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Managing Statistical Development and Information Technology for National Statistical Offices

Country Paper: Australia

1 As citizens and organisations adopt new technology, the Australian Bureau of Statistics faces new opportunities and challenges. Many people, businesses and institutions are increasing their use and reliance on mobile devices and the Internet, and are changing their expectations of how they wish to deal with organisations such as the ABS.

2 The strategic drivers for use of ICT in the ABS are to:

- Provide reliable, value for money, ICT services and infrastructure to support ABS business
- Deliver new systems to meet the objectives of the Population Census, Household and Business surveys
- Support statistical leadership initiatives
- Utilise technologies both within the ABS and externally to enable statistical software and services to be readily shared with other agencies
- Enhance ABS capacity to respond to new demand
- Support increased access to statistics
- Ensure the security of sensitive data and statistics
- Enhance productivity by fostering effective use of the ICT environment
- Support innovative and productive ways of working
- Maintain security vigilance for the ABS and its environment.

3 Our strategies include:

- evolving the ICT environment and ICT services to enhance productivity, innovation, collaboration with others and job satisfaction
- continuing to enhance professional practice to maximise the success of ABS endeavours (this includes capital planning, enterprise portfolio management, technology research, business case development, project management, business process improvement, systems development, and enterprise architecture)
- developing and maintaining an effective technology research portfolio and strategic capital plan for the technology we are likely to need
- ensuring effective collaboration with other organisations on technical matters, to leverage what others have done, contribute ABS expertise and increase opportunities to share business processes, particularly those related to statistical leadership.

4 Technology expertise and assets are vital tools in supporting the ABS position in the national statistical system and upholding our reputation. The paper “Managing Information and Communications Technology” (Trewin 2007) provides a framework of approaches and issues related to managing ICT for National Statistical Offices, and draws on ABS experience. This paper focuses on the following related aspects:

- Determining priorities and the use of internal charging
- Close association between the ICT organisation and the NSO
- Enterprise Architecture
- ABS and Government ICT Strategy.

Determining priorities and use of internal charging

5 ABS has a strategic ICT committee, the Information Resource Management Committee which consider matters of strategic significance concerning data management, information

management and major applications of information and communication technology. These might include, for example, future data management strategies, document management standards, the ICT Budget, the corporate information technology plans, and strategy/management review documents relating to significant projects. The members of the committee are the heads of each Division and Group of the ABS and a representative of the regional offices.

6 Decisions about priority of ICT infrastructure development are taken by the Information Resource Management Committee. The committee considers the business case for significant infrastructure projects (for example replacement of the phone system) in the context of overall ABS priorities.

7 The ABS Corporate Planning cycle includes planning for ICT related work. ABS Divisions and Groups propose priorities for business projects. The Statistician and the senior executives decide which projects have the highest priority and will proceed. Estimates of the cost of projects include salaries for staff (not including ICT staff), administrative costs (travel, printing, postage etc), charges for ICT staff required (e.g. analysts, programmers) and charges for ICT usage (such as disk storage, software, personal computers, phone charges). Each Division and Group has a Technology Account Manager who advises on the technology related aspects of projects and the planned overall technology usage. The Account Managers work with their Divisions or Group to prepare a work program for technology activities and estimates of required ICT infrastructure. A list of available ICT resources with proposed prices is used. To do this effectively, the Account Managers need a good understanding of the business and priorities of their client division, an appreciation of ICT issues and directions and strong communication and planning skills.

8 For example, a particular project may need:

ICT staff	
senior analyst	0.5 staff years
programmer	3.0 staff years

As good practice, projects are encouraged to estimate the requirement for subject matter staff at the same time.

Project staff	
Project Manager	1.0 staff years
Subject matter experts	9.0 staff years
Methodology expert	1.0 staff years

ICT equipment and usage	
Personal Computers (leased)	12
Notebook Computers (leased)	3
UNIX CPU processing	10,000 minutes
disk space	20,000 megabytes
printing	7,000 pages
Internet charges	2000 megabytes
telephone handsets	15
telephone call charges	2000 calls

9 The ICT requirements for each project are aggregated into a total for the division and the division's management rationalises and assigns priorities to the projects with the assistance of the Account Manager. Usually more ICT resource is requested than the available funding. Management has to make explicit decisions about which work will be done and which will not.

10 When the requirements for all divisions are known, the ICT organisation estimates the cost of providing for the total requirement across the ABS. For example, if there is a significant rise in the demand for disk storage, new disks may need to be purchased. If a particular project requires new software, the cost of purchasing the software needs to be factored into the budget. The total number of ICT staff required is compared to the current number and ICT staff recruitment plans are

adjusted (up or down). If required the budget and prices are adjusted.

11 The total budget and work program is presented to the ICT strategic committee, including a list of the projects which will not be done. The committee assess whether the organisation's needs will be met and whether the priorities are correct. Guidance is provided to the ICT division on any further adjustments required.

12 Once the work program and budget are agreed and work commences, each project uses ICT staff or ICT resources and are automatically billed for the resource.

13 The use of internal charging for ICT resources has a number of advantages. The process is not a commercial arrangement but it does encourage all parties to use ICT responsibly. It leads to a good understanding of the cost of ICT related activities and gives each area of the organisation more responsibility and authority for managing their ICT requirements. It also leads to well informed decisions about alternative ICT approaches.

Close association between the ICT organisation and the NSO

14 The Technology Account Managers play a vital role in preserving a close association between the ICT organisation and the NSO. They need to provide advice about the technology opportunities and enablers that match the business needs and they need to advise the ICT organisation about strategic directions of the business, and any emerging issues with technology services and approaches. By selectively involving themselves in key projects, they also help to keep ICT on track. Effective account managers build trust relationship with the senior executive clients.

