Whole-of-government ICT strategic workforce plan 2010-2013

Australian Government

Foreword

The Australian Government recognises that Information and Communication Technology (ICT) has emerged as an increasingly major factor contributing to innovation, economic growth and increased productivity in the last 50 years.

The labour market for ICT workers is dynamic, which makes assessing imbalances in the supply and demand for these skilled professionals problematic. With employment in ICT occupations forecast to grow strongly at about 3 per cent per year, there is going to be increasing pressure to find suitably qualified ICT staff to effectively deliver the Government's priorities. Major ICT projects such as the National Broadband Network, Service Delivery Reform and the Government 2.0 Taskforce are likely to generate significant future demand and competition for these qualified staff.

In response to the 2008 Review of the Australian Government's use of ICT, conducted by Sir Peter Gershon, the Australian Public Service Commission, in partnership with the Department of Finance and Deregulation, is pleased to introduce the whole-of-government strategic ICT workforce plan.

The whole-of-government strategic ICT Workforce Plan provides a high level overview of the issues affecting the ICT workforce and strategies to address the future human capital needs of ICT employment in the Australian Public Service (APS). Using this plan, agencies will be better able to plan, develop and manage a qualified, satisfied and flexible ICT workforce, while providing an attractive career path for ICT professionals within the APS.

The whole-of-government strategic ICT Workforce Plan is underpinned by an ICT Capability Framework, which is built upon an internationally recognised ICT capability model – the Skills Framework for the Information Age (SFIA). This capability framework also forms an essential component of the whole-of-government ICT Career Structure, which is another key deliverable from the ICT Reform Program. The framework represents an anchor point for people management processes within agencies and for the career planning of ICT professionals.

We commend the whole-of-government strategic ICT Workforce Plan and Capability Framework to you and trust you use the information in it to continue to improve your approaches to the recruitment, retention and engagement of ICT professionals within the Australian Public Service.

Stephen Sedgwick
Australian Public Service Commissioner

Ann Steward
Australian Government Chief Information Officer

Glossary

Agency size

Small agencies - Agencies with less than 20 APS ICT employees.

Medium agencies - Agencies with 20 to 99 APS ICT employees.

Large agencies - Agencies 100 or more APS ICT employees.

Capability

The knowledge, experience, skills, abilities, behaviours and attitudes required to effectively perform a function or activity.

Capacity

The number of employees required with particular capabilities.

Career navigator

The on-line tool developed in-house by the APSC as the delivery tool for the ICT career structure.

Cross-jurisdictional

Activities, agreements or functions which apply across more than one territory or level of Government.

ICT capability framework

The whole-of-government ICT Capability structure focusing on contributions rather than occupational groupings. The framework has a three level structure: contribution domain, contribution area and relevant capabilities.

ICT career structure

The overarching structure which incorporates and links the ICT capability framework, APS classification structure and ILS structure. The ICT career structure includes capability descriptors, contribution profiles, self-assessment tool, transition points and learning and development options.

ILS

The *Integrated Leadership System* is the APS leadership capability framework. More information is available at: **www.apsc.gov.au/ils**.

SFIA

The *Skills Framework for the Information Age* is a framework for describing ICT skills across seven levels of responsibility. (**www.sfia.org.uk**)

SoSR

The State of the Service Report prepared annually by the Australian Public Service Commission

Whole-of-Government

The workforce plan covers all APS and FMA Act agencies, as well as those CAC Act agencies which engage employees under the *Public Service Act 1999*, i.e. those agencies that could be reasonably expected to have similar ICT environments and workforce capacity and capability issues, and require similar strategies to address these issues. For ease of reference, these agencies are generally collectively referred to as the APS throughout the whole-of-Government ICT strategic workforce plan.

Overview

Background

In April 2008, the Minister for Finance and Deregulation (Finance), the Hon. Lindsay Tanner MP, announced the appointment of Sir Peter Gershon to lead a review of the Australian Government's use of Information and Communication Technology (ICT).

The Gershon Review provided a comprehensive and detailed analysis of a wide range of issues affecting the Government's use of ICT, including a general lack of strategic planning for ICT workforce capability at both the agency and whole-of-Government level.

In response to this analysis, the Australian Public Service Commission (APSC), in partnership with Finance, represented by the Australian Government Information Management Office (AGIMO), conducted research to better understand the current and likely future states of the Australian Public Service (APS) ICT workforce. This took the form of formal surveys and consultation with stakeholders across the APS and externally. As a result, a range of strategies have been identified to improve the management of the APS ICT workforce in the years ahead.

This research and resulting initiatives take into account broader public service reforms, including a number of high level reviews such as the Cutler Review of the National Innovation System and the Blueprint for the reform of Australian Government Administration, *Ahead of the Game*.

Workforce planning in the APS

Workforce planning has been a significant priority issue in the management of the APS workforce, with a significant amount of work having already been done at a strategic (whole-of-government) and agency level. The strategic work includes the better practice guide and subsequent audit by the Australian National Audit Office[1] and numerous Management Advisory Committee reports such as *Organisational Renewal*, *Connecting Government* and *Managing and Sustaining the APS Workforce*.[2]

Since 2003, the APSC has been showcasing agency initiatives and reporting on agencies progress with workforce planning through the annual State of the Service Report (SoSR).

In June 2009, 68 per cent of agencies reported that they had policies, strategies and/or frameworks in place that aim to ensure they have the skills and capabilities needed for the next one-to-five years. These same agencies have also identified their workforce risks. More specifically, 32 per cent of agencies reported that they had an agency-wide documented workforce plan, and an additional 38 per cent of agencies were developing a plan.

In addition, agencies have been reporting for a number of years the shortage of ICT professionals as their most pressing workforce challenge (nominated by 34 per cent of agencies in 2008-09). Results of the APS ICT Workforce Capability & Assessment Agency Survey indicated some agencies (5 per cent) have developed an ICT workforce plan specifically targeted at their ICT workforce, with another 25 per cent of agencies indicating they were developing an ICT workforce plan.

These results demonstrate the readiness of the APS and many agencies to bolster their workforce planning endeavours with a focus on ICT skills. For some agencies that are not as advanced in workforce planning, the whole-of-Government ICT strategic workforce plan delivers the trigger to prioritise workforce planning and provides a firm foundation for action in their agency business plans.

