





**International Telecommunication Union**

# **AUSTRALIA ICT DATA COLLECTION CASE STUDY**

**July 2005**



This report was written by Vanessa Gray, Telecom/ICT Analyst in the Telecommunication Development Bureau's Market, Economics and Finance Unit of the International Telecommunication Union (ITU). Formatting and cover design were handled by Nathalie Rollet. The report is based on field research carried out between 27-30 July, 2004, as well as articles and reports noted in the document. The assistance of the Department of Communications, Information Technology and the Arts (DCITA) and Christine Schaeffer was indispensable. Equally, the report would not have been possible without the cooperation and assistance of the Australian organizations met (see Annex 5). The author would also like to thank Philippa Biggs and Esperanza Magpantay for their insightful comments.

The Australia ICT Data Collection Case Study is one of the activities of the Digital Bridges Initiative, a project established by the International Telecommunication Union (ITU) and the Korean Agency for Digital Opportunity and Promotion (KADO) of the Republic of Korea to help achieve the internationally agreed goals of WSIS to bridge the digital divide. More information on the ITU's statistical work and the Digital Bridges Initiative are available under: [www.itu.int/ict](http://www.itu.int/ict) and [www.itu.int/digitalbridges](http://www.itu.int/digitalbridges).

The report may not necessarily reflect the opinion of the ITU, its members or the government of Australia.

# CONTENTS

<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. AUSTRALIA IN A NUTSHELL .....</b>	<b>3</b>
2.1 History, politics and economy .....	3
2.2 Human Development .....	4
<b>3. SUPPLY AND DEMAND ICT STATISTICS: AUSTRALIA'S USERS AND PRODUCERS .....</b>	<b>7</b>
3.1 The NSO, the policy-maker and the two regulators .....	8
3.2 Other ICT statistical users and sources .....	12
<b>4. COOPERATION AMONG USERS AND PRODUCERS OF ICT STATISTICS.....</b>	<b>15</b>
4.1 The national statistical office .....	15
4.2 The regulators .....	15
4.3 The challenges of monitoring broadband .....	15
4.4 The ICT Reference Group .....	16
4.5 International cooperation .....	17
<b>5. MEASURING THE INFORMATION SOCIETY .....</b>	<b>19</b>
5.1 Household Use of IT (ABS) .....	19
5.2 Business Use of IT (ABS) .....	21
5.3 Government Use of IT (ABS) .....	24
5.4 ICT in Schools .....	24
5.5 The New Economy & Information Society (ABS) .....	26
5.6 Other ICT-related surveys and statistics by ABS .....	26
<b>6. INTERNATIONAL BENCHMARKING .....</b>	<b>33</b>
<b>7. INFORMATION FOR POLICIES &amp; POLICIES FOR INFORMATION .....</b>	<b>37</b>
<b>8. CONCLUSIONS .....</b>	<b>39</b>
<b>REFERENCES .....</b>	<b>41</b>
<b>ANNEX 1 - ABS Household Use of Information Technology (HUIT) question module used in the 2002 General Social Survey .....</b>	<b>43</b>
<b>ANNEX 2 - ABS Business Use of Information Technology (BUIIT) survey 2004-05.....</b>	<b>63</b>
<b>ANNEX 3 - Core Dimensions of the ABS "Measures of a knowledge-based economy and society" (KBE/S) framework .....</b>	<b>71</b>
<b>ANNEX 4 - Extract from the ABS's 2003/2004 Agricultural Survey on Computer and Internet Usage .....</b>	<b>73</b>
<b>ANNEX 5 - ITU meeting schedule with Australian organisations, July 2004 .....</b>	<b>75</b>



## 1. INTRODUCTION

*“The ‘information economy’ was the term adopted by the Australian Government in 1997 to describe the transformation of economic and social activities by information and communication technologies (ICT). An information economy is one where information, knowledge and education are major inputs to business and social activity. It is not a separate ‘new’ economy—it is an economy in which the rapid development and diffusion of ICT-based innovation is transforming all sectors and all aspects of society.”<sup>1</sup> (Australia’s former Minister for Communications, Information Technology and the Arts, the Honorable Daryl Williams, on 13 July 2004)”.*

As the world moves towards a global information economy and information society, countries are becoming increasingly aware of the central importance of extending access to information and communication technology (ICT) to their populations. With the growing recognition of ICT as an effective tool for social development and economic growth, there are ever-greater incentives for countries to foster higher access levels and to overcome the digital divide, the gap that exists between those *with* and those *without* access to ICT.

Countries’ desire to increase the availability of ICT has highlighted the growing need for reliable, comprehensive and comparable statistical information. This is important on a national level to help countries identify their progress, their strengths and their weaknesses, so as to tackle and finally overcome barriers to wider and better access to Information and Communication Technology. ICT data further helps governments identify targets and adopt policies accordingly.

It is, however, not enough for governments to look inward, at their own developments and progress. International comparisons allow economies to assess

their performance objectively, identify realistic targets and create pressure for improvement. As such, international comparisons and benchmarking are an important key in facilitating the chain “*statistics, knowledge and policy*”.<sup>2</sup> Today, there are a number of challenges in collecting ICT data that make national analysis and international comparisons particularly difficult:

In many countries top policy-makers fail to provide the necessary **policy push**, which is crucial for formalizing and defining an approach to collecting and monitoring ICT developments.

Another major barrier is a low level of **coordination** between different national ICT players. In some cases the role of the newly-established telecommunication regulatory agency is not well enough defined and its competencies and positioning vis-à-vis the ministry in charge of telecommunications may remain ambiguous. A loosely defined sphere of influence can then lead to competition and friction between the two agencies. The lack of cooperation is not limited to these two players, though, nor to newly liberalized markets. Unless governments set up a formal ICT data coordination mechanism or group, they risk the lack and/or overlap of responsibility in the area of ICT monitoring.

Not all countries collect the same ICT statistics. Many concentrate on traditional telecommunication indicators and collect administrative data on fixed telephone lines, and mobile and Internet subscribers. To examine a country’s progress towards becoming

*To appropriately tackle the digital divide, it is crucial to overcome the statistical divide by harmonizing data, monitoring progress and taking an inventory of who has access and who does not.*

an information society this is not sufficient, though. The information society is about how citizens use information and how ICT transforms the way they learn, work, communicate and interact. This highlights the need to find out how, where, and in which way citizens access and use ICT, and particularly the Internet. Internet user surveys - usually carried out by the **National Statistical Office** (NSO) - provide this kind of information. This means that the telecommunication sector alone – the Ministry, the regulator, the operators – is not able to satisfy the information needs required to provide meaningful analysis. Cooperation with players from outside the traditional telecommunication sector, and particularly the statistical office, is crucial.<sup>3</sup>

Research has also shown that the **dissemination** of data and information sharing processes may be inadequate so that available information is not properly exploited. Use of such data may also be restricted if indicators are poorly defined and not internationally comparable.

As part of the activities to produce - and guide national governments in producing - quality ICT data that is internationally comparable, the ITU is studying countries that have been doing a particularly good job in this area.<sup>4</sup> Australia was selected according to preliminary research and based on its

accomplishments in the collection, dissemination and use of ICT statistics, particularly at the individual and household level.

The objective of this study is to present a best practice example of how to measure the availability and use of Information and Communication Technology (ICT). The study will highlight the importance of statistics and surveys in Australia, particularly at the individual and household level. It will look at policies and administrative processes guiding the selection of ICT indicators and surveys and will focus on how and how often data is collected. The study will examine how the Australian Bureau of Statistics (ABS) cooperates and interacts with other government agencies involved in ICT and it will highlight the organizational framework defining the role of the national statistical agency, the regulatory body, and the Ministry in charge of ICT in identifying, collection, harmonizing, and dissemination ICT statistics. This paper will show how statistical and survey data are influencing the decision-making process in Australia and how they are used to formulate and adapt policies. It will examine Australia's experiences regarding the use of national and global ICT statistics and indices for international benchmarking. Ultimately the aim of the study is to help guide other countries in collecting, and disseminating ICT statistics so as to increase the availability of internationally comparable ICT data.

---

<sup>1</sup> Extract from Australia's Strategic Framework for the Information Economy 2004-2006, the government's key information economy policy document addressing new challenges to Australia's position as a leading information economy, at [http://www.dcita.gov.au/\\_data/assets/pdf\\_file/20457/New\\_SFIE\\_July\\_2004\\_final.pdf](http://www.dcita.gov.au/_data/assets/pdf_file/20457/New_SFIE_July_2004_final.pdf) [Accessed 14 July 2005].

<sup>2</sup> This concept is used by The Honourable Donald J. Johnston, Secretary General of the Organization for Economic Cooperation and Development (OECD), in his presentation "Statistics, Knowledge and Policy", made at the OECD World Forum on Key Indicators in Palermo, 12 November 2004.

<sup>3</sup> Particularly since the first phase of the World Summit on the Information Society (WSIS) that took place in Geneva in December 2003 and increased discussion on the information society, the ITU's Market, Economics, and Finance Unit (MEF), which is in charge of collecting telecom/ICT statistics, has increased cooperation efforts with National Statistical Offices. It is also one of the main partners of the Partnership on ICT for Development, an international, multi-stakeholder partnership, aimed at improving the availability and measurement of ICT indicators. For more information regarding the partnership, see [www.itu.int/ITU-D/ict/partnership/index.html](http://www.itu.int/ITU-D/ict/partnership/index.html) [Accessed 14 July 2005].

<sup>4</sup> The ITU's Market, Economics, and Finance Unit (MEF) has also published an ICT data collection case study on Hong Kong, China. The study will be available at: <http://www.itu.int/ITU-D/ict/cs/> [Accessed 14 July 2005].

## 2. AUSTRALIA IN A NUTSHELL<sup>1</sup>

At 7'692'030 square kilometres, Australia is the planet's sixth largest country after Russia, Canada, China, USA, and Brazil. Australia is also the smallest continental land mass (or largest island) and 32 times the size of the United Kingdom. The island continent is situated south of Indonesia and Papua New Guinea, between the Pacific and Indian Oceans (Figure 2.1). The country extends some 3'860 km from east to west and nearly 3'220 km from north to south.

Australia is the lowest, flattest and, apart from Antarctica, the driest of the continents. Its highest point, Mount Kosciuszko, is at 2'228 meters.

Remote from any other continent, Australia has many distinctive forms of plant and of animal life.

At June 2004, Australia had an estimated 20'111'000 inhabitants and a population growth rate of 1.2 per cent. Most Australians live on the eastern coastal plain and on the south-eastern coast. Although Australia is not densely populated, it is highly urbanized, with an urban population exceeding 90 per cent of the total population. This places Australia alongside Canada and Iceland as among the most highly urbanized Organisation for Economic Co-operation and Development (OECD) member countries.

Figure 2.1: Map of Australia



Source: ReliefWeb, at [www.reliefweb.int](http://www.reliefweb.int).

For the provision of communication services, this population distribution is both a disadvantage (i.e. highly dispersed rural population spread across a large land mass) and an advantage (i.e. high proportion of population in just a handful of urban centres, with around half the total population in Sydney and Melbourne alone). For example, cellular operators can achieve population coverage of 92 per cent with landmass coverage of three per cent. One important focus of telecommunication policy and regulation in Australia has been the desire to ensure that the benefits of affordable communications flow through to rural and remote households.

### 2.1 History, politics and economy

Australia has been inhabited for at least 50'000 years, since the remote ancestors of the current Australian aborigines arrived from present-day Southeast Asia. The land was not discovered by Europeans until the seventeenth century, when it was sighted and visited by several expeditions. It was claimed for the United Kingdom in 1770, and first colonized in New South Wales in 1788 as an English penal

colony. In 1901, the former British colonies — now the six States — agreed to federate and Australia became a commonwealth, or dominion, within the British Empire, thereby becoming independent, although full formal independence took place a considerable time after that.

The *Commonwealth of Australia* is a constitutional monarchy based on a federal state system recognising the British monarch as sovereign. The Queen is therefore the official Head of State and is represented by the Governor General, who is appointed by the Queen on advice of the elected Australian Government. The executive power theoretically vested in the Crown is exercised by an elected cabinet headed by a Prime Minister. The Prime Minister is almost always the leader of the majority party in the House of Representatives (150 seats), which is one of the two chambers of the federal parliament, the other being the Senate (76 seats). Elections for both chambers are held every three years.

The State (New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania) and Territory Governments in Australia are responsible for all matters not assigned to the Commonwealth, for example, environmental management. State parliaments are subject to the national constitution and federal law overrides any State laws that are inconsistent.

As in most developed countries, the Australian services sector - particularly finance, property and

business services - generates the lion's share of the country's gross domestic product (GDP). The manufacturing sector, accounting for some eleven per cent of GDP, includes mining, food processing, and the manufacture of industrial and transportation equipment, chemicals, iron and steel, textiles, machinery, and motor vehicles.<sup>2</sup> Australia has valuable mineral resources, including coal, iron, bauxite, copper, tin, lead, zinc, and uranium; and it is an important producer of opals and diamonds. The country is self-sufficient in food, and the raising of sheep and cattle and the production of grain have long been staple occupations. Tropical and subtropical produce — citrus fruits, sugarcane, and tropical fruits — are also important, and there are numerous vineyards and dairy and tobacco farms.

Australia has a prosperous economy, with a per capita GDP on a par with the dominant Western European economies, and a relatively low unemployment rate, at 5.1 per cent in December 2004. Rising output in the domestic economy has been offsetting the global slump, and business and consumer confidence remain robust. Australia's emphasis on market-based reforms is considered as another key factor behind the economy's strength.

