



REVIEW OF THE AUSTRALIAN GOVERNMENT'S USE OF INFORMATION AND COMMUNICATION TECHNOLOGY

Sir Peter Gershon CBE FREng

August 2008



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Department of Finance and Deregulation

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Australian Government

REVIEW OF THE AUSTRALIAN GOVERNMENT'S USE OF INFORMATION AND COMMUNICATION TECHNOLOGY

The Hon. Lindsay Tanner
Minister for Finance and Deregulation
Parliament House
CANBERRA ACT 2600

Dear Minister

I have now concluded the Review of the Australian Government's use of Information and Communication Technology (ICT) which you invited me to undertake on behalf of the Government on 25 March 2008, and attach my report for your consideration. The terms of reference asked me, amongst a number of issues, to review and report on both the efficiency and effectiveness of the Australian Government's current use of ICT, to determine whether the Government is realising the greatest return from its investments in ICT, and to examine whether the right institutional arrangements are in place to maximise the return.

This report is the outcome of a process in which I have sought to (i) gather a substantial body of evidence to understand how ICT is currently used and managed; (ii) analyse the evidence to identify significant issues; and (iii) produce recommendations which will address these issues. This has involved engagement with the Prime Minister, Ministers, across government, and with industry and other interested bodies. During this process, 112 submissions were received, 63 meetings held, 3 visits made, and 1 large and 2 small surveys conducted.

The outputs of the review provide a snapshot of the current state of ICT in the Australian Government.

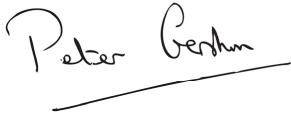
At the heart of my findings is a conclusion that, notwithstanding the work undertaken to date, the current model of weak governance of ICT at a whole-of-government level and very high levels of agency autonomy, characterised by an ability to self-approve opt-ins to existing whole-of-government ICT arrangements, leads to sub-optimal outcomes in the context of prevailing external trends, financial returns, and the aims and objectives of this Government. While ICT has undoubtedly benefited government administration and the delivery of key public services, I have also found that benefits realisation and the measurement of benefits arising from investments in ICT are areas where there is substantial scope for improvement, together with measuring and improving the efficiency of current ICT operations.

My recommendations involve a major program of both administrative reform of, and cultural change from, a status quo where agency autonomy is a longstanding characteristic of the Australian Public Service. Based on my experience of creating sustainable change in the United Kingdom public sector environment, there are two

critical requirements which will determine the success of this reform program: firstly, sustained leadership and drive at Ministerial and top official levels and, secondly, ensuring the enablers of change are properly resourced, not only in funding terms but also with skills of the right calibre.

Given these two requirements are met, I am confident that the recommended actions and changes can be successfully implemented over the next two to three years and deliver substantial benefits to the Australian Government.

Thank you for the opportunity to lead such a stimulating and challenging review. I would like to pay tribute to my team of agency and AGIMO secondees whose commitment, contribution, professionalism and support made it possible to undertake an exercise of this complexity and size in a tight time frame.

A handwritten signature in black ink that reads "Peter Gershon". The signature is written in a cursive style and is underlined with a single horizontal line.

Sir Peter Gershon CBE FREng
28 August 2008

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GLOSSARY OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AGD	Attorney-General's Department
AGIMO	Australian Government Information Management Office
AIIA	Australian Information Industry Association
ANAO	Australian National Audit Office
APS	Australian Public Service
APSC	Australian Public Service Commission
ATO	Australian Taxation Office
BAU	business as usual
BPTC	Business Process Transformation Committee
CEO	Chief Executive Officer
CIO	Chief Information Officer
CIOC	Chief Information Officer Committee
CIOF	Chief Information Officer Forum
CMMI®	Capability Maturity Model Integration
COBIT®	Control Objectives for Information and Related Technology
COTS	commercial off-the-shelf
Defence	Department of Defence
DEWHA	Department of the Environment, Water, Heritage and the Arts
EPEAT™	Electronic Product Environmental Assessment Tool
Finance	Department of Finance and Deregulation
FMA Act	Financial Management and Accountability Act 1997
FMIS	financial management information system
GMS	grants management system
GOTS	government off-the-shelf
GTS	Government Technology Survey
HRMIS	human resource management information system
HR	human resources
HVAC	heating, ventilation and air-conditioning
ICON	Intra Government Communications Network
ICT	information and communication technology
IP	intellectual property
ITIL®	Information Technology Infrastructure Library

MoG	machinery of government
NPP	new policy proposal
OGC	Office of Government Commerce
PM&C	Department of the Prime Minister and Cabinet
PMBOK®	Project Management Body of Knowledge
PRINCE2™	Projects in Controlled Environments
PSPC	Protective Security Policy Committee
PUE	power usage effectiveness
SCICT	Secretaries' Committee on ICT
SIGB	Secretaries' ICT Governance Board
SME	small and medium enterprise
SOA	service oriented architecture
SRO	Senior Responsible Official
Treasury	Department of the Treasury
UK	United Kingdom
US	United States
XBRL®	Extensible Business Reporting Language

EXECUTIVE SUMMARY

INTRODUCTION/CONTEXT

On 11 April 2008, the Minister for Finance and Deregulation, the Hon. Lindsay Tanner MP, announced my appointment to lead a review of the Australian Government's use of information and communication technology (ICT).

METHODOLOGY

In response to the Terms of Reference, I employed an evidence-based approach to the review. There was a need to gain a comprehensive understanding of the status quo in order to determine the scope for, and identify areas of, improvement of efficiency and effectiveness.

There have been three main phases to the review:

Evidence gathering: I invited submissions from agencies, industry and other key stakeholders on the use of ICT within government. In total, 112 submissions were received. I also issued a comprehensive survey to 100 *Financial Management and Accountability Act 1997* (FMA Act) agencies requesting data on ICT expenditure, with detailed questions on costs per desktop, websites, the topology and cost of telecommunications networks, use of human resource and financial management information systems, grant management systems and energy consumption. In addition, two small surveys were conducted.

Consultation: Three video conferences were held with Portfolio Secretaries in the early stages of the review, followed by a series of meetings in July and August with the Prime Minister, Ministers, agencies, industry and other stakeholders. In total, 63 meetings were held. In addition, three visits were made, one to the Australian High Commission in London and two to data centres in Canberra, to understand in more detail certain points raised by some submissions and meetings.

Analysis and reporting: The evidence, supplemented by additional inputs such as the Australian Bureau of Statistics 2002–03 Government Technology Survey, was analysed to identify key findings. Recommendations were then developed to address the identified findings and, finally, this report was produced within the requested time frame.

KEY FINDINGS

After detailed analysis of the evidence, the review identified the following key findings.

1. There is weak governance¹ of pan-government issues related to ICT.
2. Agency governance mechanisms are weak in respect of their focus on ICT efficiency and an understanding of organisational capability to commission, manage and realise benefits from ICT-enabled projects.
3. The business as usual (BAU) ICT funding in agencies is not subject to sufficient challenge and scrutiny.
4. There is a disconnect between the stated importance of ICT and actions in relation to ICT skills.
5. There is no whole-of-government² strategic plan for data centres. In the absence of such a plan, the Government will be forced into a series of ad hoc investments which will, in total, cost in the order of \$1 billion more than a coordinated approach over a 15-year period.
6. The government ICT marketplace is neither efficient nor effective.
7. There is a significant disconnect between the Government's overall sustainability agenda and its ability to understand and manage energy costs and the carbon footprint of its ICT estate.

At the heart of these findings is a conclusion that the current model of very high levels of agency autonomy, including the ability to self-approve opt-ins to whole-of-government approaches in the ICT domain, leads to sub-optimal outcomes in the context of prevailing external trends, financial returns, and the aims and objectives of the current Government. The impact of this autonomy has been heightened by a previous lack of strong focus on whole-of-government ICT issues at both Ministerial and top official levels. This conclusion applies no matter how well-intentioned individual agencies are in their pursuit of whole-of-government outcomes.

The current model of operation is very close to treating FMA Act agencies as though they were independent private sector entities. The agencies are, however, very different in a number of aspects: they are funded by the taxpayer, they cannot go bankrupt, they have very little or nothing of the 'time=money' dynamic of the private sector, and they have no simple bottom line outcomes against which their success or failure can be measured.

Against the background of the Government's objectives and the pressures to improve efficiency and effectiveness wherever possible, I consider some rebalancing between agency autonomy and coordination across government is both desirable and necessary in measures related to ICT. Such a move is in line with trends in the United Kingdom (UK) and United States (US) Governments, as well as large private sector organisations.

1 'Governance is defined as the system by which the current and future use of IT is directed and controlled. It involves evaluating and directing the use of IT to support the organisation and monitoring this use to achieve plans. It includes the strategy and policies for using IT within an organisation' (Source: AS 8015-2005 Corporate Governance of ICT). The generally accepted principles of public sector governance according to the Australian National Audit Office (ANAO) include accountability, transparency, integrity, stewardship, efficiency and leadership (Source: ANAO (July 2003), 'Better practice guide: Public sector governance and the individual officer').

2 In this report the term 'whole-of-government' is used to mean all government agencies or a significant subset of them where there is a common issue which is important but not universal to all agencies.

SUMMARY OF KEY RECOMMENDATIONS

The following comprise the primary recommendations of this review. The complete list of my detailed recommendations is found at Chapter 5 of this report. A summary of how the recommendations meet the Terms of Reference can be found at Appendix K.

Governance

- Establish a Ministerial Committee on ICT to be responsible for the key whole-of-government ICT policies and the overall strategic vision for how ICT should support the achievement of the Government's outcomes and wider policy agenda.
- Create a Secretaries' ICT Governance Board (SIGB) with a strong mandate from the Government to drive the agreed recommendations arising from the review and focus on addressing the key business issues to improve the efficiency and effectiveness of the Government's use of ICT.
- Allow agencies to obtain opt-outs, based on genuine business need, from agreed whole-of-government activities. Opt-outs to be approved by the Ministerial Committee, informed by the SIGB.

Capability

- Improve agency capability to commission, manage and realise the benefits from ICT-enabled projects through the implementation of a common methodology for assessing agency capability based on self-assessment and periodic independent audit. Each agency Chief Executive to propose a target level of capability based on their agency's and the Government's strategic priorities, and for this to be independently validated. Agencies to develop a capability improvement plan with commitment, and agreed actions, to address identified gaps.

ICT spend

- Target to move total FMA Act agency ICT spend from an average 77:23% split between ICT BAU activities and creation of new capability in 2007–08 to an average 70:30% in 2011–12.
- As initial steps towards this goal, reduce the ICT BAU budgets of the largest 28 FMA Act agencies (Defence excluded) with ICT spends in excess of \$20 million per annum by 15% from 2007–08 actuals (for a list of agencies refer to Appendix F), with a phased introduction over two years.
- Create ICT Review Teams to help these agencies achieve or exceed the target reductions without impairing service delivery to citizens and business.
- In addition, I recommend targeting agencies with total annual ICT spends between \$2 million and \$20 million to achieve a 7.5% reduction on average of their BAU from 2007–08 actuals (for a list of agencies refer to Appendix G), with a phased introduction over two years.

- The 15% and 7.5% reductions in total should save the Government around \$140 million in the first year and in excess of \$400 million in the second and subsequent years. I also recommend that 50% of the savings generated by these recommendations be transferred to a central fund for reinvestment in projects to improve efficiency and effectiveness of ICT BAU activities, such as replacement of legacy software and hardware with high support and maintenance costs.

Skills

- Create a whole-of-government Australian Public Service (APS) ICT career structure, including training and development programs for ICT professionals in key skills areas.
- Develop and maintain a whole-of-government strategic ICT workforce plan.
- Reduce the total number of ICT contractors in use across FMA Act agencies by 50% over a 2-year period and increase the number of APS ICT staff. This should save the Government an estimated \$100 million (across both BAU and project-related work).

Data centres

Develop a whole-of-government approach for future data centre requirements over the next 10–15 years.

Sustainable ICT

Develop a whole-of-government ICT sustainability plan (in conjunction with the Department of the Environment, Water, Heritage and the Arts) to manage the energy costs and carbon footprint of the Government's ICT activities.

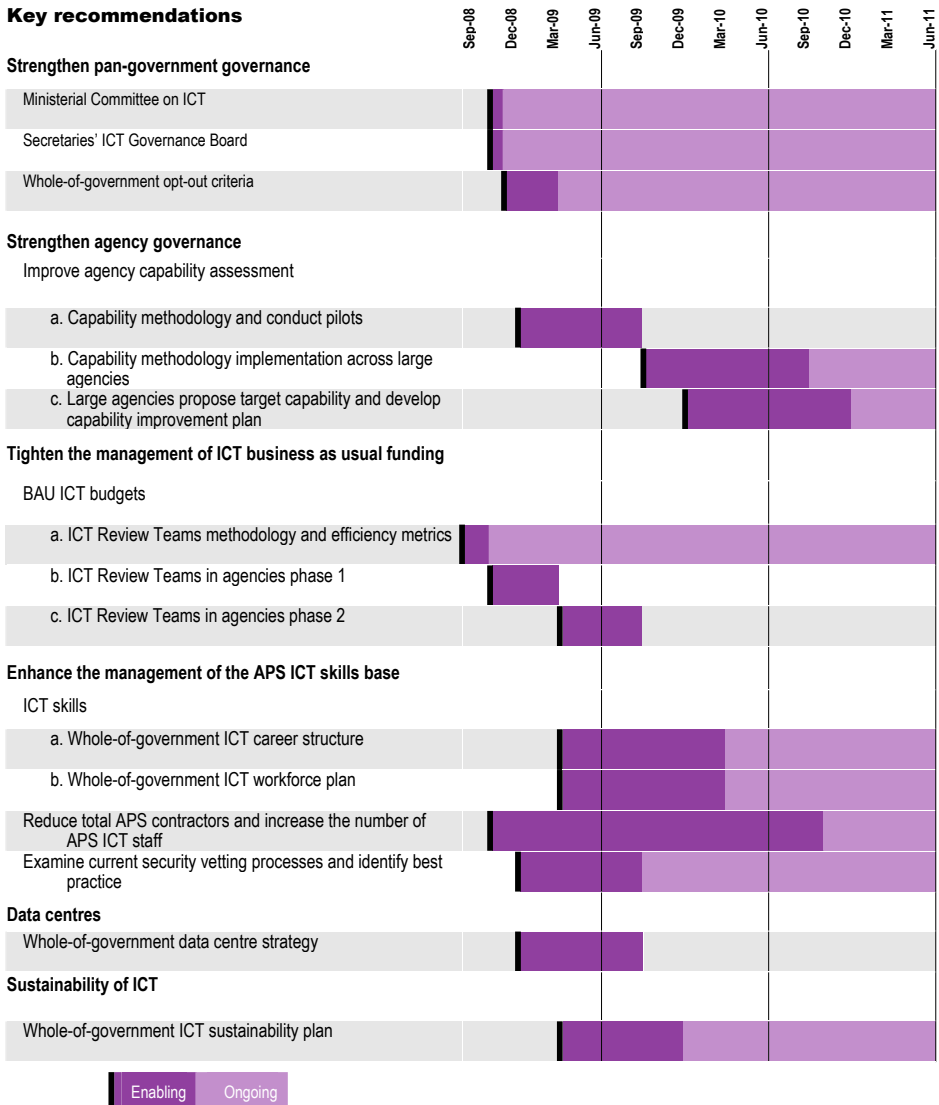
IMPLEMENTATION

My recommendations entail a major program of administrative reform and cultural change. Based on my experience of creating sustainable change in the UK public sector there are two critical requirements which will determine the success of the proposed program: first, sustained leadership and drive at Ministerial and top official levels; second, ensuring the enablers of change are properly resourced not only in funding terms but also skills of the right calibre.

The early decisions of the Ministerial Committee and the SIGB will need to send out clear signals about the pace and direction of change which is then reinforced through subsequent decisions. It will be essential to ensure that agreed whole-of-government ICT approaches and arrangements are 'fit for purpose'.

The following page sets out a proposed implementation plan for the key recommendations based on the assumption that the Government approves all my recommendations in November 2008.

Key recommendations



Enabling Ongoing

Implementation activities fall into two broad categories: those enabling activities which are one off and need to be undertaken at the beginning of or early in the implementation phase (for example the development of efficiency metrics), and those activities that are ongoing (for example the implementation and ongoing use of efficiency metrics). In most cases an ongoing activity is preceded by an enabling activity.

ACKNOWLEDGEMENTS

I am extremely grateful to those who have helped to make this review possible. In particular, I would like to thank:

- the Prime Minister and the Minister for Finance and Deregulation for their input and support
- Ministers who generously gave me their time and views and provided me with a greater understanding of their aims and objectives and the wider Australian context
- the Australian Government Information Management Office for the provision of talented staff to the Review Secretariat
- Centrelink, the Australian Taxation Office and the Department of Education, Employment and Workplace Relations for the provision of high-quality agency secondees to the review secretariat
- the Departmental Secretaries, Agency Chief Executive Officers, the Auditor-General, the Australian Public Service Commissioner, Chief Information Officers and Chief Financial Officers of the agencies that provided submissions, survey responses and their time to meet with me
- individuals and organisations outside the Government who contributed submissions to the review, and who met with me to discuss their submissions
- those individuals and organisations undertaking discrete tasks in support of the review
- the Acting Australian High Commissioner to the UK, and Austrade in London for their help and support
- my wife, who put up with many very early morning and late night phone calls I held with the review team in Australia, and my extended absence during August.

INTRODUCTION

Information and communication technology (ICT) in the Australian Government (the Government) operates within a broader context and hence must take into account key macro national and global trends. These trends include:

- growing expectations among citizens and business for the quality of services delivered by governments
- increasing concerns about climate change
- public sector funding pressures
- technology trends
- globalisation
- ICT workforce challenges.

These trends will continue to have an increasing influence on the application, delivery, cost and demand for ICT services. They should therefore be considered in order to develop an enduring whole-of-government strategy.

Growing expectations among citizens and business for the quality of services delivered by governments

Citizens now expect government services to be as good as those provided by the private sector. As Deloitte³ commented, 'One-size-fits-all solutions requiring citizens to navigate a complex bureaucratic maze to obtain services simply do not cut it in today's "on-demand" world. Restoring the confidence of citizens in their public institutions means demonstrating competence in carrying out the difficult task of governance in the 21st century and delivering citizens better value for their hard-earned tax dollars.' The reality is that citizens view government as a whole – they do not want to repeat the same information when accessing services from different agencies. Essentially, this calls for improved collaboration, integration and sharing of information between government agencies, keeping in mind privacy and security considerations.

A relatively recent survey of Australians' use of and satisfaction with e-government services⁴ showed that the internet has become an indispensable channel for delivering government services to Australians; its use is continuing to grow and it is now the preferred service delivery channel for a majority of people. The survey report also highlighted the continuing challenges

3 Deloitte Touche Tohmatsu (2007), 'One size fits few: Using customer insight to transform government', [http://www.deloitte.com/dtt/cda/doc/content/dtt_ps_onesizefitsfew_040908\(1\).pdf](http://www.deloitte.com/dtt/cda/doc/content/dtt_ps_onesizefitsfew_040908(1).pdf)

4 Australian Government, Department of Finance and Deregulation (December 2007), 'Australians' use of and satisfaction with e-government services – 2007', http://www.finance.gov.au/Publications/use-of-e-government-services-2007/docs/31576_AGIMO_Satisfaction-ALL.pdf

facing the Government in delivering services to the Australian public. Citizens are saying that they value convenience in their interactions with agencies, although for some, the advantages of being able to deal directly with 'real' people face-to-face or by telephone are preferable. Citizens are also saying they want e-government services and government websites to be easier to find and to use.

But while citizens are demanding more joined-up government services, they also want their information to remain secure and their privacy protected from cyber crime and identity fraud. The challenge for the Government is to maintain this delicate balance of making the provision of integrated services both secure and convenient so as to build and maintain trust.

Increasing concerns about climate change

Societies and governments are becoming increasingly concerned about the environment. Governments are facing pressure to deal with the effects of global warming, a foreseeable decline in fossil fuels and gas supplies, and steeply rising energy costs. As a result, the 'greening' of government policies is taking place around the world.

The current Government is committed to taking action to reduce the impact of climate change, by reducing greenhouse gas emissions and by responding to the potential impacts of unavoidable climate change. The Government is considering introducing a cap and trade emissions trading scheme by 2010, and a mandatory renewable energy target by 2020.⁵

These changes will need to be taken into account when an overarching ICT strategy is developed for the Government. In April 2007 Gartner estimated that the global ICT industry accounted for 2% of CO2 emissions, on a par with the aviation industry.⁶ Gartner also estimated that large organisations spend between 4% and 10% of their total ICT budgets on energy and that this number may quadruple by 2012 due to the twin factors of power-hungry hardware and rising energy costs.⁷ In Australia, the Australian Computer Society undertook an emissions audit on the amount of carbon dioxide being generated by Australian businesses' use of ICT. The results of the audit indicated that ICT use by Australian businesses generated 7.94 million tonnes of carbon dioxide in 2005, equivalent to 1.52% of total national carbon dioxide emissions.⁸

The Government will be under increasing pressure to articulate a viable strategy to make ICT environmentally sustainable.

5 See Australian Government (July 2008), 'Carbon Pollution Reduction Scheme Green Paper summary', <http://www.climatechange.gov.au/greenpaper/summary/pubs/greenpaper-summary.pdf>

6 Gartner Press Release (April 26, 2007), 'Gartner estimates ICT industry accounts for 2 percent of global CO2 emissions', <http://www.gartner.com/it/page.jsp?id=503867>

7 Gartner Press Release (November 7, 2006), 'Gartner says look beyond power issue as pressure mounts for 'greener' IT', <http://www.gartner.com/it/page.jsp?id=498224>

8 Australian Computer Society (August 2007), 'Policy statement on green ICT', http://www.acs.org.au/acs_policies/docs/2007/greenictpolicy.pdf

Public sector funding pressures

Effects of an ageing population, global competition among various economies, and climate change are creating and will continue to place pressure on public sector budgets to increase spending in areas such as health, education and transport. The Government must find ways of improving the efficiency and effectiveness of its service delivery. This means providing value for money by improving quality of service (accessibility for all and acceptable citizen experiences and outcomes), and reducing the costs involved in service provision.

Technology trends

Businesses, individuals and public institutions are adopting a wide variety of technologies and to such an extent that they are changing the way each entity functions and relates to others. Governments in general, although more conservative users of some newer technologies, still need to be aware of broader technology trends and the potential impact of these on government policies, operations and service delivery.

For example, the internet has moved to Web 2.0, a more interactive model in which user-generated content is front and centre, and has the potential to change relationships with citizens, intermediaries and external service providers, as well as among government agencies. Governments will need to explore and shift to this new paradigm.