Purpose

The purpose of this whole-of-government ICT strategic workforce plan (the workforce plan) is to assist agencies in:

- identifying the ICT capacity and capabilities required to effectively deliver government priorities; and
- developing a strategic APS-wide understanding of the interconnection between demography, labour markets, skills shortage, workforce planning, employment branding, attraction and retention strategies for the APS ICT workforce.

The workforce plan will help agencies to effectively manage their ICT workforce into the future, while taking into account a whole-of-Government approach and their individual agency's needs and workforce planning progress. Agencies will gain the knowledge they need to effectively plan their current and future workforce planning requirements at an agency level, while positioning the APS as the career path of choice for ICT professionals.

The workforce plan provides a high level overview of the issues affecting the ICT workforce and strategies to address the future human capital needs of ICT employment in the APS. The workforce plan is supported by a suite of statistical documents that will provide agencies with much of the data needed to do their individual forward planning.

Consultations with key government and industry stakeholders revealed a lot of passion about ICT workforce issues and a strong impetus for a whole-of-Government approach to work in this area. Some of the ideas presented by these stakeholders included a more consistent whole-of-Government approach to recruitment, learning and development. Some of this work can begin immediately, for example, by using the Finance whole-of-Government ICT entry-level programs for cadets and apprentices. Other proposed measures, such as exploring the feasibility of a whole-of-Government ICT classification model and associated remuneration options, require continued discussion in view of the broader APS reform initiatives planned.

Goal and objectives

The goal of this workforce plan is to support agencies to better plan, develop and manage a qualified, satisfied and flexible ICT workforce, while providing an attractive career path for ICT professionals in the APS. This plan will also contribute to the aim of reducing the total number of ICT contractors across the APS and increasing the number of qualified APS ICT staff.[3]

The whole-of-government ICT Workforce Plan will provide agencies with:

- information required to better plan and manage their ICT workforce now and into the future; and
- a whole-of-government ICT Career Structure to improve the opportunities to develop and retain skilled ICT staff within the APS.

For ICT professionals, the workforce plan and accompanying career structure will provide:

- useful resources and information to assist with planning a satisfying ICT career in the APS;

- opportunities for better managing their ongoing learning and development needs; and

- a more simplified way to enter, move around and return to the APS ICT workforce.

As ICT workforce supply and demand conditions continue to fluctuate in response to broader environmental issues, so too will the public service environment continue to change – particularly in respect of the broader APS reform initiatives to be announced later this year. Consequently, this workforce plan will continue to evolve, and will be revised on an annual basis, with ongoing consultation with agencies and other key stakeholders, to ensure it continues to meet their workforce planning needs.

Whole-of-Government strategic ICT workforce planning process

The whole-of-Government strategic ICT workforce planning process follows the central elements commonly found in most workforce planning methodologies; in particular, drawing from both the ANAO and the APSC better practice guides.[4]

These central elements include:

- Identifying future business direction and workforce needs in respect of the broader context;

- knowing the current workforce - through data collection and analysis;

- bridging the gap – identifying and addressing workforce issues through the development and prioritisation of appropriate strategies;

- providing a sound basis for effective implementation - through resource planning and clarifying roles and responsibilities;

- monitoring and evaluation.

Arriving at the most appropriate process for the workforce plan involved extensive research and consultation with a range of industry stakeholders and agency representatives. To ensure the workforce plan continues to meet the needs of agencies across the whole-of-government, the APSC will continue to canvass the views of agencies and key industry stakeholders as the workforce plan is implemented, evaluated, and future iterations developed.

The following diagram illustrates the flow of the workforce planning process and the intention for this whole-of-Government strategic ICT workforce plan to complement agency-level ICT workforce planning initiatives.

Figure 1: Strategic whole-of-Government ICT workforce planning process
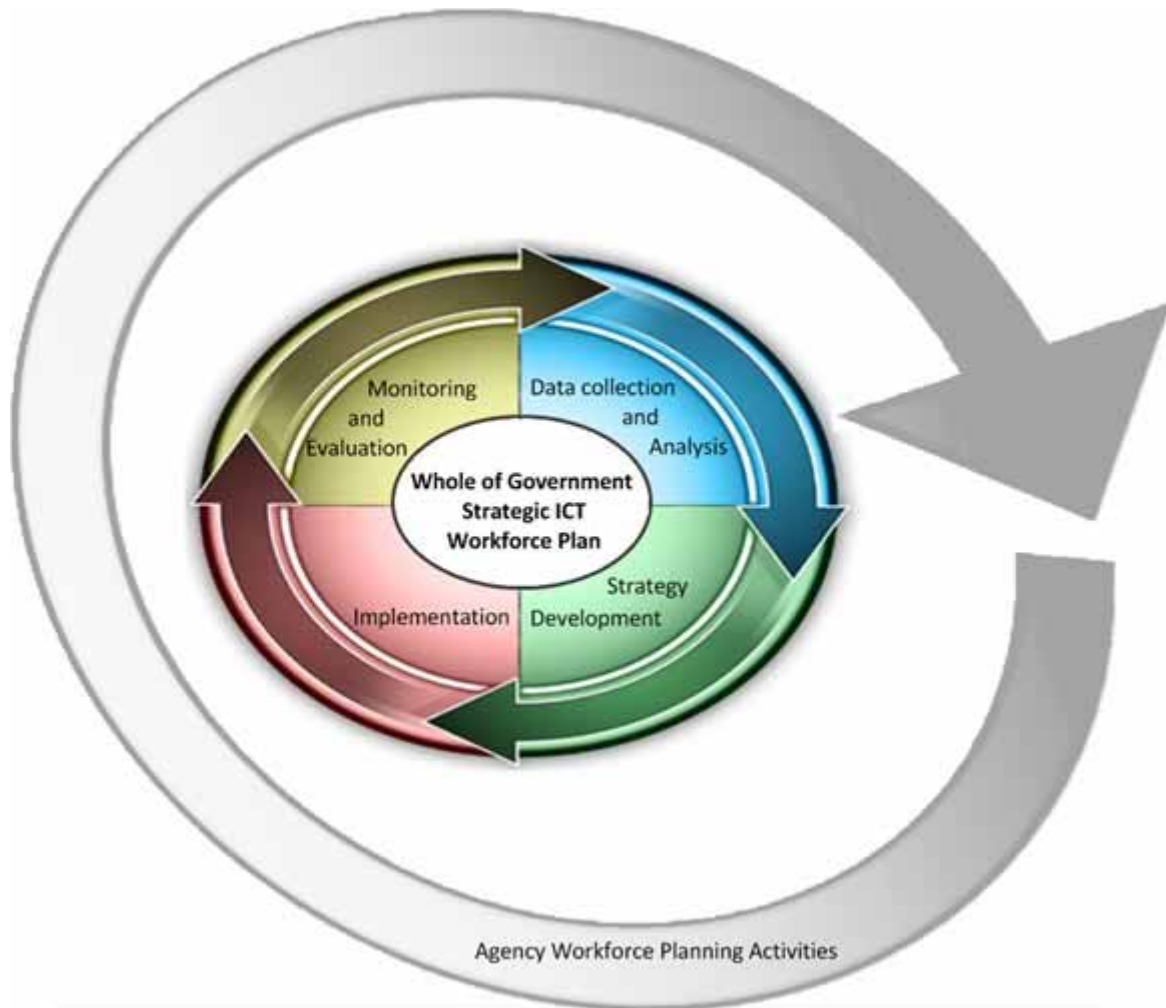
Data collection and analysis

