, and there were 70,100 active users. The fibre network (which NBN Co eventually plans to extend to serve 93 per cent of all households and businesses) had only 33,600 users. The Government's equity investment in NBN Co was forecast to be $5.4 billion as of June 2013. The rollout was 1.1 million premises short of the targets announced in December 2010. Rollout data from NBN Co: http://www.nbnco.com.au/about-us/media/news/nbnco-meets-revised-end-of-year-fibre-rollout-target.html

position or meeting specified quantitative targets for various measures of digital activity, such as broadband penetration, prevalence of teleworking, and users of e-health.

The NDES goals and Labor's record in delivering those goals are listed at Appendix 2.

The Coalition supports the intent and the form of many of the NDES goals although there is anecdotal evidence that much of the relatively unstructured spending on digital awareness urged by the plan is ineffective. Such measures should clearly be evaluated and resources reallocated based on evidence that programs are achieving the desired results.

Yet both 2011 and 2013 documents focus on justifying Labor's mismanaged, costly, delayed NBN by framing it as a pre-requisite for global digital greatness.

Many of the aspirations contained in the updated NDES are outside the scope of this policy because they fall under other portfolios (for example expanding the Medicare Benefits Schedule to include remotely delivered services or changing the taxation of employee shares), are largely the responsibility of the States and Territories (for example the National Plan to Fight Cybercrime), or are both (for example adding ICT to the National Curriculum in schools).

There is much to be gained from working cooperatively with the states in such areas, and potentially from providing incentives to those States and Territories that move most quickly to use ICT to improve services, cut costs and streamline operations.

If elected, the Coalition will update the NDES during its first term of government. Such an update will include a greater focus on presenting an integrated view across the different tiers of government, much greater input from the States and Territories, a focus on ensuring digital policies and programs at national and State or Territory level complement rather than duplicate each other and a much clearer commitment to leveraging public sector ICT to lead by example.

## Australian Government ICT

The public sector as a whole accounts for about a third of GDP, and many programs are impossible to execute without effective use of ICT. For these reasons, public services are an obvious place where policy can provide leadership.

While not all government services can be migrated onto the Internet and delivered more cost-efficiently and conveniently, the majority can. For example, in Korea, 87 per cent of interactions with government can be performed online. In Denmark there is a target to lift online transactions to 80 per cent of all transactions by 2015.

Achieving sweeping whole-of-government technological change in Canberra is far from trivial, however. Australian Government procurement and operation of ICT for many years was highly decentralised, with autonomy reinforced by the accountability CEOs of FMA agencies have for resources expended. While efforts to impose whole-of-government coordinated procurement panels led by AGIMO for areas such as data centres, desktops and volume licenses have had some success, authority and financial resources are still relatively decentralised.

In part, the determination of agencies to retain as much autonomy in ICT as possible is understandable, given huge variations in the importance of ICT to their overall mission; in the challenges and legacy constraints they face; in their technological knowledge; and in their capabilities to procure, deploy, manage and maintain ICT systems.

Broadly, it is possible to distinguish between two groups of departments and agencies:

- 'Heavy users' – a small number (perhaps a dozen) of large-scale and/or very intense users of ICT. These agencies have IT environments as complex as any in the private sector; multiple legacy systems; highly capable IT staff; a keen grasp of the centrality of ICT to the agency; and responsibility for systems crucial to core tasks, such as paying employees or welfare recipients. This group includes the ATO, the Department of Defence, Centrelink/Medicare, the Australian Customs Service, and few smaller agencies such as AUSTRAC that are very ICT-dependent. While a significant share of ICT at heavier user agencies is complex, these agencies also spend on the vanilla capabilities that are more prevalent at lighter user agencies.

- 'Light users' – a larger group of smaller scale, less intensive users of ICT, whose needs in most cases are considerably less specialised. Where agencies have unique needs, legacy systems or other sources of complexity, these are usually less crucial to core tasks. A large (and growing) part of ICT in these agencies is providing fairly standard desktop functionality. In many cases, internal expertise is limited and functions are of sub-optimal scale.

## Recent ICT Reforms

In 2004, ICT specialists in the Department of Communications were moved to Finance and combined with ICT procurement and operations to become the Australian Government Information Management Office (AGIMO). This was the beginning of a push for whole-of-government procurement and coherence in strategy, standards and platforms.

Some important shifts in ICT policy occurred in Labor's first term, when managing and better leveraging the Government's $6 billion annual spend in this area was briefly a priority.