Many private sector organisations have already embraced service oriented architecture (SOA), where ICT assets are aligned to business services in a standard, flexible and architected fashion, and also the benefits that come with it such as increased agility, re-use and reduced costs. Government organisations are slowly moving towards leveraging SOA in the development of their applications, but there is potential for the pace to be quickened and for further thinking to be done at the whole-of-government level rather than agency level to maximise the potential benefits.

Advances in processing power, storage and memory technologies have paved the way for more sophisticated use of data analytics and business intelligence technologies. Governments are also using geospatial technologies and resources to optimise service delivery and to improve decision making in areas such as collection and analysis of intelligence information, protection of critical infrastructure and response to emergencies. However, the explosive growth of data, compliance requirements and increasingly complex business environments have made information storage management more critical than ever. Governments need to ensure that they are able to maintain control over their ability to store and manage this key business asset, having due regard to privacy concerns.

Globalisation

Countries and societies are becoming more economically interdependent across social, political and cultural boundaries. There is greater global movement of goods and services, labour and people, capital and technology among previously independent and sovereign entities.

These trends need to be considered from an ICT perspective. For example, globalisation is enabling large emerging economies with high or increasing educational standards (such as Brazil, Russia, India and China) to draw activity away from the developed economies – often delivering equivalent services at a fraction of the price. There may be ways for ICT to harness some of these trends to address other challenges such as the ICT skills shortage. The potential for outsourcing ICT-related activities to lower cost countries with highly skilled workforces is already being utilised by many private sector organisations to improve their competitiveness. For governments, more complex trade-offs have to be made when considering whether ICT-related activities should be undertaken offshore. However, even if political considerations limit the activities to onshore locations, there may be scope for deploying government ICT work to reinforce regional economic development policies.

ICT workforce challenges

Australia's unemployment rate at July 2008 was 4.3%, and some parts of Australia are experiencing even lower rates (for example, the Australian Capital Territory had an unemployment rate of 2.7% in July 2008).⁹ Coupled with an ageing population, this represents a significant policy and resourcing challenge for the Government as a manager of economic growth and as a large user of skilled labour.

According to a report prepared for the Australian Computer Society and the Australian Information Industry Association¹⁰, the Australian ICT industry is looking at a shortfall of 14,000 jobs by 2010, growing to 25,000 within another 10 years. The report also warned that the ICT skills shortage will continue at current or worse levels until at least 2012, and argued that temporary migrant visas are only a short-term solution. The report said that Australia must act quickly to increase local graduate numbers by at least 12.5% a year and reduce the loss of ICT professionals to overseas employers.

Such ICT skills shortages will also drive the need for better sharing of ICT assets across the whole of the Government. In addition to growing its own ICT professionals through training and development, other options may include employing older Australians, attracting more females to a career in ICT, and partnering with academic institutions. The Government will also need to consider strategies to ensure it has sufficient skilled ICT professionals to meet the demands of service provision.

9 <http://www.abs.gov.au>

10 Centre for Innovative Industry Research Inc. (August 2008), 'The ICT skills forecast project. First report: Quantifying current and forecast ICT employment (Executive summary and contents)', <http://www.acs.org.au/attachments/ICTSkillsForecastingReportExecSummaryAug08.pdf>

The changed Australian political context

The current approach to the governance and management of ICT across FMA Act agencies, where they have very high levels of autonomy (including the ability to self-approve opt-ins to whole-of-government approaches in the ICT domain), may have been an appropriate model in the context of the previous government's objectives and policies, and the trends of the 1990s and early parts of this decade. However, there are now a different set of external trends and my discussions with the Prime Minister and some other Members of Cabinet have indicated to me that there is now a very different political and public administration agenda in which it is appropriate to consider whether the status quo is still fit for purpose.

CHAPTER 1:

VIEWS FROM WITHIN THE AUSTRALIAN GOVERNMENT

This chapter summarises the key themes raised in submissions from Australian Government agencies and in 24 bilateral meetings with agencies. A total of 41 *Financial Management and Accountability Act 1997* (FMA Act) agencies were invited to make submissions to the review. They were asked a series of questions about:

- the alignment of their ICT strategy to their overall strategic priorities
- how they measured the performance of their ICT investments
- how they measured their organisation's capability to commission, manage and deliver ICT-enabled programs
- how they measured the efficiency and effectiveness of their ICT spend
- their risk management strategies
- details of best practices that could be shared
- their views on existing whole-of-government ICT arrangements.

A total of 40 agency submissions were received and reviewed. Four agencies – the Department of the Prime Minister and Cabinet (PM&C), the Australian National Audit Office (ANAO), the Department of Finance and Deregulation (Finance) and the Department of the Treasury (Treasury) – were asked specific questions related to their respective oversight/governance roles. Accordingly, percentages raised in this chapter do not include consideration of PM&C and the ANAO, but do include Finance and Treasury, as they also provided responses on their ICT operations. Appendix D contains a full list of the agencies that made a submission to the review.

1.1. ICT INVESTMENT DECISION MAKING

1.1.1. Prioritising investments

Thirty-five agencies detailed formal processes for prioritising ICT investment at the organisational level, with only three agencies not providing any details. Priorities are set through governance arrangements (35 agencies), combined in some instances with business case processes (10 agencies) or budget management processes (6 agencies).

Nineteen of these 35 agencies were able to detail reasonably comprehensive prioritisation techniques or extensive assessment criteria to rank competing investments, with six agencies actively grouping investments into priority groups. However, the other 16 agencies were only able to detail basic prioritisation processes and criteria.

Agencies cited the following criteria used when ranking competing investment priorities:

- alignment with government, strategic and business priorities (30 agencies)
- strategic impact, value, benefits and savings (26 agencies)
- risks (15 agencies)
- resources and capability to deliver (13 agencies)
- costs and available funding (13 agencies)
- alignment with existing architecture (9 agencies)
- dependencies and prerequisites (3 agencies)
- time frame (2 agencies).

1.1.2. Alignment of ICT investments with strategic priorities

The review observed that there are very few frameworks in place at the whole-of-government level for setting priorities for ICT investment across portfolios. There is no formal process by which agencies can obtain information on ICT activities in other agencies before investing in ICT. It was also noted that the technical capacity of the three central agencies (Finance, PM&C and Treasury) to assess and advise on ICT investment proposals is at full stretch during the budget cycle. This results in feedback on individual proposals, rather than taking a whole-of-government approach to investment.

Furthermore, a longstanding feature noted by several agency heads was that investment in ICT to support policy delivery has, in some instances, not been considered before announcing policies. Policy makers and Ministers are not always fully aware that inadequate consideration of delivery implications at the outset can have significant adverse implications on the cost of policy delivery. There was some limited evidence of best practice, where those responsible for delivery were deeply involved in the policy formulation process.

At the organisational level, 32 agencies (82%) noted that they ensure alignment of ICT investments to strategic priorities through formal planning processes and governance mechanisms. Agency strategic priorities include:

- enhancing the capability of staff (14 agencies)
- improving organisational effectiveness and efficiency to deliver better services (12 agencies)
- increasing community confidence (10 agencies)
- improving collaboration and engagement, and strengthening stakeholder relationships (9 agencies)

- supporting economic development (7 agencies)
- providing sound and timely advice (5 agencies)
- delivering government policy (4 agencies).

Agencies reported that alignment is facilitated through the influence of senior ICT executives in agency-wide governance arrangements. However, in only a few cases did agencies indicate that the Chief Information Officer (CIO) is a member of the executive team. Only two agencies reported that their ICT governance structures are underpinned by AS 8015-2005 Corporate Governance of ICT. An additional two agencies either referenced the standard in their submissions, or stated that they plan to use it in the future.

1.1.3. Future importance of ICT to government business

Across the board, agencies reported that ICT is a fundamental business enabler and an integral part of their operations. There was also a unanimous view that ICT will continue to increase in importance. In particular, agencies commented on the increasing need for more robust and agile systems to:

- meet rising expectations from citizens and government
- deliver more efficient and effective services and operations
- harness information and intelligence
- manage increased complexity in the regulatory, business and policy environments.

Nineteen agencies said that they expect the demand for online transactional interactions to continue to increase, with the safeguarding of citizens' information an important consideration.

Improving the level of collaboration and information sharing between agencies and other external organisations (for example, the trade and investment community, agencies with strong international links such as policing and patents) is an imperative (and a challenge) for 15 agencies.

1.2. PROJECT DELIVERY

There are several whole-of-government initiatives that examine and report on the delivery of major government investment projects and programs, including ICT-enabled projects. These are the Gateway Reviews, ANAO audit activities, and the PM&C Cabinet Implementation Unit's Traffic Light Reports.

Gateway Reviews assist FMA Act agencies to improve the likelihood of successful delivery of projects on-time, on-budget and with the intended benefits realised. However, I heard one view that Gateway Review recommendations have, in some cases, not been adopted.

The ANAO submission highlighted that its audits of ICT-enabled projects identified areas for further improving the management and use of ICT. These include ensuring business cases include measures of both project success and standardised costing methods.

Most agency responses on how they measure whether their ICT investments were meeting their planned outcomes focused only on new ICT-enabled projects, rather than on investment in existing business as usual activities. Responses revealed that most agencies have formal processes in place for new projects, such as a project management frameworks or governance mechanisms.

1.2.1. Use of project management frameworks

Most agencies use some form of project management methodology to manage their ICT projects. Twenty-two agencies (59%) use the PRINCE2™ methodology as the basis of their project management methodology, with a further two agencies planning to introduce PRINCE2™ in the near future. Additionally, five agencies use the Project Management Body of Knowledge (PMBOK®) to underpin their project management methodologies (four agencies are using PMBOK® in tandem with PRINCE2™), while another two agencies plan to adopt PMBOK®.

1.2.2. Use of governance mechanisms

Five agencies cited their involvement in Gateway Reviews as a governance mechanism for project delivery. One agency cited the use of a cross-agency project board, while 15 agencies discussed their use of internal project boards. Ten agencies noted that their projects received senior management endorsement.

1.2.3. Risk management

Twenty-two agencies indicated that their risk management frameworks were compliant, consistent with, or based on AS/NZS 4360:2004 Risk Management.

Nine agencies noted that their audit committees were responsible for overseeing risk management within the agency. Four agencies have centralised oversight of risk management within the organisation through enterprise risk registers to manage agency-wide risks.

Agencies have taken different approaches to embedding risk management within their operations, including incorporating risk management within their Chief Executive Instructions, integrating risk management within their business planning and project management, applying project management methodologies such as PRINCE2™, and designating an agency risk manager.

1.2.4. Benefits realisation plans

Twenty agencies reported some form of evaluation of benefits at the end of the project compared to those identified in the project initiation documents. Eight agencies reported that they are preparing to introduce formal benefits realisation evaluation processes, while five agencies noted that they track benefits, but did not offer evidence of a formal dedicated process. Two agencies did not discuss benefits realisation.

1.2.5. Evidence from recent ICT projects

Agencies were asked to provide details of their 5–10 major ICT-enabled projects and how they measured their success in terms of cost, time, specification and delivery of anticipated benefits. Agencies provided details of 193 completed projects. Table 1.1 details observations made regarding the performance of these projects.

Table 1.1 – Performance of 193 completed projects

COST	TIME	BENEFITS ACHIEVEMENT
<ul style="list-style-type: none"> • 23% (45) were delivered over budget • 39% (74) were delivered under budget • 13% (25) had no variance between estimated cost and actual cost • 25% (49) were silent on the question 	<ul style="list-style-type: none"> • 33% (64) were delivered over time • 2% (3) were delivered before time • 41% (80) had no variance between estimated time and actual time to delivery • 24% (46) were silent on the question 	<ul style="list-style-type: none"> • 44% (86) reported achievement of benefits but did not provide evidence of measurement • Only 5% (10) reported actual measurement of benefits and compared anticipated benefits with actual benefits realised • 45% (86) reported outcomes that were not measurable • 6% (11) were silent on the question

Thirty-four of the 193 projects recorded expenditure of more than \$5 million. Table 1.2 details observations made regarding the performance of these larger projects.

Table 1.2 – Performance of projects over \$5 million

COST	TIME	BENEFITS ACHIEVEMENT
<ul style="list-style-type: none"> • 12% (4) were delivered over budget • 29% (10) were delivered under budget • 9% (3) had no variance between estimated cost and actual cost • 50% (17) were silent on the question 	<ul style="list-style-type: none"> • 12% (4) were delivered over time • No projects were delivered under time • 38% (13) had no variance between estimated time and actual time to delivery • 50% (17) were silent on the question 	<ul style="list-style-type: none"> • 36% (12) reported achievement of benefits but did not provide evidence of measurement • 11% (4) reported actual measurement of benefits and compared anticipated benefits with actual benefits realised • 38% (13) reported achieving actual outcomes that were not measurable • 15% (5) were silent on the question

1.3. ORGANISATIONAL CAPABILITY

The review asked agencies to provide details of how the capability of their organisation to commission, manage and deliver successful ICT-enabled programs is measured. It also asked agencies to provide an assessment of their current capability, and any plans to improve it.

1.3.1. Current assessment of capability

In responding to this question, only three agencies provided an assessment of their organisation's overall capability, with the remaining agencies interpreting the question solely as ICT capability, after being given an opportunity to reconsider their response. Six agencies provided a high assessment of their ICT capabilities, while 15 agencies stated that their ICT capabilities were medium and eight said they were low. The remaining agencies offered no assessment of capability. In the absence of a common capability framework, agencies used a range of partial measures to make these assessments.

1.3.2. Measurements of capability

Seventeen agencies measured their capability by whether ICT had been able to deliver against the business requirements in a timely manner. Twenty-five agencies cited their strong project management capabilities as evidence of their strong capabilities, while five pointed to staff and user satisfaction surveys as an indicator of their capability.

There is some use by agencies of formal assessment frameworks to assess capability. Seven agencies have used the Software Engineering Institute's Capability Maturity Model Integration (CMMI®) to assess capability and a further agency plans to use CMMI®, but these have mainly been informal internal assessments.

A total of 11 agencies reported using the IT Governance Institute's Control Objectives for Information and Related Technology (COBIT®) maturity models, which provide a management tool enabling benchmarking and targeting of maturity levels.

Eighteen agencies reported using Information Technology Infrastructure Library (ITIL®), while a further four agencies reported that they are planning to adopt it. Only one agency noted that it had undertaken an ITIL® Process Maturity Assessment, conducted by an external provider.

One agency observed that there is no evidence that current investment approval processes include any rigorous and objective methodology for assessing the organisational capability of an agency seeking funding for ICT-enabled projects during the budget process. Equally, there is no assessment of the likelihood of delivering project outcomes.

1.4. PEOPLE

Twelve agencies commented on the adverse impact of ICT skills shortages, both in submissions and during bilateral meetings. There is general agreement among these agencies that ICT skills shortages are widespread, and that an agency's ability to attract and retain highly skilled and motivated people has a significant impact on both efficiency and effectiveness, although five agencies observed that they are not experiencing current pressure from shortages.

Those agencies that reported an adverse impact of the skills shortages discussed it in terms of its effect on agency capability. Some agencies noted that both BAU and project-related activity were at risk. One agency also noted that its suppliers were constrained in their ability to service contracts, as a result of the skills shortage. The impact of competition between agencies for scarce skills on contractor costs was also commented upon.

Agencies are turning to a mix of solutions to cope with skills shortages. These include:

- Adoption of workforce planning, together with flexible employment strategies to deal with an ageing ICT workforce. Four agencies reported implementation of an ICT-specific workforce plan, while two more are developing such plans.
- Reliance on contractors, with heavy premium market rates paid by some agencies. Many agencies commented that they believed their panel arrangements were very successful.
- Partnering with private sector organisations to deliver projects.
- Location of ICT staff outside of Canberra. During agency bilateral meetings, three agencies noted that they had consciously moved ICT positions to other locations throughout Australia in response to the ICT skills shortage.¹¹ One agency noted that this approach had, to some extent, buffered them from the risks inherent in the skills shortage. This agency noted that project work was easier to disperse than ongoing production support.
- International recruitment.
- Education and graduate recruitment, including partnering with tertiary institutions, running traineeship programs, and supporting apprenticeships. Two agencies reported that they have partnered with tertiary institutions in an effort to produce graduates skilled in their agency's particular requirements. The Defence Materiel Organisation is partnering with a tertiary institution to develop a Masters in project management which is open to all government employees.

1.5. MANAGING ICT SPEND

Agencies were asked how they ensured that their ICT spend (both operating and capital) is as efficient and effective as possible, and to provide details of the performance metrics used to measure the efficiency and effectiveness of their ICT function.

1.5.1. Measures of efficiency

Very few agencies said that they used metrics to assess the efficiency of their ICT spend. Only two agencies regularly reported efficiency metrics and targets to their senior executive. A further two agencies said that they used efficiency metrics annually, while seven reported that they undertake efficiency benchmarking on an ad hoc basis using contracted service providers.

¹¹ It is recognised that many more agencies have ICT capability in other locations outside of Canberra due to their headquarters being located in non-Canberra locations, and other business reasons. However, as reported in 3.2.3, 79% of ICT staff are located in the Australian Capital Territory (ACT).

Four agencies are developing efficiency measurement metrics or are implementing activity-based costing to understand their ICT costs. There was some evidence of multiple instances of taxpayers' money being spent to obtain benchmark data in areas such as desktops.

1.5.2. Measures of effectiveness

Twenty-six agencies reported that they employ metrics to manage the effectiveness of their ICT operation, such as availability, outage reporting, number of client application service requests completed, and customer satisfaction surveys. A further two manage the effectiveness of their ICT service providers through the use of operational metrics.

1.5.3. Other mechanisms to measure efficiency and effectiveness

Of the remaining agencies, nine reported using qualitative rather than quantitative efficiency and effectiveness measures, including:

- project management frameworks such as PRINCE2™
- governance committees that monitor ICT-related projects and operations
- active budget management – comparing actual cost to budgets
- procurement approaches such as market testing and panel contracts
- service delivery reporting of outsourced arrangements.

These measures were also used by agencies that did report using quantitative metrics. Two agencies did not report using any methods to manage their ICT spend.

1.5.4. Future plans to increase efficiency and effectiveness of ICT spend

In addition to those agencies already using techniques such as the following, other agencies reported future plans to increase the efficiency and effectiveness of ICT spend by:

- increasing use of consolidation, virtualisation and centralisation of infrastructure (7 agencies)
- market testing outsourced arrangements, infrastructure and systems (6 agencies)
- improving funding and governance systems (5 agencies)
- refreshing and deploying updated technology (5 agencies)
- adopting a stronger architectural approach to ICT (4 agencies)
- implementing recognised frameworks, such as service management and other ITIL® based approaches (4 agencies)
- driving greater cost-efficiencies in procurement through partnering with others to obtain volume discounts (4 agencies)
- implementing Earned Value management (2 agencies).

1.6. PROCUREMENT AND ICT OUTSOURCING

Although not explicitly mentioned in the invitation to agencies to make a submission to the review, many agencies had points of view on procurement and ICT outsourcing and their relevance to effectiveness and efficiency.

1.6.1. \$80,000 tender threshold

Five agencies discussed the difficulties arising from the Commonwealth Procurement Guidelines requirement for an open tender for any ICT acquisition estimated to cost more than \$80,000. This issue was also raised at a meeting of the Chief Information Officer Forum which I attended.

1.6.2. Common-use contracts and supplier panel arrangements

Nine agencies saw merit in greater use of common-use contracts and supplier panel arrangements developed by a central body in areas of generic need or use. There was recognition that volume sourcing arrangements currently under development could service this need. A few agencies supported common approaches to benchmarking.

Two agencies stated that such a wholly centralised procurement function is likely to add a significant bureaucratic overhead that would not be justified by efficiencies. Four agencies said that any move to centre-led procurement must ensure that agencies are not hindered in achieving their specific business outcomes.

1.6.3. ICT outsourcing

Agencies use a mix of insourced and outsourced arrangements. Some agencies are moving to renew their outsourced delivery arrangements, while others have never outsourced and always retained an insourced ICT capability. Other agencies are moving back from outsourced to insourced arrangements, and others have a mix of insourced and outsourced arrangements but not as part of a cluster arrangement. This cluster arrangement, required under the Information Technology Infrastructure Consolidation and Outsourcing Initiative commencing in 1997, attracted criticism from three smaller agencies. They found that their needs are not being catered for as outsourced providers dedicate most attention to the needs of larger agencies in the cluster.

At meetings with agency heads, I heard that the outsourcing initiative was handled too directionally by a central authority and that the arrangements adversely impacted upon agencies' ability to function efficiently and effectively. There was much criticism of the initiative, with agencies complaining of the long-term implications. For example, one agency said that it was now moving from outsourced to insourced services, with the main driver being reduced costs. Another agency stated that its expectations for service delivery were not met by their

outsourced service provider. Concern was expressed by agency heads that the clustering of agencies was random and there was little business alignment in the clusters.

In December 2000, a report on the *Review of the Whole-of-Government Information Technology Outsourcing Initiative* (the Humphry Report) was considered by the Government. The Government agreed with the recommendation which saw future responsibility for implementing the outsourcing initiative fully devolved to agency Chief Executives or Boards.¹²

1.7. USE OF BEST PRACTICE

During the course of the review I sought to determine the extent to which Australian Government agencies were engaged in better practice and best practice. Examples were sought from agency submissions, bilateral consultations and through wider investigations. In my view, there are a number of better and best practice examples across government which could be more widely adopted. While there is broad awareness of a few well-known examples, these tend to be the exception. There is no systematic means to promulgate best practice more widely and, as a result, there is only limited awareness by other agencies of most of these initiatives. There is clearly potential to leverage these examples by publicising them more effectively. An illustrative selection of examples is included below.

1.7.1. SmartForms

The Department of Innovation, Industry, Science and Research has developed a centre of excellence in SmartForms. SmartForms are a platform to deliver advanced online forms and services across government. They enable the Government to provide more information and services online to the business community and enable companies to complete their regulatory and reporting requirements more efficiently. There are currently over 650 live SmartForms available on the site, resulting in shared forms, templates, infrastructure and knowledge across multiple government agencies, including Centrelink and Finance, and several state governments. This whole-of-government solution has been available since November 2005 to government agencies that own business-related forms.