Data collection and analysis was undertaken to establish an initial understanding of the internal and external factors that influence labour supply and demand. This included, identifying priority areas and labour force requirements, and comparing this to current and future requirements to identify workforce gaps. This included:

- an environmental scan of the ICT workforce in Australia and issues impacting its supply;

- an analysis of the ICT labour supply within the APS;

- a survey of APS ICT employees to determine the factors that motivate them to join, remain in, or to subsequently leave APS employment;

- APS ICT workforce capacity and capability demand forecasting (using an agency survey based on the whole-of-government ICT Capability Framework) and,

- the identification of gaps in the ICT workforce.

For this initial iteration of the workforce plan, broader data collection and analysis was not undertaken at an international level. However, future iterations of the workforce plan will consider expanding data collection and analysis to increase its value to future whole-of-Government and agency planning.

Strategy development

The strategy development element of the workforce plan was centred on identifying a range of strategies and activities to address the key findings and critical gaps identified in the data collection and analysis stage. This was a consultative process involving ICT employees and human resource representatives from fifty agencies (refer Appendix 1 for the list of agencies involved).

The whole-of-Government strategies and activities included in this workforce plan have been grouped into three themes – *right time, right place and right skills*. These themes acknowledge the need for a degree of agency interpretation in the implementation of the plan to reflect differences in agency size, function and existing agency-level workforce planning activities.

It is anticipated that the strategies and activities contained in the workforce plan will be periodically reviewed and evaluated.

Implementation

The workforce plan applies to all APS and Financial management and Accountability Act (FMA Act) agencies, as well as those Commonwealth Authorities and Companies Act (CAC Act) agencies which engage employees under the *Public Service Act 1999*, i.e. those agencies that could reasonably be expected to have similar ICT environments and workforce capacity and capability issues, and require similar strategies to address these issues.

These agencies are individually responsible for implementing the strategies as outlined in this workforce plan and will be required to report their progress, on an annual basis, to the Secretaries' ICT Governance Board through the APSC and AGIMO.

Project governance

The Secretaries' ICT Governance Board (SIGB) drives the Government's ICT Reform Agenda, and is the approval body for the workforce plan.

The following diagram illustrates how the SIGB agenda is informed and supported by a comprehensive network of APS senior leadership executives, including the Chief Information Officers' Committee (CIOC), the Business Process Transformation Committee (BPTC), and the Chief Information Officers' Forum (CIOF). These high-level APS committees are, in turn, supported by the cross-agency ICT skills project team (AGIMO and APSC) in consultation with the APS workforce reference group and external (industry) stakeholders.

Figure 2: Whole-of-Government ICT Strategic Workforce Plan governance structure
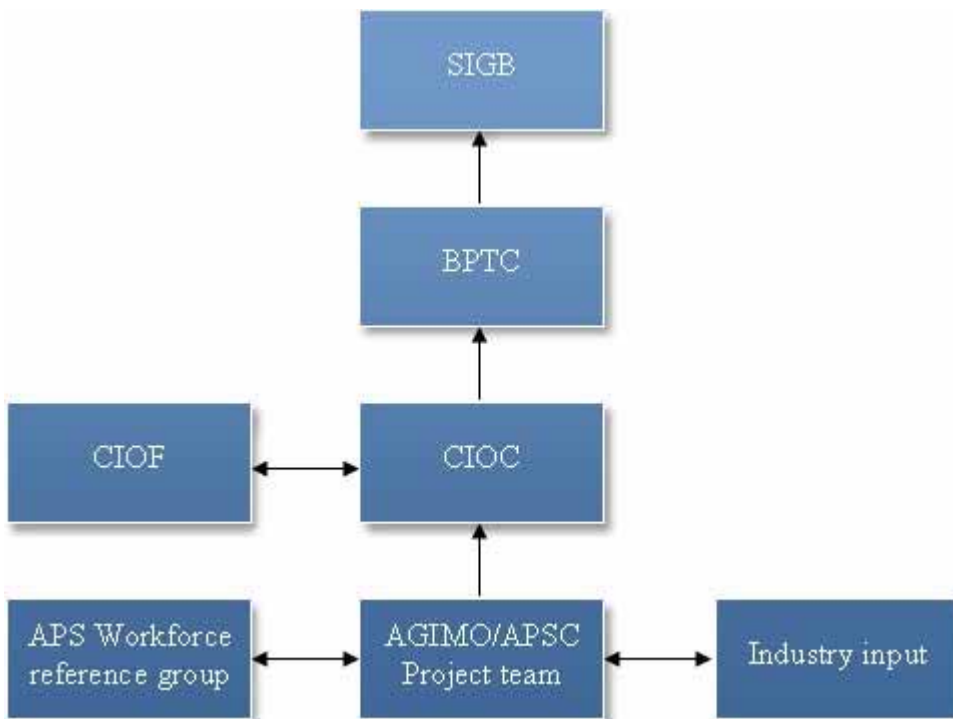
The following table outlines the key stakeholders and their relationship to the workforce plan development process:

Stakeholder	Relationship to project
Secretaries' ICT Governance Board (SIGB)	Approval body – providing the final endorsement
Business Process Transformation Committee (BPTC)	Endorsing committee
Chief Information Officers' Committee (CIOC)	Consultative committee en route to BPTC
Chief Information Officers' Forum	Consultative / awareness-raising committee
Cross Jurisdictional Chief Information Officers' Committee	Information exchange
APS workforce reference group	Public service expertise
Industry group • Australian Computer Society • Australian Information Industry Association • Information Technology Contract & Recruitment Association	Industry expertise
APS HR/corporate forums	Public sector expertise

Monitoring and evaluation

SIGB comprises Secretaries and Chief Executives from the Department of the Prime Minister and Cabinet, the Department of Finance and Deregulation, the Department of Human Services, Australian Customs and Border Protection Service, Geoscience Australia, and the Australian Taxation Office. This Board is responsible for evaluating the implementation of recommendations from the Gershon Review.

Under the terms of reference for the APS workforce reference group, the group will transition into an ongoing agency working group to monitor the implementation of this workforce plan and identify the direction and priority of future work.

A primary measure of success of the workforce plan will be the reduction in the total number of ICT contractors across the APS and an increase in the number of skilled APS ICT staff. Other key measures identified in the Gershon Review include visible improvements in the management of the whole-of-Government ICT workforce demonstrated by:

- an ICT workforce with the capability and capacity required to deliver government priorities confirmed through agency business outcomes;

- an ICT workforce which is better positioned to respond quickly to change at both the agency and whole-of-government level;

- a better understanding of what motivates the career decisions of ICT professionals that lead to improved recruitment and retention of ICT employees; and

- improved mobility opportunities for ICT employees, and increased recognition and transfer of ICT skills across the APS.

As agencies are required to submit their ICT workforce plans to the APSC annually for review. The results of these reviews will inform and add value to future whole-of-Government ICT workforce planning and related strategies and activities.

How this workforce plan will be implemented

Key roles and responsibilities

This workforce plan provides a framework to support a consistent approach to implementing whole-of-government and agency-level workforce planning activities, while also providing scope for tailoring by individual agencies. There will be mechanisms put in place to enable continuous feedback so the plan can continue to evolve, building on the knowledge and experience gained in the implementation of this first iteration.

The Gershon Review indicated that any review of the workforce plan should also take place annually, with the strategies subject to 'opt-out' by individual agencies. Key issues should be identified to the SIGB along with advice addressing how these issues should be resolved.[5]

Agencies are required by the SIGB to develop their own ICT workforce plan and to review the plan annually. It is expected that agency-level workforce plans will include:

- an analysis of the agency's current and future operating environment;

- an analysis of the external environment;

- an analysis of the agency's ICT workforce capacity and capability;

- learning and development options;

- future capability requirements including the use of the Portfolio, Programme and Project Management Maturity Model (P3M3) for the assessment of organisational capabilities;

- recruitment and retention strategies;

- targeted intakes for entry-level staff;

- details relating to the implementation of the Tele-working Policy for ICT Staff[6]; and

- details of relevant agency policies relating citizenship requirements.

The APSC will provide advice and guidance to agencies as required in the development of their agency-level plans, and also to review agency plans and report annually to the SIGB. The APSC will use the insight gained from the process to inform future iterations of the whole-of-government ICT strategic workforce plan. These responsibilities for the APSC are outlined in the strategy development section of this workforce plan.

AGIMO also has an ongoing role as detailed in the Gershon Review, with responsibility for some specific activities also outlined in the strategy development section of this workforce plan.

Data collection and analysis

A high-level summary of the research findings undertaken in the development of this workforce plan follows. More detailed data is available in the accompanying statistical bulletins, which can be found in the *Further Resources* section of this document.

Current ICT Environment and Workforce Factors

Australia-wide

The Australian ICT workforce and ICT environment are incredibly dynamic, which means there are many challenges in managing something so large and diverse. Issues such as changing technology, labour market variation and evolving business needs present ongoing human capital challenges.

Although ICT has been identified as a major factor contributing to economic growth and increased productivity in the last 50 years, assessing the supply and demand for specialist ICT labour is difficult. This is due to:

- the fluctuating demand for ICT workers after the dotcom crash (with growth in ICT occupations having been slower than non-ICT occupations in the period 2001 to 2008);

- the increase in offshoring of ICT services to developing countries; and

- the increase in migration, particularly temporary migration, that has somewhat addressed the demand for ICT workers in Australia and contributed to the decline in wage growth in some areas of the ICT sector. For example, the salaries of computer science graduates have decreased relative to other graduate salaries.

The ICT workforce makes up about 3 to 4 per cent of the Australian workforce, with the highest proportion of Australian ICT staff employed in software engineering (25 per cent). Between 2001-2008, the biggest increase in employment was in digital content delivery/publishing, which increased by approximately 8.7 per cent per year.

- The environmental scan identified the following demographics of the Australian ICT workforce:

- the majority of ICT employees are male (80 per cent) and aged between 25-44 years;

- the ICT workforce is generally better qualified than the rest of the workforce – 77 per cent had qualifications compared to 55 per cent among non-ICT employees.

- about two-thirds of Australia's ICT workforce is employed in NSW and Victoria.

Whole-of-Government

According to the APS ICT agency survey, the APS ICT workforce comprised 11,895 employees, or 7.2 per cent of the total APS workforce, at 30 June 2009. The survey also identified some differences in the demographic characteristics of APS ICT employees and those of non-ICT APS employees. These are:

- two-thirds of the ICT workforce is male, compared to 42 per cent of the overall APS workforce;

- the ICT workforce has higher classification levels, with just under two-thirds employed as an EL1 (32 per cent) or APS6 (31 per cent);

- almost three-quarters of the ICT workforce is located in the ACT, compared to 37 per cent of the APS overall.