- Sir Peter Gershon's review of ICT successfully recommended a coordinated data-centre strategy across agencies and the creation of a Secretaries ICT Governance Board (SIGB) to approve major decisions and projects. [17]

- His review prompted scrutiny of business-as-usual spending at agencies that yielded $1 billion in savings.  But Labor reneged on a promise to pool 50 per cent of savings and permit Finance and AGIMO to allocate these funds to the best proposals from agencies for ICT modernisation and investment in new capabilities.  This damaged the service-wide credibility of the reform agenda.

- Gershon proposed a 'Government 2.0' engagement and data access agenda.  A modest number of public sector data sets were made available for private use via the data.gov.au portal.

- Whole of government procurement panels led by AGIMO/DoFD were introduced in areas such as data centres, desktops, volume licensing and so on.
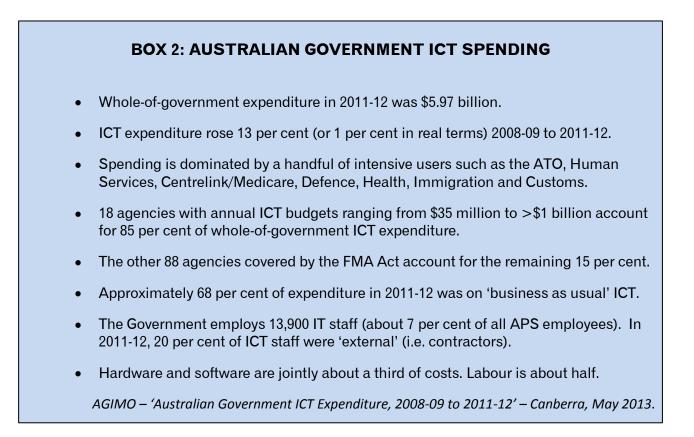
Dr Ian Reinecke's 2011 review noted the Gershon work provided a visionary, coherent whole-of-government IT strategy (including IT operational efficiency, government 2.0, and digital services delivery) but its elevation made implementation difficult, as did lack of clear accountability. [18]

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[17] Sir Peter Gershon, 'Review of the Australian Government's Use of Information and Communication Technology', Aug 2008, Available: http://www.finance.gov.au/publications/ict-review/docs/Review-of-the-Australian-Governments-Use-of-Information-and-Communication-Technology.pdf

[18] Dr. Ian Reinecke, 'Implementing the ICT Strategic Vision', May 2011: "It is a good high-level account of the issues facing government in obtaining more effective use of and value from ICT. It is however, the high-level nature of the Strategic Vision that invites concern about how it is to be translated into constructive action."

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**BOX 2: AUSTRALIAN GOVERNMENT ICT SPENDING**

- Whole-of-government expenditure in 2011-12 was $5.97 billion.

- ICT expenditure rose 13 per cent (or 1 per cent in real terms) 2008-09 to 2011-12.

- Spending is dominated by a handful of intensive users such as the ATO, Human Services, Centrelink/Medicare, Defence, Health, Immigration and Customs.

- 18 agencies with annual ICT budgets ranging from $35 million to >$1 billion account for 85 per cent of whole-of-government ICT expenditure.

- The other 88 agencies covered by the FMA Act account for the remaining 15 per cent.

- Approximately 68 per cent of expenditure in 2011-12 was on 'business as usual' ICT.

- The Government employs 13,900 IT staff (about 7 per cent of all APS employees).  In 2011-12, 20 per cent of ICT staff were 'external' (i.e. contractors).

- Hardware and software are jointly about a third of costs. Labour is about half.

*AGIMO – 'Australian Government ICT Expenditure, 2008-09 to 2011-12' – Canberra, May 2013.*

After 2010, Labor paid decreasing attention to Government ICT, even as problems with the current structure became increasingly apparent. Agencies remain largely autonomous, and able to opt out of whole-of-government initiatives. AGIMO's combining of ICT strategy and policy expertise with an operational role in procurement and centrally provisioned IT services satisfied neither function – and it has since split into separate strategy and procurement arms.

With accountability for compliance with whole-of-government objectives unclear, the result has been continued duplication and fragmentation of vendors, strategies and priorities.

The current APS ICT Strategy 2012-2015 again contains few explicit measures of success or failure, and limited enthusiasm for embracing new ICT models.  While departments and agencies have a notional obligation to consider cloud services where these are relevant to a need, the process required to demonstrate a business case and obtain approval, coupled with onerous legal and security hurdles, have led many observers to interpret the existing rules as a decision to largely avoid the cloud.  And while the recent Digital First initiative discusses what may be more ambitious goals for online services by 2017, it also is notable for its vagueness.