1.7.2. Architecture-based design

Centrelink's system of online claims and services for customers provides a facility through which customers can view and update a range of personal data over the internet. Customers can access information, correct inaccurate information, lodge claims and manage their Centrelink affairs. Centrelink is employing a new service oriented architecture to make functions and data contained in its mainframe-based legacy applications available to applications using

¹² Humphry, Richard AO (December 2000), *Review of the Whole-of-Government Information Technology Outsourcing Initiative*.

web services. This allows information to be collected from citizens with little or no intervention from Centrelink staff. Online services are now being developed using industry standard technology, providing an increasing opportunity to deliver services that cross traditional system and agency boundaries. Centrelink has found that re-use of systems and functionality is delivering cost-efficiencies, reducing development time, and providing standardised, consistent services and user interfaces to customers. Online services under development will re-use existing web services to leverage previous investment in ICT.

1.7.3. Project maturity assessments

The Defence Materiel Organisation has implemented a technique which assesses the maturity of projects as they progress from concept to in-service. Projects are assessed against the criteria of schedule, cost, realisation of requirement, understanding of the technical solution and arrangements to operate and support the capability, technical difficulty, industry performance issues, and operations and support.

1.7.4. Secure communications

FedLink is a whole-of-government encryption system that allows data classified up to and including PROTECTED and RESTRICTED to be transferred securely among Australian Government agencies across the internet or any insecure infrastructure. Since establishment in 2001, FedLink has expanded to provide services for 98 Australian Government agencies (52% of all FMA Act and *Commonwealth Authorities and Companies Act 1997* agencies).

The initiative operates under a head agreement between Finance and the FedLink service provider. Individual agency contracts are between the agency and the service provider. FedLink is implemented as a user-pays funding model and is cost-efficient in comparison to similar commercial offerings. Over the past 7 years in operation, FedLink has proved to be a robust and effective service with minimal impact on the agency or end user.

1.7.5. Sourcing strategies

Some agencies are specifying outcomes rather than technical specifications as the basis of competitive tendering. The Department of Foreign Affairs and Trade states this approach has identified that commercial off-the-shelf (COTS) products can meet the needs of the business without bespokeing.

Several agencies nominated specific instances of their ICT sourcing as best practice. These included a 'best of breed' policy (Australian Electoral Commission); a hybrid sourcing model (Department of Infrastructure, Transport, Regional Development and Local Government); multi-party arrangements (Australian Customs Service); and leveraging of cross-portfolio arrangements (Department of Human Services).

1.7.6. Collaboration with industry

The Australian Taxation Office (ATO) has a Software Industry Liaison Unit which was established to assist tax-related software developers with changes that came about during one of Australia's major tax reforms. The ATO has continued to collaborate closely with software developers to improve and streamline their interactions with ATO systems. For example, the unit makes available all tax-related information required by software developers to readily interface their systems to the ATO.

1.7.7. ICT management frameworks

As noted in section 1.3.2, 18 agencies are using ITIL® and a further four are planning to implement it. Of these agencies, eight are sufficiently confident in its use to nominate it as a best practice framework for promulgation across government. ITIL® practices are commonly implemented in areas of problem management, incident management, change management and configuration management.

Likewise, there are 11 agencies currently using the IT Governance Institute's COBIT® as a management tool, enabling benchmarking and targeting of maturity levels. Four agencies suggested government-wide use of COBIT®.

1.7.8. Earned Value management

Earned Value is a set of best practice project management techniques that integrate cost, schedule and technical performance. Earned Value establishes objective measures of the actual work achieved compared to the plan for that work. It requires better up-front planning and provides an agency and its contractor with the same performance data against which project progress can be managed and reviewed.

The ATO has realised greater transparency of the status of its Change Program by employing Simplified Earned Value methodology and fixed price milestone payments for its contract for services with Accenture. Simplified Earned Value provides a payment method where the dollar amount claimed by the provider relates to the amount of work performed. Warranty, stage gate and risk-reward payments remain fixed price, with specific point-in-time triggers and milestone achievement criteria. Invoices are received monthly for the previous month's work effort.

The Defence Materiel Organisation also uses a mix of Earned Value and project milestones to manage projects. It uses the technique in larger, more complex projects (usually at least \$20 million and with system integration involved).

1.7.9. Knowledge management

The Australian Bureau of Statistics (ABS) Knowledge Management Environment delivers ongoing information productivity through provision of an enabling desktop IT environment, which facilitates collaboration and allows the information produced to be managed as a corporate asset. The platform integrates portal, collaboration, mail, workflow, offline capabilities, document management and record keeping, and supports the organisational objectives. This includes the creation, production, publication and distribution of information, including the 'automated' delivery of publications and content to the ABS website.

1.7.10. Energy efficiency in data centres

The Treasury reported that it had invested in a new data centre with a conscious effort to reduce its carbon footprint by re-using the cold air in Canberra for the centre's cooling requirements.

1.7.11. Search

The Agency Search Service allows agencies to leverage the whole-of-government search service provided through *australia.gov.au*, to provide a search on agency websites. Thirty-two agencies have fully implemented the use of this service over 57 websites. Agencies using the search service include the Bureau of Meteorology, Medicare Australia, the Department of Health and Ageing and Finance.

1.7.12. Successful delivery of technology refresh

Centrelink's IT Refresh program has increased the range of services that Centrelink's customers are now able to access online. According to an audit by the ANAO¹³, it significantly advanced online services for private sector organisations, enabling them to verify customer circumstances and to exchange information; reduced the risk of service compromise or failure due to the ageing of its systems; and established an Enterprise Data Warehouse that will provide the capability to substantially improve its management information. Over the five years of the Refresh program, Centrelink committed to achieving savings in administered payments (such as benefit and pension payments) of \$184 million, and savings in departmental expenses of \$120.9 million. Centrelink achieved the committed budgetary savings.

1.7.13. Customer-focused service delivery

The ATO e-tax service is a free tax return preparation software that ensures most refunds are issued in 14 days. e-tax helps citizens prepare their income tax return and baby bonus claim, and then lodge online. It also lets citizens download their Medicare benefit tax statement details. e-tax was first introduced in 1999 for the 1998–99 financial year.

13 Audit No. 17, 2007-08, 'Management of the IT Refresh Program'.

The ABS e-Census facility is a tool that provides all Australians with a robust, secure and easy alternative to completing the paper Census form, and makes it easier for the ABS to count people living in isolated places. Importantly, it is also accessible for people with a disability as it uses assistive technologies.

1.7.14. Green ICT

The Department of Defence (Defence) implemented a Green ICT initiative in June 2008. By enforcing automatic log-off and then automatic shut-down on its major PC fleet, the number of machines left powered on after hours fell from 50,000 to 3,000. Electricity savings from this initiative are expected to exceed \$5 million annually. The equivalent cut in greenhouse gas emissions is expected to exceed 30,000 tonnes annually – the equivalent of taking 7,500 cars off the road permanently.

1.8. VIEWS ON EXISTING WHOLE-OF-GOVERNMENT ARRANGEMENTS

Agencies were asked for their views on existing whole-of-government arrangements to guide the Government's use and management of ICT. Several frameworks, guides, strategies and policies already exist within the whole-of-government environment, and agencies were asked to indicate their level of use of these frameworks, and any issues that impeded use.

1.8.1. Current governance mechanisms

A very small pool of agencies commented on the current governance mechanisms, mainly agencies that are involved in the relevant committees. Comments were made on an individual agency basis.

Agencies reported that the Secretaries' Committee on ICT (SCICT) provides only limited guidance. One agency said that the forum struggles to deliver value on collaboration and is struggling to determine its level of interaction with agencies. The agency said that the SCICT has no authority to be critical and failed to affect decisions coming out of the Budget process. One of the SCICT members said that they expected that the forum would share learnings, but this did not happen. Instead, the forum acted as a 'sand trap', slowing down initiatives from agencies. PM&C said that the Government needs to review the SCICT's terms of reference and modus operandi. One agency suggested that the SCICT could provide value by providing a line of sight for whole-of-government programs to politicians.

Agencies reported that other forums, such as the CIO Committee and the Business Process Transformation Committee, are useful for sharing ideas, although one agency commented that these committees tend to share issues rather than solve them.

1.8.2. Views on the Australian Government Information Management Office

Comments were offered by agencies on an individual basis.

One agency noted that, while the aspiration behind the Australian Government Information Management Office (AGIMO) was good, AGIMO has been around for some time and there is still no evident return on investment. Another agency noted that AGIMO has no authority over agencies and that this was a significant issue. One agency noted that AGIMO's role might be better placed in another part of government, such as within the PM&C Cabinet Implementation Unit, as its role within Finance was problematic because Finance's role is to reduce expenditure.

Agencies felt that AGIMO does have a role to play in terms of leading and facilitating work on architecture, frameworks and standards. There was support for existing central frameworks, standards, best practice guides and services such as:

- Australian Government Architecture (7 agencies)
- Australian Government e-Authentication Framework (7 agencies)
- Australian Government Telecommunications Arrangements (6 agencies)
- Australian Government Technical Interoperability Framework (5 agencies)
- Better practice guides (5 agencies)
- BlackBerry guidance (5 agencies)
- e-Government strategy (5 agencies)
- Fedlink (5 agencies).

1.8.3. Barriers to adoption

Agencies were asked why they did not adopt whole-of-government policies.

Seven agencies, in different ways, expressed a view that agencies needed to remain autonomous due to either the unique requirements of their business, or because they could drive a better pricing deal as a single entity.

Four agencies highlighted the lack of common standards and a common language as inhibiting whole-of-government approaches.

Another four agencies observed that it is difficult to deploy AGIMO frameworks and guidance as the Government does not provide any extra funding to enable agencies to adopt these policies.

1.8.4. Future coordination

Nine agencies stated that they saw value in some form of strong central leadership and authority to coordinate whole-of-government arrangements in certain areas, for example, architecture and business process design. Five agencies noted that any frameworks and guidance introduced under such arrangements would need to be backed by a strong business case, or opt-in provisions.

Seven agencies expressed concern over any trend to centralise ICT decision making that could not accommodate unique requirements of in-house and collaborative applications development, due to the highly specialised nature of agency purchases. These agencies felt that the possible imposition of a whole-of-government initiative could affect an agency's ability to operate efficiently and effectively.

1.9. VIEWS ON DATA CENTRES

During a number of agency bilateral meetings, the issue of inadequate current data centre arrangements arose. Key points raised included:

- Age. With few exceptions Canberra's existing data centre facilities are ageing and experience difficulty meeting the requirements of current technology and/or availability demands. There are examples of data centres within the ACT that are hosted by private organisations that have had little investment to accommodate changing technology demands.
- Power. Agencies raised concerns over Canberra's reliance on a single power grid.¹⁴

A subsequent survey was undertaken with the 16 largest agencies (excluding Defence) to help inform and quantify the magnitude of the data centre issue. Table 1.3 contains a high level summary of findings. In addition, 12 of the agencies identified having more than one of their data centres in the ACT.

14 There are two feeds from New South Wales to the single ACT electricity grid. One feed provides 85% of electricity to the ACT and the other 15%. The smaller 15% feed is only to the immediate Fyshwick area and is insufficient to support agency needs. Agencies with data centres in Canberra are therefore susceptible to the single ACT power feed.

Table 1.3 – Summary of data centre locations of the 16 largest agencies (excluding Defence)

Agency self-managed facility within ACT	14
Shared facility within ACT	17
Total data centres located in ACT	31
Agency self managed facility outside of the ACT	8 (7 of these belong to the ABS)
Shared facility outside of ACT	6
Total data centres outside of ACT	14
Total data centres	45

This survey also identified the following:

- Capacity. Excluding remote sites, the total identified capacity for agency data centres is 10,484 m². The total identified unused capacity is 1,815 m². Within the ACT the total identified capacity is 8,316 m² with an unused capacity of 1,463 m² (17.6%). However, 18 data centres within the ACT have identified as having 10 m² or less available capacity. Where the agency is not in an existing shared facility any unused capacity is not transferable to another agency for use.
- Availability. Using the Tier Classification System of the Uptime Institute¹⁵ for data centre availability, 16 of the identified data centres are below the tier level identified by agencies that meets their current minimum availability requirements.

1.10. VIEWS ON THE ICT INDUSTRY

During the bilateral meetings, a number of agencies expressed concerns about the ICT industry based on their experiences. These included:

- that industry repeatedly over-promises in tenders and under-delivers in practice
- industry does not practice what it suggests that agencies should do
- that the quality of resources in implementation does not match the quality promised during tendering and contract negotiations.

1.11. ICT ARRANGEMENTS IN MINISTERIAL OFFICES

During the course of the review, I was made aware of an issue affecting interoperability of ICT systems within ministerial offices at Parliament House, Canberra. This issue serves as a reminder of the importance of interoperability, common systems, and the problems that can result from an autonomous approach to ICT systems. The issue is outside the Terms of Reference for my review, but the concerns were passed onto Finance, which has some responsibility for providing services to Ministers.

15 See [http://uptimeinstitute.org/wp_pdf/\(TUI3026E\)TierClassificationsDefineSiteInfrastructure.pdf](http://uptimeinstitute.org/wp_pdf/(TUI3026E)TierClassificationsDefineSiteInfrastructure.pdf)

CHAPTER 2: VIEWS FROM OUTSIDE THE AUSTRALIAN GOVERNMENT

This chapter summarises the key themes raised by those outside the Australian Government (the Government) and represents the views of:

- ICT companies
- ICT industry associations (including the Australian Information Industry Association (AIIA), Australian Industry Group, and Open Source Industry Australia)
- consulting firms working in the ICT industry
- individuals working in the ICT industry
- ICT recruitment firms
- one professional body
- one trade union
- one academic institution
- one state government.

A total of 72 submissions were analysed, with 51 of these having been directly invited to provide a submission to the review (see Appendix D). This chapter also takes into account views raised during bilateral meetings and round table discussions with various external stakeholders and state government CIOs (see Appendix E).

2.1. BETTER UTILISATION OF ICT ASSETS

There was a general view across industry that there is a great deal of duplication of ICT systems, applications and infrastructure within the Government, stemming from the decentralised and independent way agencies have invested in ICT. Many submissions (29) commented on significant opportunities for the Government to realise efficiencies by rationalising, standardising, consolidating and sharing or re-using current assets. In particular, the following areas were highlighted.

2.1.1. Bandwidth and network infrastructure

Fourteen submissions indicated that aggregating and sharing network connections and gateways could achieve significant savings. One company pointed out that the Government often has 20–30 data network connections per regional city or town across Australia, with each agency implementing a dedicated connection to/from Canberra.

A few (4) also felt that the physical fibre that makes up the Intra Government Communications Network (ICON) is significantly under-used. It could provide a foundation for establishing a shared networked service infrastructure for a range of shared services, as well as delivering an even broader range of telecommunications services more cost-effectively.

2.1.2. Data centres

Industry believed that growth in technology demand is challenging the physical constraints on data centres globally, and the Government is no exception. Industry bodies pointed to the following factors as having an impact on the current data centre facilities of agencies:

- Server growth. Gartner¹⁶ estimates that the current global compound annual growth rate of servers is 12%, but one industry body has identified it to be as high as 18% for some government data centres. This contributes significantly to demand on data centre floor space.
- Data centre floor space. Despite major advances in consolidation and server virtualisation technology, Gartner¹⁷ estimates that the demand for data centre floor space is forecast to be around 5–10% a year. With many data centres either at or near capacity, this poses a significant issue for many agencies.
- Heating, ventilation and air-conditioning (HVAC). Data centres require stable thermal conditions. The current growth in power density due to changing server technology is projected by Gartner¹⁸ to be 3.5KW/m² over the next 5 years. Most government HVAC systems provide pressurised air via a false floor to the base of a server rack, and the practical limitation of such a system is 1KW/m². This discrepancy will see an increase in thermal 'hotspots', and a consequent need to improve HVAC design and implementation.
- Growth in demand for power. A sample of data centre power demand for one agency shows that demand for power in its data centre has grown by 30% compound annual growth rate over the past 5 years (from 230 Kilo Volt-Amps to 850 Kilo Volt-Amps).
- Efficiency. Using the Uptime Institute's data centre cost modelling tool, data centre economy improves significantly between 500 m² and 1,000 m². (Note: Of the 45 data centres referred to in section 1.9, only four exceed 500 m²).
- Weight and floor loading. Currently, typical government data centre floor loading capability is about 450 kilograms per rack. The weight of new server technology populating these racks has increased from 380 kilograms per rack to over 1,000 kilograms per rack over the past 5 years. As a result, racks are not being fully utilised and there is a requirement for improved design and implementation in order to improve floor space utilisation, provided HVAC limitations can also be overcome.

16 Gartner (August 2006), 'A message from data centre managers to CIOs: Floor space, power, and cooling will limit our growth'.

17 Ibid.

18 Gartner (September 2007), 'U.S. data centers: The calm before the storm'.

- One industry body identified that data storage demand is growing by as much as 60% per annum. This growth impacts on HVAC, floor space, power demand and ICT staff numbers.
- Green ICT. Data centres are contributing significantly to the Government's carbon footprint. According to the Uptime Institute, data centres account for 0.5% of total worldwide energy consumption, and energy consumption of data centres has doubled between 2000 and 2008.

In the absence of an overarching whole-of-government view on data centres, agencies tend to provide or source their facilities autonomously. This leads to unnecessary duplication across government of not only data centre facilities, but duplication in data centre operations, for example, specialised support staff and processes. Fourteen submissions indicated that consolidating agency data centre facilities has the potential to realise significant savings for the Government.

2.1.2.1. Capacity management

The review's attention was drawn to analysts' reports quoting average capacity utilisation of servers across the industry as being between 15% and 20% during working hours.¹⁹ Some felt that better capacity management would provide access to current untapped or under-utilised resources. In addition, a technique known as server virtualisation could make better use of existing processing capacity within and across agencies.

2.1.2.2. Storage

Industry commented that with data and information continuing to expand exponentially due to the increasing prevalence of digital content and the pervasiveness of legislative compliance requirements pertaining to data, each agency faces increasing storage requirements.

Consolidating storage into large repositories would drive cheaper per megabyte storage costs.²⁰ In addition, consolidation would enable the delivery of differentiated high, medium and low availability storage services based on need.

2.1.3. Consolidation/integration of service delivery channels

Twelve submissions commented on the opportunity for the Government to enhance service delivery through integration and collaboration across agencies, particularly through single entry points for government information and services. Reducing the number of customer-facing government portals would provide government customers, citizens and businesses with a single door to access the majority of government services and reduce the cost of maintaining multiple entry points. A few submissions also mentioned the better sharing of other service delivery channels, such as face-to-face and telephone.

19 Adrian Johnson (June 2007), 'Capacity utilisation - Asking the questions', MeasureIT Issue 5.06, http://www.cmg.org/measureit/issues/mit42/m_42_5.html

20 Technically, it is possible to consolidate storage without actually consolidating data.

2.1.4. Business systems and applications

Some submissions (10) felt that opportunities could be gained from standardising and rationalising the myriad of business systems and applications agencies currently use, particularly with a view to better sharing and re-use among agencies. Related to this, four submissions commented on opportunities from rationalising software licences.

The state government's submission identified that it has already seen the effects of rationalisation in its development environments. In its 2005–06 baseline, 50% of its agencies required at least four different application development skill sets, which raises training costs and skills management overheads, as well as knowledge management risk. This figure was reduced to 29% in 2006–07, according to its baseline reporting.

2.1.5. Infrastructure

Some submissions (8) also felt that there are opportunities to rationalise, consolidate and share ICT infrastructure (such as call centres), particularly for smaller agencies, noting that some pooling and consolidation of requirements would be required.

One company surmised that the Government could save up to \$100 million by optimising its infrastructure alone.

2.2. SHARED SERVICES

Many submissions (29) considered that rationalising, standardising and aggregating business systems and applications also enables a move to shared services across agencies. By way of comparison, 11 submissions indicated that other governments (both state and international) have progressed further in this area. They mentioned the activities of the Victorian and Queensland Governments, and the US and UK Governments, and suggested that the Government explore and learn from their experiences.

The top candidates suggested by industry for shared services included:

- financial and human resources management and payroll (20 mentions)
- procurement, purchasing and contracting (10 mentions)
- document/records management (8 mentions)
- payment processing (6 mentions)
- security and authentication (5 mentions)
- identity and access management (5 mentions)
- grants management (5 mentions).

While industry was generally optimistic about the potential of shared services, they also noted that shared services and systems inevitably involve a degree of compromise that can expose the different business expectations of customers. This sentiment was echoed in the meetings I held with state government CIOs. While they acknowledged the potential benefits of shared services, they commented on the significant challenges and risks associated with implementation, and counselled considerable caution in this area.

2.3. STANDARDISED/COORDINATED APPROACH TO PROCUREMENT

Many submissions (32) mentioned that the Government could obtain significant efficiencies by adopting a standardised or coordinated approach to procurement. There are currently multiple tenders for the same product or service (which is costly for both the Government and industry) and agencies are buying these products or services at different prices. Some submissions (17) went on to say that the Government is not making the best use of its collective purchasing power (particularly in purchasing commodity products). At the same time, it is incurring high administrative costs by having multiple procurement activities across agencies. This includes expenditure on external consultants, probity advisers, legal advisers and internal resources.

However, 11 submissions commented on the need to be mindful of the impact of any such standardised or coordinated procurement activities or initiatives on competition, especially on smaller players. One commented that small and medium enterprises (SMEs) in particular, tend to be squeezed out in consolidation programs, robbing the Government of the innovations offered by smaller suppliers. Another referred to research indicating that SMEs gained around 22.5% of work by contract value in 2004–05, while 60.3% went to multinationals.²¹ Nine also commented on the need to consider past attempts at aggregation (for example, clustering) and to carefully analyse the costs and benefits before proceeding.

2.4. USE OF COMMERCIAL OFF-THE-SHELF SOLUTIONS

Many submissions (24) indicated that there are no specific inhibitors to using commercial off-the-shelf (COTS) solutions without customisation, with 10 mentioning that there is often unnecessary excessive customisation by agencies. This erodes the inherent benefits offered by commercial off-the-shelf products, and increases costs.

Some submissions (13) believed that more robust definition and consideration of requirements, and adopting service oriented architecture (SOA) and open standards, would increase the appeal of commercial off-the-shelf solutions.

21 Intermedium (2005), 'SME participation in Australian Government ICT procurement 2003–04 & 2004–05', Report for the Department of Communications, Information Technology and the Arts, http://archive.dcita.gov.au/__data/assets/pdf_file/0005/56930/Intermedium_Final_Report_03-05.pdf

2.5. NEED FOR STANDARDISATION

Fourteen submissions indicated the need to have standard architectures by adopting SOA and the Australian Government Architecture. They believed that if agency applications were developed on the basis of building services (and components of services) that were as generic as possible, opportunities for re-use by multiple agencies would increase significantly. Re-using applications would decrease the investment needed to develop new applications, and thus reduce the time taken to deliver improved services to the community.