The age profile of the APS ICT workforce is similar to that of the overall APS workforce with almost one-third of the ICT workforce aged 45–54 years. For those employed in the *strategic leadership, databases* and *information/knowledge management* occupations, the proportion of the workforce aged 50 or more is approaching 30 per cent.

The agency survey also identified that one-in-five ICT employees are working as contractors providing services to the APS or as non-ongoing APS employees. For all APS agencies, the role with the highest proportion of contractors is in the *development and programming* occupations*.*

Attraction and retention factors

To some extent, attraction factors for ICT employees differ from those for APS employees. Key attractions for ICT employees are:

- interests/experience matching their job role/agency (63 per cent);

- technical challenge/complexity of work (47 per cent);

- job security (44 per cent);

- ability to contribute to making a difference (37 per cent); and

- desire to gain experience in a different working environment (35 per cent).

The ICT employee survey found in the three years to 2012, 55 per cent of ICT employees intend to continue to work in an ICT role within their current agency. Only 6 per cent of ICT employees intend to leave their agency to work for a private sector organisation. Other findings include:

- employees working in large agencies are more likely to indicate they will continue to work in their current agency in an ICT role. Conversely employees in small agencies are more likely to indicate they intend to seek an ICT role in another APS agency.

- two key reasons that employees intend to leave the APS are the lack of future career opportunities in their agency (34 per cent) and better remuneration (32 per cent).

Job satisfaction and employee engagement

A range of factors are important to ICT employees' job satisfaction. The four most commonly selected factors are:

1. good working relationships (43 per cent);

2. opportunities to utilise their skills and capabilities (39 per cent);

3. good manager (35 per cent); and

4. opportunities to develop their skills and capabilities (34 per cent).

Around two-thirds of ICT employees were satisfied with their job, with the most important factors being:

- access to flexible working arrangements (87 per cent);

- good working relationships (83 per cent); and

- an appropriate level of autonomy in my role (79 per cent).

ICT employees are more positive about statements about employee engagement within the APS, than they are about their agency:

- 80 per cent of employees would recommend the APS as a good place to work;

- just over 70 per cent of employees are proud to tell others they work for the APS;

- 60 per cent of employees agreed that the APS offers good opportunities for someone to develop their ICT career.

The majority of employees, who had worked for a non-APS employer prior to joining the APS, believe that the APS is a better employer. Around six in ten ICT employees felt the APS is a better employer than their previous non-APS employer, and one in ten thought the APS was worse.

Future ICT Environment and Workforce Factors

Demand for ICT work Australia-wide

Research suggests that major ICT projects such as the proposed National Broadband Network, the increasing use of Web2.0, continuing implementation of Gershon recommendations, and other budget measures are likely to generate significant future demand and competition for ICT staff.

The environmental scan predicts that employment in ICT occupations is forecast to increase at about 3 per cent a year, compared to less than one per cent in all other occupations. As a result, an additional 53,000 people are expected to be employed in ICT occupations in 2014 than in 2009. Total employment in ICT occupations is forecast to be 368,000 in 2014, with strong employment growth forecast in the *procurement/management*, *client support*, *education*, *security* and *software engineering* ICT occupations.

The forecasts of employment in ICT occupations are based on the MONASH model (see Appendix 2), that incorporates Access Economics' five-year macro outlook of the economy, as of March 2009. Its forecast of qualifications required for those employed in the field of ICT incorporates recent trends in the deepening of skills and the relatively higher growth in the number of people with qualifications in the labour force, particularly among the employed population.

Demand for ICT work - whole-of-government

According to the APS ICT agency survey, for the three years to 30 June 2012, the expected extent of capability improvements for each job role is generally up across all agencies, with most of the increase occurring as a combination of the increased capabilities of the current ICT workforce and the recruitment of new employees.

Supply of ICT Skills Australia-wide

The majority of qualified ICT and engineering staff will continue to be sourced from publicly funded universities and vocational education and training institutes, with the remainder sourced from qualified migrants to Australia. Net overseas migration in 2007 was about 232,800 people. Of these 3,720 were estimated to be computer professionals and 660 were engineers.

During 2001–2007 the share of post graduate ICT enrolments increased significantly, with the majority represented by non-resident students (69 per cent in IT and 57 per cent in engineering).

There are a number of challenges to meeting the projected growth in ICT-qualified staff including:

- the reduction in course enrolments (51 per cent decline in ICT and a 41 per cent decline in engineering between 2001 to 2007);

- the decline in course completions (at the diploma/certificate level, 18 per cent and 11 per cent in engineering); and

- not all ICT graduates are employed in an ICT role (only half of the 60 per cent of graduates employed four months after graduation were in an ICT occupation).

Key findings

- Strong growth for the Australian ICT workforce is in *procurement/management*, *client support*, *education*, *security* and *software engineering* occupations.

- The ICT workforce is a highly qualified workforce with skills deepening expected, especially among the employed population.

- The APS ICT workforce is ageing, particularly in the occupations of *strategic leadership, information/knowledge management* and *databases*.

- The APS ICT workforce has a high representation in the ACT, increasing the competition between agencies for skilled ICT employees.

- Across all APS agencies *development and programming* has the highest proportion of contractors**.**

- *Technical challenge/complexity of work* is the key attractor for APS ICT employees, particularly for the more technical ICT roles, including *development and programming*, *networks and telecommunications* and *infrastructure and facilities*.

- Opportunities *to use and develop skills and capabilities* and *work for a good manager* were factors likely to be nominated by APS ICT employees as the most important factors that impact on their job satisfaction.

- Employees are more positive about ICT opportunities in the APS than they are about their agency. This highlights the importance of a common APS brand/identity to be used in attracting and retaining the ICT workforce.

Gap Identification

Working within the parameters of the data collected for this whole-of-Government ICT Workforce Plan; across all job roles and APS agencies, the expected growth in the 12 months to 30 June 2010 is 179 employees (headcount) or 1.5 per cent of the size of the workforce as at 30 June 2009.

Growth of 229 employees (headcount) or 1.9 per cent of the 30 June 2009 APS workforce is expected for the three years to 30 June 2012.