## 2.2 Human Development

Economic stability has gone hand in hand with high human welfare. The United Nations Development Programme (UNDP) ranked Australia third (just

**Table 2.1: Ranking Australian human development**

Australia Human Development Indicators			Ranking within regional and income grouping			
			Asia Pacific		Countries with similar income	
Rank	Indicator	Value	Rank	Country	Rank	Country (GDP per capita, PPP US\$)
3	Overall		127	India	17	Denmark (30'940)
7	Life expectancy	79.1	94	China	14	Austria (29'220)
N/A	Literacy	99%	18	New Zealand	11	Switzerland (30'010)
2	School enrolment	113	9	Japan	<b>3</b>	<b>Australia (28'260)</b>
12	GDP per capita (US\$, PPP)	28'260	<b>3</b>	<b>Australia</b>	2	Sweden (26'050)

*Note:* For Literacy, the HDI applies a value of 99% for purposes of calculating the HDI to Australia and around 20 other countries. This means Australia is ranked at the top of the HDI but no actual rank can be attributed.

*Source:* UNDP 2004 HDI.

behind Sweden and Norway) out of 177 countries in its latest *Human Development Report*, up one position from rank four in the previous year.<sup>3</sup>

The ranking is based on a composite of four indicators: life expectancy, literacy, school enrolment and GDP per

capita. The position of Australia is nine points higher than its GDP per capita rank, which suggests that the country is doing well with regards to other indicators and compared to other countries with a similar income level. Australia also ranks highest in the region and ahead of Japan and New Zealand (Table 2.1).

---

<sup>1</sup> Most of the information in this section has been adapted from the Australian Bureau of Statistics (<http://www.abs.gov.au/> [Accessed 14 July 2005]) and the Australian Government's Geoscience Australia web site, at [www.ga.gov.au/](http://www.ga.gov.au/) [Accessed 14 July 2005].

<sup>2</sup> ABS and Economist Intelligence Unit. Country briefings. Australia. Economic Structure. February 2004. See <http://www.economist.com/countries/Australia/profile.cfm?folder=Profile-Economic%20Structure> [Accessed 14 July 2005].

<sup>3</sup> See 2004 United Nations Development Program's Human Development Index (HDI), at [http://hdr.undp.org/reports/global/2004/pdf/presskit/HDR04\\_PKE\\_HDI.pdf](http://hdr.undp.org/reports/global/2004/pdf/presskit/HDR04_PKE_HDI.pdf) [Accessed 14 July 2005].



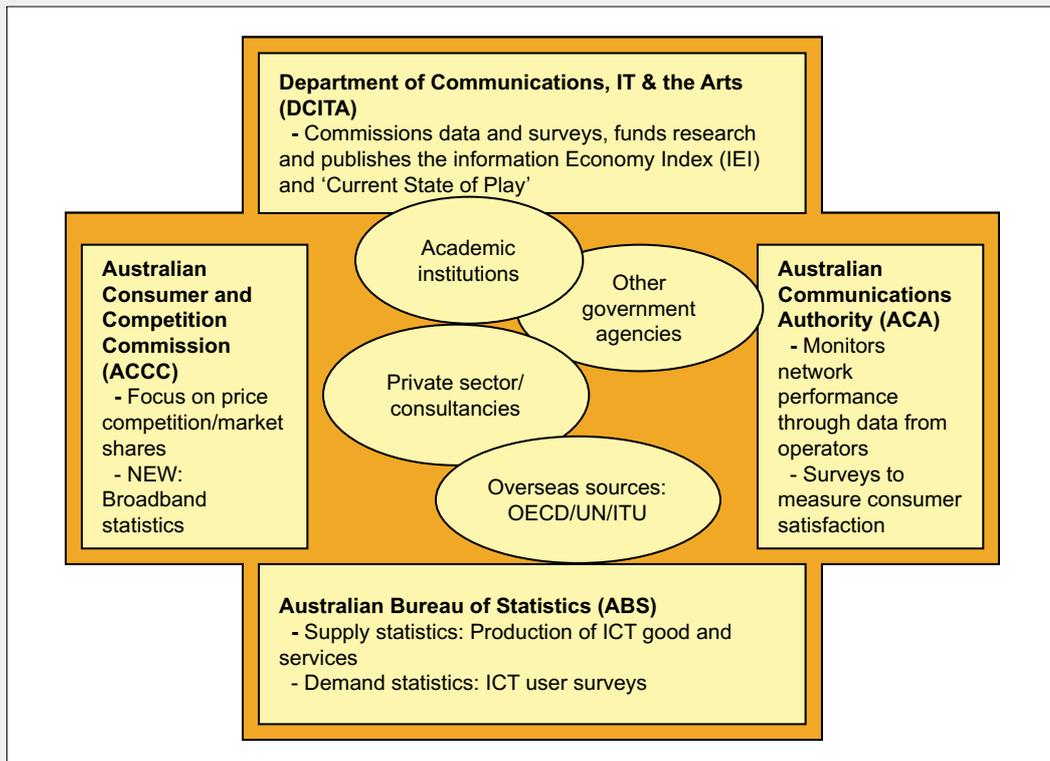
### 3. SUPPLY AND DEMAND ICT STATISTICS: AUSTRALIA'S USERS AND PRODUCERS

Information and Communication Technology (ICT) statistics are produced at the Territory, State, and National government level, and mainly by the Australian Bureau of Statistics, the national statistics office. On the horizontal level, administrative data are collected through different government agencies in charge of revenue collection, implementing ICT programs and projects, and those with regulatory responsibilities in the area of ICT. These government statistics are supplemented through data collected or commissioned by the private and the academic sector,

including industry bodies, lobby groups, market research companies and universities. Statistical information produced by overseas sources and particularly international organizations such as the OECD are used to benchmark Australia and put its developments into perspective (Figure 3.1).

In the area of ICT, Australia has moved beyond simply collecting statistics on the supply side of ICT services and goods and today collects detailed statistics on the demand and use side of ICT.<sup>1</sup>

**Figure 3.1: Supply and demand ICT statistics: who is involved**



Source: ITU.

### 3.1 The NSO, the policy-maker and the two regulators

The **Australian Bureau of Statistics (ABS)** started collecting some very basic information on the ICT sector in the late 1980s. Comprehensive ICT surveys were first undertaken in the early 1990s, when the first national ICT producer survey (1992) was carried out. Recognizing the increasing impact that Information and Communication Technology has on the economy and society, the ABS has adjusted its priorities in this area accordingly. Specific surveys have been introduced over time to expand from supply side statistics covering key aspects of the production of ICT goods and services, to include the demand side of the sector. Demand side statistics monitor the use of ICT by different groups and sectors of the economy and society, such as households, individuals, businesses, and the government. The ABS has also included specific ICT questions to the Census of Population and Housing (Box 3.1). Since information on the use of ICT is particularly significant in monitoring the progress made towards the information society, the ABS has become the key source of information regarding Australia's progress towards becoming an information society.

The ABS is an independent statutory authority with a strong mandate and legal foundation. The 1905 Census and Statistics Act provides it “*with the authority to conduct statistical collections ... and, when necessary, to direct a person to provide statistical information*”.<sup>2</sup> This means that every individual, household and business in Australia is required under legislation to provide accurate and complete information requested by the ABS. While the statistical office's information gathering activities are largely based on cooperation and a good relationship with the operators from which (in the case of ICT statistics) it collects the majority of ICT/telecom statistics, its legal authority clearly reinforces its role.

The ABS is known for its high standards and has been ranked among the top statistical offices in the world. It has a total of some 2'000 staff and, as stipulated in its Act, a fixed team of professional and trained interviewers. ABS surveys are based on representative samples of households, businesses, individuals, etc to ensure maximum representation of the population. Survey results include detailed information on the survey methodology including survey questions (and how they were asked), definitions, scope and coverage of the survey, sample

sizes and data comparability. Should definitions or sample groups of a survey change over time, the impact of these changes is discussed and analysed.

Quality comes at a price, though. The main criticism of the ABS surveys is the time needed to compile and analyse data until its publication. The ABS needs some 12-18 months to carry out a survey and present its results. Particularly in the rapidly changing ICT sector, last year's data is often already out of date.

As Australia's top policy body in the area of telecommunications and ICT, the **Department of Communications, Information Technology and the Arts (DCITA)** is in charge of developing the country's telecommunication regulatory frameworks (such as the Telecommunications Act), overseeing competition and consumer issues, including the universal service obligation and funding programs to improve telecom services, and policy development to position Australia to compete in the global ICT sector.<sup>3</sup> As the policy adviser to the Minister it is an important user of ICT statistics. Statistical information is used in different stages of the policy cycle, for example, to identify market problems, formulate policies, and monitor and evaluate the appropriateness and effectiveness of these policies. While the department sets the rules guiding the telecommunication sector, DCITA does not actually conduct regular statistical collections on ICT itself. To monitor progress, quality and the distribution of ICT, the Department (mainly through its Communications Research Unit - CRU) relies on a number of sources. These include the Australian Communication Authority (ACA), the sector-specific regulator who monitors operators' compliance with the telecommunication regulatory framework and

*Under the 1905 Census and Statistics Act every individual, household and business in Australia is required under legislation to provide accurate and complete information requested by the ABS.*

documents results through its quarterly performance report. DCITA also extensively uses the ABS' statistics, for example, in its “Current State of Play”, a regular statistical report produced by DCITA's Information Economy Division that analyses Australia's Internet uptake and its readiness

to leverage off developments in the information economy. To show and compare more recent trends, the latest “Current State of Play” includes data from different international research companies. 2004 data on the number of Internet and e-government users, for example, are sourced to Nielsen/NetRatings.<sup>4</sup>

Since the ABS statistics are an important tool within the policy circle, DCITA has a good working

relationship with the statistical office through informal cooperation as well as through a recently formalized process (see ICT Reference Group in Section 4.4). At the same time DCITA fills the information gaps (for example concerning specific policy areas that the ABS does not cover) by commissioning data and surveys by the private sector and by funding research that

includes data collection and analysis. The objective of ad-hoc surveys and inquiries into specific ICT subjects is to help the government understand how ICT is distributed across industry and the community and how it is affecting socio-economic development. The most recent inquiries include the 2000 Telecom Service Inquiry and the 2002 Regional Telecom

**Box 3.1: Who is online? 2001 Census results on Internet and computer usage**

The 2001 Census of Population and Housing was the first to include questions on newer Information and Communication Technology (ICT). The results derived from two simple questions on computer and Internet use were instrumental in understanding ICT uptake and in identifying the nature of Australia’s digital divide. Census results in general are very useful for policy input in that they provide in-depth information because data can be cross-tabulated across a range of other variables (including geographic location, and socio-economic characteristics etc). The questions related to Internet and computer use in the week prior to Census night (Tuesday, 7 August, 2001) provided information on users’ age, personal income, family type, location of use, gender and the language spoken at home.

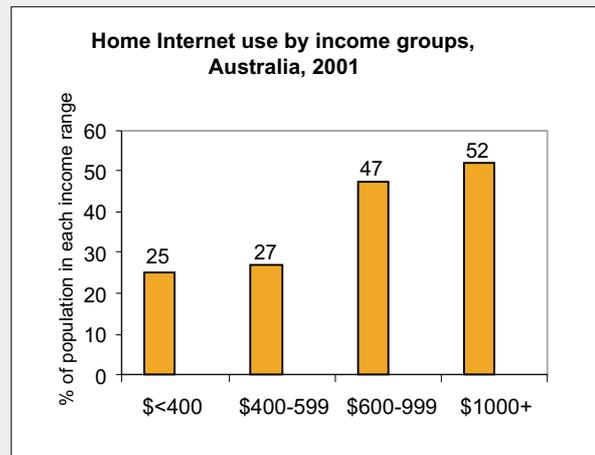
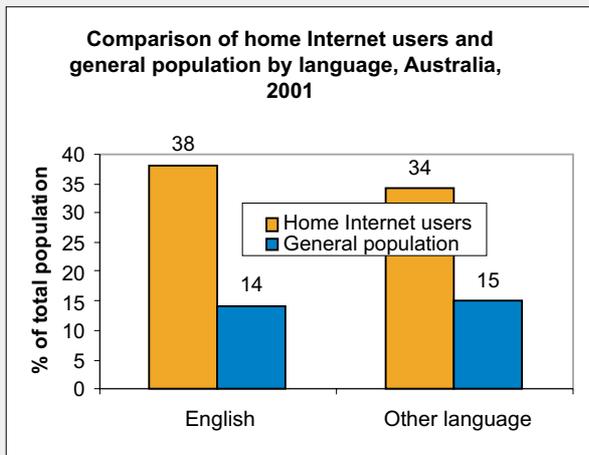
The results show that while Australia’s overall Internet penetration in mid-2001 stood at 37 per cent, there were considerable variations at the regional level. Comparisons between states showed that home access varied between a low 20 per cent in the Northern Territory, to a high 39 per cent in the Australian Capital Territory. On average, 27 per cent of Australians used the Internet from at home. Results highlighted that language preferences did not make a major difference and that Internet usage rates were similar for Australia’s English-speaking (representing 79% of the population) and non-English

speaking (representing 15% of the population) communities (see Box Chart 3.1, left). Income levels, however, played a major role in influencing home Internet use, with more than half (52%) of those earning more than AUS\$ 1’000 per week online at home in the Census week, compared to just a quarter of those citizens on incomes of less than AUS\$ 400 per week. This means that the likelihood of a person being a home Internet user increases as personal incomes increase (see Box Chart 3.1, right).

The results of the Census questions related to the personal Internet use were published in the 2002 ‘Australian Communities Online’ publication by the National Office for the Information Economy (NOIE, today part of the Department of Communications, Information Technology and the Arts). The report highlights the importance of constructing a “detailed regional snapshot of Internet use across more than 1’300 statistical regions” (and the variations among these regions) for making policy decisions.

For the 2006 Census, the ABS plans to include a question on whether households have Internet connectivity, with details on broadband and narrowband uptake. This highlights the importance that policy makers are currently attributing to information on broadband access (Box 4.1).

**Box Figure 3.1: Any links between language preferences, income levels and Internet use?**



Source: 2001 Census Results, from National Office for the Information Economy. Australian Government. Australian Communities Online. 2002.

Note: In the 2001 Census, 6% of the population did not state the language spoken at home. This explains why English-speaking and non-English speaking communities do not add up to 100%.

Service Inquiry.<sup>5</sup> The latter assesses the adequacy of telecommunication services in regional, rural and remote Australia and offers advice to overcome barriers to better services in these potentially more difficult-to-connect areas. It covers fixed, mobile and Internet markets and analyses availability, pricing, and the quality of service. It also makes international comparisons to evaluate Australia's services in these areas.