Ten submissions indicated that much can be gained from standardising business processes across agencies wherever possible, with eight suggesting that agencies should adopt the Australian Government Business Process Interoperability Framework. They believed that the framework, if implemented across all agencies, would result in standardisation and reduced costs for agencies, as well as reduced tendering costs for suppliers.

Seventeen submissions highlighted the need for whole-of-government common and open data standards to facilitate sharing and collaboration among agencies, and to improve service delivery innovation by removing technology and vendor dependency.

2.6. WHOLE-OF-GOVERNMENT GOVERNANCE

Nineteen submissions indicated that there is a role for a central body to:

- set and ensure consistent and effective application of ICT policies, guidelines and best practices through an effective compliance regime
- set, coordinate and monitor whole-of-government ICT strategy and investments.

Fourteen submissions indicated that the Government does not measure benefits well, particularly at the whole-of-government level. They believed that there is no consistent and rigorous approach to establishing, measuring and reviewing benefits, which makes it difficult to support general statements on the benefits of ICT to government operations. To improve this, 12 submissions suggested that the Government would benefit from centrally coordinating ICT investments through portfolio management methodologies, coupled with strong performance measurement and tracking of benefits. This included exploring potential governance structures for multi-agency developments, as well as collecting and monitoring data on ICT investments. Cross-agency portfolio management could identify projects with a high potential to transform government services, improve alignment and integration across government, and reduce duplication. One submission referred to research which showed that good ICT governance is associated with a 20% higher return on assets.²²

22 Weill P & Ross JW (2004), *IT governance*, Harvard Business School Press, Boston, p. 269.

Some submissions (4) also commented on the observation that there are a number of private sector organisations that are leaping ahead in managing ICT at an enterprise level to improve competitiveness. They said that within the government context, the centre has a limited ability to influence or guide a program once funding has been approved unless an agency requests extra funds. In contrast, private sector organisations tend to use more 'activist centre' approaches.

While nine submissions commented positively on Gateway Reviews, they believed there is still room for improvement. For example, the Gateway process could be implemented more rigorously (for example, by making Gate 0 compulsory) and lessons learnt from ICT successes and failures could be shared more effectively.

Fifteen submissions also mentioned the need to focus on improving project management disciplines (particularly benefits realisation), governance and funding mechanisms of large ICT investments. Some went on to say that project management should be a formally recognised discipline in government and that there should be better executive-level commitment to, and improved recognition of, formal project management training and accreditation.

However, 12 submissions commented on the need to concurrently review and revise structures, mechanisms and incentives to improve collaboration between agencies. They believed that the current Chief Executive Officer (CEO) accountabilities and interpretations of the *Financial Management and Accountability Act 1997* (FMA Act) do not encourage cross-agency initiatives. Also, because agency CIOs are accountable to their CEO, the Government generally does not have the authority to intervene in agency ICT decisions. In support of this observation, eight submissions commented that other governments (both state and international) were more advanced in terms of inter-agency collaboration. As a starting point, six suggested creating a centralised database of agencies' ICT systems, hardware, software, capacity and capabilities. This would allow agencies to understand and look for similarities and duplication and determine opportunities for sharing or re-use, and consolidation.

2.7. HIGH COSTS OF TENDERING

There was a general view that industry finds the private sector easier to do business with. Sixteen submissions indicated that costs of tendering to the Government are too high, and 10 indicated that decision making in terms of defining business needs, evaluating technology solutions, procuring a technology and finalising contracts is too slow.

Fourteen submissions indicated that contractual terms and conditions are often overly onerous or uncommercial, and sought standard contracts with reasonable terms and conditions. While the Government has, in principle, adopted fair and acceptable policies on liability, insurance and intellectual property (IP), implementation has been inconsistent. Many tenders contain onerous clauses, resulting in no-bids and restricting the solutions available to the Government. For example, unlimited liability, or caps on liability are set so high as to be essentially the same as unlimited liability. Industry also noted insurance clauses that have very high insured amounts

(especially professional indemnity insurance). The limits often exceed the likely losses that could be incurred and, in many cases, are just not available in the Australian insurance marketplace. They also said that agencies often require ownership of intellectual property as the default position when they purchase ICT goods and services. Since many do not exploit the IP, the future value it might have generated for the Australian ICT sector and wider economy is lost.

Twelve submissions thought that agencies are often too focused on specifications or inputs rather than outcomes. Whereas the private sector focuses more on the outcomes to be achieved rather than the processes to be followed, the Government focuses overly on process, adding significantly to project costs, at the expense of ensuring project outcomes. Agencies are also often too prescriptive in their specifications. Only one submission provided limited quantitative comparative data which indicated that the Government is similar to the US and UK Governments in terms of bid costs as a percentage of total contract value for large tenders. The private sector tends to provide greater flexibility in designing solutions that encourage greater innovation from vendors. Furthermore, the Government often selects the tender with the cheapest minimum compliance offer, thus not achieving true value for money.

Supplementary evidence sought from the AIIA supported these views. Based on a survey it conducted with 66 member companies (around 79% of which had annual Australian revenue of less than \$15 million), about 40% indicated that they have decided not to participate in the Government market. In addition, most of those who do participate regularly decline to bid for individual tenders. The main reasons given for non-response were:

- cost and complexity of the tendering process
- punitive terms and conditions
- poorly defined outcomes and risks.

These points were confirmed in a subsequent round table meeting the review held with nine SMEs. This meeting also identified some difficulties SMEs had experienced with large prime contractors.

Eleven submissions wanted earlier and more ongoing consultation with industry throughout the procurement process. They believed that many agencies are reluctant to enter into meaningful discussion with potential tenderers before releasing requests for tender, citing probity issues. This affects the quality of the decision made and favours the incumbent. They also believed that the concept of partnering is better understood and practised in the private sector, avoiding the 'us and them' attitudes that commonly arise with government contracts.

2.8. THE AUSTRALIAN GOVERNMENT COMPARED TO OTHER GOVERNMENTS

While industry was asked to comment on how the Australian Government compared to their other government clients in general, apart from procurement, no recurring themes were identified.

2.9. SKILLS SHORTAGE

Fourteen submissions believed that the current skills and resources shortages will continue to be a challenge for all organisations, not only the Government, as baby boomers retire and the number of ICT graduates declines. This emphasises the need for the Government to plan for future skills requirements and potential skills gaps. They believed that there is a strong case for the Government to improve its human resources planning and coordination of its ICT workforce, both from a capability and capacity perspective. For example, it could make more effective use and sharing of staff with high-demand skills. In support of this observation, nine submissions mentioned that the decentralised agency-by-agency management of ICT projects means that agencies are competing for staff, which inflates contractor rates.

A few submissions commented that the stress on the labour pool has led the Government to rely heavily on contractors for their ICT skills, particularly in Canberra. Another commented that many agencies are using contractors to 'top-up' permanent staff to address workloads, with the contractors effectively becoming permanent staff. Further, industry asserted that approximately 20% of staff in many agencies have been converted from full-time permanents to more highly paid contractors. The result is that when contractors move on, so too does their knowledge and skill base. Other difficulties include probity concerns, lack of succession planning, variable quality, and workers operating outside the performance management system.

To address these issues, 14 submissions suggested that ICT professionals need to be valued more. This can be achieved by implementing a whole-of-government professional development program encompassing career development, pathways to professional accreditation, retraining, recruitment and retention strategies.

2.10. GREEN ICT ²³

Some submissions (8) believed that the Government should lead by example and more actively consider environmental factors as part of their ICT purchasing. This not only achieves cost savings (for example, through reduced power and cooling costs of more energy-efficient products) but supports the green agenda. In 2008 the US Government implemented a blanket requirement to procure only Electronic Product Environmental Assessment Tool (EPEAT™)²⁴ registered desktop computers, laptops and monitors. The US Environmental Protection Agency, using conservative assumptions, estimates that the government's purchase of EPEAT™ registered computers over a 4-year time frame will:

- save US\$71.4 million in energy costs
- reduce energy use by 824 gigawatt hours, enough to power 72,630 households for a year
- reduce greenhouse gas emissions by 64,700 metric tons of carbon equivalent, which is equal to removing 51,317 cars from the road for a year.²⁵

These submissions recommended that a set of environmental criteria be established for Australian Government ICT purchases, and that it be made mandatory for government purchasing officers to use the criteria when evaluating tenders.

Other green initiatives that industry considered the Government could adopt include:

- purchasing products with a high ENERGY STAR® ²⁶ and EPEAT™ rating
- using energy calculators to compare potential savings
- enabling power management settings across client PC systems
- implementing virtualisation and consolidation technologies to maximise resources
- adopting mobile computing platforms and work practices
- adopting centralised delivery models for applications, operating systems and data.

23 Note that industry tended to use the terms 'green' and 'sustainable' interchangeably, however, the prevailing terminology in the industry is 'green ICT'.

24 EPEAT™ is a system to help purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes. EPEAT™ also provides a clear and consistent set of performance criteria for the design of products, and provides an opportunity for manufacturers to secure market recognition for efforts to reduce the environmental impact of their products.

25 See [http://www.epeat.net/Docs/White%20House%20Thanks%20EPEAT%20Mfgs%20\(3-21-07\).pdf](http://www.epeat.net/Docs/White%20House%20Thanks%20EPEAT%20Mfgs%20(3-21-07).pdf)

26 ENERGY STAR® is an international standard for energy-efficient electronic equipment. It was created by the US Environmental Protection Agency in 1992 and has now been adopted by several countries around the world, including Australia.

2.11. SECURITY CLEARANCES

Five submissions commented that there is no consistent and standardised whole-of-government approach to the implementation of policies, procedures and processes in managing security clearances. This has resulted in each agency establishing its own approach under the broad Australian Government guidelines. Often, security clearances issued by one agency are not accepted by another and clearances cannot be transferred. They believed that the implications are very significant for companies supporting different government agencies, including cost, staff waiting time in re-clearing for new agencies, and reduced productivity. They also considered that the ability to uniformly manage security and identity management across government agencies would simplify and provide significant savings in administration.

2.12. BEST PRACTICES

2.12.1. Coordinated management and procurement

A few submissions felt that the Government could benefit from using best practices adopted by the UK Office of Government Commerce (OGC). As part of an initiative to improve standards and procurement capability across the central government, OGC divides purchasing specialists by product line. It has also set up a separate website (<http://www.ogcbuyingsolutions.gov.uk/>) which provides government with a central catalogue of nationally approved products and services that meet government procurement guidelines. By purchasing hardware products with a common set of specifications across government (as opposed to across agency), the UK Government has been able to save up to 47% on PCs, laptops and monitors.²⁷

A few submissions also felt that the Government could benefit by adopting acquisition reforms that have been implemented in the US. These have resulted in substantial savings where software licences are being used more efficiently across large federal departments through 'acquisition maturity models' that benchmark acquisition capabilities against established standards. (The UK Ministry of Defence has used this approach for acquiring weapons systems.)

2.12.2. Shared services

As discussed in 2.2, another practice that industry felt the Government could adopt is shared services. This practice has been adopted by businesses and attempted by several governments (both state and international), with varying degrees of success.

²⁷ Office of Government Commerce (2006), 'How can we help you? Saving money on IT hardware', <http://www.ogc.gov.uk/documents/CP0146ITHardware.pdf>

2.12.3. More innovative procurement and contracting

A few submissions felt that the Government could benefit from having more innovative approaches to procurement. They noted that there has been a shift from requests based on technology or specifications to requests based on business outcomes, particularly in the private sector. This enables vendors to be more creative and flexible, and increases engagement.

A few also pointed out the substantial savings that e-auctions can achieve. For example, the UK National Health Service Purchasing and Supply Agency renewed its £40 million budgeted requirement for ICT hardware through an e-auction; the successful supplier was able to offer a £12.7 million (31%) saving over the previous contract.

2.12.4. Improved vendor engagement

A few submissions also identified early and ongoing engagement of vendors as another area where the Government could obtain benefits. For example, the AIIA's UK counterpart, Intellect, offers a number of services to facilitate early interaction and close consultation between agencies and industry to achieve better outcomes. Intellect's Concept Viability service allows agencies to get industry feedback at the concept stage to allow early analysis of costs, risks and implementation options. Intellect also actively supports joint government–industry work on cost reduction, delivery and procurement effectiveness. The Queensland State Government has established a single voice for the ICT industry to engage with government through the ICT Industry Workgroup. This group comprises representatives from the Australian Computer Society, the AIIA and Software Queensland, who jointly represent 12 ICT bodies.

2.12.5. Standardised approaches

Some submissions felt that private sector organisations and, to a lesser extent, other governments are more advanced in leveraging standard architectures and business processes. A few felt that the approach taken by the US Government to optimise its ICT infrastructure, including desktop, communications and data centres, could provide a good framework for the Government. One company mentioned that all government agencies in Singapore will have a standard ICT operating environment by 2010, which will provide significant cost savings while enhancing operating efficiency and corporate identity.

Six submissions mentioned that the Government would benefit from adopting standard service management such as ITIL®. One industry submission commented that the Victorian State Revenue Office has reduced its ICT budget by 16.5% since achieving ITIL® compliance in 2005.

A few submissions also talked about other governments adopting common standards. For example, governments around the world, most notably the US, Japan, the UK and The Netherlands, have collaborated on and adopted the Extensible Business Reporting Language (XBRL®) data standard.

2.12.6. Single government entry points

Some submissions identified the work of other governments in creating single points of entry for citizens and suggested that the Government consider similar models. For example, they pointed to New York City's single entry point for citizens, and Service Canada's one-stop, 'single-window, multi-channelled' service network to improve after hours access to government services.

2.12.7. Embracing open source solutions

One company pointed to the Government of Brazil as an administration that is determined to effectively use the latest ICT technologies to overcome distance and socioeconomic challenges and provide best outcomes for its citizens. It is making some of the world's largest investments in open source software, investing in infrastructure and delivering services across multimedia. Another company pointed to the US Department of Defense, which advocates open source software as an integral component of its collective ICT enterprise environment.

2.12.8. Focus on sustainability

Some submissions also pointed to the fact that many companies are focused on sustainability practices to lower costs, increase shareholder value and gain competitive advantage. Practices include:

- better monitoring of power consumption
- targeting data centres for cost reduction activities
- allowing employees to tele-work.

2.12.9. Consideration of other capability sourcing options

Some submissions suggested that the Government could be more flexible and strategic with sourcing options, for example, by actively supporting near-shoring and offshoring.

CHAPTER 3: SUMMARY OF SURVEY FINDINGS

3.1. SURVEY APPROACH

As part of the review, a survey of agencies' ICT spending was undertaken to understand the total ICT spend of the Australian Government (the Government) and to examine agency ICT costs across a range of areas including desktops, websites, financial management information systems, human resource management information systems, grants management systems, telecommunications, and ICT energy usage.

The survey was based on the 2002–03 ABS Government Technology Survey (GTS). The ABS survey was used to enable comparative analysis of expenditure over time, as it was the most recent comprehensive survey of the Government's ICT expenditure. Appendix C contains an outline of the review's survey methodology.

Eighty-six responses²⁸ were received covering 91 of the 100 *Financial Management and Accountability Act 1997* (FMA Act) agencies that existed at the time the review survey was issued. The responses varied in terms of completion and quality, highlighting the absence of a consistent approach by agencies to the classification of some of their ICT costs. Nonetheless, the survey provided significant insights into agencies' management of their ICT costs.

For the purposes of analysis of the survey agencies were grouped into the following size categories:

- Large: agencies (including Defence) with over \$20 million of ICT spend in 2007–08 (29 in total)
- Medium: agencies with between \$2 million and \$20 million of ICT spend in 2007–08 (26 in total)
- Small: agencies with less than \$2 million of ICT spend in 2007–08 (29 in total).

3.2. SURVEY RESULTS

3.2.1. Total government spend on ICT

The Government has not had conclusive data on the value of its annual ICT spend since the ABS 2002–03 GTS estimated the Federal Government ICT spend (including spending by *Commonwealth Authorities and Companies Act 1997* agencies and 38 universities) at \$4.2 billion. Prior to the survey undertaken by the review, best estimates had put the

28 Two agencies that responded have recently been incorporated into another agency. They have been treated as one agency for the purposes of analysis of total ICT spend (bringing the sample size to 84 agencies); however, they have been treated as separate agencies in the analysis of financial and human resource information management systems and energy usage.

Government's current ICT spend at around \$6 billion per annum. The review's survey identified that FMA Act agencies spent \$4.3 billion on ICT in 2007–08. Based on this result, total government ICT spend across the General Government Sector for 2007–08 is estimated at \$5.3 billion per annum (excluding universities), using the multiplier derived from the ABS survey.

Similarly, the Government has not had conclusive data on the size of its ICT workforce since the ABS 2002–03 survey, and that survey only addressed the APS workforce and did not capture ICT contractor numbers. The review survey identified that the ICT workforce of FMA Act agencies at 30 June 2008 was 13,379 (including 3,135 ICT contractors). Based on this result, the total government ICT workforce across the General Government Sector at 30 June 2008 is estimated at 15,751, using the multiplier derived from the ABS survey.

Tables 3.1 and 3.2 summarise the aggregate data collected from FMA Act agencies in the survey.

Table 3.1 – Total expenses for FMA Act agencies

	2002–03 \$m	2006–07 \$m	2007–08 \$m
Employee costs	668.4	819.7	946.3
Other operating expenses	1,448.7	2,138.6	2,309.7
Total operating expenses	2,117.1	2,958.3	3,256.1
Capital expenses	677.3	862.2	1,034.7
Total ICT spend (operating and capital expenses)	2,794.3	3,820.5	4,290.7
Percentage change in total FMA Act agencies' ICT spend		36.7%	12.3%
Total FMA Act agencies' operating expenses	45,846.2	61,575.4	66,792.9
Percentage change in total FMA Act agencies' operating expenses		34.3%	8.5%
ICT spend as a percentage of total operating expenses	6.1%	6.2%	6.4%

Note: Operating expenses exclude depreciation expenses.

Table 3.2 – Total employees and contractors for FMA Act agencies

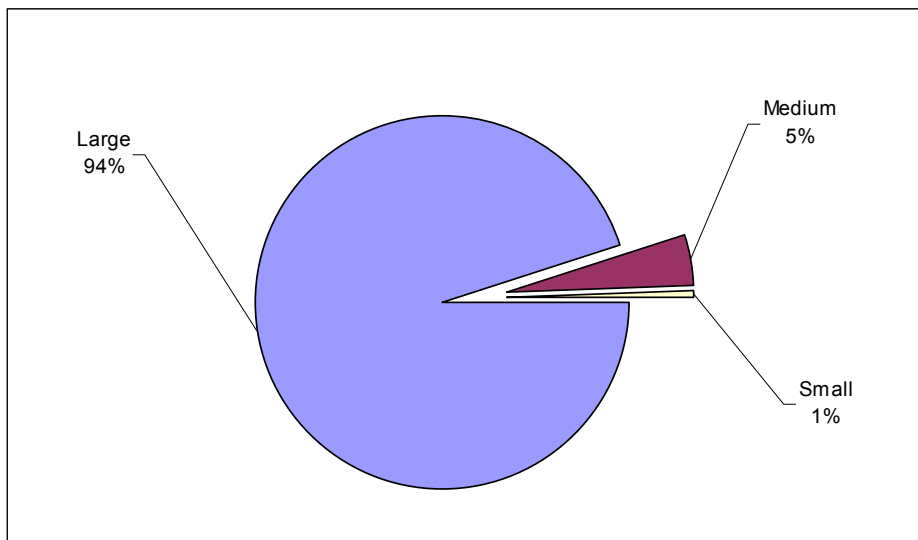
	2002–03	2006–07	2007–08
ICT staff	8,142	9,730	10,244
ICT contractors ^(a)		3,138	3,135
Total ICT workforce	8,142	12,868	13,379
Total FMA Act agency staff	211,692	218,727	222,311
ICT staff and contractors as a percentage of total employees	3.8%	5.9%	6.0%
ICT spend per employee	\$15,906	\$21,048	\$23,257

(a) Note: ICT contractor numbers were not collected in the ABS 2002–03 GTS.

3.2.2. FMA Act agency ICT spend

Analysis of the survey pointed to a significant amount of ICT spend occurring within large agencies. The 29 large agencies accounted for 94% of the total ICT spend of all FMA Act agencies in 2007–08. The next 26 agencies account for 5% of total ICT spend, while 29 small agencies account for just 1% of ICT spend (see Figure 3.1).

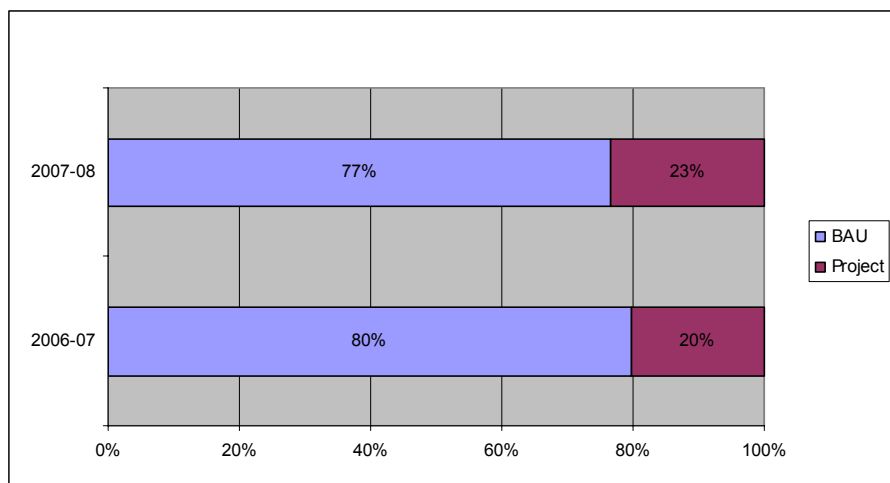
Figure 3.1 – Break-down of total ICT spend 2007–08



Analysis of the survey indicated a wide variety of ICT spend by agencies as a proportion of their total operating expenses. Agency ICT spending as a proportion of their total operating expenses vary from 4% to 54%. This large variance in agency responses reflects both the variety of agency business operations that are reliant on ICT and the extent of project-related activity being undertaken by individual agencies.

Analysis also indicated that agencies are spending a significant part of their ICT spend on business as usual (BAU) activities. Agencies reported spending an average of around 77% of their total ICT spend on BAU activities and 23% on project activities to create new capability in 2007–08 (see Figure 3.2). This could indicate that agencies are trapped by the heavy burden of maintaining legacy hardware and software. There is a wide range of spend on BAU and project activity across agencies. Some large agencies have significant project-related work and are only spending 45% on BAU activities while others are spending up to 95% of their total ICT spend on BAU.