Labor's passivity and timidity wastes some of the good work which has been done within some agencies. It stands in contrast to the aggressive recent commitments by governments in the UK and US to innovation in online service delivery (including via

mobile devices), use of public cloud services, open government and increased sharing of resources across agencies. It is also a far more languid approach than from governments in leading networked economies such as Denmark, Sweden and Singapore.

## Innovation and Research

Policies encouraging innovation, funding research and providing incentives for entrepreneurs are very important over the medium term in developing a more sophisticated economic base.

A more supportive environment for entrepreneurs and early stage ventures is a pressing need. It is apparent Australia's venture capital sector lacks the scale (and record of returns) to be self-sustaining over the business cycle, and since the GFC there has been a steep fall in the availability of capital. Likewise, incentives for entrepreneurs and employees at startups are important but Labor's punitive and unashamedly old-fashioned class war against employee shares in 2009 caused lasting damage.

While a vibrant startup community and growing pipeline of promising Australian technology companies (some of which might flower into global successes) would be very encouraging, there are limits to the capacity of governments to will this into existence, and, even if they could, it would not be material to the broader economy for years.

Over any horizon of less than a decade, the direct contribution technology will make to lifting productivity will derive from removing impediments and sharpening incentives (competitive markets being the most effective incentive of all) for existing businesses to adopt and make creative, effective use of the existing technologies. [19]

No less relevant are the Government's $8.8 billion annual spending on scientific, medical and academic research and R&D incentives for private research and development of about $18 billion a year. This is a significant long-term influence on the technological makeup of our economy. As NICTA has pointed out there are large variations in the measurable economic returns from different fields of research and between more commercially oriented and less commercially oriented research settings. The Coalition has made it clear that establishing a policy that is enduring and provides certainty, less red tape in the grants processes and protection of medical research are key priorities.

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[19] Measured by indicators such as academic publications and patent filings, Australia (which has about 0.3 per cent of the world's population) produces 3 per cent of the world's knowledge – which means 97 per cent of the ideas and technologies that local businesses and governments make use of are likely to have originated somewhere else. Australian Government, 'Powering Ideas: An Innovation Agenda for the 21st Century', Canberra, 2009, p.40.

## *Educational Outcomes*

Numerous factors contribute to the creation of a sophisticated, engineering-oriented or technology-oriented economy, not least strong universities, scale, public and private research funding and proximity to user markets.

These factors are hard to quantify, and even where they are understood they are not easily influenced in the short-term by policy. But the foundation of most historic examples of economies that climbed the value chain and created enduring competitive advantage was investment in high-quality human capital – in education, skills and management, especially in disciplines such as the sciences, technology, engineering and mathematics (STEM).

In recent decades, various countries have attempted to boost teaching quality, student participation, research activity and outcomes in STEM, given these skills are crucial to generating and applying ICT and other promising areas of applied technology, including life sciences and advanced materials.  There is a long lag between introducing these policies and seeing their results; the gap between students entering schooling and working can be two decades or more for individuals with advanced degrees.

Since 2000 the OECD's Program for International School Assessment (PISA) has provided a credible ranking of schooling outcomes at three-year intervals across advanced nations and a growing cohort of emerging economies, in the core areas of English, mathematics and science.  Australia has performed well in these comparisons: of 65 school systems measured in the 2009 PISA, our students ranked 9th in English, 15th in mathematics, and 10th in science, in all cases above the OECD average. [20]

But Australia's relative position slipped from 2000 to 2009, particularly in mathematics, and fell markedly behind half a dozen leading school systems, mostly in East Asia. [21]  At the same time participation in maths, science and ICT fell in both schools and the university and vocational sectors.  The result has been a range of policy responses from the modest – such Group X, a program devised by technology academics for Queensland schools which has boosted student engagement with ICT and science 80 per cent since 2008 – to the grand.  In the latter category are the large funding increases proposed in the Gonski report, despite lack of evidence that higher funding leads to better outcomes.[22]

An incoming Coalition government will work closely with States and Territories to reverse the deterioration in relative performance in educational outcomes and ensure extra funding leads to better outcomes.

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[20] OECD, 'PISA 2009 Rankings', Available: http://www.oecd.org/pisa/46643496.pdf
[21] Ben Jensen, Grattan Institute, 'Catching Up: Learning from the best school systems in East Asia', Grattan Insitute, Feb 2012, p.9
[22] Ibid., p.2 and p.10.

## BOX 3: RISING DIGITAL ENGAGEMENT AMONG MANY BUSINESSES

Surveys of Australian businesses usually find many struggling with the digital economy. This is the conclusion not only of the surveys cited in this document, but others as well.

But other indicators are less pessimistic. They point to a large cohort of businesses that are sophisticated users of digital technology.