DCITA may also request the Australian Competition and Consumer Commission (ACCC), the competition regulator, to collect sector-specific statistics if it considers the ABS (and other existing) statistics insufficient to make appropriate policy decisions. This was the case in 2003 when DCITA called upon the ACCC to launch its broadband survey to collect more detailed and up-to-date information than the ABS was already providing (Box 4.1).

A producer and user of ICT and telecommunication statistics is the **Australian Communications Authority (ACA)**<sup>6</sup>. The sector-specific, technical regulator has three principal roles for which it needs detailed information and statistics on the ICT sector. It has a consumer information function; it monitors performance and compliance of the operators with existing laws and regulations; and in its advisory role, it gives feedback to the Ministry (DCITA). To carry out its functions the ACA collects and analyses telecommunication statistics on the supply side, particularly from the operators. This includes collecting data on the number of suppliers operating in the market, the number and type of services in operation and provided to consumers/small businesses, and the quality of service measured against a range of key performance indicators (Figure 3.2, left).

Information is provided to the ACA on a voluntary basis and its relationship with the operators is based on cooperation. This is also reflected in the fact that the key performance indicators used to measure performance and compliance have been developed through a negotiation process between the ACA and the industry.<sup>7</sup> To limit the burden on operators and other information sources, the ACA sends out an annual questionnaire to a selected group of telecommunication service providers, small businesses and retailers, as well as consumers.

Whenever possible, the ACA uses existing information to make its own calculations and harmonize data to adopt it to its own needs. Instead of requesting operators to provide national coverage data (for fixed, or mobile services), for example, the ACA will identify and use information already published by the operators.

The ACA's two major publications on carrier performance in the delivery of all telecommunication services are the quarterly Telecommunications Performance Monitoring Bulletins<sup>8</sup> and the annual Telecommunications Performance Report.<sup>9</sup> In its annual report, the ACA uses ABS as well as OECD data to show overall Internet and mobile penetration rates and compares Australia to other OECD countries. This information is complemented by data from self-regulatory bodies, and the private sector. Particularly since the privatization of Telstra and the liberalization of the market, ACA has been able to take advantage of public market information published by private companies (usually to analyse the stock market). The

*The ACA, under the 1997 Telecommunications Act, has the responsibility to monitor and report each financial year to the Minister, on all significant matters relating to the performance of: (a) carriers; and (b) carriage service providers; with particular reference to: (c) consumer satisfaction; and (d) consumer benefits; and (e) quality of service.*

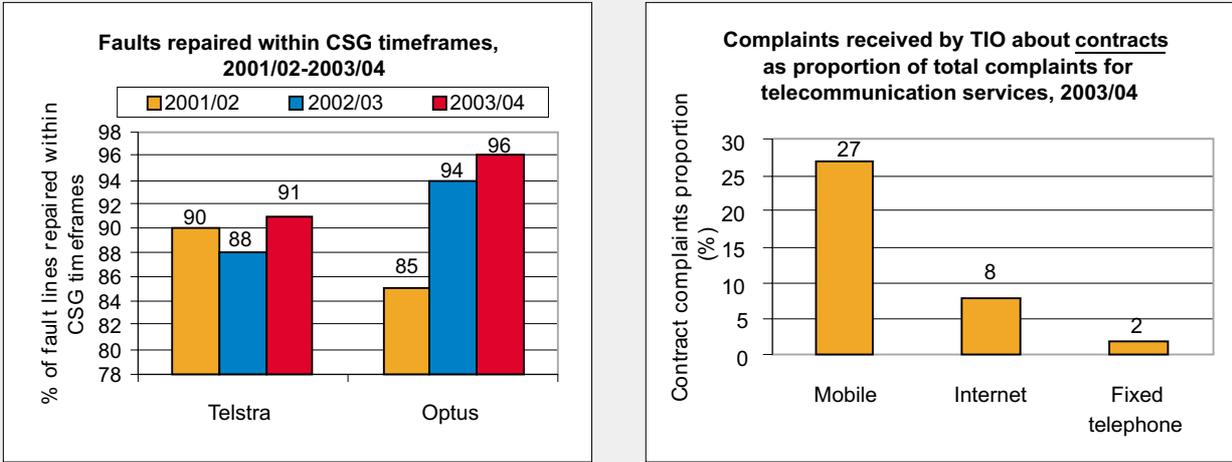
ACA's publications cover the entire telecommunication sector and services and range from the number of new carrier licenses issued, the number of Internet subscribers by type of plan, to the perception of consumers regarding prices for telecommunication services. They also cover the number of complaints to the Telecommunication Industry Ombudsman (TIO).<sup>10</sup> Ad-hoc and special reports that use data

to monitor the sector include, for example, the 2000 and 2002 report on the universal service obligation on payphones.

To fulfil its role in the area of consumer satisfaction, the ACA carries out a number of surveys. This includes the annual Consumer Satisfaction Survey, a telephone survey that in 2004 covered 1'200 households and 760 small businesses, across a representative sample of urban, rural and remote areas and from each State and Territory. The survey largely measured how informed customers are about different services, their degree of satisfaction, and their perception of costs of telecommunication services. The annual Consumer Awareness Surveys, carried out between 1999 and 2002, have helped to understand and improve Australians' degree of awareness and understanding of communications services, and their rights and

**Figure 3.2: How good's the service?**

Percentage of faults repaired within the Customer Service Guarantee (CSG) by Telstra and Optus, 2001/02-2003/04 (left chart) and complaints to the Telecommunication Industry Ombudsman about contracts as a proportion of total complaints from different telecommunication services, 2003/04 (right chart)



Source: ITU adapted from the ACA's Telecommunications Performance Report 2003/04. The data was provided to ACA by operators (left chart), and the Telecommunication Industry Ombudsman (TIO, right chart).

Note: Left chart: The Customer Service Guarantee (CSG) Standard sets minimum requirements for the provision and repair of standard telephone services and for the keeping of related appointments. Right chart: TIO refers to the Telecommunication Industry Ombudsman.

options. All survey results are published on the ACA's website.<sup>11</sup>

To complement its in-house surveys, the ACA buys data from independent companies that carry out quality testing in the areas of fixed lines, Internet (dial-up and broadband) and the mobile network. Surveys are further used to understand if government funding/subsidies for a certain service or a certain technology have been a success; and to monitor compliance with universal service obligations. Another important source of information is the Telecommunications Industry Ombudsman, an independent dispute resolution scheme that receives and tracks consumer complaints (Figure 3.2, right).

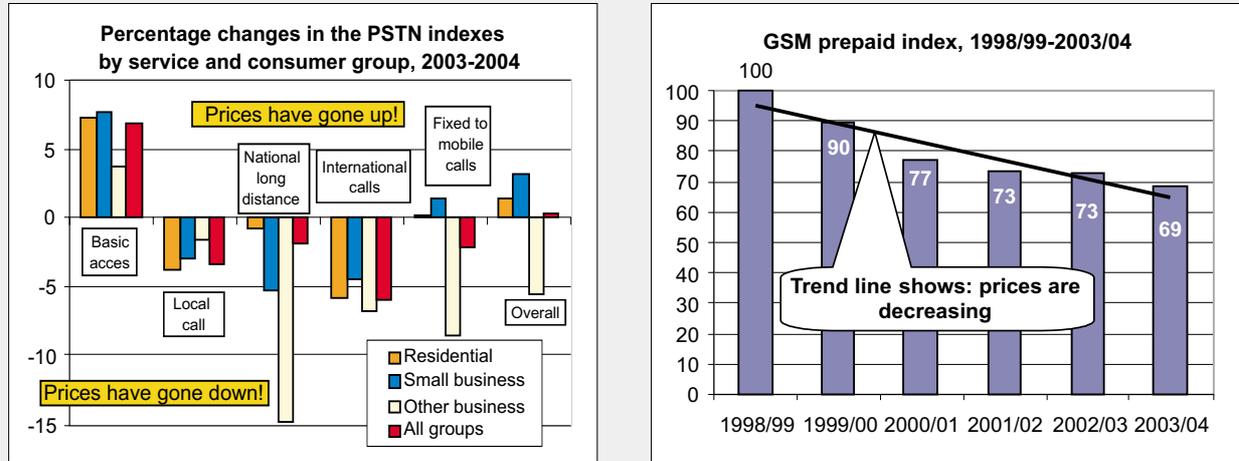
The **Australian Competition and Consumer Commission (ACCC)** was created in 1995 to respond to market changes and liberalization trends in a number of sectors. As the competition regulator, it covers not only the telecommunication sector, but also the aviation sector, electricity, postal services, and others. The ACCC's Telecommunications Group has prime responsibility for fulfilling the ACCC's role in relation to the competition and economic regulation of the telecommunications industry. Its regulatory

functions lie in the area of (price) competition and market shares and its major role is to prevent anti-competitive conduct by carriers and carriage service providers, to facilitate access to the networks of carriers, and to monitor and direct tariffs – including prices for the former incumbent's (Telstra) retail services. Like the ACA, it can provide the government with recommendations for policy or program changes. The ACCC is required to provide the Minister for Communications, Information Technology and the Arts with three annual telecommunications reports, including on competition safeguards, Telstra's compliance with price control arrangements and changes in the prices paid by consumers for telecommunication services (Figure 3.3)

The ACCC keeps track of market shares and monitors customer migration to analyse the effect of competition. To this end – and as part of the regulatory reporting requirements under the Regulatory Accounting Framework (RAF)- the main telecom operators - Telstra, Optus, AAPT, Primus and Vodafone – are required to provide the ACCC with revenue and usage information. The ACCC has the power to impose specific record keeping rules on the corporate entities within the ICT/telecommunication industry that it observes.

**Figure 3.3: How much are customers paying for telecom services?**

Percentage changes in the Public-Switched-Telephone Network indexes by service and consumer group (left chart) and changes in GSM prepaid indexes, 1999/2000-2003/04 (right chart)



Source: Left chart: ITU adapted from ACCC telecommunications reports 2003-2004. The PSTN indexes are based on data from the main operators. Data for the left chart were provided to ACCC by Telstra, AAPT, Primus, and Optus. Right chart: ACCC telecommunications reports 2003-2004. Data/Indexes are based on published plan and service information by Telstra, Optus, Vodafone, and AAPT.  
 Note: Right chart: Base year is 1998/99. Indexes/price changes calculated in real price (2003/04) terms and based on a basket of the main mobile operators.

**3.2 Other ICT statistical users and sources**

The main other entities that use and produce statistical information in the area of ICT are the academic and the private sector, a number of government agencies and departments, as well as the Telecommunications Industry Ombudsman.

Established by the Australian Federal Government in 1993, the Telecommunications Industry Ombudsman (TIO, at [http://www.tio.com.au/about\\_tio.htm](http://www.tio.com.au/about_tio.htm)) is a free and alternative dispute resolution scheme that is independent of industry, the government and consumer organizations. The TIO can investigate complaints expressed by small businesses and residential consumers in Australia regarding their telephone or Internet services. It publishes detailed complaint statistics regarding the different telecommunication services on its web site. The ACA publishes these in its annual report.

A number of government agencies use statistical sources, particularly the ABS data, or conduct their own research to publish ICT-related reports within their respective field of activity. These include the Department of Employment and Workplace Relations, the Department of Education, Science and Training, and the Productivity Commission (PC),<sup>12</sup> the Australian Government’s principal review and

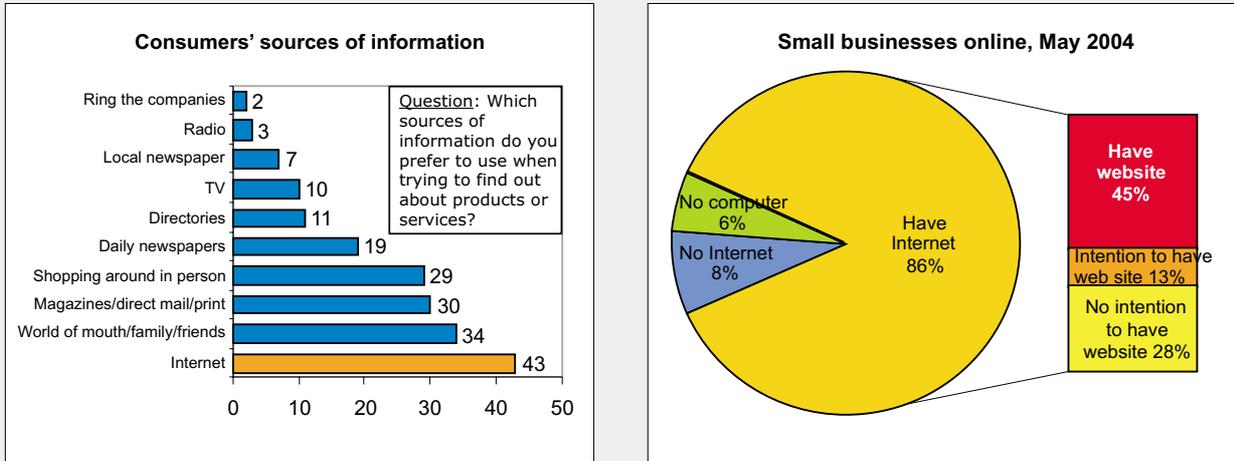
advisory body on microeconomic policy and regulation. The PC, for example, has published a number of papers and reports on the effects of ICT on the Australian economy and productivity.<sup>13</sup> Other government agencies collect and disseminate statistics in their role as revenue collectors, such as the Australian Taxation Office and the Australian Customs Office. These statistics are used to help measure the macro-economic impact of the ICT sector. The ABS publishes import/export, and trade and employment related ICT data in a number of publications.<sup>14</sup>

Sometimes, academic institutions are commissioned to undertake independent research into the ICT sector. The government, for example through the Australian Research Council’s Linkages Project, provides grants, which enable academic institutions and other bodies to develop research partnerships.<sup>15</sup>

The private sector plays an important role in collecting ICT statistics, particularly to fill information gaps. While private sector surveys are generally based on a significantly smaller sample size than an ABS survey, results are produced within a few months only. This makes the private sector's contribution particularly useful for ad hoc questions in areas that change rapidly. Reports and surveys carried out by private sector marketing organisations, consulting groups and

**Figure 3.4: Quick, tell me what's happening: Private sector surveys**

Consumers' sources of information, Australia May 2004 (left) and the percentage of small businesses with Internet access, PCs, and web sites and their intention to set up a web site, Australia, May 2004 (right)



Source: Sensis Consumer Report, June 2004 (left) and Sensis e-Business Report, July 2004 (right).