Figure 3.2 – Average BAU: Project split



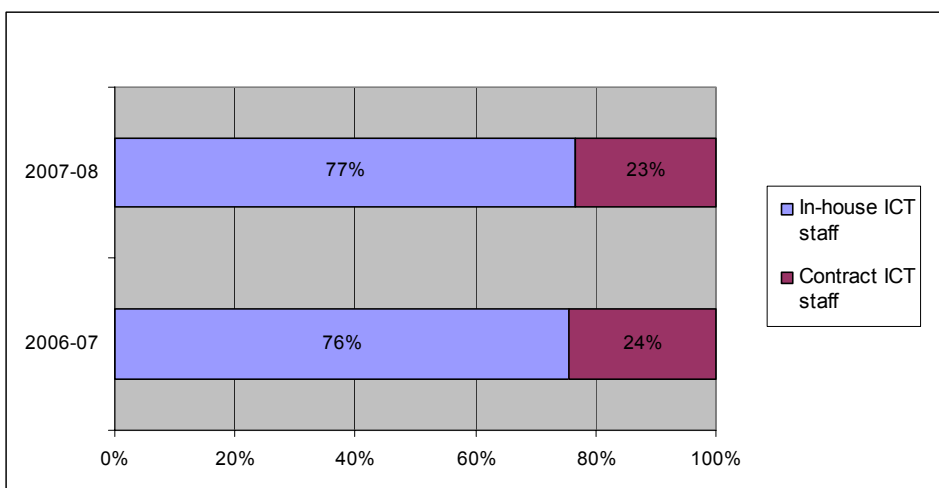
3.2.3. FMA Act agency ICT staffing

Analysis of the survey data indicated that workforce costs represent, on average, 47% of agencies' total ICT operating costs. It also indicated that agencies rely heavily on the ACT labour market to supply their ICT workforce, with 79% of total ICT staff located in the ACT.

The survey data also pointed to a continued and significant reliance on ICT contractors to supplement their ICT staff. The data indicated that 23% of agencies' ICT workforce was made up of ICT contractors in 2007–08, a slight fall from 24% in 2006–07 (see Figure 3.3). The data also indicated that, on average, ICT contractors cost around \$186,000 per annum, which is

\$94,000 per annum more than the average loaded cost of FMA Act agency ICT staff. Analysis of the survey data also indicated that agencies that have significantly outsourced their ICT environments rely more on ICT contractors than agencies with predominantly insourced ICT arrangements. It also indicated that there is a wide range of reliance on ICT contractors, with some large agencies operating with up to 63% contractors, while others use only 8% contractors in their ICT workforce.

Figure 3.3 – Total FMA Act agency ICT in-house and contractor workforce



Analysis of the survey data highlighted that there was a shortage of around 1,000 ICT skilled workers (or 7% of the total ICT workforce) across FMA Act agencies at 30 June 2008. Three large agencies represented around 86% of the shortfall. The skills that were most in demand included software engineers (212), business analysts (157), analyst programmers (80), support technicians (92), project managers (74) and hardware technicians (36).

3.2.4. Desktops

FMA Act agencies' spend on desktops represented around 10% of their total ICT spend. Total desktop spend across FMA Act agencies increased by 4%, from \$445.4 million in 2006–07 to \$461.5 million in 2007–08. The total number of desktops increased by 1%, from 343,510 in 2006–07 to 347,783 in 2007–08.

The data provided by agencies showed significant variations in spend per desktop between agencies. Desktop costs vary from around \$1,000 to around \$3,500 per desktop. This indicates that there is potential for many agencies to drive efficiencies in this area.

Analysis of agency survey responses also indicated that there may be substantial under-utilisation of their desktop fleet, with agencies reporting significantly more desktop devices than there are employees. The data showed that there are approximately 1.6 desktop devices (including laptops) for every APS employee across FMA Act agencies.

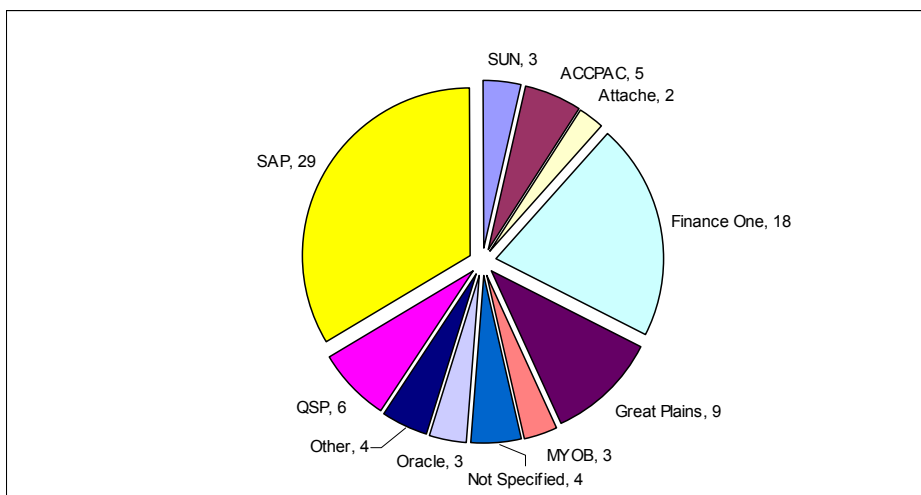
3.2.5. Websites

Analysis of the review survey indicated that agencies spent around \$80 million across 611 websites in 2007–08, excluding Defence. These costs represent around a reported 2% of total ICT spend. Agencies reported a wide variety website costs, ranging from around \$10,000 per website to around \$1.5 million per website.

3.2.6. Financial management information systems

Analysis of agency responses indicated that SAP and Technology One are the predominant suppliers in the Australian Government market for financial management information systems (FMIS). SAP is used by 29 agencies, particularly in large agencies. Technology One's Finance One system is used by 18 agencies, particularly in medium sized agencies. The remaining market is shared by a small number of other providers, as indicated in Figure 3.4.

Figure 3.4 – Number of agencies using FMIS



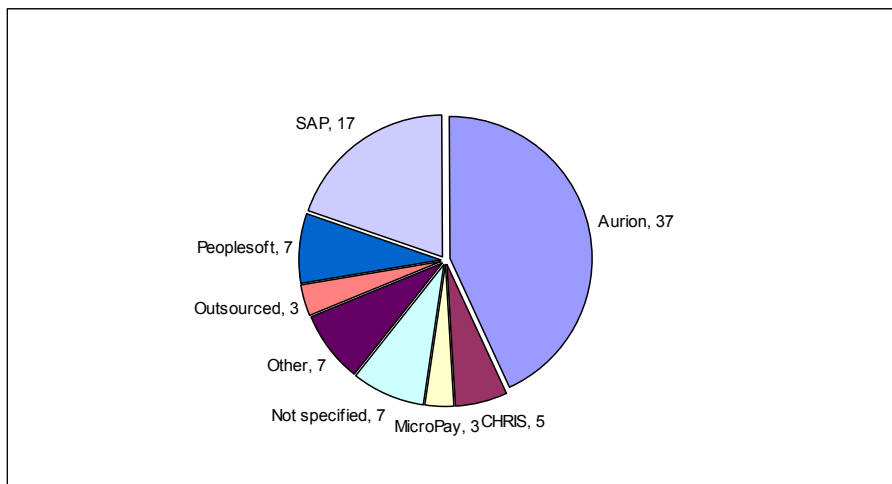
Analysis of the survey data pointed to wide variations in agencies costs of operating their FMIS. In particular, analysis indicated that there was some correlation between the very low cost per transaction of around 10 cents to 30 cents and a high volume of transactions but not complete correlation. For agencies with a lower transaction volume, the cost per transaction of their FMIS ranged widely from around 10 cents to over \$30. This also indicates scope for considerable efficiency improvements.

Analysis of the data also revealed wide variations in the extent of customisation of agencies FMIS. Sixty-nine agencies reported using systems with no or minimal customisation, while analysis of the data from the remaining 17 agencies indicated an exponentially increasing amount of customisation.

3.2.7. Human resource management information systems

Analysis of the data indicated that Aurion and SAP are the predominant players in the Australian Government market for human resource management information systems (HRMIS). Aurion is used by 37 agencies, while SAP HR is used by 17 agencies (see Figure 3.5).

Figure 3.5 – Number of agencies using HRMIS



Agencies reported wide variations in the cost of supporting their HRMIS with the cost per employee ranging from \$10 to \$500, again indicating the scope for significant efficiency improvements.

There were also wide variations in the extent of customisation of agencies HRMIS. Seventy-one agencies reported using systems with no or minimal customisation, while analysis of data from the remaining 15 agencies indicated an exponentially increasing amount of customisation.

3.2.8. Grants management systems

The number of grants management systems (GMS) used by FMA Act agencies has declined from 150 to 124 since 2006. Some of this decline could be accounted for by agencies rationalising the number of systems they use. The overwhelming majority of systems are still paper-based, Excel or custom-developed and manage discrete, stand-alone grant programs.

The survey data showed that the number of commercial off-the-shelf (COTS) products has increased. However, operating expenditure on grants systems is relatively concentrated. Only three agencies reported GMS spend exceeding \$1 million per year, with the largest spend being \$10.6 million per year. Given the overall limited spend on GMS (0.7% of total ICT spend in 2007–08) there does not appear to be any substantial opportunities for whole-of-government action in regard to GMS that would have a significant impact on overall ICT spend.

3.2.9. Telecommunications

Agency responses indicated that their ICT spend on telecommunications was \$267.7 million in 2006–07, increasing to \$335.9 million in 2007–08. This represents 7% of total ICT expenditure for 2006–07 and 7.8% for 2007–08.

The data highlighted significant duplication of telecommunications point-to-point links domestically, and in the number of links to international locations across government, a result of agencies individually implementing their telecommunications arrangements. In 2007–08 there were 225 domestic agency links over 10 routes and 37 links between Sydney and Canberra alone; internationally, there were five links from four different agencies into Jakarta and five links from three different agencies into London.

Tables 3.3 and 3.4 below indicate the number of links between Canberra and Australian state capital cities and international links from Australia, and the total cost of those links.

Analysis of agency survey responses also identified 69 network gateways with vendors providing similar services across multiple agencies without any aggregation of contractual arrangements. Table 3.5 indicates the number of network gateways provided by a range of vendors.

Table 3.3 – Domestic telecommunications links

	Number	Total cost 2006–07 \$m	Total cost 2007–08 \$m
Canberra – Sydney	37	2.7	2.8
Canberra – Melbourne	28	0.8	0.7
Canberra – Adelaide	21	0.6	0.6
Canberra – Brisbane	20	0.7	0.7
Canberra – Perth	19	0.5	0.5

Table 3.4 – Telecommunications links to international locations

	Number	Total cost 2007–08 \$m
Jakarta	5	2.2
London	5	1.2
Honiara	4	0.3
Port Moresby	3	0.3
Bangkok	3	0.5

Table 3.5 – Network gateway vendors

Organisation	Number of gateways
Verizon	27
Macquarie Telecom	10
Cybertrust	9
Telstra	9
EDS	4
Other	10

3.2.10. Energy

Seventy-two agencies responded to the survey questions on energy usage and the cost of their ICT estate (agencies with less than 50 staff were not required to respond to this question). There was generally a poor response, with many agencies unable to provide meaningful or consistent data on their ICT energy usage.

Thirty agencies provided data on energy consumption and costs for 2007–08. However, 35 agencies did not provide any data regarding their energy consumption or cost, and a further seven provided inconsistent data.

Where agencies provided responses to ICT energy consumption and cost the responses indicated that ICT energy consumption increased by 3%, from 162.4 gigawatts in 2006–07 to 167.6 gigawatts in 2007–08. However, over this period agencies reported that ICT energy costs increased by 16%, from \$18.1 million in 2006–07 to \$21.0 million in 2007–08, indicating significant growth in energy cost.

Twenty-three agencies indicated that they had an energy plan, while 49 agencies advised that they did not. Of the 23 agencies that reported having an energy plan in place, 13 indicated that their energy plan included an ICT energy component; however, only six of those agencies were able to provide meaningful data in relation to the questions asked in the survey.

Ten agencies indicated that their ICT energy consumption was not monitored or reported.

CHAPTER 4: KEY FINDINGS

After detailed analysis of the evidence obtained from within and outside the Australian Government (the Government) and the survey results, the review identified the following key findings.

1. There is weak governance of pan-government issues related to ICT.
2. Agency governance mechanisms are weak in respect of their focus on ICT efficiency and an understanding of organisational capability to commission, manage and realise benefits from ICT-enabled projects.
3. The business as usual (BAU) ICT funding in agencies is not subject to sufficient challenge and scrutiny.
4. There is a disconnect between the stated importance of ICT and actions in relation to ICT skills.
5. There is no whole-of-government strategic plan for data centres. In the absence of such a plan, the Government will be forced into a series of ad hoc investments which will, in total, cost in the order of \$1 billion more than a coordinated approach over a 15-year period.
6. The government ICT marketplace is neither efficient nor effective.
7. There is a significant disconnect between the Government's overall sustainability agenda and its ability to understand and manage energy costs and the carbon footprint of its ICT estate.

The remainder of this chapter sets out the significant evidence that supports these findings.

4.1. WEAK GOVERNANCE OF PAN-GOVERNMENT ISSUES RELATED TO ICT

The lack of a vehicle for political leadership and weak governance of pan-government issues related to ICT, coupled with agency autonomy with regard to ICT investments, has led to significant fragmentation and duplication. These issues include:

- duplication of telecommunication links, both domestically and internationally – for example, there are 37 links between Sydney and Canberra alone, five links from four different agencies into Jakarta, and five links from three different agencies into London
- duplication of gateways, with 69 gateways and a number of companies hosting the gateways that are providing much the same service, yet no aggregation is taking place – for example, one supplier provided 27 gateways for the Government
- lack of standardisation in common business processes across government
- a fragmented approach to security and authentication, and identity and access management
- lack of adoption of the Australian Government Architecture because it is not mandatory.

There are existing ICT governance bodies (such as the Secretaries' Committee on ICT (SCICT), Chief Information Officer Committee, Business Process Transformation Committee and Chief Information Officer Forum), but their effectiveness is limited and they have little influence over agencies. Only seven agencies made any comment on the SCICT, while eight made comments on other forums. The SCICT has never had a mandate and defined role from Ministers. Overall, there is no strong line of sight between agency ICT activity and whole-of-government priorities. Furthermore, the current governance arrangements allow agencies to opt into whole-of-government ICT initiatives on a self-approved basis as though they were independent entities who did not rely on funding by the Australian taxpayer.

There is also too much variation in the degree and quality of interaction between policy formulation and implementation. There is a broad spectrum of practice, ranging from early and ongoing consultation between policy makers and policy implementers to no consultation and announcements made in the press, which come as a surprise to those responsible for delivery of the policy. This issue is exacerbated by the increasing complexity of some policies. In conjunction with the decision to adopt the Gateway Review Gate 0 (which includes the planning for benefits realisation) in particular circumstances rather than as a standard gate, there are real downstream implications and risks for policy implementation from poorly considered policy design.

The totality of these issues ultimately hinders the ability of the Government to provide efficient and effective joined-up ICT-enabled services to citizens and businesses.

The Australian Government Information Management Office (AGIMO) has produced various tools and standards to help agencies use ICT to improve administration and service delivery, and to achieve some level of consistency across the Government. Despite this, there are variable views on the business relevance and attractiveness of these AGIMO frameworks, and some AGIMO tools and standards are not very well known and hence not widely used. AGIMO's remit is weak as a consequence of a lack of a clear mandate.

Finally, the mechanisms for detecting issues and emerging trends and assessing whether they should be dealt with at an agency or whole-of-government level are too weak. This leads to ad hoc, reactive and siloed responses, as demonstrated by the following examples.

- The emergence of different client computing architectures will lead to increased variability unless coordinated action is taken.
- Duplication, the lack of common standards and sharing of best practice in the use of geospatial data by the Government are issues which have recently begun to be addressed on a whole-of-government basis, but it should have been resolved much earlier before agencies began to pursue independent courses of action.

- There is an emerging issue around data centres and their long-term viability in terms of space, weight, cooling, power, the sustainability agenda, and current and anticipated availability requirements.
- There is no whole-of-government oversight of developments in the ICT industry, including activities such as mergers and acquisitions, and the capacity of certain suppliers to fulfil contract requirements.

There is also evidence of pockets of best practices and common projects within the Government, but there are weak mechanisms in place to share and leverage these.

4.2. AGENCY GOVERNANCE MECHANISMS ARE WEAK IN RESPECT OF FOCUS ON ICT EFFICIENCY AND UNDERSTANDING OF ORGANISATIONAL CAPABILITY TO COMMISSION, MANAGE AND REALISE BENEFITS FROM ICT-ENABLED PROJECTS

The review found that there is no formal common method of assessing agency capability to commission, manage and realise benefits from ICT-enabled projects. Although explicitly asked to comment on this, most agencies answered questions around capability in terms of ICT capability, rather than organisational capability. This holistic capability requires the right leadership, skills, processes and systems within and across the business and ICT domains.

Measurement of project benefits realisation by agencies is also weak, despite evidence that many of them have adopted formalised project management methodologies. Of the 193 agency projects detailed, only 5% of projects reported actual measurement of benefits and compared anticipated benefits with actual benefits realised.

Overall, there appears to be a lack of understanding of the trade-offs between commercial off-the-shelf (COTS) solutions and customisation. For example, 17 agencies reported customising their financial management information system (FMIS) by more than 10%. Similar customisation was recorded for HR systems. This finding is consistent with views from outside the Government, where 24 organisations indicated that there were no specific inhibitors to using COTS solutions without customisation. Another 10 commented that there was often unnecessary excessive customisation by agencies leading to increased costs and the erosion of the inherent benefits of using COTS products.

There are also downstream implications for machinery of government (MoG) changes. For example, a decision by one agency to go down a customised route can create a future liability for another agency when MoG changes result in whole or part of an agency being integrated with a different one. This can result in unnecessary complexity and significant costs when integrating disparate ICT systems. One agency identified that its ICT costs related to the recent MoG changes are in the order of \$30 million to integrate systems and infrastructure.

4.3. THE BUSINESS AS USUAL ICT FUNDING IN AGENCIES IS NOT SUBJECT TO SUFFICIENT CHALLENGE AND SCRUTINY

The review found that very few agencies actively and regularly measure the efficiency of their ICT spending. It is also evident that there are no common metrics for measuring ICT efficiency or the effectiveness of an agency's ICT spend. For example, a third of agencies did not provide any information on efficiency or effectiveness, and most did not articulate plans to address or improve efficiency. This means that it is very difficult to obtain consistent and meaningful data for management purposes.

There is evidence of the under-utilisation of software and hardware assets. For example, there are 1.6 desktops (including laptops) for each APS staff member. Industry has also proposed a number of actions that could improve asset utilisation, such as aggregating bandwidth and network infrastructure, consolidating data centres, and rationalising business systems and applications.

Within business as usual (BAU), there are significant variations in costs across agencies. For example:

- desktop costs ranged from \$1,000 to \$3,500 per desktop
- finance systems costs per transaction ranged from 10 cents to more than \$30
- HR systems cost per employee supported ranged from \$10 to \$500
- there are 611 reported websites (excluding Defence), with costs ranging from \$10,000 to \$1.5 million per website.

The average split between BAU and project spend is also too heavily skewed towards the former (77:23%), with little variation in the average depending on the size of the agency. Relative to the proportion of spend BAU represents, the level of scrutiny of this spend is too low.

4.4. DISCONNECT BETWEEN THE STATED IMPORTANCE OF ICT AND ACTIONS IN RELATION TO ICT SKILLS

Agencies stated that ICT is fundamental to their business, yet there is a general lack of strategic planning for ICT workforce capability at both the agency and whole-of-government level. Only four agencies have ICT workforce plans, with a further two planning to formalise plans.

There is also a lack of professional career structures for ICT professionals in the APS, making it more difficult for the Government to recruit and retain ICT talent. Training that is provided is based only on specific agency needs.

Existing AGIMO initiatives such as the ICT Apprenticeship and Cadetship programs are useful, but not sufficient to address the skills issue.

Agency ICT activity is Canberra-centric, with 79% of ICT staff located in the ACT. During meetings with agencies, three agencies noted that they had consciously moved ICT positions to other locations throughout Australia in response to the skills shortage. One agency noted that this approach had, to some extent, buffered them from the risks inherent in the skills shortage.

Together, these factors have contributed to the ICT skills shortage in the APS, with agencies reporting total ICT staff shortages in the order of 1,000 (mainly highly skilled). There is also a heavy reliance on contractors, who represent 23% of the total current ICT workforce. Furthermore, the decentralised way in which ICT projects are managed means that agencies compete in the market for ICT staff, which affects contractor rates. On average, ICT contractors cost around \$186,000 per annum, which is \$94,000 per annum more than the average loaded cost for ICT staff in FMA Act agencies.

The lack of training for Senior Responsible Officials in terms of their roles and responsibilities is further evidence of the disconnect between the stated importance of ICT and actions in relation to ICT. Moreover, organisational leaders are not as well equipped as they need to be on how to harness the potential benefits of ICT.

Finally, in relation to security clearances there is evidence that best practice in transferring security clearances (below the 'Secret' or 'Highly Protected' level) between agencies is not widely adopted, leading to unnecessary delays and costs. In addition, it impacts on the responsiveness and flexibility of agencies. For example, agencies need to wait to utilise skills and this can have subsequent effects on project delivery. I also noticed that the verification of my UK security clearance by Finance happened a lot faster than the reported 6 weeks of one agency to accept the security clearance granted by another agency. It seems strange to me that an international clearance would take less time than an agency-to-agency clearance.

These points raise some questions about clearance processes:

- Is the process consistent and well-designed? The variation in performance raises doubt on that score.
- Is the process supported by standard, well-designed, interoperable tools?
- Could some form of shared, central process – drawing on current facilities and systems where they exist – deliver a more satisfactory outcome without compromising agency responsibilities and needs?

4.5. THERE IS NO WHOLE-OF-GOVERNMENT STRATEGIC PLAN FOR DATA CENTRES. IN THE ABSENCE OF SUCH A PLAN, THE GOVERNMENT WILL BE FORCED INTO A SERIES OF AD HOC INVESTMENTS WHICH WILL, IN TOTAL, COST SIGNIFICANTLY MORE THAN A COORDINATED APPROACH

From the agency bilateral meetings, subsequent data gathering and industry responses, it is clear that the Government is facing significant issues with respect to agency data centre arrangements.