One hint is soaring take-up by small and large Australian businesses of cloud computing, which has grown very rapidly. Amazon Web Services is the largest global supplier of public cloud services, with an infrastructure that supports 7 million websites and is used by businesses from Netflix to the Commonwealth Bank.

Amazon is famously guarded about AWS, which opened a Sydney data centre in 2012. But Australia is by some accounts its fastest-growing market with up to 20,000 users (about 5 per cent of its worldwide total). Amazon's rivals – such as Rackspace, IBM and Microsoft – have also opened local data centres. An IDC survey of CIOs found 71 per cent were using cloud services in 2012, rising to 86 per cent in 2013. Clearly there is openness to this model among local firms.

Online retailing, where established Australian retailers responded late and performed dismally, has proved more welcoming for thousands of smaller traders. According to eBay, exports of Australian goods via its market will total $5 billion in 2013, with the US the top destination. Of eBay's 26,000 'commercial' sellers in Australia, 78 per cent are exporters.

A separate report by PayPal forecasts exports will treble to $16 billion by 2018, with 42 million Americans and 36 million Chinese projected to buy from Australian online vendors that year.

Does the surprising number of mid-sized and small Australian firms aggressively using cloud services hint at more digitally-focused ventures than thought? In April work by PwC for Google estimated there were 1500 'tech startups' in Australia (using a precise but fair definition). Cloud adopters no doubt include web designers, ISPs and other tech users that are not necessarily tech innovators. But ever-cheaper access to resources and scalability via services such as AWS and blurring definitions are making it harder to track 'startups'. In any case expanding numbers of innovative and growing digital businesses are welcome, whatever category they are placed in.

*eBay Inc – 'Commerce 3.0: Enabling Australian Export Opportunities' – July 2013*
*PayPal – 'Modern Spice Routes' – July 2013*
*PwC for Google Australia – 'The Startup Economy' – April 2013*
*IDC:* http://www.cio.com.au/article/520964/cloud_computing_adoption_increases_australia_idc_/
*AWS:* http://venturebeat.com/2013/08/07/amazon-web-services-size-profit-distribution-and-efficiency-infographic/

# The Plan

The Coalition's policy initiatives are grouped by the objective to which they contribute.

## Convenient Services Anytime Anywhere

It's time for the Australian government to show leadership on the digital economy and make a clear, comprehensive commitment to getting all of its major services and interactions with individuals online. The Coalition believes 2017 is a realistic and achievable date for this goal. Not all Australians have easy Internet access or adequate digital skills, so while the presumption should be the Internet is the default way of interacting, face-to-face provision and storefronts (albeit in a streamlined and consolidated form) will be needed for years to come.

A Coalition government will:

1. Designate the Internet as the default way to interact with users, other than for defined exceptions. We will look to establish a Digital Service Standard and Digital Design Guide, modeled on the UK equivalents, to ensure consistent design of current and future services.

2. Give people the option to elect to receive material from the government in digital form or in hard-copy, depending on their circumstances. We will aim to provide all correspondence, documents and forms in digital form, as well as hard-copy, by 2017.

3. Seek to ensure every Government interaction that occurs more than 50,000 times per year can be achieved online by 2017. Video-conferencing via technologies such as WRTC will be an acceptable substitute for physical proximity in most cases.

4. Ensure Agencies report what proportion of their digital services are not mobile-accessible from 2015. Digital services and information should be platform-agnostic and useable from devices such as tablets and smartphones.

5. Designate three agencies with high-volume client interaction to trial three services using next generation tele-presence, such as in-browser Web RTC, from 2014.

6. Provide individuals and entities (on an opt-in basis) with a unique digital 'inbox' – a secure and permanent contact point for communication with government that can be used as a stand-alone 'mailbox' or on a 'store and forward' basis in combination with an email address, Australia Post Digital Mailbox or some other destination application. This service will build on the MyGov inbox but add flexibility to use in a redirect mode or integrate with existing and emerging commercial products (e.g. APDM or digital vaults). This will be delivered within existing ICT resources. We

will accelerate take-up and value to users by opening this facility to State, Territory and Local government communications.

## *Infrastructure for a Digital, Networked Economy*

The rise of the digital economy has been a profoundly market-driven process. However, there is scope for the government to play a more active and forward-looking leadership role in co-ordinating 'soft infrastructure' that effectively contributes to the growth of these areas of output.

The traditional focus of public sector effort in this area has been on online enforcement of laws and property rights, cyber-safety education, digital literacy, and similar attempts to translate the traditional tasks of government into a digital context. These activities should continue but there is scope to re-allocate resources to where returns are highest.