Note: The Sensis Consumer Report (left chart) is based on a sample size of 1'500 Australians from metropolitan and regional areas and includes people from all states and territories, of ages, ranging from 14 years and up. Demographics such as gender, employment status, income ranges and family status are collected to enable cross-analysis of data. The e-Business report (right chart) is based on research from 1'800 SMEs, and based on telephone interviews. Small businesses are defined as those with less than 20 employees.

industry associations will generally address a specific group (businesses, for example) or a specific topic. Sensis has carried out a series of e-Business Reports, as well as the 2004 Consumer Report, which analyses confidence and behaviour of Australian consumers and Small and Medium Enterprises. A 2004 Sensis survey reveals that the Internet has become the main source of information, with 43 per cent of consumers doing online research about products and services (Figure 3.4, left). Its 2004 e-Business Report showed that “the percentage of small businesses with a web site increased during the year from 36 per cent to

45 per cent in total. Another 13 per cent of small businesses indicated that they intend to get a web site within the next 12 months. The remaining 28 per cent of small businesses indicated that they had no intention of getting a web site this year” (Figure 3.4, right).

Finally, comparative data on the ICT sector across different countries is collected and disseminated by international organizations, such as the ITU and the OECD. These are frequently taken into consideration to evaluate Australia’s achievement and to benchmark it.

- <sup>1</sup> With regard to the supply side of the ICT sector, there has been a focus on the production of ICT goods and services.
- <sup>2</sup> From the 1905 Australian Census and Statistics Act, at: <http://scaleplus.law.gov.au/html/pasteact/1/580/top.htm> [Accessed 14 July 2005].
- <sup>3</sup> For example through the Higher Bandwidth Incentive Scheme (HiBIS), or the Co-ordinate Communications Infrastructure Fund (CCIF) and Demand Broker Aggregation Program (DBP). See <http://www.dcita.gov.au/ie/broadband> [Accessed 14 July 2005].
- <sup>4</sup> DCITA. The Current State of Play. 2004. Available at: [http://www.dcita.gov.au/\\_\\_data/assets/pdf\\_file/23426/CSP\\_2004.pdf](http://www.dcita.gov.au/__data/assets/pdf_file/23426/CSP_2004.pdf) [Accessed 14 July 2005].
- <sup>5</sup> Connecting Regional Australia. Report of the Regional Telecommunications Inquiry. DCITA. 2002.
- <sup>6</sup> In July 2005, the ACA and the Australian Broadcasting Authority (ABA) were merged to become the Australian Communications and Media Authority (ACMA). Their website is: [www.acma.gov.au](http://www.acma.gov.au) [Accessed 14 July 2005].
- <sup>7</sup> Key Performance Indicators (KPI) are used to measure compliance with certain standards, such as the Customer Service Guarantee (CSG) Standard. KPI allow comparison between information provided by different operators and other contributors of data.
- <sup>8</sup> To view the ACA's Telecommunications Performance Monitoring Bulletins, see [https://www.aca.gov.au/aca\\_home/publications/reports/performance/](https://www.aca.gov.au/aca_home/publications/reports/performance/) [Accessed 14 July 2005].
- <sup>9</sup> See [https://www.aca.gov.au/aca\\_home/publications/reports/annual/index.htm](https://www.aca.gov.au/aca_home/publications/reports/annual/index.htm) [Accessed 14 July 2005].
- <sup>10</sup> For more information on the Telecommunication Industry Ombudsman (TIO) see section 3, Other Players and Sources.
- <sup>11</sup> ACA Consumer Survey Reports, including the Satisfaction Survey and the Awareness survey are available at: [https://www.aca.gov.au/aca\\_home/publications/surveys/surveys.htm](https://www.aca.gov.au/aca_home/publications/surveys/surveys.htm) [Accessed 14 July 2005].
- <sup>12</sup> The PC is a Treasury Portfolio Agency.
- <sup>13</sup> See, for example, the Productivity Commission's Research Paper on "Information Technology and Australia's Productivity Surge", by D. Parham, P. Roberts and H. Sun. October 2001. <http://www.pc.gov.au/research/staffres/itaaps/index.html> [Accessed 14 July 2005]. See also the Conference Paper "Australia: Getting the most from ICTs", by D. Parham, presented to the Communications Research Forum in Canberra in October 2002. <http://www.pc.gov.au/research/confproc/agmict/index.html> [Accessed 14 July 2005].
- <sup>14</sup> See ABS. Measures of a knowledge based economy. ICT Indicators, at <http://www.abs.gov.au/Ausstats/abs%40.nsf/94713ad445ff1425ca25682000192af2/7599f94ffdbadccbca256d97002c8636!OpenDocument> [Accessed 14 July 2005]. Data are also published as part of the ABS' National Accounts Publications.
- <sup>15</sup> See the Australian Research Council, at: [http://www.arc.gov.au/grant\\_programs/linkage\\_projects.htm](http://www.arc.gov.au/grant_programs/linkage_projects.htm) [Accessed 14 July 2005].

## 4. COOPERATION AMONG USERS AND PRODUCERS OF ICT STATISTICS

The importance of cooperation amongst national agencies involved with ICT cannot be over-emphasized. Collaboration is crucial to producing meaningful ICT statistics, particularly since Information and Communication Technology as a tool for social and economic development will cut across different sectors of the economy and involve various players. To understand whether and how individuals, households, businesses, schools, the government etc are using ICT, it is necessary to move beyond the traditional telecommunication sector and the ICT industry and to address and work with the different sectors directly. Surveys are particularly useful in this respect and research has shown that the inclusion of and the cooperation with the national statistical office is a key factor for successfully monitoring the path towards an information society.

### 4.1 The national statistical office

A robust legal foundation and mandate have allowed Australia's National Statistical Office to adequately expand its work in the area of ICT and become the key source of ICT statistics.<sup>1</sup> DCITA, the ACCC, as well as the ACA extensively use ABS' data. The ABS is tasked with meeting the statistical needs of government, businesses, academics and the community. In determining priorities for statistics the ABS seeks input from all these groups and then independently determines its program of statistical collections and other work. To ensure that its data collection continues to meet high priority needs, the ABS reviews its user requirements for ICT data regularly and there are different ways of providing input to the data collection process:

Australians may present a high level submission to the Australian Statistical Advisory Council (ASAC)

from where requests are forwarded to the corresponding ABS departments in charge. The ABS may also be contacted directly regarding new indicators and data requirements. In response to a high priority need for information the ABS included two ICT-related questions in the 2001 census. It will add a question on the use and uptake of broadband to the 2006 census (Box 3.1).

A user-funding arrangement allows government departments and agencies to provide funding to enable the ABS to collect a greater range of data than would otherwise have been possible within ABS resource constraints. The ABS innovation survey, for example, was one-third user-funded by and conceptualized with the help of the Department of Education, Science and Training (DEST). Existing ABS surveys and data collections have therefore evolved over time and reflect policy interests of federal, state and territory governments.

### 4.2 The regulators

Since the ACCC concentrates on the ICT wholesale industry and the ACA is focused on retail customers, there is little overlap between the two regulators. They do, however, informally discuss statistical collection and streamline data, particularly in the area of customer service guarantees, which both agencies are involved in.

### 4.3 The challenges of monitoring broadband

One area where there has been some overlap is in the collection of broadband statistics. When DCITA found the ABS statistics on broadband - collected through its Internet Activity Survey - were not detailed enough, it charged the ACCC (over which it has legislative power of direction) with carrying out a more regular and comprehensive report (Box 4.1).

#### 4.4 The ICT Reference Group

Informal cooperation and discussion amongst the main organizations involved in ICT was recently formalized, when the ABS, established the **ICT Reference Group**. The ICT Reference Group held its first meeting at the beginning of 2004 and will meet twice a year. Initiated by the ABS the Group includes representatives from the ICT industry, data providers (operators such as Telstra), DCITA, the treasury portfolio (responsible for measuring the macroeconomic impact of ICT), as well as representatives from the academic sector.<sup>2</sup> This formal mechanism to unite stakeholders to discuss ICT statistics

will further strengthen the information exchange. In its September 2004 meeting the Group discussed broadband information requirements, international comparisons of ICT data, the ICT Satellite Account, and an Information Development Plan (IDP) for ICT statistics, which will “*establish a shared understanding of Australia’s statistical priorities and shared responsibility for the collaborative work that will address statistical needs*”.<sup>3</sup> To allow ICT Reference Group members to access relevant documents and discuss topics before and after a meeting, the ABS recently set up a website discussion forum on ICT Statistics.

#### Box 4.1: Who is in charge of broadband statistics?

Australia’s efforts to collect broadband statistics point to some of the challenges that countries may face in obtaining detailed and up-to-date ICT data, in coordinating the work of different agencies, and in balancing the need for supply and demand side statistics. It also highlights Australia’s drive to use statistics for optimal policy decisions.

There are two distinct metrics to measure the uptake of ICT statistics in general and broadband statistics in particular. One is to count the number of active subscribers. In the case of broadband, this information, which allows for the identification of so-called supply side (or administrative) data is obtained from ISPs. The other metric estimates the number of broadband users by relying on sample surveys addressed to users. This latter metric, which produces demand-side statistics, allows the identification of user characteristics (demographic, socio-economic, etc). Demand-side statistics are particularly important to understand why (or why not) people are using a certain ICT, and what kind of impact its use has had (for example in the way a person will interact with the government, or shop). Both sources of data can be used simultaneously to validate the uptake of broadband, and other ICT.

On the demand side, the ABS has included broadband-specific questions in a number of surveys, including the “Household Use of IT”, “Business Use of IT”, and “Farm Use of IT” surveys. A broadband question on the 2006 Census of Population and Housing will further provide a detailed breakdown on broadband uptake.

On the supply side, two government agencies collect broadband data. The Australian Bureau of Statistics (ABS) - through its Internet Activity survey (IAS), which is addressed to the ISPs - has been tracking broadband statistics twice a year, since the year 2000. The IAS provides information on Internet access services provided by all Internet service providers operating in Australia, with information on the number of Internet subscribers (broken down by business/government subscribers and households) and the volume of traffic. It also provides a break down by access technology, which includes analog, ISDN, satellite, DSL, cable, fixed wireless, and mobile wireless. Following a 2003 decree by the Minister for Communications, Information Technology and the Arts, another government agency—the competition regulator (ACCC)—has been collecting its own broadband data. Given a growing interest in this market segment, the objective was to collect more detailed and frequent broadband statistics, including wholesale and retail broadband availability and take-up, cross-classified by technology type, data speed, data usage, geographic postcode and business sector. Data was to be collected quarterly instead of biannually (as

done by the ABS) and the subscriber identification by post-code would allow a detailed (geographic) analysis about who in Australia is using broadband (and who is not).

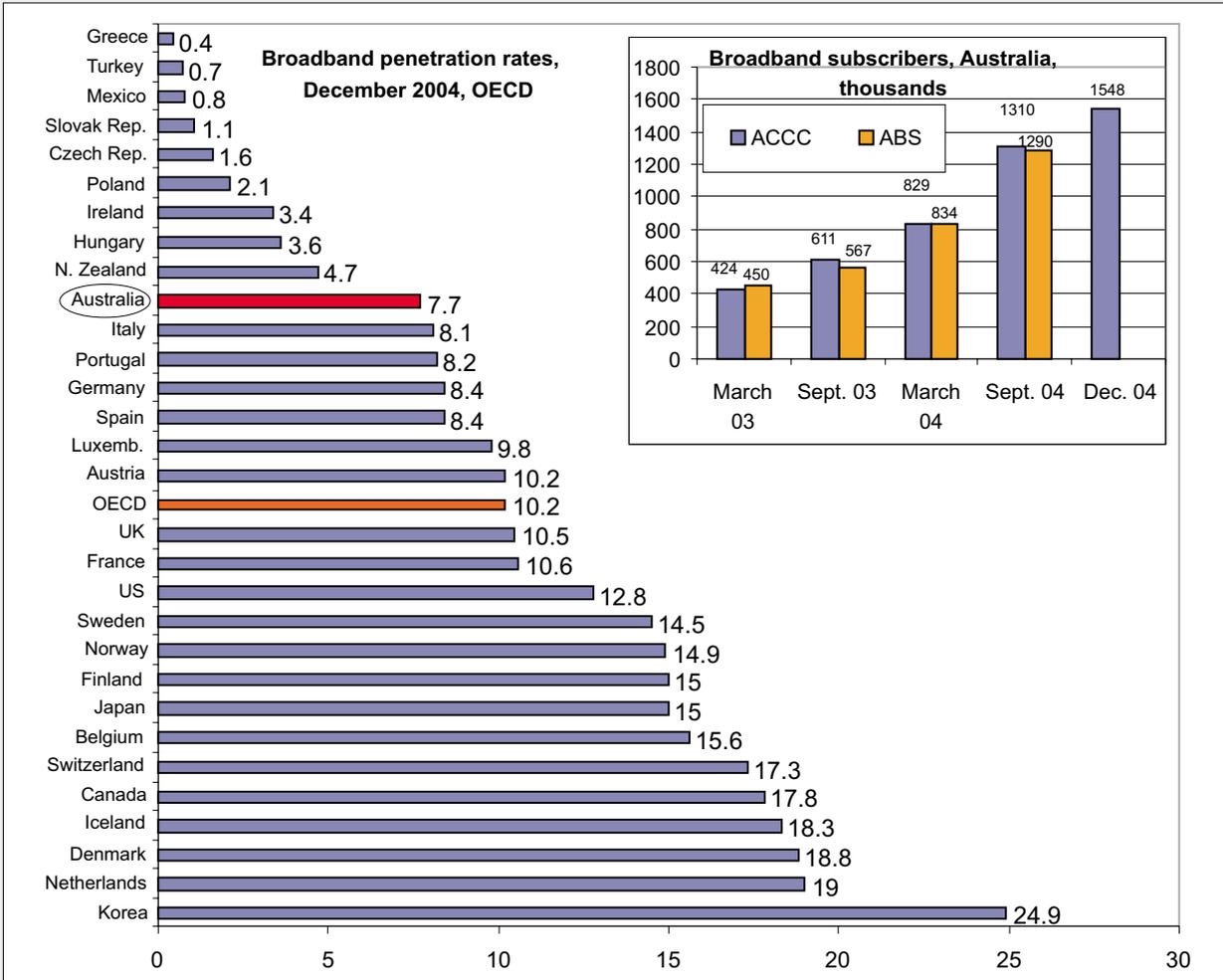
The project is still under review mainly because operators have complained about the degree of detailed information they would be obliged to provide. In the meantime the ACCC is collecting broadband statistics from the main ISPs. The results, published in the quarterly “broadband snapshot”, provide more frequent - though not more detailed - information than the ABS survey. Indeed, it does not provide information on business/government or household subscribers, nor on the volume of traffic.