The key issues are:

- Power. The ACT has only a single power grid²⁹ which poses a risk given the ever increasing demand in power.
- Capacity. Eighteen data centres of the largest agencies based in the ACT have identified that they have 10 m² or less available capacity for growth. With industry benchmarks indicating that growth in data centre floor space is 5–10% a year, there is emerging pressure for additional data centre capacity.
- Inadequate facilities. Lack of investment has contributed to existing facilities not meeting the demands of modern technology in the key areas of floor loading, heating, ventilation and air-conditioning, and availability requirements. A significant number of agencies indicated that they would need data centres over the next 10–15 years with higher levels of availability than their current facilities.

The lack of a whole-of-government data centre strategy has led to agencies independently establishing or sourcing data centre facilities without considering the economies of scale that can be achieved from having a whole-of-government perspective. A few agencies are now actively planning the requirements for replacement of some of their existing facilities. Based on high-level modelling work, the review considers that there is a prima facie case that a whole-of-government approach will cost in the order of \$1 billion less over a 15-year period than allowing each agency to handle the replacement of their existing data centres on an autonomous basis.

Additional benefits of taking a whole-of-government approach to data centres are:

- Geographic location benefits can be realised. Cooler climates locations have the potential to reduce cooling costs.
- Reduction in communications infrastructure. Fewer physical data centres require less physical communications infrastructure.
- Disaster recovery. It will be easier to accommodate disaster recovery at a whole-of-government level rather than each agency dealing with the issue autonomously.

²⁹ There are two feeds from New South Wales to the single ACT electricity grid. One feed provides 85% of electricity to the ACT and the other 15%. The smaller 15% feed is only to the immediate Fyshwick area and is insufficient to support agency needs. Agencies with data centres in Canberra are therefore susceptible to the single ACT power feed.

4.6. THE GOVERNMENT ICT MARKETPLACE IS NEITHER EFFICIENT NOR EFFECTIVE

The review found evidence to support the finding that the government ICT marketplace is neither efficient nor effective. This evidence included:

- high transaction costs due to overly onerous procurement processes and slow decision making
- barriers to entry, particularly for small and medium enterprises
- too much use of prescriptive statements of requirement, which limits the range of solutions proposed by vendors, including commercial/government off-the-shelf (COTS/GOTS) solutions
- failure to engage sufficiently with industry before the start of the formal competitive process
- the position taken by agencies on intellectual property is seen as a deterrent by suppliers
- the Government's liability policy is not consistently implemented, which results in unlimited liability or caps on liability that are set at amounts that are so high they are essentially the same as unlimited liability
- the Government is not making use of its collective buying power for commodity products, leading to multiple tenders for the same product and agencies buying these products at different prices
- the Government's \$80,000 threshold for open tender
- insufficient use of selective sourcing to reduce dependency on large prime contractors and increase the likelihood of 'best-in-class' solutions.

4.7. THERE IS A SIGNIFICANT DISCONNECT BETWEEN THE GOVERNMENT'S OVERALL SUSTAINABILITY AGENDA AND ITS ABILITY TO UNDERSTAND AND MANAGE ENERGY COSTS AND THE CARBON FOOTPRINT OF ITS ICT ESTATE

There is a significant disconnect between the Government's overall sustainability agenda and its ability to understand and manage its energy costs and the footprint of its ICT estate. This is evidenced by the lack of data agencies were able to provide in relation to energy usage and costs. For example, of the 72 agencies that were requested to answer the energy questions, 35 provided no data on energy, and a further seven provided inconsistent data. Only 23 agencies indicated that they had an energy plan, while 49 agencies advised that they did not have a plan in place. Of the 23 agencies that reported having an energy plan in place, 13 indicated that their energy plan included an ICT energy component; however, only six of those agencies were able to provide meaningful data in response to the questions asked in the survey.

CHAPTER 5: RECOMMENDATIONS

5.1. RECOMMENDATION 1 – STRENGTHEN PAN-GOVERNMENT GOVERNANCE

5.1.1. Establish a Ministerial Committee on ICT

I recommend the establishment of a Ministerial Committee on ICT as the vehicle for involving Ministers in the leadership and governance of pan-government issues related to ICT. The membership of the committee should include Ministers who drive change and have an interest in how ICT can contribute to the achievement of key government outcomes and policies, including their deliverability.

The committee should be responsible for ICT policies, overall strategic vision, whole-of-government ICT, and the approval of opt-outs (see Recommendation 5.1.3) from selected whole-of-government activities. It will be informed and supported by the Secretaries' ICT Governance Board (see below), including periodic reporting on the progress and impact of implementing the agreed recommendations arising from this review.

I also propose that the Ministerial Committee meet around three times a year, with greater frequency of meetings in the first year.

5.1.2. Create a Secretaries' ICT Governance Board and provide it with a strong mandate from the Government

To drive forward the ministerial agenda on whole-of-government ICT, I recommend the creation of a Secretaries' ICT Governance Board (SIGB), which should be given a strong mandate from the Government. The SIGB will replace the existing Secretaries' Committee on ICT (SCICT).

The SIGB will be a committee of Secretaries representative of central bodies, portfolio departments, delivery agencies and a few top executives from private sector companies which are successful users of ICT.

It will be supported by the Chief Information Officer Committee (CIOC), Business Process Transformation Committee (BPTC), and the Chief Information Officer Forum (CIOF), with stronger terms of reference, and a secretariat function to ensure that only matters and papers appropriate to the SIGB membership go forward for consideration.

The SIGB should be focused on business, not technology or technical, issues and be empowered to set whole-of-government strategies to support the policies and vision determined by Ministers. Its proposed terms of reference are to:

- be responsible for overseeing progress and the impact of the change program arising from the Government's response to this review
- review on an annual basis key trends in the Government's ICT expenditure and alert the Ministerial Committee to any significant changes
- be responsible for the strategic portfolio management of ICT investments across FMA Act agencies
- be responsible for determining priority areas for standardisation, consolidation and common approaches
- be responsible for determining the Government's response to emerging ICT trends and issues
- consider and approve the Australian Government Information Management Office's (AGIMO) annual work plan.

Appendix H sets out candidates for consideration for whole-of-government approaches, subject to opt-out, over the first 2 years of the SIGB's existence.

It is essential that before approving any proposal for a common approach, that the SIGB seeks assurance from the CIOC, BPTC and CIOF as appropriate, that the proposal is fit for purpose and that implementation aspects (including funding) have been fully considered.

Appendix I sets out proposed criteria against which the benefits of potential whole-of-government approaches and arrangements subject to opt-out should be assessed.

I also propose that the SIGB meet around four to six times a year, with greater frequency of meetings in the first year. They should also report periodically to the Ministerial Committee.

5.1.3. Allow agencies to obtain opt-outs from agreed whole-of-government activities, based on genuine business need. Opt-outs to be approved by the Ministerial Committee, informed by the SIGB

I recommend that the current system of self-approved opt-in by agencies to whole-of-government ICT arrangements is changed to a new system whereby agencies will need to seek approval from the Ministerial Committee to opt-out from agreed arrangements.

Approval of the opt-outs will be informed by the SIGB, particularly during the budget process. Advice to the Ministerial Committee during this process on compliance with agreed whole-of-government arrangements and requests for opt-outs should replace the role for the SCICT in the two-pass process previously agreed by the Government.

To seek an opt-out, an agency will need to prepare a short business case based on a genuine business need, irrespective of how the driver for the opt-out is funded.

The criteria for the assessment of opt-outs will need to be developed and agreed by the SIGB.

Provided the assurance mechanism I have recommended above in Recommendation 5.1.2 for the SIGB works effectively, I envisage the number of potential opt-outs will be low.

Based on the advice that I have received from Finance, I believe that the proposed changes to agency operation can be implemented within the provisions of the current FMA Act, provided the changes set out above are approved as government policy.

5.1.4. Redefine AGIMO's role

In the proposed new model of the Government's use of ICT, the principal role of the central unit (AGIMO) is to act as a catalyst for change and an agent to assist the formulation and realisation of objectives, policies and strategies agreed by the Ministerial Committee and the SIGB.

It is therefore essential that its overall remit is approved by the SIGB and Ministers, its work plan is reviewed and approved by the SIGB annually, and funding be provided so that the agreed work plan can be implemented.

Appendix J sets out the proposed role for AGIMO.

Once the final remit of the central unit has been agreed, it may be appropriate to give consideration as to whether its name should be changed from AGIMO to reflect more accurately its new role.

In order to optimise the effectiveness of the unit in the new model of operation, I recommend that its resourcing model include a significant number of agency secondees on a rotational basis, as well as some recruitment of private sector expertise.

5.1.5. Establish a program board

I recommend a small board be established with a remit from the SIGB to manage the overall implementation of the agreed recommendations arising from this review. The board should include the General Manager of AGIMO, the General Manager of Finance's Budget Group and a Deputy Secretary from PM&C. The board should report progress to the Ministerial Committee, SIGB and the Secretary of PM&C.

5.2. RECOMMENDATION 2 – STRENGTHEN AGENCY GOVERNANCE

5.2.1. Improve agency capability

As a first step, I recommend implementing a common methodology for assessing agency capability based on self-assessment and periodic independent audit. The development of this methodology should utilise and integrate existing 'off-the-shelf' methodologies such as COBIT®, CMMI®, ITIL®, AS 8015-2005 Corporate Governance of ICT, P3M3™, the UK Government capability review approach, PRINCE2™, PMBOK®, and the UK Government Office of Government Commerce's Managing Successful Programmes. It should encompass the entire lifecycle management of ICT, including business domain activities such as requirements definition and benefits realisation. The model will also need to take into account attributes such as the ability to transfer and manage ICT work remotely, and the ability to work successfully with industry as a client both pre contract award and during the life of a contract.

Agency executives will be required to propose a target level of capability based on their agency's and the Government's strategic priorities, and for this to be independently validated, particularly before undertaking major ICT projects that are either internally funded or receiving new policy proposal (NPP) funding. The target level of capability needs to be kept under review in the light of changing agency and government priorities and objectives.

Agencies will also be required to develop a capability improvement plan and to commit to and agree actions to address any capability gaps. Furthermore, agencies should incorporate capability improvement, where required, into their risk management framework.

I envisage that a 'lite' version of this methodology will also need to be developed for smaller agencies.

5.2.2. Strengthen the link between policy formulation and implementation

Following on from Recommendation 5.2.1, I recommend that agency capability be included as one of the factors considered in the two-pass investment approval process (for both NPP and internally funded agency projects).

The two-pass investment approval process should be extended to include additional stages for projects being undertaken by an agency which needs to enhance its capability to a higher level in order to undertake the project. At each stage, the onus of proof must be with the agency to demonstrate that both the project and its capability improvement plan are on track.

Additionally, in due course, larger agencies should demonstrate in their NPPs, and internally funded projects required to go through the two-pass process, their capability to locate significant portions of the work outside Canberra and their intention to do so.

I also recommend strengthening governance regarding the adoption or modification of COTS/GOTS. AGIMO, in consultation with the BPTC, CIOC and CIOF should also advise the SIGB of the selected areas and applications (for example, back office systems) where proposals to acquire or upgrade bespoke or customised solutions will require approval by the Ministerial Committee, utilising the same process as for opt-outs. In addition to relevant new NPP and internally funded projects, this should also apply to all existing approved NPPs which have not yet concluded procurement. This is essential as the potential liability for each agency and impact of future machinery of government changes does not rest with an individual agency. This issue needs to be open and transparent across government.

All other proposed uses of bespoke or customised software should be decided at agency Executive Board level to help ensure that additional costs are justified by the incremental benefits over a COTS/GOTS approach. This recommendation reflects the best practice already used in some agencies.

I recommend implementing Gate 0 of the Gateway Review process in order to better test policy and implementation options of major projects at an early stage before policies are finalised. The Gateway Review outcome results should also be an input in the NPP process to improve the information available to Ministers when considering NPPs.

Finance should build on its existing training and policy guidance for Senior Responsible Officials to help them discharge their role and responsibilities.

5.2.3. Identify a custodian of best practice in benefits realisation

I recommend that the PM&C Cabinet Implementation Unit, in consultation with AGIMO, identify a lead agency to be the custodian of best practice in benefits realisation practice, with responsibility to promote best practice and assist agencies to improve their benefits realisation capability.

The SIGB could invite the identified agency to undertake this role and review on an annual basis whether it should continue to be the Government's Centre of Excellence.

5.2.4. The Department of Defence and the Australian Intelligence Community to demonstrate to their relevant committees the measures taken to implement the approved recommendations arising from this review

5.3. RECOMMENDATION 3 – TIGHTEN THE MANAGEMENT OF ICT BUSINESS AS USUAL FUNDING

5.3.1. Target to move from 77:23% split between BAU and creation of new capability in 2007–08 to 70:30% in 2011–12

As initial steps towards this goal, I recommend reducing the business as usual (BAU) ICT budgets of the 28 large agencies³⁰ by 15% on average from 2007–08 actuals (for a list of agencies refer to Appendix F). The introduction of this reduction should be phased, with a 5% average reduction in the first year, the balance in the second year and the aggregate 15% reduction sustained in subsequent years.

To help these agencies achieve or exceed the target reductions without impairing service delivery to citizens and business, I recommend creating ICT Review Teams who will work closely with agencies to validate the agency-specific target for each of these large agencies. The work of the ICT Review Teams will include, but not be limited to, identifying the drivers of agency BAU costs, reviewing the level of server utilisation, and the efficiency of data centre infrastructure, scope for reducing server proliferation and the subsequent impact on data centres, and the plans to reduce contractors (see Recommendation 5.4.2) by using cross-agency and external benchmark comparisons to identify scope for efficiency improvements. I estimate that seven ICT Review Teams will be required to conduct the work, drawing on resources from Finance's Budget Group, AGIMO, agency secondees and external experts.

To prepare for the work of the ICT Review Teams, Finance will need to lead a small team, including external expertise on ICT efficiency metrics and agency secondees, on the development of a common ICT Chart of Accounts, and develop and agree a set of common efficiency metrics to facilitate on-going cost reduction and benchmarking so that the teams and agencies can work to a common methodology. This activity needs to commence immediately so that the ICT Review Teams can be mobilised in November 2008 to impact the 2009–10 Budget process.

In addition, I recommend targeting agencies with total annual ICT spends between \$2 million and \$20 million to achieve a 7.5% reduction on average of their BAU from 2007–08 actuals (for a list of agencies refer to Appendix G). The introduction of this reduction should also be phased, with a 2.5% average reduction in the first year, the balance in the second year and the aggregate 7.5% reduction sustained in subsequent years.

Both the 15% and 7.5% targets are macro-level targets. Individual agency targets will need to reflect their current ratios of BAU to creation of new capability spend. Those with ratios in excess of the average should have target reductions in excess of the 15% or 7.5% as appropriate.

30 Defence is excluded because it is already undertaking a program to find significant savings which can be reinvested in its front line capability.

The 15% and 7.5% reductions in total should save the Government around \$140 million in the first year and in excess of \$400 million in the second and subsequent years. I also recommend that 50% of the savings generated by these recommendations be transferred to a central fund for reinvestment in projects to improve efficiency and effectiveness of ICT BAU activities, such as replacement of legacy software and hardware with high support and maintenance costs.

My rationale for recommending targets at this level is based on the following:

- (a) It is clear from the evidence that BAU ICT spend is not in general subject to robust scrutiny.
- (b) The variations in the metrics related to cost per desktop, financial and HR management systems are very wide, reflect the lack of scrutiny and indicate substantial scope for efficiency gains.
- (c) It is reasonable to assume that as other common metrics are applied to BAU spend, they will also demonstrate very wide variations and similar substantial scope for efficiency gains.
- (d) In my experience, when detailed scrutiny is applied to previously under-scrutinised areas of spend, savings of the order I have proposed are achievable if reinforced by a strong management focus and budgetary constraints.

Agencies should also be required to demonstrate in all future NPPs and internally funded projects requiring approval by the two-pass investment process how they intend to exploit existing data centre capacity, and existing hardware and software assets.

5.3.2. Develop common metrics and conduct benchmarking

To improve the practice and rigour in monitoring the effectiveness of ICT investments, I recommend developing a set of common effectiveness metrics to facilitate better use of ICT and regular benchmarking. These metrics are to be agreed by the BPTC. Annual agency benchmarking analysis based on the common efficiency and effectiveness metrics will also be undertaken by AGIMO, with an aggregate report provided to the SIGB and a detailed report provided to each agency to inform ongoing improvements in efficiency and effectiveness.

5.3.3. Consider shared services carefully

The review received a number of inputs from industry indicating the significant benefit to be obtained from shared services. In respect of back office applications, however, I also considered the mixed experiences reported to us by the CIOs of a number of states and territories, together with the recent experience of the UK Government as described in the May 2008 UK National Audit Office report Shared services in the Department for Transport and its agencies. In light of this, I have concluded that moves towards back office shared services between agencies should only be undertaken on a very carefully selected and controlled basis. In the meantime, as a first step towards a wider adoption of these arrangements, I consider it essential that all agencies quantify both the back office service levels and the associated costs of their current provision arrangements, and that they use this as the basis for determining what improvements can be realised through their own efforts, such as process simplification and a reduction in manual interventions. This will help create a stronger foundation on which to assess the additional benefits that can be obtained from moving to a shared service in the future.

5.4. RECOMMENDATION 4 – ENHANCE THE MANAGEMENT OF THE APS ICT SKILLS BASE

5.4.1. Recognise that there is a national and global competition for talent and the APS needs to recruit, develop and retain key ICT skills

To address the issues around ICT skills shortages, the talent attraction and retention of ICT skills within the APS needs to be improved. I recommend two key measures.

Firstly, there needs to be the creation of a whole-of-government ICT career structure, developed by AGIMO in consultation with the Australian Public Service Commission (APSC) and PM&C. This will include training and development programs for ICT professionals in key skills areas (for example, project management and systems architecture) and should utilise existing taxpayer funded initiatives wherever possible (for example, the Defence Materiel Organisation project management training).

Secondly, a whole-of-government strategic ICT workforce plan needs to be developed and maintained. The plan will be developed and supported by the APSC and AGIMO, and will leverage the work done by other agencies, such as the Australian Taxation Office (ATO), on a workforce planning tool. AGIMO should construct the plan annually based on inputs from agencies and recommend to the SIGB options for dealing with identified skills issues, including recruitment, training, and development in areas of skills shortages.

With the combination of a common career structure and a workforce plan, it should become much easier to plan to smooth peaks and troughs of demand for ICT skills in individual agencies.

5.4.2. Reduce the total number of ICT contractors across the APS by 50% over the next 2 years and increase the number of APS ICT staff

To reduce the over-reliance of the Government on ICT contractors, I recommend reducing the total number of ICT contractors across the APS by 50% (from the 2007–08 actuals) over a 2-year period, whilst simultaneously increasing the number of APS ICT staff. This should save the Government an estimated \$100 million (across both BAU and project-related work). This is based on the replacement of existing ICT contractors with APS staff across a range of APS classifications.

As contractors are used on both BAU and new project-related work, the savings from applying this recommendation to BAU will contribute to savings under Recommendation 5.3.1. The balance of the savings will be incremental to the savings arising from the BAU reduction targets.

Individual agency targets will need to take into account the existing level of use of contractors. As a guideline, agencies where contractors form less than 10% of their ICT workforce should not be targeted to achieve a further reduction; agencies with a contractor workforce in excess of 23% should be targeted to achieve more than a 50% reduction.

My reasons for recommending a target of this magnitude are as follows:

- (a) The combination of the Canberra-centricity of the ICT workforce and the overall percentage of contractors indicates that controls and scrutiny of the use of contractors are generally too weak, with the exception of agencies that have low (10% or less) contractor use.
- (b) This is exacerbated by the lack of a whole-of-government professional career structure for ICT staff and of workforce plans that enable peaks and troughs of demand for ICT skills between agencies to be smoothed.
- (c) In my experience, the introduction of tight controls over the use of contractors and better recruitment, development and training of employees makes savings of the magnitude I have proposed entirely feasible if reinforced by a strong management focus and budgetary constraints.

I propose at the macro level that a 20% reduction is achieved within the next 12 months and the balance in the subsequent 12 months.

This recommendation will also help focus attention at both an agency and whole-of-government level on the management actions required to attract, develop and retain the appropriate skills within the APS.

5.4.3. Larger agencies to demonstrate how they will develop/increase their capability to manage ICT work remote from Canberra and develop 5–10 year plans to reduce the Canberra-centricity of existing ICT activities

To reduce the Canberra-centricity of existing agency ICT activities, I recommend that larger agencies in due course be required to demonstrate in NPPs and internally funded projects requiring approval by the two-pass investment process, their capability to locate significant portions of the work outside Canberra, and the intention to do so.

5.4.4. Examine whether current security vetting processes and tools lead to adverse consequences

While the particulars of the security vetting process are beyond the scope of this review, there is a case for a whole-of-government project to critically examine questions around security vetting processes and tools, particularly for high-volume, lower-level classifications, because of the adverse consequences the current clearance processes are having on costs and delivery of ICT projects. As part of this process, any best practices in the transfer of security clearances for ICT staff across agencies should be identified and promulgated. I am therefore recommending that the SIGB establishes a working group from the relevant policy agencies and a cross section of delivery agencies to produce proposals for improving the current situation.

5.4.5. Equip organisational leaders to harness the potential benefits of ICT

To better equip organisational leaders on how to harness the potential benefits of ICT to improve the effectiveness and efficiency of their agency, I recommend that the APSC, in conjunction with AGIMO, arrange appropriate events for organisational leaders. This could include, for example, inviting guest speakers from the private sector and other government agencies that have successfully led major ICT-enabled transformations in their organisation.

5.4.6. Establish a whole-of-government tele-working policy for ICT staff, building on existing AGIMO guidance

To assist the APS in recruiting and retaining ICT skilled professionals in an environment where 'green' work policies play an increasingly important role in improving the attractiveness of an employer to current and future employees, I recommend that the Government establish a whole-of-government policy on tele-working, building on existing AGIMO guidance.

5.4.7. Sponsor annual awards to recognise outstanding professionalism in key ICT disciplines

To help raise and recognise the professionalism of ICT, the Government should sponsor annual awards to recognise outstanding professionalism in key ICT disciplines such as project management, systems architecture and software development.

5.5. RECOMMENDATION 5 – DATA CENTRES

5.5.1. Develop a whole-of-government approach for future data centre requirements over the next 10–15 years

To address the finding that there is no whole-of government strategic plan for data centres, I recommend developing a whole-of-government approach for data centre requirements over the next 10–15 years that will take into detailed account factors including, but not limited to, the following:

- trends in cooling, weight, storage requirements and power
- growth in space requirements
- availability requirements³¹
- economics of different size modern data centres
- disaster recovery
- geographic location.

³¹ The Uptime Institute's Tier Classification System may be a helpful way for agencies to consider their future requirements over this planning period.