According to the APS Employment Database (APSED) the 2008-09 APS separation rate for ongoing employees was 7 per cent. This equates to a loss of 757 employees in 2009 or 2,115 employees in the three years to 2012, when applied to the APS ICT workforce.

This means that APS agencies will need to recruit a total of 936 new and replacement ICT employees during 2009-10 and 2,344 by the end of 2011-2012.

Strategy development

The data collected and analysis undertaken for this workforce plan points to an ICT labour market that, subject to short-term economic cycles, will be characterised by long-term skill shortages as a result of numerous factors such as demographic change, technology and graduate supply. The key challenges this presents are outlined below under three themes: *right time*, *right place* and *right skills.*

A range of mitigation strategies and specific activities, including responsibilities and timeframes, have been identified to address these key challenges. While most of the activities are core to achieving each strategy, it is recognised that some whole-of-government activities, such as, *development of an employment brand* (2.1.1), *recruitment campaign* (2.1.3), *mobility strategy* (2.2.1) and *ICT induction training* (3.3.2), are subject to further funding provisions and/or potentially impacted by the Blueprint for APS Reform, leading to the need for a flexible approach to implementation.

The key priorities in achieving the outcomes of this workforce plan are:

- improving agency workforce planning capability to identify and manage the expected capability improvements for critical ICT job roles;

- improving the use of attraction and retention measures to better target ICT employees and increase diversity i.e. to attract and retain more women, Indigenous Australians and people with disability in the ICT workforce; and

- reducing the gap between the supply and demand of skilled ICT employees through targeted recruitment campaigns and specific capability development that see ICT roles filled more by APS staff and less through contractors.

Right time – planning for the future

A major challenge for APS agencies will be balancing supply and demand to ensure they have a dynamic, flexible and effective ICT workforce for the future.

The expected continued growth in the need for skilled ICT employees will be driven, in part, by projects such as the National Broadband Network rollout, the emerging trend for citizens to deal with government online, and the reduction in contractor numbers.

In addition, the APS will continue to compete with other public and private sector employers for the brightest and best ICT professionals. All of this will occur in an environment characterised by an ageing workforce, and technology that will continue to emerge and evolve at an increasing tempo.

Strategy 1.1: Develop links between the APS and tertiary and vocational training sectors to ensure a supply of entry-level staff with the right skills

Key activities	Accountability	Timeframes
1.1.1 Develop links between relevant tertiary institutions and whole-of-government ICT entry-level programs (e.g. graduate and cadetship programs).	AGIMO	December 2010
1.1.2 Explore links with the Australian Computer Society professional year program.	APSC	Ongoing

Strategy 1.2: Facilitate whole-of-government ICT workforce planning

Key activities	Accountability	Timeframes
1.2.1 Provide advice and support to agencies in developing their agency-specific ICT workforce plans including the provision of templates and guidelines where necessary.	APSC	Ongoing
1.2.2 Update agency and employee ICT data through existing survey mechanisms, such as the APSC's State of the Service Report agency and employee surveys, and AGIMO's benchmarking survey, to enable ongoing tracking of the APS ICT workforce and reporting in future iterations of the whole-of-government ICT Workforce Plan.	APSC	Annually
1.2.3 Access DEEWR's ICT annual environmental scan and communicate to agencies. Incorporate findings in future iterations of the whole-of-government ICT Workforce Plan.	APSC	Annually
1.2.4 Review the whole-of-government ICT Workforce Plan and produce future iterations, as required.	APSC	Annually
1.2.5 Investigate, through relevant agencies (e.g. DEEWR, Finance etc.) the feasibility of a whole-of-government ICT classification model and associated remuneration options.	APSC	December 2010

Strategy 1.3: Build agency workforce planning capability to enable all agencies to implement an ICT workforce plan

Key activities	Accountability	Timeframes
1.3.1. Agencies to develop annual ICT workforce plans taking into account factors including their size, ICT workforce and corporate workforce planning.	Agencies	2010/11 agency plans by December 2010.
1.3.2 Track and review agency progress in developing ICT workforce plans, and provide report to SIGB by September each year.	APSC	Ongoing
1.3.3 Facilitate knowledge sharing and peer review of agency plans by using existing Commission agency forums and support for an ICT workforce planning community of practice.	APSC	Ongoing
1.3.4 Review agency ICT workforce plans.	APSC	Annually

Right place – creating an agile and mobile workforce

For several years, the APS has faced attraction and retention challenges for its ICT workforce. This is due, in part, to a lack of a clear career structure and mobility opportunities, lengthy and complicated recruitment processes, and issues with remuneration and other conditions of employment.

In 2005, the Government convened an ICT skills and professional development taskforce to address attraction and retention issues for APS ICT professionals. Several recommendations from the taskforce report have been implemented and resulted in the establishment of partnerships with the education sector, new mentoring and entry-level recruitment programs, and the promotion of agency ICT workforce planning.

The challenges are:

- to position the APS so it is viewed as a desirable career choice for ICT professionals - one they can join without excessive complication and which provides a career structure that allows flexibility in meeting the needs of the different stages of the employee's life cycle; and

- to enhance the diversity of the ICT workforce to reflect the diversity of the wider Australian community by attracting and retaining more women, Indigenous Australians, and people with disability to an ICT career in the APS.

Strategy 2.1: Improve approaches to the recruitment, retention and engagement of ICT employees

Key activities	Accountability	Timeframes
2.1.1 Reflect agency and employee survey results in agency policies (e.g. attraction and retention factors for ICT employees) and provide whole-of-government policy options for agencies to attract and retain diverse staff.	Agencies	December 2010
	APSC	September 2010
2.1.2 Develop a whole-of-government ICT employment brand and value proposition.	APSC	June 2011
2.1.3 Develop a whole-of-government recruitment campaign for critical ICT capabilities.	APSC	June 2011
2.1.4 Establish intake targets for agencies for: Ongoing ICT entry-level programs (including school-based apprenticeships, apprenticeships, cadetships); and Professional skills development programs (including graduate, post graduate programs and up-skilling existing employees).	AGIMO	June 2010 January 2012 intakes June 2012 intakes
2.1.5 Expand existing mentoring programs to incorporate ICT leadership and management development components.	AGIMO	January 2012
2.1.6 Establish APS ICT professional skills development programs (including employee up-skilling/qualification/accreditation attainment programs.	AGIMO	January 2012
2.1.7 Establish a whole-of-government ICT alumni program	AGIMO	January 2011