While these measures highlight the flexibility of Australia’s data collection process, there are two main problems with two official government organizations collecting the same statistics. For one, their results are (however slight) different (Box Figure 4.1, small chart). While this may be explained by the fact that ABS surveys all ISPs while ACCC surveys only the main ISPs, governments should publish one single official statistic, for international comparisons, as well as for the national record. This also applies to the definition of broadband, which the ACCC defines as an always-on connection with speeds in excess of 200kbps compared to the ABS’ minimum speed of 256 kbps. (Even though there are currently no access technologies that provide access speeds between 200kbps and 256kbps so that both definitions are essentially the same, the Australian government should agree on one single definition). At the same time, the duplication of efforts costs extra government resources and adds a burden to operators. Recognizing this, the ABS has decided to reduce the frequency of its survey to ‘annually’. Should the ACCC continue its broadband snapshot (or extend it) the ABS will re-examine its role in this field of statistics.

One of the reasons the government is so keen on good and up-to-date broadband statistics, is certainly linked to the fact that Australia is lagging behind in terms of broadband penetration rates. In December 2004, it came in 21<sup>st</sup> amongst the 30 OECD members, and at 5.3 broadband subscribers per 100 inhabitants had less than one fourth the penetration rate of the Republic of Korea, the number one in broadband penetration. Australia was also lagging behind the OECD average of 8.3 per cent. The growing interest in detailed statistics is part of the government effort to extend broadband, through targeted government funding, an open competitive market, and regulatory safeguards, all of which are outlined in the *Australian National Broadband Strategy and Action Plan*, released in March 2004.

**Box Figure 4.1: Australia’s broadband market**

*Australia’s broadband penetration rate compared to other OECD countries, December 2004, and broadband subscribers in Australia (in '000s), over time, according to ABS and ACCC*



Source: OECD, ACCC, and ABS.

In its latest meeting, which took place in April 2005, the ICT Reference Group discussed, among other topics, the need for better information on IT security. Policy makers have voiced their concern about the lack of statistics on security issues and a potential ‘perception versus reality’ gap. Given the lack of reliable statistical information on security risks, breaches, and their related costs, the government currently feels that it is not able to formulate the appropriate policies.

**4.5 International cooperation**

On the international level, the ABS monitors international and national data collection efforts,

indicator concepts and definitions to avoid duplication and to allow for comparability of its statistics. The ABS adheres to the UN fundamental Principles of Official Statistics and the International Monetary Fund’s (IMF) Special Data Dissemination Standard (SDDS).

Its household and business survey questionnaires are compatible with the OECD model questionnaires. Australia is also an active member in the OECD’s “Working Party on Indicators for the Information Society”.<sup>4</sup> The ABS’ efforts to identify and agree on an internationally agreed definition for ‘broadband’ further show its commitment to cooperation and international harmonization.<sup>5</sup>

- 
- <sup>1</sup> While DCITA - as the main policy maker - has legal power of direction over the ACCC as well as the ACA, the ABS is an independent statutory authority.
- <sup>2</sup> Neither the ACCC nor the ACA are official members of the Reference Group. While the membership will be regularly revised, one objective of the group was to limit its membership so as to remain manageable. Also, the work and views of the two regulators are represented by the Department of Information Technology, Communications and the Arts.
- <sup>3</sup> ABS Newsletter 'Innovation and Technology Update'. Bulletin No.11. December 2004.
- <sup>4</sup> WPIIS develops definitions and methodologies facilitating the compilation of internationally comparable data for measuring various aspects of the information society, the information economy and electronic commerce. It provides a forum for national experts to come together, share experiences and advance information society statistical issues. Its main methodological achievements to date are: an activity-based ICT sector definition, narrower and broader definitions of electronic commerce transactions, model surveys of ICT usage by businesses and by households/ individuals and, most recently, an ICT goods classification.
- <sup>5</sup> The definition of Internet commerce in the Business Use of IT Survey (BUIIT) has been adopted from the OECD. Also, see an ABS discussion on the definition for broadband, presented at the 2004 Asia-Pacific ICT Technical Meeting: [http://www.unescap.org/stat/ict/ict2004/19.Broadband\\_Issues.pdf](http://www.unescap.org/stat/ict/ict2004/19.Broadband_Issues.pdf) [Accessed 14 July 2005].

## 5. MEASURING THE INFORMATION SOCIETY

Through the collection of supply and demand/use statistics in the area of Information and Communication Technology (ICT) the Australian Bureau of Statistics is the key organization that monitors and measures Australia's Information Society.

Supply side statistics, on the one hand, refer to the production and delivery of ICT goods and services and are primarily collected from the IT Industry<sup>1</sup>. Information on the demand for and use of ICT products in Australia - particularly important to measure the Information Society and the focus of this case study - include detailed information on the use of ICT among individuals, as well as in the business sector and the government (Table 5.1).

ABS' surveys in the area of ICT have changed significantly over the last years, reflecting rapidly changing developments in the ICT sector itself. The content and frequency of ICT-related surveys and questions are regularly reviewed through ABS consultations and formal and informal coordination processes with the users of ICT statistics. They are expected to develop further in line with industry changes and emerging policy needs. ICT-related questions were added to the 2001 and upcoming 2006 Census of Population and Housing as well as to various ABS social surveys, such as the one on Children's Participation in Culture and Leisure Activities.

A summary of the different survey results is made available online, free of charge. This includes the main findings of the surveys, as well as information on the survey methodology, scope and coverage, definitions and reliability of data and estimates. Explanatory notes also highlight where results from different years are not comparable, and ways in which the methodology has changed.

The fact that it takes the ABS between 12-18 months to release the survey results from the moment data are collected has been noted as *the* main shortcoming of the NSO's data collection process. The latest Household Use of IT data (available in July 2005), for example, refers to the year 2002/2003 and more up-to-date 2004/05 data will not be published until early 2006.

The following section will provide an overview of the different ICT-related surveys carried out by ABS.

### 5.1 Household Use of IT (ABS)

The **Household Use of Information Technology (HUIT)** module of questions was designed to provide a profile of the uptake and use of information technology in Australian households. This is not a standalone survey but a module of data attached to other surveys and was first carried out in 1994. It was carried out on a quarterly basis for several years, but has been an annual survey since 2001.<sup>2</sup>

The latest **HUIT** survey was released in September 2004, with data referring to 2002 and 2003.<sup>3</sup> For an overview of the HUIT module questions, see Annex 1.

Since HUIT questions are added to different surveys, sample sizes vary.<sup>4</sup> The survey is carried out through personal, face-to-face interviews. Whereas HUIT questions vary, the survey has *always* covered household access to computers and the Internet (by geographic location). This allows ABS to show developments over time (Figure 5.1, left). While the latest HUIT survey contains detailed information on the use of IT by specific groups (including the indigenous, people with disabilities, the aged, and children between the age of 5 and 14), the 2002 HUIT (as part of the General Social Survey) included detailed questions addressed to non-users, and on the topics of e-commerce and teleworking. Through this

**Table 5.1: Australian Bureau of Statistics' Supply and Demand/Use statistics on ICT**

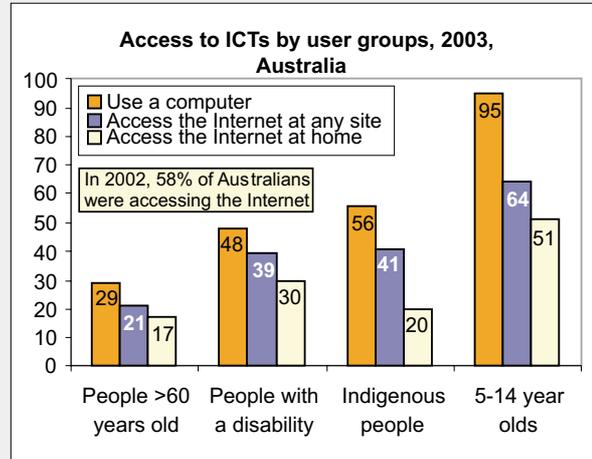
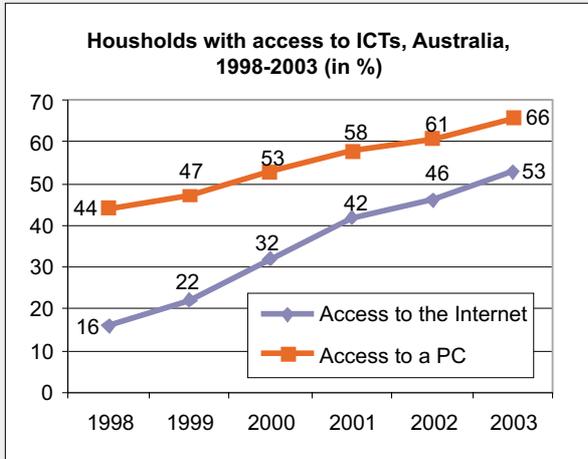
Supply side statistics refer to the production and delivery of ICT goods and services and are collected mainly from the IT Industry. Information on the demand for and use of ICT products in Australia, which are the focus of this study, are less comprehensive than on the supply side but include detailed information on the use of ICT among households, in the business sector, as well as within the government.

Supply	Year/frequency/note	Demand/Use	Year/frequency/note
Internet Activity Survey, Australia	Six-monthly (2001-2004), annual from March 2005	Household (Use of) Information Technology (HUIT)	Quarterly (1998-2000) Annual (since 2001)
Information and Communication Technology Industry Survey (ICTIS), Australia	Biennial 2000/2001 and 2002/ 2003	Government Use of IT	Ad-hoc
ICT commodity data (exports and imports)	Compiled by ABS and obtained as an administrative by-product from the Australian Customs Service	1) Business Use of IT 2) The characteristics of small business survey (2003)	Annual
Economy-wide Economic Activity Survey	Business ICT capital expenditure obtained from the annual survey	Use of IT on Farms	IT use questions added to the Agricultural Commodity Survey Annual, except for census year
Business R&D survey	R&D expenditure by ICT Industries obtained from annual survey	ABS Household Expenditure Survey	2002/2003: included ICT expenditure questions (mobile and fixed telephony) 2003/2004: included questions on the expenditure on Internet charges, on the purchase/s on mobile phones and on home computer equipment.
R&D survey	ICT R&D performed by all sector, obtained from the biennial survey	2001 Census of Population and Housing	Every 5 years, IT use questions on the 2001 Census
		Survey of Education, Training and IT (SETIT), which provides information on peoples' educational attainment and their participation in education and training over the past 12 months.	Carried out every 4 years but details on information technology were collected as a one-off component in the 2001 survey, only. IT results from SETIT 2001 were released in May 2002, as part of the Household Use of Information Technology Survey (HUIT)
		Survey of Children's Participation in Cultural and Leisure Activities	IT use questions included on 2000, 2003 survey (biennial thereafter)
		Survey of Disability, Ageing and Carers	IT use questions on 2003 survey (ad-hoc)

Source: ITU adapted from ABS, 2005.

**Figure 5.1: Household use of Information Technology (HUIT)**

Percentage of Australian households with access to a PC and the Internet, 1998-2003 (left) and ICT use by different user groups, 2003 (right)



Source: ABS HUIT 2004.

Note: The groups “People with a disability” and “Indigenous people” refer to those who are 15 years old or older. The results of these two charts are not comparable since the survey questions are addressed to households (on the one hand) and individuals (on the other hand). The 2003 HUIT, however, surveyed individuals and showed that in 2002, 58 per cent of Australians were using the Internet.

flexible approach, ABS has addressed specific topics and relevant policy issues related to the use of IT by different user groups.

The level of detail of these surveys further allowed ABS to break down the results by gender, geographic location, education, employment, and disability status. People were also questioned why, how often and where they accessed a computer. Ad-hoc surveys on specific groups, on the other hand, paint a snapshot image, and do not allow for comparisons over time.

The latest HUIT showed that the number of Australian households with access to a computer at home had increased from 44 per cent in 1998 to 66 per cent in 2003 (Figure 5.1, left). Fifty-three per cent of Australian homes had an Internet connection, up from 16 per cent in 1998. Depending on the region, these numbers fluctuated, though, between 66 per cent (in the Australian Capital Territory), to 41 per cent in Tasmania.

The 2004 HUIT further included information on Internet access and computer use of people aged 15 years or over with a disability, people aged 60 years or over, and Indigenous people. All three groups showed lower Internet access and computer usage rates, compared to the 2002 Australian average of

58 per cent (Figure 5.1, right). The divide is particularly large for senior Australians, only 29 per cent of which reported having used a computer and 21 per cent of which reported having used the Internet in the last 12 months. It is also interesting to note that only half of all indigenous people that are online use the Internet from at home, compared to over 75 per cent of any of the other groups. From a policy perspective, this points to the importance of community access points, such as public libraries, to bring indigenous people online.