15 The ABS uses a project management framework for providing a consistent method of project management. The framework provides practical information, examples, templates and approaches for managing projects. The framework encourages project managers and project boards to concentrate on achieving outcomes from projects rather than delivering outputs. For example, delivery of an ICT system is generally only one of the outputs required to achieve an outcome such as reduced cost and time for producing survey results. Other required outputs may be an education and communication plan and delivery of associated training. ABS projects are almost always owned by the business area which has most to gain from the project. The project management framework suggests that a project board is formed, with members from across the organisation. Most project boards would be chaired by an executive from the area which owns the project and would have members from other involved areas, including ABS Methodology Division and ICT. The role of the board is to assist the project to secure the outcomes required. The board needs to be assured that measures are in place to address issues and risks.

16 For significant projects, the ABS generally forms multidisciplinary teams. The team is co-located (if possible), operates with a single project plan (not a business plan separated from an ICT plan), uses team estimating (getting all members of the team to input estimates for all tasks), uses one mechanism for priority setting, holds regular whole team meetings, and is encouraged to have joint recognition and reward. This approach encourages collaborative behaviour from all team members, including ICT staff. The ICT division retains responsibility for the professional development and service delivery of ICT staff.

Enterprise Architecture

17 Another important approach to ensure close collaboration between ICT and the rest of the business is the development and use of an enterprise architecture. The aim of the ABS Enterprise Architecture is to provide a target framework for constructing systems and solutions which meet business requirements, and to provide an ICT environment that can evolve but remain coherent as business needs and technology evolve. The ABS Enterprise Architecture is intended not just to influence ICT staff but also to guide business managers and ABS management when they are making decisions about developments and redevelopments of systems.

18 The architecture aims to give planners, analysts, designers, developers, and maintainers the basis for sensible decisions and choices. It is intended to be an active, maintained framework that will remain current over time and is promoted across the ABS.

19 The ABS Enterprise Architecture is integrated into our governance processes for ICT systems and has a significant positive impact on the type, quality, cost, and number of systems we build. It includes the concept of a "Business Process Taxonomy", that classifies business areas according to the nature of their processing requirements. This is a key tool in encouraging the use of common systems for common processes.

20 The objectives and principles of the architecture are to:

a Position the ABS for the future, underpin ABS Corporate Plan strategies, and support ABS efforts to improve structures, processes and productivity

b Provide a framework for more integrated business systems, emphasising common systems for common processes, keeping unique systems to a minimum, and ultimately leading to a significant reduction in the number of systems

c Promote and support a culture of "assemble and integrate" rather than "build from scratch" for business systems

d Identify and exploit commercial and open source applications and tool set solutions wherever possible and avoid 'rolling our own' particularly in areas that are maturing and changing and in which home-grown solutions are likely to be obsolete before they can be completed.

e Follow mainstream standards and technologies that fit well into our ICT environment

f Exploit and extract value from business and ICT infrastructure, updating key components where necessary to ensure they fit into this framework

g Provide a tool set that fits well into this environment, is suitable for general use, and encourages the development of low-complexity, maintainable solutions

h Collaborate and partner with the other organisations and the IT industry where effective to do so.

21 Projects which are likely to need a new ICT solution are required to present their case to an Architecture Panel early in the project. The architecture panel has members from the project team, from the Methodology Division, and from different ICT disciplines (for example database experts, analyst programmers, project managers, networking specialists and change management experts). The panel considers the requirements and advises on the best technical approach to meet the project needs within the ABS Enterprise Architecture. Where extensions to the Enterprise Architecture are required, the ICT division takes on the role of ensuring plans are made to implement the extensions.

ABS and Government ICT Strategy

23 Government agencies in Australia are increasingly collaborating to share expertise, approaches, business processes and enabling technology. The cost and complexity of technology, the need to engage consistently and efficiently with citizens and business, the ICT skills shortage, and international directions are driving these collaborations. The Australian Government Information Management Office (AGIMO) is responsible for encouraging coherent policy across government in relation to ICT and works to make Australia a leader in the productive application of ICT to government administration and services. AGIMO has been active in the development of useful frameworks, architectures and processes for ICT. For example, they have developed a ICT investment Framework, an Australian Government Architecture and an E-Government strategy. Their website is www.agimo.gov.au.

24 The ABS is an active participant in sharing best practice within the Australian Government. For example, we are members of the Government committees such as the Business Process Transformation Committee, the CIO Committee and the Commonwealth Government Architecture Forum. The 2006 eCensus was used as a case study for better practice. (see http://www.agimo.gov.au/practice/delivery/events/2006/e-census) and won the 2007 Australian Government e-award for Excellence in e-Government.

25 One area which has been recognised as a significant issue by AGIMO and by government agencies is a shortage of skilled ICT staff. There is strong investment in ICT across government and competition for these resources is growing. At the same time, the number of students choosing ICT as a career has been falling. The ABS currently has a strong ICT workforce but the shortage of skilled ICT staff in Australia needs continuing attention.

26 The increasing requirement to interact with others is leading us to new approaches in providing the ICT systems and infrastructure needed to support statistical activities in Australia. This includes collaborating with others on the development of statistical infrastructure to support a National Statistical System.

27 In summary, although there are challenges ahead, the ABS is well placed to identify and benefit from developments in ICT and from increasing use of ICT by citizens, governments and organisations.