Strategy 2.2: Improve the mobility of the APS ICT workforce

Key activities	Accountability	Timeframes
2.2.1 Develop an ICT workforce mobility strategy.	APSC	December 2011
2.2.2 Develop an ICT tele-working policy as part of agency workforce plans, including an assessment of demand for the use of telecentres.	Agencies	December 2010
2.2.3 Agencies are to update the mapping of their ICT workforce to the whole-of-government ICT Capability Framework (initial mapping was completed by agencies in response to the ICT Workforce Capability & Assessment Agency Survey).	Agencies	October 2010

Right skills – building capacity and capability

It is important that, at both the whole-of-government and agency levels, there is commitment to the development of the capabilities of APS ICT staff. This commitment includes the identification of critical ICT job roles and capabilities, and implementation of succession management strategies to ensure the APS has the required ICT workforce to deliver future government priorities.

This commitment also includes being aware of potential capability and capacity shortages and developing appropriate strategies to address these challenges.

Strategy 3.1: Build on current workforce data to identify and address potential organisational capability gaps and priorities

Key activities	Accountability	Timeframes
3.1.1 Assess current APS ICT staff capability in relation to the ICT Capability Framework, utilising the agency's existing performance management process, and include findings in agency's workforce plans.	Agencies	December 2010
3.1.2 Determine future ICT capabilities required to deliver government priorities against the ICT Capability Framework.	Agencies	Annually
	APSC- whole-of-government perspective	Annually
3.1.3 Develop recruitment or re-training strategies (including contractors and other sourcing arrangement) to address capability gaps.	Agencies	June 2011
3.1.4 Develop learning and development strategies to address capability gaps.	Agencies	June 2011
3.1.5 Investigate the need for further leadership and management development programs that may be required in addition to those offered through AGIMO to fully address the leadership capability gaps in ICT staff.	APSC – whole-of-government perspective	June 2011

Strategy 3.2: Prioritise learning and development of ICT employees

Key activities	Accountability	Timeframes
3.2.1 Identify learning and development priorities.	Agencies	March 2011
3.2.2 Coordinate delivery of required learning and development programs	Agencies	Ongoing
3.2.3 Evaluate and report on effectiveness of learning and development provided	Agencies	Annually

Strategy 3.3: Identify and/or develop relevant learning and development programs

Key activities	Accountability	Timeframes
3.3.1 Scan the environment and map professionally recognised learning and development options to the ICT Capability Framework	APSC	Initial mapping to be released through the ICT Career Structure online tool, *Career Navigator*, in April 2010. Ongoing thereafter
3.3.2 Develop and provide whole-of-government ICT induction training.	APSC	October 2011

Summary of strategies

Right time– *planning for the future*	Right place– *creating an agile and mobile workforce*	Right skills- *building capacity and capability*
1.1 Develop links between the APS and tertiary and vocational training sectors to ensure a supply of entry-level staff with the right skills	2.1 Improve approaches to the recruitment, retention and engagement of ICT employees	3.1 Build on current workforce data to identify and address potential organisational capability gaps and priorities
1.2 Facilitate whole-of-government ICT workforce planning	2.2 Improve the mobility of the APS ICT workforce	3.2 Prioritise learning and development of ICT employees
1.3 Build agency workforce planning capability to enable all agencies to implement an ICT workforce plan		3.3 Identify and/or develop relevant learning and development programs

Activity timeline for 2010

	By June 2010	By September 2010	By October 2010	By December 2010	Annually
AGIMO	Establish intake targets for agencies **(2.1.4)**			Develop links between relevant tertiary institutions and whole-of-government ICT entry level programs **(1.1.1)**	Update agency and employee ICT data through existing survey mechanisms **(APSC 1.2.2)**
Agencies			Update mapping of ICT workforce to the ICT Capability Framework **(2.2.3)**	Develop ICT workforce plan for 2010–2011 **(1.3.1)** Reflect agency and employee survey results in agency policies **(2.1.1)** Develop an ICT tele-working policy **(2.2.2)** Assess current APS ICT staff capability against the ICT Capability Framework **(3.1.1)**	Access DEEWR's ICT annual environmental scan and communicate to agencies **(APSC 1.2.3)** Review the whole-of-government ICT Workforce Plan and produce future iterations as required **(APSC 1.2.4)** Review agency ICT workforce plans **(APSC 1.3.4)**
APSC		Provide whole-of-government policy options for agencies to attract and retain diverse staff **(2.1.1)**		Investigate through relevant agencies the feasibility of a whole-of-government ICT classification model and associated remuneration options **(1.2.5)**	Determine future ICT capabilities required to deliver government priorities against the ICT Capability Framework **(APSC & Agencies 3.1.2)** Evaluate and report on effectiveness of learning and development provided **(Agencies 3.2.3)**
APSC ongoing	Explore links with the Australian Computer Society professional year program **(1.1.2)**	Provide advice and support to agencies in developing their agency-specific ICT workforce plans, including templates & guidelines where necessary **(1.2.1)**	Track and review agency progress in developing ICT workforce plans and report to SIGB **(1.3.2)**	Facilitate knowledge sharing and peer review of agency plans **(1.3.3)**	Scan the environment and map professionally recognised learning & development options to the ICT Capability Framework **(3.3.1)**

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Centrelink

Australian Computer Society **http://www.acs.org.au/**

Gartner Incorporated **http://www.gartner.com/technology/home.jsp**

Skills Framework for the Information Age (SFIA) Foundation **http://www.sfia.org.uk/**

Further resources

This document is supported by the following four supplementary publications, which are available via the APSC website :

- **2009 ICT statistical bulletin**

- **Right time –** *planning for the future*

- **Right place –** *creating an agile and mobile workforce*

- **Right skills –** *building capacity and capability*

For agencies, these additional resources are available through the Australian Public Service Commission:

- 2009 Environmental Scan

- Agency Survey report

- Employee Survey report

- Whole-of-Government ICT Capability Framework

Email **ictskills@apsc.gov.au**

Contacts

Australian Public Service Commission, Aviation House, 16 Furzer Street PHILLIP ACT 2606 Switch (02) 6202 3500

Australian Government Information Management Office, Minter Ellison Building, 25 National Circuit, FORREST ACT 2603 Switch (02) 6215 2222 Website: **www.finance.gov.au/agimo/**

Appendix 1: List of agencies involved in consultation and development

The following list of agencies were involved in the consultation and development of the whole-of-government ICT strategic workforce plan.