Children between the age of 5 and 14 had much higher ICT usage levels, 95 per cent of them using a computer and 64 per cent accessing the Internet in the last 12 months. Amongst the 12 to 14 year olds, as many as 88 per cent had been online and 99 per cent had used a computer.

The HUIT results for 2004-05 are expected in early 2006.

## 5.2 Business Use of IT (ABS)

The **Business Use of Information Technology (BUIIT)** survey has been conducted annually since 1999/2000. It collects data on Australian businesses using computers, the Internet and websites. It also examines the type of Internet connection that businesses have, the functionality of their websites, and whether or not they

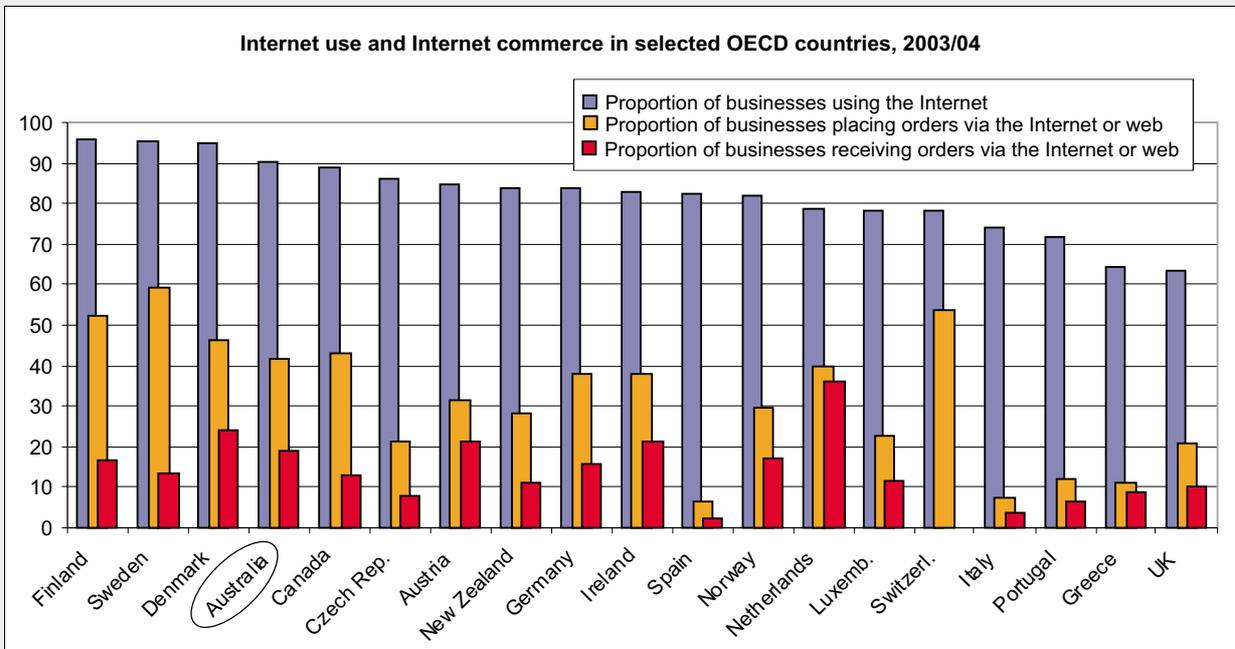
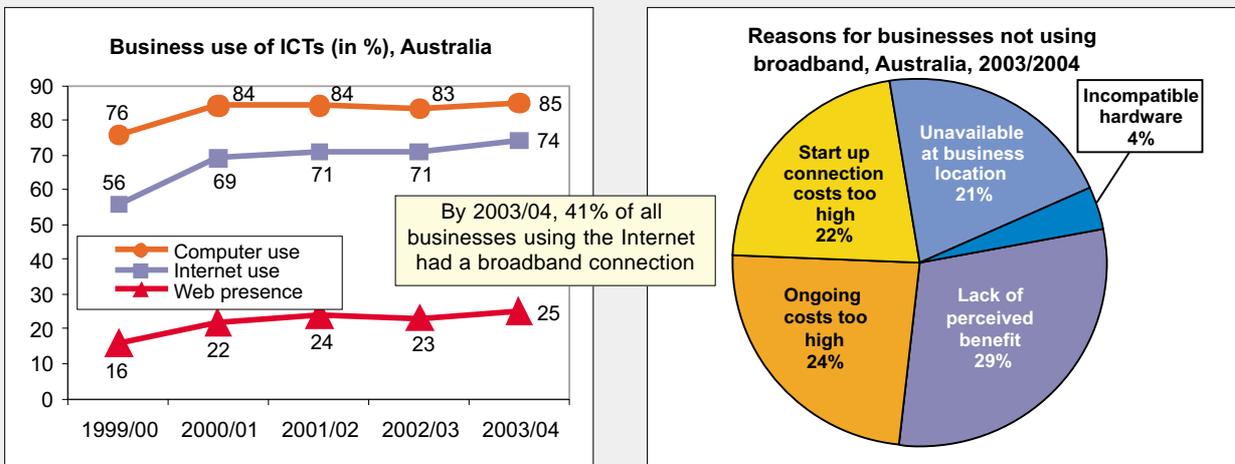
place and receive orders via the Internet. The BUIT survey is revised every year to reflect recent developments in the use of IT by businesses. It has, over the years, moved from basic IT uptake, to more sophisticated use of IT, including IT security issues and e-commerce. Statistics are collected by state/territory, business size (based upon both employment and income),

and type of business (according to ANZSIC, the Australian and New Zealand Standard Industry Classification).<sup>5</sup>

The survey covers all types of employing businesses (based on the ABS business register) in Australia except for religious organisations and private households

**Figure 5.2: Business use of IT (BUII)**

Percentage of Australian businesses using a PC, the Internet, and those with a website, 1999-2004 (top left); reasons why businesses do not have a broadband connection, 2003/04 (top right), and proportion of businesses using the Internet, and placing and receiving orders via the Internet or the web (bottom)



Source: ITU adapted from ABS BUII 2005.

Note: In the top right chart, only businesses that were already using the Internet (74% of total) were questioned.

In the bottom chart, data on the proportion of businesses receiving orders via the Internet or web for Ireland were not available. The data on Australia is taken from the BUII; all other data are provided by the OECD. In most cases, these proportions are of all employing businesses, which employed ten or more persons.

employing staff. The survey is conducted by postal mail and is based on a random sample of around 12'500 businesses, stratified by industry, geographic location and the number of employees. Results for the period 2003/04 were released in March 2005. The latest survey includes information on broadband, as well as some international comparisons. The latter includes the proportion of businesses using the Internet and the proportion of businesses placing and receiving orders via the Internet or web. For an overview of the BUIT questions, see Annex 2.

The proportion of businesses using the Internet range from 63 per cent in the UK to 96 per cent in Finland. At over 90 per cent, Australia's level of Internet use is toward the upper

end of the range. Within the group of 19 selected OECD countries, it is also ranked amongst the top one third in terms of businesses' e-commerce activities (Figure 5.2, bottom).

The findings highlight that while the proportion of businesses using a computer has remained around the same level for the last four years (around 85 per cent), the proportion of businesses with Internet use and web presence has grown from 69 per cent and 22 per cent in 2000/01, to 74 per cent and 25 per cent, respectively, in 2003/04 (Figure 5.2, top left).

In June 2004, 41 per cent of all businesses with Internet access had a broadband connection.<sup>6</sup> Connection speeds vary with the size of businesses and larger

**Box 5.1: Australia - an example of e-government (and how to measure it)**

Australia consistently ranks high in terms of international e-government benchmarking reports and surveys. According to a 2003 study by ACNielsen, Australia had the highest percentage (36%) of home Internet users accessing government websites. Other comparative studies recognizing Australia's exemplary e-government developments include the Accenture eGovernment Leadership Report (2004) and the 2003 UN World Public Sector Report "E-Government at the Crossroads".

One of the main reasons for Australia's e-government success story is top-level policy support to bring the administration online. This is evident in its decision to set up the Australian Government Information Management Office (AGIMO, at [www.agimo.gov.au](http://www.agimo.gov.au)) to foster the efficient and effective use of information and communication technology (ICT) by Australian Government departments and agencies. Besides fostering the use of ICT by Australia's government departments and agencies, AGIMO, which falls under the Department of Finance and Administration, works with agencies to develop standards to integrate services across agencies and promotes improved government services through technical interoperability and business processes.

Careful monitoring of the first phase of putting all appropriate Australian Government services online is another key factor to Australia's successful implementation of e-government. E-government monitoring was first introduced to track if all appropriate government services were online, as stipulated in the 1997 *Government Online* strategy. The progress towards this goal was measured by so-called 'pulse reports' - surveys to monitor agencies' progress towards the 2001 deadline. Once the goal was met (on time), the government produced the *Better Services, Better Government* (also referred to as *e-government*) strategy. The key was to go beyond providing online services and to add value, for example by bundling different online services, by optimising user satisfaction and by making services more responsive. Today, the e-government agenda, which is focussed on transforming and optimizing all government services, has set a number of new goals. To monitor progress on how agencies are meeting the e-government agenda, AGIMO has set up regular review mechanism, identified key performance indicators and developed an appropriate evaluation framework and benchmarks. This include the provision of the *Demand and Value Assessment Methodology* - through which government agencies assess the value and need for specific online service - as well as the 2003 *E-government Benefits Study*,

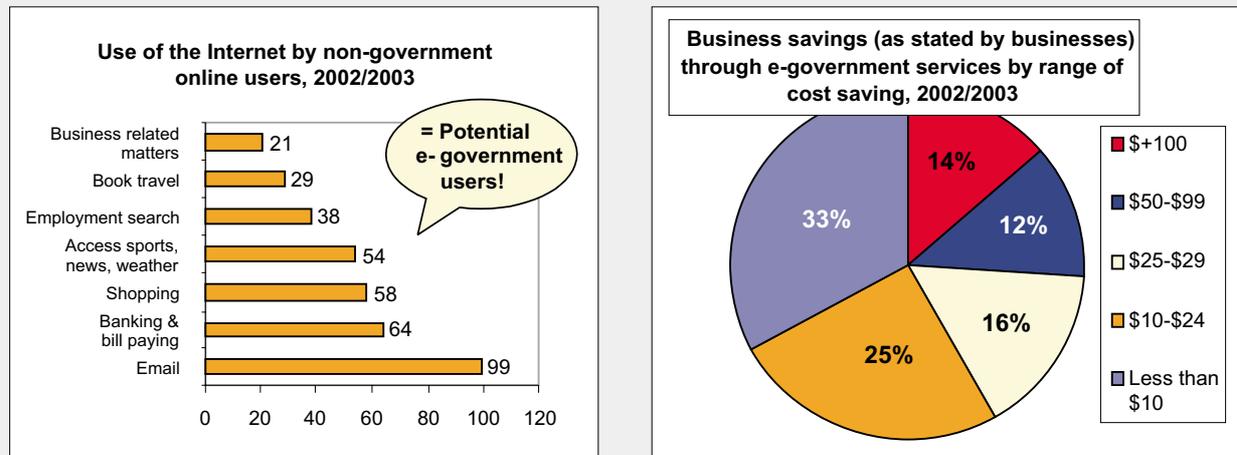
which provides information on the demand for, and value and benefits of e-government services (See [www.agimo.gov.au/government/damvam](http://www.agimo.gov.au/government/damvam)).

The study highlighted that more and more businesses were making use of e-government services, with demand expected to grow by more than 30 per cent a year. By 2002/03 over 80 per cent of Internet users were also users of e-government services. Findings showed, for example, that "*non-government online users indicated a strong preference for using the Internet to support a variety of business and personal needs...These included email, banking and bill paying, shopping, access to news,*" and from this the report concluded that "*there is clear evidence that non-government online users are conducting Internet transactions for various business and private reasons that agency business managers might capitalise upon when extending and broadening the scope of government online programs*" (Box Figure 5.1, left chart). The report further analyzed barriers to e-government take-up and calculated costs/benefit ratios for government agencies providing e-government services, as well as cost savings by consumers, including businesses (Box Figure 5.1, right chart). Social benefits were measured (through surveys) in terms of service improvements, community skills and knowledge, and new business or work opportunities. AGIMO emphasizes that the results of its surveys directly feed back into the policy process.

While the findings were based in part on surveys, many of the basic statistics presented in the E-government Benefits Study, such as the number of households and businesses that have access to the Internet, were from ABS. AGIMO cooperates with the NSO and leverages on ABS surveys to add specific questions. To complement ABS data, AGIMO regularly carries out e-government studies and ad-hoc surveys, for example to provide up-to-date information on Australians' use of, satisfaction with, and barriers to e-government services. In many cases, surveys are carried out by private companies which are usually able to collect data and produce results within six months. In June 2005, AGIMO released the first in a series of planned annual reports in a longitudinal study, 'Australians' Use of and Satisfaction with E-Government Services'. The initial study was commissioned to establish a baseline understanding of Australia's uptake of e-government services, satisfaction with e-government services, and barriers to e-government use. The report also shows the level of people's satisfaction with those services together with their preferences and expectations.

**Box Figure 5.1: e-government**

Reasons for those *not* using e-government services to go online (left) and amounts (in AUS\$) saved by businesses through the use of e-government (right)



Source: NOEI/DMR Consulting. E-government Benefits Study. April 2003.

companies tend to have a higher percentage of broadband connections. The large majority (78%) of businesses with 100 or more employees, for example, had a high-speed connection. Most of these high-speed connections (67%) were DSL, followed by cable (28%). Businesses were asked to identify the reasons for not choosing high speed access and the main reasons were high costs (46%) and a lack of perceived benefits (29%) (Figure 5.2, top right).

**5.3 Government Use of IT (ABS)**

Between 1993 and 2000 three surveys were carried out on Information Technology use by government organizations. Since then, the ABS has not collected any information on how governments are using ICT. The **Government Technology survey (GTS)**, published in July 2004 and covering the fiscal year 2002/2003, focused exclusively on government spending on Information and Communication Technology (ICT).<sup>7</sup> The survey showed how much the different levels of government (federal, state/territory, local) were spending on ICT employment and other operating expenses, including hardware, software, consultants, and outsourcing. Today, information on government use of ICT is collected and commissioned primarily by the Australian Government Information Management Office (AGIMO), which falls under the Department of Finance and Administration (Box 5.1).