There are a number of cases where government leadership co-ordinating or facilitating agreement among private parties can accelerate digital activity – examples include standards for online authentication and identity verification of identity, new payments technologies using mobile devices, or consistent assurances for consumers regarding usage of private data. The role of government would not be to pick winners or lay down inflexible rules, but to encourage coordination and break impasses between conflicting interests.

Finally, government can contribute to the growth of a vibrant domestic industry of cloud infrastructure and service providers by moving more rapidly to adopt such services whenever economically justified in its own operations.

A Coalition government will:

1. Evaluate government-funded programs seeking to develop digital skills or awareness against the stated objectives of these programs and focus expenditure on programs/providers generating identifiable economic or social returns. We will seek alternative strategies to engage groups where such programs are not shown to be effective.

2. Accelerate the transition to a more digital, networked economy by providing coordination and leadership in areas such as standards for verified online identities. We will work with the private sector to settle on common approaches or standards and hasten their acceptance and adoption, even if early choice means revisiting it later.

3. Improve the quality of data on the digital economy available to decision-makers. We will review ABS ICT–related series (which are often criticised for lack of

timeliness or measuring the wrong indicators) and investigate scope for non-traditional inputs (e.g. relying on automated data collection instead of surveys).

## Government 2.0 and Big Data

The next wave of opportunities to improve the quality and effectiveness of government services are likely to be driven by access to (appropriately anonymized) public sector data sets and 'big data'. The largest beneficiaries may be taxpayers – McKinsey Global Institute estimates that by learning from big data the public sector in Europe could reduce overheads by 15-20 per cent.[23] But government 2.0 efforts on data acces and big data in Australia under Labor have had a muted impact so far. Private sector and community interest in leveraging public data, for instance, has been limited because only 514 data sets are available at data.gov.au – compared to 210,930 at the US Government's data.gov, and 9,833 at the British Government's data.gov.uk.

A Coalition government will:

1. Request that AGIMO consult a range of private sector and community voices to identify value-adding public data sets that are not currently on data.gov.au. Where appropriate, work with agencies to expedite such access.

2. Review the policy principles and actions in the 2013 draft Big Data Strategy and finalise a position by the end of 2014.

3. Seek proposals from agencies, researchers and the private sector for joint private-public projects using big data that have promising efficiency or service quality payoffs (for example, analytics for welfare or medical benefits fraud detection; or predictive personalisation that reduces customer turnaround times). The highest-return proposals will be supported to proof-of-concept and beyond.

## Smarter ICT Investment

The Government's own use of ICT can be roughly divided between 'light users' and 'heavy users'. The fairly clear demarcation between the two groups combined with the recent emergence of far more robust, secure, efficient cloud services which can be offered using infrastructure which is either public or private (restricted to government users) offers a path to a more cost-effective two-tier ICT strategy.

A Coalition government will:

1. Request DoFD and AGIMO to undertake an audit across all agencies of spending, capex and outcomes generated by investment in ICT over the past three years.

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[23] McKinsey, 'Internet Matters: The Net's Sweeping impact on Growth, Jobs & prosperity', McKinsey Global Institute. May 2011: http://www.mckinsey.com/insights/high_tech_telecoms_internet/internet_matters

2. Increase ICT transparency with ongoing periodic collection, reporting and analysis of data on costs, assets, performance, utilisation and availability. Update the benchmarks and analytics introduced after the Gershon review to increase the value of this data to AGIMO, SIGB , other decision makers and taxpayers.

3. Simplify Government ICT and eliminate duplicated, fragmented and sub-scale activities across agencies by requiring use of shared or cloud services where minimum efficient scale hurdles are not met. Set a default expectation that private or public cloud solutions will be used whenever efficient scale is not achieved at agency level.

4. Allow heavy users to retain autonomy and control over ICT operations, but in return require increased accountability and transparency, including for major projects they initiate. Require them to provide and regularly update three-year investment plans to DoFD and AGIMO. The information will be used by AGIMO and DoFD to encourage coordination of investment across these agencies (and shared investment where this makes sense). It will also shape the development of centres of specialised capability and expertise within different agencies. The model is for 'heavy user' agencies to take on service-wide responsibility and leadership in fields that fit with their activities (as the ATO has done with big data analytics).

5. Require ongoing external accountability for large ICT projects – external reviews should recur every six months until a project is fully implemented.

6. Create a 'dashboard' publishing key metrics on Government ICT performance and progress on major new investments. Publish league tables of agencies ranking performance on online engagement, platform-agnostic services, availability of data sets and customer satisfaction.

7. Trial the relocation of critical data to a secure government cloud using automated tools from 2014. New tools and techniques are needed to help agencies migrate essential services across from older infrastructure with low risk and low cost.