Attorney-General's Department

AusAID

Austrade

Australian Bureau of Statistics

Australian Competition & Consumer Commission

Australian Customs and Boarder Protection Service

Australian Electoral Commission

Australian Government Information Management Office

Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS)

Australian National Audit Office

Australian National Maritime Museum

Australian Public Service Commission

Australian Sports Anti-Doping Authority

Australian Taxation Office

Australian Transaction Reports & Analysis Centre

Civil Aviation Safety Authority

Centrelink

Comcare

Commonwealth Grants Commission

Commonwealth Ombudsman

CrimTrac

CRS Australia

Defence

Defence Housing Authority

Department of Broadband, Communications and the Digital Economy

Department of Climate Change

Department of Education, Employment and Workplace Relations

Department of Families, Housing, Community Services and Indigenous Affairs

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 Infrastructure, Transport, Regional Development and Local Government

Department of Innovation, Industry, Science and Research

Department of the Prime Minister and Cabinet

Department of Veterans' Affairs

Geoscience Australia

Insolvency and Trustee Service Australia

IP Australia

Medicare Australia

National Archives of Australia

National Blood Authority

National Film and Sound Archive

National Health & Medical Research Council

Office of National Assessments

Office of Parliamentary Services

Professional Services Review

Royal Australian Mint

The Treasury

Appendix 2: Environmental Scan Methodology

MONASH model for forecasting employment

MONASH is a computational general equilibrium model for forecasting employment by occupation (Adams et al. (1994; Dixon and Rimmer (1996; Meagher (1997; Dixon and Rimmer (2000). It is maintained by the Centre of Policy Studies (CoPS), Monash University. An intuitive description of the model is contained in Appendix O in Industry Commission (1997).

In brief, the MONASH model is a sequence of single-period models, linked through time by the behaviour of capital and labour markets. It has three main elements—a database, theory and parameters—that are embodied in the model's system of equations. These equations describe how industries and consumers respond to changes in policy. The core of the database is a large input-output matrix, which shows how each sector of the economy is linked to other sectors. These linkages are only for a particular point in time. Behaviour responses of different groups to policy changes are based on economic theory.

The model specifies likely responses of producers, consumers, foreigners and investors to policy changes. It also includes a government sector, the revenue and expenditure behaviour of which is modelled separately. While theory guides the model's broad assumptions (which can be altered to accommodate different scenarios), actual numerical parameters are required to estimate the size of the responses. In MONASH, these parameters are derived either from the input-output database or from other external sources.

MONASH converts the forecast for aggregate output to forecasts for output by industry. These are then converted to forecasts of employment by industry, which in turn are converted to employment by occupation. MONASH uses the Access Economics' macro forecasts of output by industry as an input.

Appendix 3: Whole-of-Government survey methodology

ICT Workforce Capability & Assessment: Agency Survey

The survey covered all APS and Financial Management and Accountability (FMA) Act agencies, as well as those Commonwealth Authorities and Companies (CAC) Act agencies which engage employees under the Public Service Act.

Throughout the survey (and therefore this report), references to 'agency' employees refer to employees engaged by and belonging to the APS, FMA and CAC agencies covered in this survey. It does not include contractors used by these agencies.

The survey was conducted online between 24 August 2009 and 13 October 2009. Agency contacts were given access to a password protected online survey portal, which included background information on the ICT strategic workforce plan and career pathway.

Responses were provided by 101 agencies. For reporting purposes, these agencies were divided into three groups based on the reported size of their ICT workforce:

- Small Agencies (n=55) – < 20 ICT employees
- Medium Agencies (n=22) – 20–99 ICT employees
- Large Agencies (n=24) – 100+ ICT employees

ICT Workforce Capability & Assessment: Employee Survey

ICT employees working in all Australian Public Service (APS) and Financial Management and Accountability (FMA) Act agencies, as well as Commonwealth Authorities and Companies (CAC) Act agencies which employ staff under the Public Service Act were in scope for the survey. From here in, these employees are described as APS employees.

Agencies were asked to provide a list of their ICT staff to ORIMA Research so they could be invited to participate in the survey. There were 12,050 ICT employees nominated by their agency to participate in the survey, of which 6,691 employees responded. This represents a response rate of 56 per cent.

The survey was conducted online and at the start of the field work period. All nominated ICT employees in the APS were sent an invitation email containing the survey link and a unique password.

The fieldwork period commenced on 7 July 2009 and concluded on 18 August 2009.

[1] ANAO 2001, *Planning for the workforce of the Future: A Better Practice guide for Managers.* 2005, *Workforce Planning,* Performance Audit Report No. 55, 2004-2005. Commonwealth of Australia. <**http://www.anao.gov.au**>

[2] Management Advisory Committee 2003, *Organisational Renewal*, 2004 *Connecting Government*, 2005 *Managing and Sustaining The APS Workforce*, Commonwealth of Australia, <http://www.apsc.gov.au/mac>

[3] Gershon P (2008) *Review of the Australian Government's use of Information and Communication Technology*, Recommendation 5.4.2.**http://www.finance.gov.au/publications/ICT-Review/**

[4] Australian Public Service Commission 2005, *Building business capability through workforce planning,* Commonwealth of Australia.

[5] AGIMO administers the process of opt-outs from whole-of-government ICT arrangements. Details can be found at: **http://www.finance.gov.au/e-government/strategy-and-governance/docs/Process_for_administration_of_opt.pdf**

[6] The Tele-working Policy for ICT Staff was a Gerhson Review recommendation (5.4.6). Details can be found at: **http://www.finance.gov.au/e-government/strategy-and-governance/docs/Tele-working_Policy_for_ICT_Staff.pdf**