**5.4 ICT in Schools**

Given Australia’s wealth of ICT data covering various sectors, it might be surprising that there is little

detailed or regular information on the use of ICT in the educational sector. Despite several policy initiatives that acknowledge the importance of information and communication technology (ICT) in improving the quality of teaching and learning and a number of ad-hoc studies, there are no regular statistical reports on the topic. While the ABS has regular ICT surveys on households, businesses, the government, and farms, there is no dedicated survey covering ICT use in schools.<sup>8</sup>

The main reason for this disparity is that the responsibility for education is often vested in different levels of government. State and territory governments have constitutional responsibility for the delivery of school education, making nationally consistent data collection more difficult.

Surveys in other countries have highlighted the importance of educational institutions as access points. In the European Union in 2002, for example, 19 per cent of Internet users connected at their place of study. Other reports show that young people are a particularly easy population group to bring online, since they are quick learners and adopters of new technologies. Another benefit of connecting educational institutions is that ICT access can be extended to the wider community outside of school hours, for example, in rural communities that are more difficult to connect. To understand the use and efficiency of ICT in schools, data should regularly be collected on school connectivity, including the type of Internet access and

the number of students per PC. Surveys should monitor how students and teachers are using ICT, track ICT skills, and show how ICT has altered (and improved) the way in which students learn.

In 1999, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), chaired by the Minister for Education, passed the Declaration on National Goals for Schooling in the Twenty-First Century.<sup>9</sup> Goal 1.6 of this plan stipulates that students, when they leave school, “*should be confident, creative and productive users of new technologies, particularly ICT*”.<sup>10</sup> In 2002, the Australian Ministry of Education endorsed the first Measurement Framework for National Key Performance Measures as the basis for reporting on progress towards these goals. The Framework contains a timetable that identifies key performance measures and an agreed assessment cycle for the period 2002 – 2009. From 2005 onwards, ICT skills will be monitored against a particular achievement standard using a three-yearly sample assessment at (school) year six and ten. The priority will be on general ICT skills and knowledge, not specialized ICT courses. It includes using ICT appropriately; accessing, managing, integrating and evaluating information; developing new understandings and communicating with other. Each of these processes will be assessed with the help of specific key performance measures that will be developed through empirical judgment methodology.<sup>11</sup>

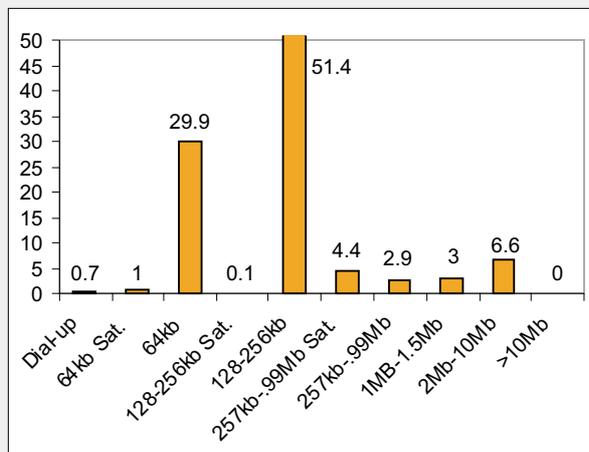
In 2000, MCEETYA endorsed ‘Learning in an online world: the school action plan for the information economy’.<sup>12</sup> Besides turning students into ICT users, the action plan calls upon schools to make use of ICT to improve the way students learn as well as to make their business practices more efficient. In 2003, MCEETYA’s ICT in Schools Taskforce, which is responsible for measuring progress towards the goals identified in the action plan, published a first report mapping its ICT infrastructure goals. Specifically, the report measured bandwidth levels, compared the school sector’s telecommunication costs, as well as the provision of hardware (such as PCs) and technical tools.

The study showed that while almost all schools provided access to the Internet, bandwidth provision in 2003 varied substantially. Thirty per cent of schools had a capacity inferior to 128 kbps and some 10 per cent had more than a 1 Mbps connection (Figure 5.3). With this, access to the Internet remained slow and bandwidth constraints restricted the use of certain applications, such as video conferencing, the delivery of distance education, and remote access to resources. The report showed that nationwide, schools had approached a ratio of one computer for every five students.<sup>13</sup>

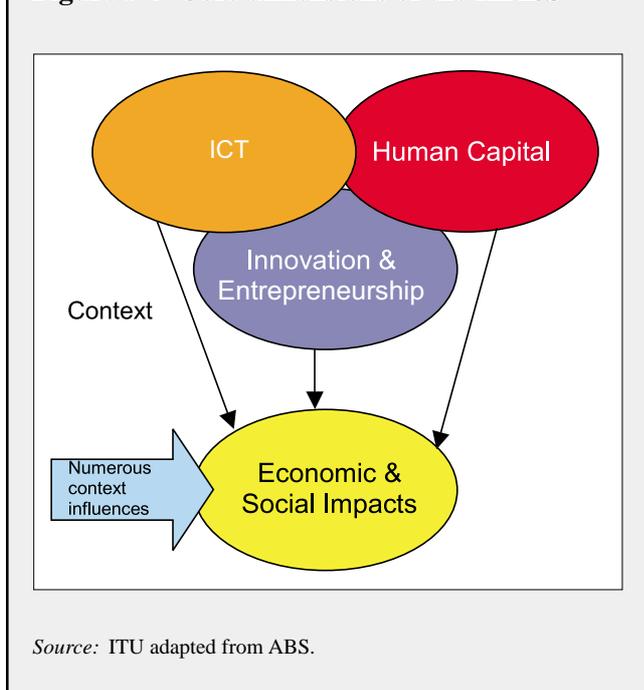
The current lack of statistics covering the areas of ICT skills and ICT in education is certainly a major gap in Australia’s statistical spectrum. This shortcoming that has been recognized by ABS and others. At the end of 2004, ABS published an in-depth information paper on “Measuring Learning in Australia. Plan to Improve the Quality, Coverage, and Use of Training and Education Statistics”. A joint initiative of different educational organizations and departments and the ABS, “*the Plan is an agreement among key stakeholders on the statistical work required in the education and training fields to support policy, planning and accountability and provide a better evidence base for analysing learning outcomes in the wider social and economic context. It recognises the diversity of arrangements for the collection and dissemination of education and training statistics, including the work of education and training agencies, the ABS, and various committees and task forces.*”<sup>14</sup> While the plan would seem to provide a good starting point for the discussion on how to monitor ICT skills and ICT in education, there is simply a reference made to the ICT skills and knowledge section of the Measurement Framework for National Key Performance Measures. Another area in need of further consideration, particularly in light of the ICT Satellite

**Figure 5.3: ICT infrastructure in Australian schools, 2003**

*Bandwidth Provision to Australian schools, by technology, 2003*



Source: MCEETYA ICT in Schools Taskforce. Learning in an online world: the school education action plan for the information economy. Infrastructure progress report 2003.

**Figure 5.4: Core dimensions of the KBE/S**


Account (See Section 5.6 on Other ICT related surveys and statistics) is the educational sector as a user of ICT goods and services.

### 5.5 The New Economy & Information Society (ABS)

Apart from the work on ICT statistics discussed, ABS undertakes a range of activities in relation to measurement of the **New Economy and Information Society**. These include conduct of R&D surveys, some preliminary work on innovation and biotechnology measurements and, more recently, development of a knowledge-based economy/society measurement framework.

In September 2003, the ABS published a compendium of **Knowledge-based Economy and Society (KBE/S)** statistics “Measures of a knowledge-based economy and society”. The main objective of the framework is to help policy-makers understand, monitor and assess, through the use of relevant statistics, the degree to which Australia is (and is developing into a) knowledge-based economy and society.

The framework, which this measurement is based on, has five dimensions, including the three core dimensions: “*Innovation and entrepreneurship, human capital, and ICT*”. The two supporting dimensions are “*Context and Economic & Social impacts*”, but no indicators have been developed for

these (Figure 5.4). Apart from one indicator on educational participation (which is taken from the OECD), all data are from ABS. See Annex 3 for a complete list of the three core dimensions, 13 characteristics, and 45 indicators.<sup>15</sup> Due to resource constraints these indicators will no longer be updated after June 2005.

Despite the decision to discontinue this project, the ABS’ initiative to identify a set of indicators and to draw diverse statistics together into a structured and logical manner shows that the work of Australia’s national statistical office goes beyond simply collecting statistics. It shows its involvement in identifying and developing indicators according to their impact on society and economy. This is further highlighted by the fact that ABS has started to explore the provision of so-called “impact indicators”, which will help show the difference that the use of ICT has on efficiency and the creation of wealth. By conceptualizing the use and impact of its statistics (and in some way becoming a *user* of its own data), the ABS has taken an important role in making the connection to the policy circle and policy discussion. Through this, the ABS can identify those statistics that need to be collected to measure the information society and economy and help close the gap that may exist between the producers (on the one hand) and the users of statistics (on the other hand).

### 5.6 Other ICT-related surveys and statistics by ABS

The latest ABS publication on the **Use of Information Technology on Farms** was released in September 2004. Data were obtained from questions included in the 2002/03 Agricultural Survey and refer to June 2003. The publication, which is the fourth of its kind since 1993/43, analyses the use of computers and the Internet by farms. It consists of a sample of approximately 35’000 farms (about a quarter of all farms operating in Australia). The 2003/04 publication is expected to be released in August 2005. It will include information on broadband use on farms, a question that was funded by the Department of Communications, Information Technology and the Arts (DCITA).<sup>16</sup>

While the earlier surveys asked about *access* to a computer and the Internet, the 2002/03 survey was the first to inquire about the *use of computers and the Internet for business operations* (Figure 5.5), which limits the comparability of data over years. Only in 2002 did ABS include questions on *access and use* of computers and the Internet. As with other surveys,

ABS includes detailed 'explanatory notes' on the survey, including the changes in methodology compared to previous surveys. See Annex 4 for the 'Use of IT on Farms' questions on the 2003/04 Agricultural Survey.

The latest published survey showed that in 2003 an estimated 54 per cent of farms used a computer and 46 per cent used the Internet as part of their business operations. This represented only a slight increase (of one and three percentage points, respectively) from the previous year. The survey highlighted a geographic divide in access to and use of ICT. While Western Australia reported the highest proportion of farms using a computer (67 per cent) and the Internet (59 per cent) for business operations, Victoria reported the lowest proportions, with 49 and 40 per cent, respectively. Data are also disaggregated by industry and show that the horticulture and fruit growing, poultry farming and other crop growing industries reported the highest proportion of Internet use (51 per cent), while the grain, sheep and beef cattle farming and dairy cattle farming industries reported the lowest proportion of farms using the Internet (both 44 per cent). There was a strong relationship between farm size (as measured by the estimated value of agricultural operations) and the use of a computer and the Internet. As farm size increased, so did the proportion of farms using a computer and the Internet.

The 2002 data show that farms have higher Internet and computer access than the average Australian

household. Sixty-one and 48 per cent of farms have access to a computer and the Internet, compared to 'only' 46 and 61 per cent of all households, respectively. This is probably related to the fact that most farms use the Internet and the computer for business purposes.

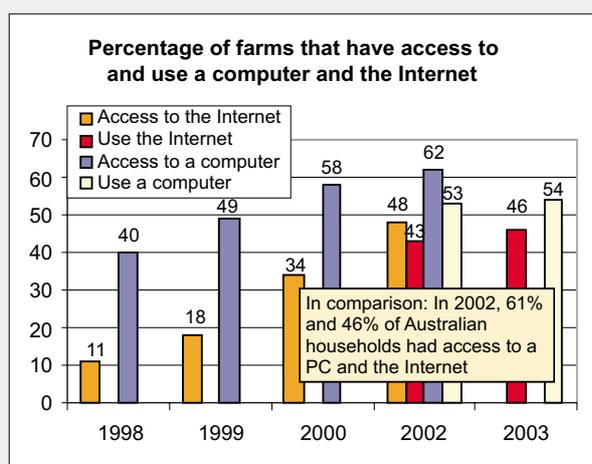
The ABS' **Internet Activity Survey (IAS)** was first launched in 2000 and was carried out every six months until March 2005, when the statistical office decided to make it an annual survey.<sup>17</sup> The IAS provides information on Internet access services provided by all Internet service providers (ISPs) operating in Australia. Contrary to most other surveys, the IAS is published relatively quickly once data has been collected. The latest survey, covering the September 2004 reference period, was released in March 2005.

The survey provides information on the number of Internet subscribers (broken down into business/government and households), and the volume of traffic through ISPs to Internet subscribers. It also provides a breakdown by access technology, which includes analog, ISDN, satellite, DSL, cable, fixed wireless, mobile wireless, and other. These results allow a breakdown by broadband and narrowband.

The survey is regularly reviewed and a change was recently made to the question on SPAM filtering products and their provision by ISPs. An additional category was included to capture those ISPs who provide SPAM filtering products as both free and a charged service. Previously, only an either/or response could be given.