## *Reboot Whole-Of-Government ICT Leadership*

Responsibility for ICT in the Australian Public Service has historically been decentralised, leading the 2008 Gershon Report to state: "the current model of very high levels of agency autonomy leads to suboptimal outcomes in the context of prevailing external trends, financial returns and the aims and objectives of the current government."[24]

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[24] Sir Peter Gershon, 'Review of the Australian Government's use of Information & Communication Technology', Canberra, August 2008, foreword.

The ICT policy functions that became AGIMO were moved from the Communications Department to the Finance Department in 2004 as part of a push for more oversight and coordination. The current organisation of ICT responsibilities in the APS resulted in some useful reforms, largely after Gershon's 2008 review, but isn't delivering the common standards, sharing, productivity, innovation or agility intended.

An effective model for whole-of-government ICT management must acknowledge the decentralised Australian Public Service and vast differences in ICT capabilities and needs across agencies.  It must also recognise DoFD has a critical oversight role co-ordinating common procurement panels, standards and contracts; purchasing and managing centrally delivered services; participating in gateway and major project reviews; monitoring and analysing technical and financial data about ICT across the APS; and auditing ICT.  These DoFD functions should remain separate to AGIMO.

Authority for effective whole-of-government ICT decisions and reforms ultimately must derive from the decisions and priorities of the Prime Minister and Cabinet. AGIMO should be a trusted source of expertise and advice to Cabinet. It should serve as a leader, coordinator, change agent and centre of expertise, support the decisions of SIGB and provide a secretariat function for SIGB.

AGIMO's capabilities will be increased if it also serves as the support agency for an Australian Government ICT Advisory Board. The Advisory Board will be a means for Cabinet, SIGB, agency CIOs and AGIMO leadership to obtain advice on the productivity gains achievable from ICT from private sector leaders and experts.

The creation of a new approach to ICT reform must be complemented by measures to attract and retain IT talent in the public sector, and encourage more interchange of personnel between the Australian Government, States and Territories, and the private sector.

A Coalition government will:

1. Focus AGIMO on its role as the Government's key ICT policy advisor and SIGB's secretariat.

2. Create an Australian Government ICT Advisory Board, to provide the Government, SIGB and AGIMO with access to senior private sector ICT expertise.

3. Consider proposals for the ICT Advisory Board to provide an independent external chairman drawn from the private sector to SIGB, and for how to most effectively leverage the ICT Advisory Board's expertise in SIGB.

# The Choice

Labor has portrayed itself as deeply committed to a more networked, digitally engaged economy. But as with so many other areas, reality has fallen short of their talk – and not just in the case of the NBN.

The NBN has certainly hogged the limelight – both the 2011 and 2013 digital economy strategies were rationales for the mismanaged NBN rather than attempts to offer policies beyond it. With $5.4 billion spent and just 33,600 users on fibre six years after Kevin Rudd unveiled his original NBN (and two million premises still without adequate broadband) the project has been a handbrake on progress down the information superhighway, not the anticipated onramp.

Labor's policy has unsurprisingly deterred investment from other telecommunications players, leaving areas with poor broadband permanently stranded.

It is astonishing to hear Labor ministers and MPs boast about the educational benefits of the NBN, given many of the kindergarten students of 2013 will have finished high school before they see the NBN in their town or suburb, at NBN Co's current rollout rates.

Labor's record of abject failure on the digital economy goes well beyond the NBN.  It is plain to see by considering its record in office against most of the very criteria it has set out as markers of success for its digital economy strategy.  This comparison is set out in Appendix 2.

## A Case Study in Reality Distortion – Telework

The distorted quality of much of Labor's rhetoric and posturing on digital issues is exemplified by telework – the use by workers of improved ICT to work at home, a clear socially beneficial and economically valuable consequence of the digital economy.

The government has set a target of 'doubling' the share of the workforce with access to telework from six to 12 per cent by 2020. However, the claimed starting point of six per cent is seven years old, dating from an ABS survey in 2006. In the digital economy, seven years is a lifetime – Apple had not yet unveiled the iPhone in 2006.

According to the 2013 update to the NDES, one of the two major impediments to telework is: "the lack of reliable and ubiquitous high-speed broadband connections that would enable high-quality videoconferencing and collaborative tools. This barrier will be addressed progressively as the NBN is rolled out."[25] The second impediment is organisational cultures.

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[25] DBCDE, 'Advancing Australia as a Digital Economy'- Canberra, June 2013, p. 74.