In making this recommendation, I should emphasise that this relates only to the potential consolidation of the physical data centre infrastructure, for example, the buildings, heating, ventilation, air-conditioning and power supply arrangements. The proven practice in existing shared facilities of keeping agencies' ICT equipment and databases in separately controlled and managed areas should be replicated in any additional new shared data centres.

This work should be led by AGIMO with agency secondees, Finance's Budget Group representatives, and external specialist expertise. The resulting approach should then be put to the SIGB for consideration.

Pending the conclusion of this work, there should be a freeze on major upgrades to, and replacement of, existing data centres. Exceptions to this freeze should be approved by the SIGB who will need to be satisfied that the proposed project does not compromise a whole-of-government approach.

5.6. RECOMMENDATION 6 – IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF THE ICT MARKETPLACE

5.6.1. Make better use of the Government's collective buying power

As an initial step towards this goal, I recommend optimising the number of ICT panel arrangements established by agencies across government. This includes the introduction of whole-of-government panel arrangements for ICT commodity-based procurements where true economies of scale are achievable. Panels should also be whole-of-government where appropriate, but may be portfolio-based where they will deliver superior value. Larger agencies can use these panels, but if they get better prices through other procurement channels, then that price should be leveraged as the whole-of-government price.

Next, I recommend improving procurement arrangements for ICT commodity products and services, and volume sourcing arrangements for key items of software. This includes the use of aggregated arrangements and e-auctions, where appropriate. These arrangements should be subject to Ministerial approval, including agency opt-out, in line with the Government's existing approval arrangements for coordinated procurement.

Third, I recommend implementing the strategic management of key ICT suppliers. The definition of 'key suppliers' in this context does not just relate to the dollar value of business but can also relate to the criticality of what is supplied. Strategic management of key suppliers encompasses greater intelligence gathering on industry health to inform proactive government stances for dealing with increases in the dominance of large suppliers, bankruptcies, mergers and acquisitions, etc. To assist in this, the processes and tools developed by the UK Government in this area may help to kick-start this activity.

5.6.2. Work with industry to develop client and supplier codes of conduct with agreed escalations for non-compliance

To help improve the operation of the government ICT marketplace, I recommend developing client and supplier codes of conduct with agreed escalations for non-compliance.

As a starting point, the client code should:

- Include, inter alia, adherence to Government policies on IP and liability, rapid transferability of security clearances, sensitivity to the costs incurred by industry in bidding for contracts, avoidance of prescriptive requirements, and willingness to engage with industry on a level playing field before commencement of the formal procurement process for major projects.
- For significant non-commodity ICT procurements, strongly encourage that selective sourcing options should always be considered for the contracting of several smaller work packages instead of a single, large work package to increase the range of potential suppliers, reduce dependence on very large prime suppliers, and increase the likelihood of obtaining best in class offerings.
- Encourage quality engagement with industry on significant non-commodity procurements prior to the commencement of the formal procurement process. For example, agencies could host industry forums on forward intentions.
- Require the use of appropriately trained and experienced APS ICT procurement specialists.

Industry should consider if the Supplier Code of Conduct developed by Intellect in response to concerns of UK Government clients, represents a useful starting point for an Australian code.

I believe there would be merit if Government and industry consulted with each other during the development of their respective codes.

5.6.3. Determine if the Government's current policy on IP is a significant barrier to entry and a cost driver

Given that the position taken by agencies on IP is seen as a deterrent by ICT suppliers, I recommend that the Government determine if its current policy, or its implementation by agencies, on IP is a significant barrier to entry and a cost driver. This activity should be led by the Attorney-General's Department with involvement by other interested policy departments (for example, the Department of Innovation, Industry, Science and Research with its interest in SMEs) and seek input from industry and a cross-section of agencies. Conclusions and recommendations should then be put to the Ministerial Committee for approval after consideration by the SIGB.

5.6.4. Integrate the Government's ICT and SME policies so that they are mutually reinforcing

To address the issues and concerns highlighted by SMEs, the Government should ensure that its ICT and SME policies are mutually reinforcing. I recommend that the Ministerial Committee commission a study involving the relevant policy agencies, a cross-section of user agencies and representative industry bodies to identify options for mutual reinforcement of these two policies.

5.6.5. Consider if the Australian Government is getting a net benefit from the \$80,000 open tender threshold under the FTA

The \$80,000 threshold is:

- significantly lower than the threshold in *Commonwealth Authorities and Companies Act 1997* agencies and other jurisdictions, for example, Australian state and territory governments, and the European Union
- seen as a significant burden by agencies and many suppliers.

In light of this, I recommend that a review is led by the Department of Foreign Affairs and Trade to establish whether Australia is gaining net benefit from the combination of the domestic and export aspects of the Australia–US Free Trade Agreement and report the outcome to Ministers.

5.7. RECOMMENDATION 7 – SUSTAINABILITY OF ICT

5.7.1. Develop a whole-of-government ICT sustainability plan (in conjunction with Department of the Environment, Water, Heritage and the Arts (DEWHA)) to manage the carbon footprint of the Government's ICT activities

To better align the Government's overall sustainability agenda and its ability to understand its energy costs and the footprint of its ICT estate, I recommend the development of an ICT sustainability plan.

The ICT sustainability plan should:

- identify which of the available standards (for example, EPEAT™) should be adopted as mandatory for relevant ICT acquisitions (the requirement to purchase green ICT equipment should be incorporated into the client code of conduct as detailed under Recommendation 5.6.2)
- include a whole-of-government ICT energy target, with agencies to report their progress towards the target
- take into account potential implications of a carbon pollution reduction scheme.

I also recommend that large agencies (with ICT spends in excess of \$20 million) develop an ICT energy efficiency plan that can be either part of a wider agency energy efficiency plan, or freestanding. As a priority, agencies should measure their data centre energy efficiency (which may require the installation of electricity meters in some instances). Agencies should also include in their plan a target energy usage, including the power usage effectiveness³² of their data centres.

Larger agencies will need to undertake a periodic independent ICT energy assessment. Subject to agreement by the Department of the Environment, Water, Heritage and the Arts (DEWHA), agency plans will also be independently assessed by DEWHA, with results of the assessment reported to the Ministers for Finance and Deregulation, and Resources and Energy. Reporting of progress against the plan, should be in a way that is consistent with other reporting requirements such as the National Greenhouse and Energy Reporting Framework.

When procuring new ICT products and services, it is important that agencies consider their impact on the environment. AGIMO, in conjunction with DEWHA, should develop a green ICT procurement kit to support agencies regarding environmental issues in relation to ICT products and services. This should include raw material acquisition, manufacture, distribution, use and disposal.

5.7.2. Identify green ICT quick wins

In the interim, AGIMO should identify a possible list of quick wins in this area, such as software controlled automatic turn-off of PCs, based on the best practices already adopted by some agencies and in the private sector.

32 Power usage effectiveness (PUE) is a metric used to determine the energy efficiency of a data centre. PUE is determined by dividing the amount of power entering a data centre by the power used to run the computer infrastructure within it. PUE is therefore expressed as a ratio, with overall efficiency improving as the quotient decreases toward 1. PUE was created by members of the Green Grid, an industry group focused on data centre energy efficiency: http://www.thegreengrid.org/gg_content/Green_Grid_Metrics_WP.pdf

CHAPTER 6: IMPLEMENTATION

Acceptance of my recommendations will lead to a major program of administrative reform and cultural change. For any such program in the public or private sector, successful implementation is not a foregone conclusion. Based on my experience of creating sustainable change in the UK public sector, there are two critical requirements which will determine the success of the proposed program: first, sustained leadership and drive at Ministerial and top official levels; second, ensuring the enablers of change are properly resourced not only in funding terms but also skills of the right calibre.

Once the Ministerial Committee has been established and a strong mandate given to the Secretaries' ICT Governance Board (SIGB), it will be important that the early decisions of these two bodies send out clear signals about the pace and direction of change, and that this is then reinforced through their subsequent decisions.

However, it will also be essential to ensure that whole-of-government ICT approaches and arrangements are 'fit for purpose' before they are approved and implemented. This will require agencies to be fully involved in the development of whole-of-government ICT initiatives and for appropriate consultation to take place before approval. Where agencies are asked to take a lead role in the acquisition, development or operation of whole-of-government ICT applications, infrastructure or systems, the governance arrangements will need to ensure there is sufficient funding and that the requirements are specified to meet the business needs of all potential users.

Should the Government accept my recommendations, I recommend that an independent review of progress be undertaken in the first quarter of 2010.

The remainder of this chapter sets out a proposed implementation plan and schedule based on the assumption that the Government approves all the recommendations in November 2008.

Recommendation 1 – Strengthen pan-government governance

	Activity	Responsibility	Due date	Benefits
5.1.1	Establish a Ministerial Committee on ICT	PM&C (supported by Finance)	Nov 2008	Clearer alignment of ICT with government policies and outcomes
5.1.2	Create a Secretaries' ICT Governance Board (SIGB)	AGIMO	Nov 2008	Whole-of-government ICT governance that defines the ICT strategies in agreed areas
5.1.3	Develop whole-of-government opt-out criteria from agreed activities, for approval by the Ministerial Committee	AGIMO	Mar 2009	Opt-out decisions taken from a whole-of-government perspective. Full benefits from whole-of-government activities are derived
5.1.4	Redefine AGIMO's role	SIGB	Jan 2009	Proactive lead role in Government ICT. Coordinate whole-of-government approaches with lead agencies. Realise economies of scale and reduce duplication across agencies
5.1.5	Establish a Program Board	PM&C, Finance and AGIMO	Nov 2008	Effective and efficient governance overseeing the implementation of review recommendations and ensuring that the benefits are realised

High priority

Medium priority

Low priority

Recommendation 2 – Strengthen agency governance

	Activity	Responsibility	Due date	Benefits
5.2.1	Improve agency capability	Cabinet Implementation Unit, AGIMO and agencies	Sep 2009	Greater alignment of agency capability and IT investment. Increased likelihood of successful outcomes of projects as agencies undertaking these projects have a much better understanding of their capabilities. The Government is less likely to approve funding for new projects where agencies are not able to demonstrate a corresponding capability
	a Develop a common organisational capability methodology, undertake three pilots and assess the results			
	b Roll out common organisational capability methodology across 28 large agencies and provide ongoing support	Agencies	Sep 2010	
	c Large agencies to propose a target level of organisational capability that is independently validated, and develop a capability improvement plan	Agencies	Dec 2010	
	d Develop and implement a 'lite' methodology for smaller agencies	AGIMO	Jun 2010	
e Agencies to undertake self assessment of organisational capability biannually to compare their actual capability against their target capability	Agencies	Sep 2012		
5.2.2	Strengthen the link between policy formulation and implementation			
5.2.2	a Include agency capability assessment in the two-pass investment approval process	AGIMO	Dec 2010	Alignment of agency capability and IT investment for 2011–12 Budget process
	b Develop guidance on relative costs and benefits of COTS/GOTS	AGIMO	Mar 2009	Transparent decision making, understanding the full life costs and future liability
	c Implement Gate 0 Gateway reviews and integrate Gateway Review outcomes into NPP process	Finance	Mar 2009	Improved investment decision-making and better planning/articulation by agencies of project outcomes and benefits
	d Build on existing training and policy guidance for Senior Responsible Officials	Finance	Jun 2009	Improved governance/ management of projects through greater understanding by SROs of their responsibilities
5.2.3	Identify a custodian of best practice in benefits realisation	Cabinet Implementation Unit and AGIMO	Jan 2009	Improved management of benefits realisation by agencies through provision of practical advice and support to help agencies develop capability in this area

High priority

Medium priority

Low priority

Recommendation 3 – Tighten the management of ICT business as usual funding

Activity	Responsibility	Due date	Benefits	
5.3.1	Target to move the split between BAU and creation of new capability through the following:			
a	Develop and agree a methodology, a common ICT chart of accounts and a common set of efficiency metrics	Finance	Oct 2008	
b	Deploy ICT Review Teams to assist agencies identify reductions (phase 1). Seven teams to support 28 large agencies	Finance, including external resources and agency secondees	Mar 2009	Savings of approx \$400M over 2 years, with release of resources for investment in developing new capability, as opposed to running the business. Inculcation of a culture of efficiency and cost-sensitivity within agencies
c	Deploy ICT Review Teams (phase 2). Seven teams to support 28 large agencies		Sept 2009	
d	Assist smaller agencies to achieve target savings	Finance	Dec 2009	
5.3.2a	Develop effectiveness metrics	AGIMO/lead agencies	Jun 2009	Potential for savings by identifying areas where agencies' performance is not effective, through meaningful comparisons/ benchmarking across agencies
b	Annual benchmarking exercise			
	Undertake annual benchmarking exercise	AGIMO	Dec 2009	

High priority

Medium priority

Low priority

Recommendation 4 – Enhance the management of the APS ICT skills base

	Activity	Responsibility	Due date	Benefit
5.4.1	Create a whole-of-government ICT career structure	APSC, PM&C, AGIMO and lead agencies	Mar 2010	Better managed workforce – reduced costs and less delays for ICT projects. Improved staff retention also brings secondary benefits such as retaining corporate knowledge
	Develop a whole-of-government strategic ICT workforce plan		Mar 2010	
5.4.2	Reduce total APS contractors and increase the number of APS ICT staff	Agencies	Oct 2010	
5.4.4	Examine current security vetting processes and identify best practice	SIGB and AGD (PSPC)	Sep 2009	Reduced transaction costs and facilitation of transfer of resources between agencies
5.4.5	Equip organisational leaders' to harness the potential benefits of ICT	APSC and AGIMO	Jun 2009	Promotion of greater understanding of ICT issues at senior levels of agencies will facilitate a more strategic focus on ICT and increased alignment with business priorities
5.4.6	Establishment of a whole-of-government tele-working policy	AGIMO	Sep 2009	Assists with recruitment and retention making the government an attractive employer of ICT staff
5.4.7	Sponsorship of annual ICT awards	APSC and AGIMO	Sep 2009	Making government employment more attractive through encouragement to ICT practitioners

High priority

Medium priority

Low priority

Recommendation 5 – Data centres

	Activity	Responsibility	Due date	Benefit
5.5.1	Develop a whole-of-government data centre strategy	AGIMO and lead agency secondees	Sep 2009	Avoidance of a significant future cost through a coordinated approach to acquisition of data centre space as agencies currently have autonomous arrangements

High priority

Medium priority

Low priority

Recommendation 6 – Improve the efficiency and effectiveness of the ICT marketplace

	Activity	Responsibility	Due date	Benefits
5.6.1	Make better use of the Government's collective buying power:			
	a Optimise the number of ICT panel arrangements established by agencies across government, including improving procurement arrangements for commodity products and services and volume sourcing arrangements for key items of software	Finance and agencies	Sep 2009	Reduce administrative and transaction cost
	b Develop and implement e-auctions	Finance and agencies	Dec 2009	Reduced costs to agencies through harnessing government collective purchasing power
	c Implement strategic management of key ICT suppliers	Finance and AGIMO	Sept 2009	Will enable a whole-of-government (single customer) perspective on key suppliers, with potential savings through coordinated approaches to suppliers, more responsive supplier performance through relationship-building and proactive consideration of developments in the vendor market
5.6.2	Work with industry to develop client and supplier codes of conduct	AGIMO and industry	Dec 09	Increased transparency and accountability in government procurement. More efficient market through entry of new vendors. Improve industry and government relationship
5.6.3	Reassess current IP policy	AGD, AGIMO and lead agencies	June 09	Potential for reduced costs to agencies since vendors are able to grow revenue through leveraging IP
5.6.4	Integrate the Government's ICT and SME policies	Finance and agencies	Sep 2009	More efficient market through facilitation of entry of SME suppliers
5.6.5	Consider the net benefit from the A\$80K threshold under the Free Trade Agreement	DFAT	Sep 2010	Potential for reduced transaction costs for agencies and suppliers through a decrease in the number of tender processes

High priority

Medium priority

Low priority

Recommendation 7 – Sustainability of ICT

	Activity	Responsibility	Due date	Benefit
5.7.1	Develop a whole-of-government ICT sustainability plan	AGIMO, DEWHA and agencies	Dec 2009	Contribute to the government's overall agenda to manage carbon emissions, and reduced rate of growth in energy costs
b	Agencies to develop an ICT energy efficiency plan	Agencies	Mar 2010	
c	Develop Green ICT Procurement Kit	AGIMO	Dec 2009	Enables energy efficiency savings and builds momentum for a whole-of-government initiative
5.7.2	Green ICT quick wins	AGIMO	Mar 2009	

High priority

Medium priority

Low priority

APPENDICES

A TERMS OF REFERENCE

Review of the Australian Government's use of Information and Communication Technology

1. The review will examine and report on the effectiveness and efficiency of the Australian Government's current use of information and communication technology (ICT) to determine whether the Government is realising the greatest return from its investments in ICT, including the way in which ICT can be used to meet the Government's broader objectives, as well as a narrower financial return. The review will examine whether we have the right institutional arrangements in place to maximise the return, and the means by which the return might be increased.
2. In determining this, the review will consider the following issues:
 - a. how ICT has benefited the operations of government and how that benefit is measured;
 - b. the adequacy of current coordination of ICT business planning and investment decision-making processes and the options for and benefits of a stronger ICT framework and/or greater coordination if current arrangements are inadequate;
 - c. the existing ICT investments of agencies and whether there are opportunities to maximise the use of new and existing ICT investments in order to meet the Government's broader objectives;
 - d. the possible duplication of ICT systems (such as financial and human resource management) across government agencies, whether opportunity exists to consolidate existing or new systems, and what form any consolidation should take;
 - e. the duplication of business processes across, and within agencies, and the effects this has on the costs to government and the quality of service delivery;
 - f. barriers posed by existing legacy ICT investments across agencies and the potential for more consistency in new investments;
 - g. how agencies manage their staffing requirements for ICT projects, whether there are opportunities to improve the efficient use of staff and contract resources, and whether competitive pressures are driving up costs;
 - h. the existing ICT governance framework that guides the Australian Government's use of ICT to deliver government outcomes;
 - i. the possible role of the Department of Finance and Deregulation, or a similar central body, in contributing to more efficient and effective use of ICT across government; and
 - j. any other matters as they arise, in consultation with the Minister for Finance and Deregulation.

3. To collect relevant information on the above issues, the review will focus on the use of ICT in selected Australian Government agencies that are a mix of large and small users of ICT.
4. The review will provide a snapshot of the current state of ICT in the Australian Government, what exists and how it is managed to deliver Government objectives.
5. The review will have regard to the best practice approaches of other Australian and international jurisdictions and the private sector.
6. The review will also have regard to planned work on whole-of-government ICT procurement.
7. The review must prepare a report for the Minister for Finance and Deregulation by September 2008. The report should set out recommendations to the Australian Government to drive greater efficiency in the use of ICT across government while enhancing or improving the capacity of ICT to support service and program delivery.
8. In formulating recommendations that the Australian Government should take a particular course of action, the review should assess the resourcing, costs, benefits and any implementation risks of that action.

B SUBMISSION QUESTIONS

Letter to Agencies

Independent Review of the Australian Government's use of ICT

You will be aware that I have been asked by the Minister for Finance and Deregulation, the Hon. Lindsay Tanner MP, to undertake on behalf of the Australian Government an Independent Review of the Australian Government's use and management of information and communication technology (ICT).

The Minister has asked me to examine and report on the efficiency and effectiveness of the Australian Government's current use and management of ICT to determine whether the Government is realising the greatest return from its investments in ICT. This includes the ways in which ICT can be used to meet the Government's broader objectives and the means by which the financial return to Government might be increased.

I particularly welcome this opportunity to gain your views on the issues raised by the review's Terms of Reference (see Appendix A of this document) and on the opportunities to increase the efficiency and effectiveness of the government's use of ICT. I have separately requested the ICT Review Secretariat that is located in the department of Finance and Deregulation to seek more detailed data on your ICT spend, both on assets and ongoing expenditure so that I might construct a clear picture of how ICT is used currently to deliver government services.

Specifically, I would be very grateful if you could provide me with a written submission covering the following:

- What are the strategic priorities of your agency, and how do these priorities inform your ICT strategy and decisions about your ICT investments? What are your views on the current and future importance of ICT to your agency? How do you prioritise your ICT enabled projects and programs and resource allocation (both money and people)?
- How you measure whether your ICT investments are meeting their planned outcomes and your strategic goals? Can you provide details of the most recent five to ten major ICT enabled projects you have undertaken and how you measured their success in terms of cost, time, specification and delivery of anticipated benefits?
- How you measure your organisation's capability to commission, manage and deliver successful ICT enabled programs (ie from policy development to requirements specification to delivery to benefit realisation)? What is your assessment of your current capability? Can you provide details of any plans to improve or increase that capability?
- How you ensure that ICT spend (both operating and capital) is as efficient and effective as possible, and can you provide details of the performance metrics that are used? Can you also provide details of the performance metrics you use to measure the efficiency and

effectiveness of your ICT function (including prior year, current year, and target measures)?
Can you provide details of any plans to increase the efficiency and/or effectiveness of your ICT function and spend?

- Can you provide details of the risk management process you apply for ICT enabled projects and programs?
- Can you provide details of areas of best practice applied to the management of your ICT environment that could be shared across government?

I am also interested in your views on the current whole-of-government arrangements that are in place to guide the Australian Government's use and management of ICT. My understanding is that the Department of Finance and Deregulation cooperatively develops various frameworks, policies, standards and some centralised ICT procurement arrangements that seek to encourage greater sharing and re-use of ICT assets and achieve best value for money. Could you please indicate the usefulness of these, your agency's own level of use, and any issues that impede use.

I would be most grateful if you could provide your written submission to the ICT Review Secretariat at ICTReview@finance.gov.au. If you are able to provide any of the material by the end of May, this would be much appreciated. I would appreciate final submissions by Friday 13 June 2008, covering the questions I have raised and any other options you see to improve the efficiency and effectiveness of the Government's use of ICT including barriers to their adoption. I realise that this timetable will be tight but I do not believe these information requests should be very onerous if sound governance arrangements are already in place. This will not be the final opportunity to input to the review, but the basic information provided in submissions by this date will enable me to assemble a reasonably comprehensive picture of ICT in the Australian Government in order to inform further discussions and investigation. It is my intention to hold bilateral meetings with some agencies and other stakeholders after the initial written submissions have been received and analysed.

In the meantime, the ICT Review Secretariat can be contacted on 02 6215 2524 for any queries regarding this letter.

Yours sincerely

Sir Peter Gershon

Letter to Industry

Independent Review of the Australian Government's use of ICT

You may be aware that I have been asked by the Minister for Finance and Deregulation, the Hon. Lindsay Tanner MP, on behalf of the Australian Government, to undertake an Independent Review of the Australian Government's use and management of information and communication technology (ICT).