In fact, if the data referenced by the 2013 NDES update is correct, the key impediment to increased access to telework is the Government's own work practices, given only 4 per cent of Australian Public Service staff utilise it. Not until July 2014 will agencies in the APS advise which positions are eligible for telework; apparently achieving this goal during two terms of office was beyond the Labor Party. [26]

# Cost

All changes to Government ICT and National Digital Economy Strategy programs will be met within the existing funding provided across the forward estimates.

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[26] Ibid. pp.74-75.

## APPENDIX 1: Policy Activity in Australia and Comparable Nations

| CATEGORY OF POLICY | MEASURABLE OUTCOMES |
|---|---|
| **Digital Economy Initiatives**<br><br>Policies to encourage or enable the diffusion and effective use of digital technologies in the public and private sectors and among households.<br><br>In East Asian economies, typically part of a broader plan encompassing innovation, industrial development, skills, and inward investment and technology transfer, with prescriptive objectives for outcomes.<br><br>A common baseline is for governments to provide order and safety online as they do offline – educate children/users on online safety, invest in digital literacy, enforce laws and rights, regulate unacceptable content or conduct, and take responsibility for (cyber) defence.<br><br>May involve investing in workforce training and skills; incentives for investment; fostering digital skills/awareness/uptake among SMEs, industry sectors or other tiers of government; and programs to ensure disadvantaged citizens, regions or groups are not left behind.<br><br>Plans often aim to lift the quality and accessibility of broadband (as in Australia's NBN), or make more radio spectrum available for wireless.<br><br>Some set online service goals in areas such as education and health.<br><br>Some attempt to use procurement preferment for local vendors of ICT or related products/services to build domestic production. | ➢ Share of businesses trading and consumers transacting online<br><br>➢ Public confidence in online environment and safety<br><br>➢ Equality of access to government services<br><br>➢ Share of households using internet to interact with government<br><br>➢ Availability and use of online government services<br><br>➢ Broadband pricing, quality, affordability and take-up<br><br>➢ Share of workforce with IT/technical skills<br><br>➢ Proportion of GDP coming from digital industries |
| **Government ICT – Operational Improvements**<br><br>Focused on IT's traditional tasks: acquiring, operating, maintaining, securing and upgrading systems/networks that capture, store, process and share information; managing resources in support of mission delivery; providing and securing desktops and productivity applications used by staff; and networks for internal and external communication.<br><br>Policies typically aim to cut costs, achieve scale economies, establish common platforms or standards, lower costs or impose consistency in procurement, and optimize whole-of-government ICT investment.<br><br>Some (e.g. UK and US) include gateways and feedback loops to avert repeats of costly mega-projects that failed, or ran over budget/schedule.<br><br>Policies encourage re-engineering of internal processes to be more cost-effective, automate repetitive tasks, better utilize resource and monitor performance, store and manage exploding digital data volumes, and detect and prevent fraud/human error/system error. | ➢ Lower cost of government<br>➢ Lower cost of providing ICT functions and resources<br>➢ Shared platforms/standards and less fragmentation<br>➢ Higher asset utilization<br>➢ Use of shared services<br>➢ Use of public cloud<br>➢ Data security and robust ICT infrastructure<br>➢ ICT aligned with policy<br>➢ Reduced fraud/errors |

| | |
|---|---|
| **Government ICT – Service Delivery**<br><br>Focused on using ICT, the Internet and other new channels (kiosks, third parties, SMS) to deliver services more effectively.<br><br>This includes making forms, services, knowledge and advice available through these channels; improving the quality and convenience of services; and co-ordinating/sharing data across different services.<br><br>May include increased personalization and localization of online services, and device-agnostic services (e.g. wireless apps and access).<br><br>May seek faster or more agile delivery of altered programs and policies. | ➢ Lower service delivery costs<br><br>➢ Customer satisfaction<br><br>➢ Innovation to increase quality/functionality<br><br>➢ Share of clients online<br><br>➢ Reduced error/fraud<br><br>➢ Less time to market |
| **Government ICT – Engagement and Open Government**<br><br>Policies that leverage the Internet to engage more effectively with citizens or other stakeholders, including via social media.  Policies to increase transparency via more detailed or frequent data.<br><br>Policies to make accumulated public data sets (in a form which strips out personal information) accessible to private users and developers who can generate new value from them.<br><br>All of the above adapt traditional decision-making and aversion to disclosure to a more open, interactive environment. | ➢ Feedback allows iterative policy refinement<br><br>➢ Public satisfaction with disclosure/openness<br><br>➢ All information online<br><br>➢ Useful/popular apps using open government data |
| **Innovation, Entrepreneurship and Research**<br><br>Governments have responded to the global dominance of US technology and internet firms by seeking to nurture their own 'Silicon Valleys' or at least create more entrepreneurial, innovative business environments.<br><br>Typically this has involved assistance or encouragement for business innovation, entrepreneurship, new venture formation, venture funding, and technology transfer.<br><br>Some nations have lifted spending on public R&D and/or tax breaks for private R&D.  Many have tried to more precisely measure ROI on research and concentrate support where tangible returns are clearest.<br><br>Complementary policies include investing in broadband and research infrastructure, human capital, and deals to attract firms or industries. | ➢ Share of GDP/exports from IP-intensive or ICT firms<br><br>➢ Rate of venture creation<br><br>➢ Private/overall R&D to GDP<br><br>➢ Patents and publications<br><br>➢ University-business linkages<br><br>➢ International ranking of leading universities<br><br>➢ Deeper, more focused research leaders |
| **Educational Outcomes**<br><br>Some countries have focused on lifting participation and/or quality of teaching in STEM (science, technology, engineering and mathematics) education.  Direct aim is larger STEM workforce.  Indirect aim may include increasing relative rankings such as the OECD's PISA. | ➢ Engineers, scientists or researchers per capita<br><br>➢ PISA rankings |

# APPENDIX 2: NDES Goals

| NDES GOAL | REALITY UNDER KEVIN RUDD & JULIA GILLARD |
|---|---|
| **Households:**<br>• "By 2020, Australia will rank as one of the top five OECD countries in terms of the proportion of households that connect to broadband." | **Australia's ranking has declined:**<br>• In June 2007 Australia ranked 12th for fixed broadband take-up with a rate 121 per cent of the OECD average.<br>• By December 2012 Australia's ranking tumbled to 18th and penetration was 96 per cent of the OECD average. [27] |
| **Government service delivery:**<br>• "By 2020, four out of five Australians will choose to engage with the Australian Government online." | **Online interaction with government has declined:**<br>• From 2009 to 2011 the share of Australians using the internet for their last interaction with government fell from 38 to 35 per cent. [28]<br>• No data shows a similar fall in any other OECD country. |
| **Business & Not-for-profits:**<br>• "By 2020, Australia will rank as one of the top five OECD countries in the proportion of businesses and not-for-profits…using online opportunities to drive productivity improvements." | **The goal is vague:** According to the ABS 99.2 per cent of businesses are already connected to broadband.<br>AiG has sought clarification from the Government of how it intends to measure 'online' productivity gains. |
| **Health and aged care:**<br>• "By 2015, 495,000 patients in rural, remote and outer metropolitan areas will have had virtual access to specialists and by 2020, 25 per cent of all specialists will be participating in delivering tele-health consultations.<br>• "By 2020, 90 per cent of high priority consumers such as older Australians, mothers with babies and those with a chronic disease, or their carers will be able to access individual electronic health records." | **Labor has slashed funding for e-health:**<br>• Following the 2010 election Labor provided $334 million for 'Connecting Health Services to the Future' lifting total e-health funding to $690 million over four tears.<br>• During 15 months after remote services were added to the MBS, Medicare paid $6 million for 26,557 specialist consultations and 16,026 patient-end services – a fraction of expected volumes.<br>• In 2012-13 Labor cut e-health by $184 million in the Budget and $173 million in MYEFO. Online GP use was restricted to exclude patients in outer metropolitan areas and major cities.<br>• Adoption of Labor's electronic health record has stalled due to lack of interest from clinicians – only 4,000 are in use. |

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[27] Data at OECD Broadband statistics portal: http://www.oecd.org/internet/broadband/oecdbroadbandportal.htm
[28] AGIMO, 'Interacting With Government – Australians' Use & Satisfaction With E-Government Services', Canberra, Dec 2011, p.15.

**Teleworking:**

- "By 2020, Australia will have doubled its level of telework to at least 12 per cent of Australian employees. "

**The goal is misleading and irrelevant:**

- The alleged starting point of 6 per cent is seven years old. It dates from the 2006 ABS Time Use Survey (no longer collected).
- The only ABS survey of telework was in 2001 for the NSW Government and showed 8 per cent of employees used telework. [29] Transport NSW also estimated 8 per cent teleworking in 2009. [30]
- According to the US Bureau of Labor Statistics, 23 per cent of US workers worked from home at least part of the time in 2013. [31]
- Most informal estimates suggest the 2020 objective for Australia has been reached – this should be confirmed by survey data.

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[29] ABS 1373.1, Oct 2001: http://www.abs.gov.au/ausstats/abs@.nsf/mf/1373.1
[30] See: http://www.atrf.info/papers/2011/2011_Corpuz.pdf
[31] See United State Bureau of Labor Statistics, Available: http://www.bls.gov/news.release/atus.nr0.htm

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