I have been asked to examine and report on the efficiency and effectiveness of the Australian Government's current use and management of ICT to determine whether the Government is realising the greatest return from its investments in ICT. This includes the ways in which ICT can be used to meet the Government's broader objectives and the means by which the financial return to Government might be increased.

I particularly welcome this opportunity to gain your views on the issues raised by the review's Terms of Reference (see Appendix A of this document). Specifically, I would be very grateful if you could provide me with a written submission covering the following:

- Where you think that aggregation or standardisation would drive economies of scale benefits for the Australian Government;
- Whether the Government's requirements inhibit the use of Commercial Off the Shelf products without customisation;
- How you rate the Australian Government compared to:
 - o your other government clients elsewhere in the world (if relevant)
 - o your Australian private sector, state and local government clients; and
- Whether there are any key best practice techniques which:
 - o the Australian Government already has but hasn't fully deployed;
 - o are utilised elsewhere in Australia or internationally which the Australian Government should adopt.

I would be most grateful if you could provide your written submission to the ICT Review Secretariat at ICTReview@finance.gov.au by Friday 30 May 2008 covering the questions I have raised and any other options you see to improve the efficiency and effectiveness of the Government's use and management of ICT including barriers to their adoption. It is my intention to hold bilateral meetings with as many industry stakeholders and representative bodies as possible after the initial written submissions have been received and analysed.

Please contact the ICT Review Secretariat on (02) 6215 2524 should you have any questions about this matter or the review.

Yours sincerely

Sir Peter Gershon

C SURVEY INSTRUMENT

Survey approach

The review survey was issued to all 100 Commonwealth Government Agencies that were regulated by the *Financial Management and Accountability Act 1997* (FMA Act). Of the identified agencies, four were exempt from providing a return as agreed with the Secretariat (including two national security agencies), five small agencies did not provide a response (these agencies were insignificant in size and did not detract from the comprehensive nature of the data captured from agencies that responded), and a further eight agencies' returns were incorporated within another (lead) agency return.

In total, 86 returns were received covering 91 agencies and entered into the survey database. Three of the 86 returns were from agencies which are incorporated within other FMA Act agencies. One of these operates relatively autonomously and has been treated as a separate agency for the purposes of the survey analysis. The other two have recently been incorporated into another agency and the treatment of these agencies varies depending on the nature of the analysis. For example, they have been treated as one large agency for the purposes of analysing total ICT spend, but treated as three agencies when looking at the level of customisation of financial and human resource information management systems.

The completed responses were grouped via the size of the agency and provided the following size profile:

- Large: agencies (including Defence) with over \$20 million of ICT spend in 2007–08 (29 in total)
- Medium: agencies with between \$2 million and \$20 million of ICT spend in 2007–08 (26 in total)
- Small: agencies with less than \$2 million of ICT spend in 2007–08 (29 in total).

The ABS 2002–03 Government Technology Survey structure was used as a base for the survey and expanded to capture detailed information on specific areas of interest for the review. The additional areas included in the survey were websites, desktops, telecommunications, financial management information systems, human resource management information systems and grants management systems. Other specific survey areas included ICT energy and ICT staffing resources, where the survey captured information on each agency's profile and employment metrics.

A small agency survey was provided to a limited number of agencies that had 50 or less staff in order to minimise the impact of the survey on these agencies.

Survey sections

The survey instrument was structured in eight sections represented by separate worksheets, within the survey workbook, described in more detail below:

Introduction (including general definitions)

Part 1 Agency ICT profile

Part 2 Employment metrics

Part 3 Expense items (focusing primarily on salaries and wages and contractor costs)

Part 4 Other operating expenses

Part 5 Capital expenditure

Part 5a Capital expenditure on software systems

Part 5b Capital expenditure – major ICT investments

Part 6 General questions (capital expenditure details, financial management information systems, human resource management information systems, grants management systems, websites and telecommunications)

Part 6a(i) Communications – contract details

Part 6a(ii) Communications – connection details

Part 6a(iii) Communications – pricing details

Part 6b Grant management system details

Part 6c Website details

Part 6d Major IT contracts

Part 7 ICT staffing profile

Part 7a Resource pay profile

Survey return completion and sign-off

Each section concluded with a free-form commentary box which provided agencies with an opportunity to provide explanations and, specifically, to detail additional information relating to unusual circumstances that meant answers to questions needed to be interpreted in the correct context; and major one-off variations to activity levels or costs.

Survey addendum

During the survey completion period, additional information requirements were identified that were considered important to the analysis of the survey data. As a result, a survey addendum was distributed to all respondents. The addendum required separate and discrete data to be reported in addition to the original survey instrument. The survey instrument addendum was structured in five sections reflecting extensions and additions to the original survey instrument:

- Part 8 Staff expense, operating expense and capital expenditure – Business as usual and project
- Part 9 Depreciation
- Part 10 Network gateway details
- Part 11 Resource profile
- Part 12 Resource pay profile

Completion and treatment

The survey was released on 19 May 2008 and was to be completed and submitted to the Review Secretariat by 18 July 2008. A help desk was provided to assist all agencies with any issues associated with the survey response.

The small agency survey was distributed to selected small agencies on 27 May 2008, with the same completion date of 18 July 2008.

The survey addendum was distributed on 13 June 2008 and was to be completed and submitted by 18 July 2008.

No extensions to the completion time were provided.

Additional data collection

In addition to the data survey, a limited survey of data centres was undertaken with 16 of the largest FMA Act agencies, and the AIIA kindly undertook, at the review's request, a limited survey of its SME members.

D SUBMISSIONS RECEIVED

Within Australian Government

Attorney-General's Department (AGD)
Australian Agency for International Development (AusAID)
Australian Bureau of Statistics (ABS)
Australian Communications and Media Authority (ACMA)
Australian Competition and Consumer Commission (ACCC)
Australian Crime Commission (ACC)
Australian Customs Service (ACS)
Australian Electoral Commission (AEC)
Australian Federal Police (AFP)
Australian National Audit Office (ANAO)
Australian Public Service Commission (APSC)
Australian Securities and Investments Commission (ASIC)
Australian Sports Commission (ASC)
Australian Taxation Office (ATO)
Australian Trade Commission (Austrade)
Bureau of Meteorology (BOM)
Comsuper
Department of Agriculture, Fisheries and Forestry (DAFF)
Department of Broadband, Communications and the Digital Economy (DBCDE)
Department of Defence (DoD)
Department of Education, Employment and Workplace Relations (DEEWR)
Department of the Environment, Water, Heritage and the Arts (DEWHA)
Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA)
Department of Finance and Deregulation (DoFD)
Department of Foreign Affairs and Trade (DFAT)
Department of Health and Ageing (DoHA)
Department of Human Services (DHS) – includes Centrelink and Medicare Australia

Department of Immigration and Citizenship (DIAC)
Department of Infrastructure, Transport, Regional Development and Local Government (DITRD LG)
Department of Innovation, Industry, Science and Research (DIISR)
Department of Parliamentary Services (DPS)
Department of the Prime Minister and Cabinet (PM&C)
Department of Resources, Energy and Tourism (RET)
Department of Veterans' Affairs (DVA)
Family Court of Australia (FCA)
Geoscience Australia (GA)
IP Australia (IPA)
National Archives of Australia (NAA)
Office of the Director of Public Prosecutions (DPP)
Department of the Treasury

Invited industry submissions

Accenture Australia Holdings Pty Ltd
ACER Computer Australia
Apple
APPS Global Pty Limited
Avaya Australia Pty Ltd
Booz and Company Inc
Boston Consulting Group Pty Ltd
CA (Pacific) Pty Ltd
Cisco Systems Australia Pty Ltd
Citrix Systems Asia Pacific Pty Ltd
Clicks IT Recruitment
Commander Communications Limited
Computer Sciences Corporation (CSC) Australia Pty Limited
CPT Global Limited
DELL Australia Pty Ltd
Dimension Data Australia Pty Ltd

Distillery Software Pty Ltd
EDS (Australia) Pty Limited
Ernst & Young
Fuji Xerox Australia Pty Limited
Fujitsu (Aust) Pty Limited
Funnelback
Google Australia Pty Limited
Hewlett Packard Australia Pty Limited
Hitachi Data Systems Australia Pty Ltd
IBM Australia Limited
INTEL Australia Pty Ltd
KPMG
Macquarie Telecom
Manpower Services (Australia) Pty Ltd
Microsoft Corporation
Oakton – Accumen Alliance
SingTel OPTUS Pty Limited
PeopleBank
PricewaterhouseCoopers (PWC)
Red Hat Asia Pacific
SAP Australia Pty Ltd
SHARP Corporation of Australia Pty Ltd
SMS Management & Technology Limited
Sun Microsystems Australia Pty Ltd
Talent2 Pty Ltd
Technology One Limited
Telstra Corporation Limited
UNISYS Australia Pty Limited
UXC Limited
Verizon Business

Invited representative bodies' submissions

Australian Computer Society Inc

Australian Industry Group (Ai Group)

Australian Information Industry Association (AIIA)

Community & Public Sector Union (CPSU)

Open Source Industry Australia Limited

Other submissions

Dr R Andrews

APM Group

Australian Government Libraries Information Network (AGLIN)

Australian School of Business – The University of New South Wales

Mr K Beck

Ms J Boston

Mr L Bunting

Mr S Coates

Curam Software

Mr A Greig

Grenfell Consultancy Services Pty Ltd

Mr M Hart

Indigo Information System

Insite Interactive

Kyocera Mita Australia Pty Ltd

Queensland Government

Solved at McConchie Pty Ltd

Tanner James Management Consultants

Teradata Australia Pty Ltd

The Helmsman Institute

The Project Group

E CONSULTATIONS

Ministers

The Hon. Kevin Rudd, MP, Prime Minister

The Hon. Lindsay Tanner, MP, Minister for Finance and Deregulation

Senator the Hon. Kim Carr, Minister for Innovation, Industry, Science and Research

The Hon. Jenny Macklin, MP, Minister for Families, Housing, Community Services and Indigenous Affairs

Senator the Hon. Joe Ludwig, Minister for Human Services

Senator the Hon. John Faulkner, Special Minister of State

Senator the Hon. Stephen Conroy, Minister for Broadband, Communications and the Digital Economy

Departments and agencies

Meetings were held with teams led by the respective Secretaries/CEOs or their nominees with the following agencies.

Attorney-General's Department

Department of Broadband, Communications and the Digital Economy

Department of Defence

Department of Education, Employment and Workplace Relations

Department of Finance and Deregulation

Department of Foreign Affairs and Trade

Department of Health and Ageing

Department of Human Services

Department of Immigration and Citizenship

Department of Innovation, Industry, Science and Research

Department of the Prime Minister and Cabinet

Department of the Treasury

Australian Customs Service

Australian National Audit Office

Australian Taxation Office

Australian Bureau of Statistics

Bureau of Meteorology

Centrelink

Defence Materiel Organisation

Medicare Australia

The Australian Government Information Management Office (AGIMO), Department of Finance and Deregulation

In addition:

4 Portfolio Secretaries meetings

Secretaries' Committee on ICT (SCICT)

Business Process Transformation Committee (BPTC) – Chief Information Officer Committee (CIO) meeting

Cross Jurisdiction Chief Information Officer Committee (CJCIOC) – meeting

Round table meeting with non-Portfolio Secretaries from a cross-section of agencies

Chief Information Officer Forum (CIOF) – meeting

Other

Senator Kate Lundy, Senator for the Australian Capital Territory

Meetings were held with teams led by the respective Senior Executives or their nominees with the following representative and industry bodies.

Australian Computer Society (ACS)

Australian Industry Group (Ai Group)

Australian Information Industry Association (AIIA) industry – round table meeting

Community & Public Sector Union (CPSU)

Industry

Booz & Company Inc

Boston Consulting Group Pty Ltd

Cisco Systems Australia Pty Ltd

CPT Global Limited

CSC Australia Pty Limited

DELL Australia Pty Ltd
EDS (Australia) Pty Limited
Ernst & Young
Fuji Xerox Australia Pty Limited
Hewlett Packard Australia Pty Limited
Hitachi Data Systems Australia Pty Ltd
IBM Australia Limited
KPMG
Microsoft Corporation
SingTel OPTUS Pty Limited
PriceWaterhouseCoopers (PWC)
SAP Australia Pty Ltd
Cross-section of small and medium enterprises (SMEs) – round table meeting
Telstra Corporation Limited
TERRIA
Unisys Australia Pty Limited

F AGENCIES WITH ICT SPEND OVER \$20 MILLION IN 2007–08

Based on their input to the survey, the agencies (excluding Defence) with ICT spend in excess of \$20 million in 2007–08 are:

1. Attorney-Generals' Department
2. AUSTRAC
3. AusTrade
4. Australian Bureau of Statistics
5. Australian Crime Commission
6. Australian Customs Service
7. Australian Federal Police
8. Australian Securities and Investments Commission
9. Australian Taxation Office
10. Bureau of Meteorology
11. Centrelink
12. Comsuper
13. Crimtrac
14. Department of Agriculture, Fisheries and Forestry
15. Department of Education, Employment and Workplace Relations
16. Department of the Environment, Water, Heritage and the Arts
17. Department of Families, Housing, Community Services and Indigenous Affairs
18. Department of Finance and Deregulation
19. Department of Foreign Affairs and Trade
20. Department of Health and Ageing
21. Department of Human Services – Child Support Agency
22. Department of Immigration and Cultural Affairs
23. Department of Infrastructure, Transport, Regional Development and Local Government
24. Department of Innovation, Industry, Science and Research
25. Department of Parliamentary Services
26. Department of Veterans' Affairs
27. IP Australia
28. Medicare Australia

G AGENCIES WITH ICT SPEND \$2 MILLION TO \$20 MILLION IN 2007–08

Based on their returns to the survey, agencies with ICT spends between \$2 million and \$20 million to achieve a 7.5% reduction based on 2007–08 ICT spend over the next 2 Budget years are:

1. Administrative Appeals Tribunal
2. AusAID
3. Australian National Audit Office
4. Australian Communications and Media Authority
5. Australian Competition and Consumer Commission
6. Australian Electoral Commission
7. Australian Industrial Registry
8. Australian Prudential Regulation Authority
9. Australian Public Service Commission
10. Department of Broadband, Communications and the Digital Economy
11. Department of the Prime Minister and Cabinet
12. Department of the Senate
13. Family Court of Australia
14. Federal Court of Australia
15. Geoscience Australia
16. Great Barrier Reef Marine Park Authority
17. Insolvency & Trustee Service Australia
18. Migration Review Tribunal and Refugee Review Tribunal
19. National Archives of Australia
20. National Health and Medical Research Council
21. National Native Title Tribunal
22. Office of National Assessments
23. Office of the Commonwealth Director of Public Prosecutions
24. Therapeutic Goods Administration
25. Department of the Treasury
26. Workplace Authority

H CANDIDATES FOR WHOLE-OF GOVERNMENT APPROACHES

Some candidates for consideration for whole-of-government approaches, subject to opt-out, over the first 2 years of the Secretaries' ICT Governance Board (SIGB)'s existence include (in alphabetical order):

- Australian Government Architecture
- Australian Government Interoperability Framework
- Business Portal
- Career structure for ICT staff
- Citizen Portal
- Client code of conduct
- Common business processes
- Common Email System
- Common High Security Network
- Common Low Security Network
- Common methodology for assessing organisational capability
- Common project management tools for different sizes of projects
- Criteria for assessing requested opt-outs
- Criteria for the identification, operation and sustaining of Centres of Excellence within the Government
- Data centre strategy
- ICT sustainability plan
- ICT systems to improve the management of the Government's presence outside Australia in line with the Prime Minister's Directive.
- ICT workforce planning tool
- Key suppliers to be subject to strategic management
- Plans to support the Government's SME agenda, through ICT procurement
- Rationalisation of the number of physical telecommunication links, both within Australia and internationally
- Systems and applications where acquisitions or upgrades are customised or bespoke solutions will require approval by the Ministerial Committee.
- Volume arrangements for commodity hardware products and telecom services
- Volume sourcing agreements for commonly used software.

The above list includes some existing AGIMO outputs which will need to be formally confirmed as whole-of-government arrangements subject to opt-out.

I PROPOSED CRITERIA FOR WHOLE-OF-GOVERNMENT APPROACHES AND ARRANGEMENTS SUBJECT TO OPT-OUT

As a guiding principle, whole-of-government approaches and arrangements subject to opt-out should be considered if they provide clear superior outcomes for the Government and/or the taxpayer, over autonomous approaches by agencies.

One or more of the following criteria should apply:

- Economy of scale of benefits which do not have a significant adverse impact on wider Government policies
- The ability to move towards more joined-up services for citizens and business is enhanced
- The management and development of scarce ICT skills within the APS is strengthened
- The operation of the Government ICT marketplace is improved
- Other key priorities of the Government (for example, SMEs, sustainability) are reinforced
- Duplication of costs are avoided
- Future flexibility for machinery of government changes is enhanced
- The ability to respond to external ICT related issues and trends is improved
- The ability to manage and leverage the Government's information assets, having due regard to privacy concerns where appropriate, is enhanced.

J PROPOSED ROLE OF AGIMO

Based on my recommendations, the role of AGIMO would include:

- Identifying the need for common approaches (in areas such as standards, platforms, applications, infrastructure, business process and aggregated ICT procurement) and preparing the associated business cases for the SIGB
- Where agreed by the SIGB, appropriate involvement in the development and implementation of common approaches (this includes a spectrum ranging from a leadership role through provision of some resources, to participation in the governance arrangements)
- Strategic management of key ICT suppliers
- Functional leadership of the APS ICT professional community
- Undertaking an annual benchmarking exercise of agencies against the common efficiency and effectiveness metrics and then providing agencies with detailed feedback and the SIGB with a summary report identifying key trends
- Leading the CIOC, BPTC and CIOF in identifying emerging issues and trends, and delivering potential responses for consideration by the SIGB
- Annually constructing the whole-of-government ICT workforce plan and identifying any key issues together with advice for addressing them to the SIGB
- Scrutiny of NPPs against areas agreed for opt-out by the SIGB
- Scrutinising opt-out requests against agreed criteria and providing advice to the SIGB and the Ministerial Committee
- Facilitating the spread of good practice
- Maintain a single authoritative 'source of truth' for ICT policies.

K LINKAGE BETWEEN TERMS OF REFERENCE AND RECOMMENDATIONS

This appendix sets out the linkage between the reviews recommendations and the review's Terms of Reference.

1. The review will examine and report on the effectiveness and efficiency of the Australian Government's current use of information and communication technology (ICT) to determine whether the Government is realising the greatest return from its investments in ICT, including the way in which ICT can be used to meet the Government's broader objectives, as well as a narrower financial return. The review will examine whether we have the right institutional arrangements in place to maximise the return, and the means by which the return might be increased.
[Achieved – set out in Chapter 4 Key Findings, Chapter 5 Recommendations and Chapter 6 Implementation]
- 2a. how ICT has benefited the operations of government and how that benefit is measured;
[Recommendations 5.2.2, 5.2.3, 5.3.2]
- 2b. the adequacy of current coordination of ICT business planning and investment decision-making processes and the options for and benefits of a stronger ICT framework and/or greater coordination if current arrangements are inadequate;
[Recommendations 5.1.1, 5.1.2, 5.1.3, 5.2.1, 5.2.2, 5.6.1]
- 2c. the existing ICT investments of agencies and whether there are opportunities to maximise the use of new and existing ICT investments in order to meet the Government's broader objectives;
[Recommendations 5.3.1, 5.5.1, 5.7.1, 5.7.2]
- 2d. the possible duplication of ICT systems (such as financial and human resource management) across government agencies, whether opportunity exists to consolidate existing or new systems, and what form any consolidation should take;
[Recommendations 5.2.2, 5.3.3]
- 2e. the duplication of business processes across, and within agencies, and the effects this has on the costs to government and the quality of service delivery;
[Recommendations 5.1.2, 5.3.3]
- 2f. barriers posed by existing legacy ICT investments across agencies and the potential for more consistency in new investments;
[Recommendations 5.3.1, 5.2.2, 5.3.1]
- 2g. how agencies manage their staffing requirements for ICT projects, whether there are opportunities to improve the efficient use of staff and contract resources, and whether competitive pressures are driving up costs;
[Recommendations 5.4.1, 5.4.2, 5.4.3, 5.4.4, 5.4.5, 5.4.6, 5.4.7]

- 2h. the existing ICT governance framework that guides the Australian Government's use of ICT to deliver government outcomes;
[Recommendations 5.1.1, 5.1.2, 5.1.3, 5.2.1]
- 2i. the possible role of the Department of Finance and Deregulation, or a similar central body, in contributing to more efficient and effective use of ICT across government; and
[Recommendations 5.1.4, 5.1.5]
- 2j. any other matters as they arise, in consultation with the Minister for Finance and Deregulation.
[Recommendation 5.2.4]
3. To collect relevant information on the above issues, the review will focus on the use of ICT in selected Australian Government agencies that are a mix of large and small users of ICT.
[Achieved via submissions, meetings and survey]
4. The review will provide a snapshot of the current state of ICT in the Australian Government, what exists and how it is managed to deliver Government objectives.
[Achieved via submissions, meetings, survey and Chapter 4 Key Findings]
5. The review will have regard to the best practice approaches of other Australian and international jurisdictions and the private sector.
[Achieved via submissions and meetings]
6. The review will also have regard to planned work on whole-of-government ICT procurement.
[Recommendations 5.6.1, 5.6.2, 5.6.3, 5.6.4, 5.6.5]
7. The review must prepare a report for the Minister for Finance and Deregulation by September 2008. The report should set out recommendations to the Australian Government to drive greater efficiency in the use of ICT across government while enhancing or improving the capacity of ICT to support service and program delivery.
[Achieved]
8. In formulating recommendations that the Australian Government should take a particular course of action, the review should assess the resourcing, costs, benefits and any implementation risks of that action.
[Achieved – set out in Chapter 6 Implementation]

L DETAILS OF ICT REVIEW TEAM

Mr Wayne Cooper

Australian Government Information Management Office
Department of Finance and Deregulation

Ms Kristy Dam

Australian Taxation Office

Mr Gary Davis

Department of Employment, Education and Workplace Relations

Ms Robyn McLeod

Australian Government Information Management Office
Department of Finance and Deregulation

Mr Anthony O'Connor

Centrelink

Ms Fabiola Peresan

Australian Government Information Management Office
Department of Finance and Deregulation

Mr Saul Schneider

Australian Government Information Management Office
Department of Finance and Deregulation

Mr Brian Stewart

Australian Government Information Management Office
Department of Finance and Deregulation

Mr Scott Wallace

Australian Government Information Management Office
Department of Finance and Deregulation