By September 2004, Australia was home to a total of 5.7 million Internet subscribers (ten per cent more than six months previously) and a total of 687 Internet Service Providers (ISPs). The Australian ISP market is dominated by ten large ISPs, with over 100'000 customers each. Non-dial up subscribers grew by over 50 per cent and by September 2004 represented 23 per cent of all Internet subscribers (up from 16 per cent six months earlier). Most of the growth for non dial-up came from the household sector (Figure 5.6, left chart). Digital Subscriber Line (DSL) was the predominant access technology used for non dial-up Internet services, representing over 60 per cent of total non dial-up subscribers (Figure 5.6, right chart). By September 2004, Australia recorded a total of 1'290'000 broadband subscribers, an increase of 55 per cent over the last six months. Data downloaded by subscribers during the September quarter 2004 increased by 72 per cent. High-speed technologies

**Figure 5.5: ICT on Farms**

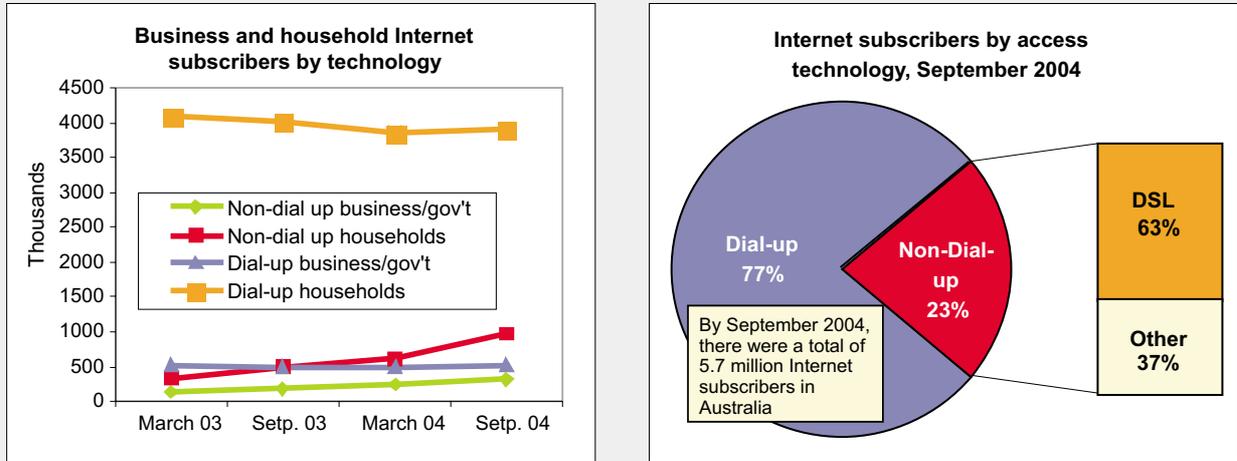


Source: ABS.

Note: Only farms with an estimated value of agriculture operations of \$5'000 or more are included in the survey. No data was collected for the 2001 period. "Using" the Internet and a computer refers to "usage as part of the business operation".

**Figure 5.6: Dial-up or not?**

Total business and household Internet subscriptions by dial-up and non-dial up technology, March 2003-September 2004 (left) and Internet subscribers by access technology, September 2004 (right)



Source: ABS.

Note: In the right chart, "other" includes cable, satellite, fixed + mobile wireless, etc.

have largely contributed to this growth, with non dial-up subscribers accounting for 84 per cent of the total data downloaded.

The **Information and Communication Technology Industry Survey (ICTIS)** is a biennial survey that collects data on the production and distribution of information technology and telecommunication (IT&T) goods and services by businesses in Australia. Similar to the Household use of IT survey, this survey uses existing surveys by adding relevant ICT data items and modules to questionnaires.<sup>18</sup> The latest ICTIS was released in September 2004 and presents 2002/03 results. The data include all employing businesses across industry classes where ICT activity is likely.<sup>19</sup>

Key data include domestic production of ICT goods and services, the level and profile of employment, as well as investment trends in the ICT industries. The last survey revealed that at the end of June 2003, there were some 25'500 businesses classified within the ICT industry grouping, of which 94 per cent were considered to be ICT specialist businesses. Seventy-seven per cent of the latter worked in the area of computer consultancy services industry, 8 per cent in the computer wholesaling industry and 4 per cent in the telecommunication services industry.<sup>20</sup> ICT specialist businesses employed close to

236'000 persons, 46 per cent of which were considered as ICT employees.

The ICTI Survey further analyses the income and profit generated by the industry and monitors capital expenditure and total industry value by businesses in the ICT industry grouping. Data from the survey are extensively used by DCITA's ICT Industry Division, to analyse emerging needs within the industry, for policy input and to promote Australia as an attractive location for investment (Box 5.2).

The ABS is currently preparing to publish an **ICT satellite account**, a detailed overview of supply and demand for ICT products in Australia. Carried out by the ABS' National Accounts Research section, the study, covering primarily the period 2002/03, will assemble data on all of the ICT goods and services produced and consumed by all sectors and industries in the Australian economy.<sup>21</sup> This "whole economy" perspective will measure the domestic production of international trade in ICT goods and services, and show employment in and employment through the ICT sector. It will take into consideration the contribution of ICT outside the traditional ICT industry and highlight the overall contribution of ICT on GDP. The importance of ICT has become a major policy issue in Australia and the study is expected to help policy-makers understand ICT investment and its impact on productivity.

**Box 5.2: More and more production and employment for and through ICT**

The ICT Division, part of the Department of Communications, Information Technology and the Arts (DCITA), provides policy advice and input on a range of issues pertaining to the Australian ICT sector. Its objectives are to develop strategies fostering an internationally competitive ICT industry, to help identify emerging trends and needs (for example in the area of employment) and to support research and development relevant to ICT.

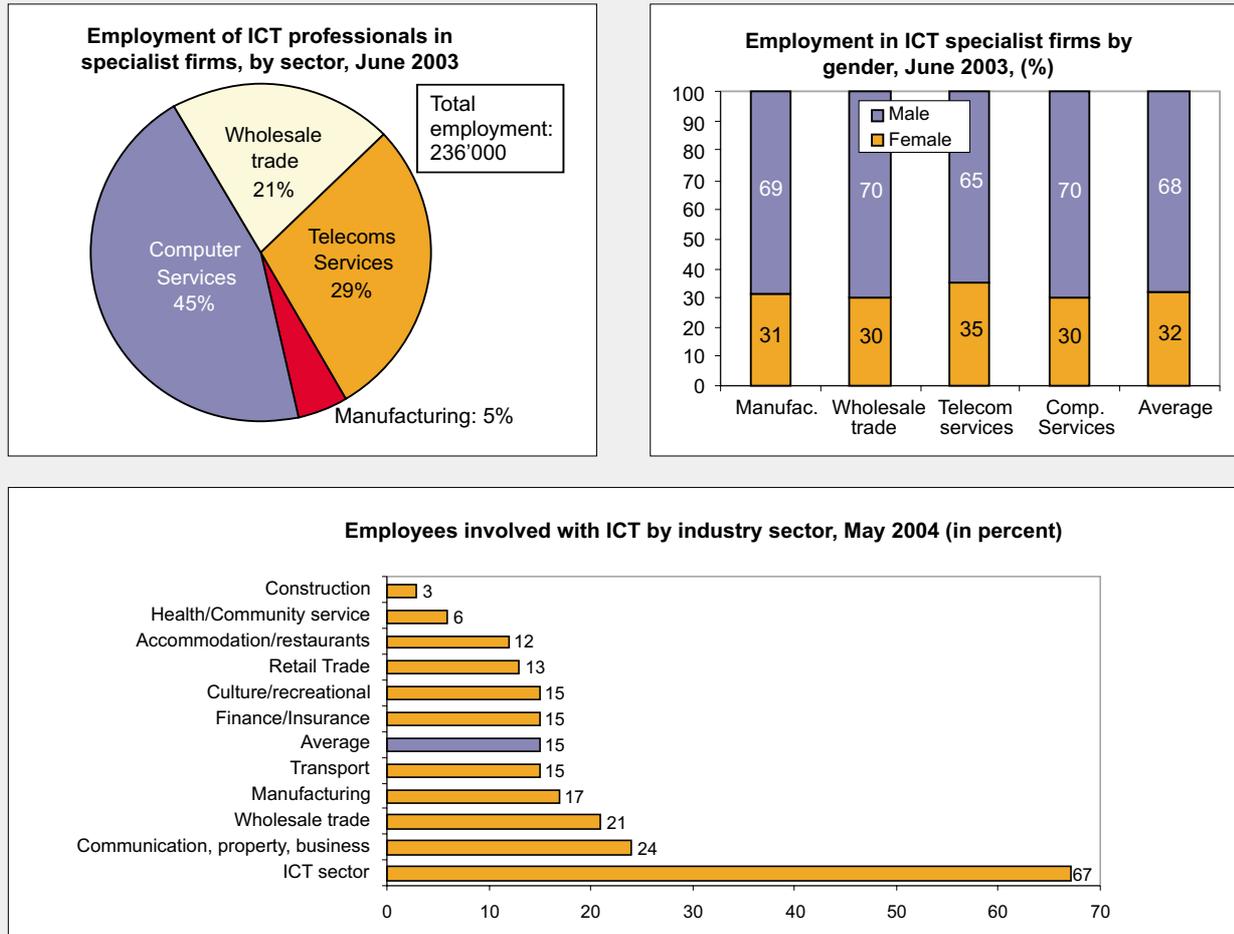
To carry out its tasks, the ICT Division relies heavily on ABS data, particularly for fundamental statistics provided through the Labour Force Survey, the Expenditure on Research and Development Surveys, and the Information and Communication Technology Industry Survey (ICTIS). To complement the ABS data and survey results, the Division carries out its own in-house studies and commissions research from third parties. DCITA also uses the Department of Education, Science and Training’s statistics on students enrolled in IT, and the Department of Employment and Work Place Relation’s labour force and ICT job vacancies data. Data from the Department of Immigration and Multicultural and Indigenous Affairs is used to analyse the labour market. In November 2004, employment in the Australian ICT sector represented 3.6 per cent of total Australian employment. The unemployment rate for ICT professionals was 3.1 per cent, below the national rate of 5.3 per cent. Employment of ICT professionals had remained stable between 2000 and early 2004. While there were some 236’000 people employed in ICT specialist firms in June 2003 (Box Figure 5.2, top left), some

356’000 ICT professionals and trades persons worked in the broader Australian economy in late 2004.

A 2004 report to DCITA on “ICT Production in Australian Small and Medium Enterprises (SMEs)” - based on a survey by Sensis - showed that ICT related employment today represents an average of 15 per cent of Australia’s SMEs (Box Figure 5.2, bottom). These findings demonstrate that ICT skills and employment are becoming increasingly important, even outside the traditional ICT sector. Other studies also confirm that considerable ICT production is going on throughout the entire economy. However, since most of this ICT production is incorporated into other (non-ICT) goods and services, it is not measured as ICT. This is a major shortcoming in the way ICT production and services in Australia (and other economies around the world) are measured and suggests that the real economic impact of ICT is far greater than current data suggest. The ABS’ satellite account (discussed under section 5.6) will overcome some of these shortcomings and help produce more reliable data.

The ICT Division also publishes gender-disaggregated data, which it is able to obtain from the ABS’ ICTIS. In June 2003, ICT specialist firms remained predominantly male – with 68 per cent men compared to 32 per cent women employed. The wholesale trade industry had the highest proportion of male employees (70%) and the telecommunications services industry the lowest (65%) (Box Figure 5.2, top right).

**Box Figure 5.2: Employment in the ICT industry, by sector, 2003 (left), and by gender (right); and percentage of employees in SMEs involved with ICT, by industry, May 2004 (bottom)**



Source: DCITA's ICT Industry Division, ABS ICTIC (top charts) and SENSIS (bottom chart).

The range of outputs included in the satellite account will reflect a number of factors, including: what is technically feasible, given Australia's range of ICT statistics for 2002-03; the statistical integrity exhibited by the data inputs to the satellite account; and the input of potential users. They may include:

- Domestic production and consumption of ICT products by industry;
- Investment in ICT products by type of product (hardware, software);
- ICT-related current expenses of businesses and the government, by type of expense (telecommunication, ICT repair and maintenance, wages, ICT contractors and consultants);
- Household spending on ICT products and goods;
- International trade in ICT products (by type of ICT product, and by principal destination and source); and
- Number of employees mainly engaged in ICT-related work, and compensation of employees, by ANZSIC industry.

The ICT satellite account separates the supply and use side of ICT, based on national accounts data, trade and other existing surveys and data collections.<sup>22</sup> Part

of the reason the ABS is able to carry out such a detailed ICT satellite account is because it already has an extensive range of ICT-related data. Existing data collections that will feed into the ICT satellite account include a number of macroeconomic statistics on imported and exported ICT goods (data are obtained as an administrative by-product from the Australian Customs Service) and statistics on international trade in ICT services obtained from the ABS Survey of International Trade in Goods and Services.

Besides providing a better picture of the impact of ICT on the overall economy, the report will help to identify data gaps and deficiencies in data quality since - at least in theory - supply and demand side accounts should be in perfect balance. The report will also help to clarify the classification of ICT goods, promote a more detailed understanding of the sources of supply and use of ICT, and help governments and the private sector make informed policy decisions.

The study, which is the first of its kind, is expected to be published in September 2005. Other countries, particularly OECD member states, will be using the study to better understand their own ICT sector.

- <sup>1</sup> The framework for the collection and classification of statistics on the production and delivery of ICT goods and services is based on the Australian System of National Accounts. The level of detailed information on ICT reflects the current “old economy” structure of the Australian and New Zealand Standard Industry Classification (ANZSIC) but are currently under review. The ANZSIC codings differ from the International Sector Industry Codes (ISIC) used by the OECD but are harmonized with them.
- <sup>2</sup> Quarterly HUIT surveys were conducted as part of the Population Monitor (PSM) in February 1994 and all quarters (February, May, August and November) of 1996, 1998, 1999 and 2000. Since the PSM was conducted for the last time in November 2000, data has been collected annually by adding modules and questions to a number of other ABS surveys, including the Survey of Education, Training and Information Technology (SETIT), General Social Survey (GSS) and/or Multi Purpose Household Survey (MPHS).
- <sup>3</sup> Data for the 2004 HUIT were obtained from the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), the 2003 Survey of Disability, Ageing and Carers (SDAC) and the 2003 Survey of Children’s Participation in Cultural and Leisure Activities (CPCLA).
- <sup>4</sup> In the General Social Survey of 2002, for example, the total sample was just over 15’500 households. This represents some 0.25% of all Australian households.
- <sup>5</sup> ANZSIC refers to the Australian and New Zealand Standard Industrial Classification. The ANZSIC classifies businesses by industry based on their primary or predominant activities. ‘Business’ in this sense includes any organization, which provides goods and services and includes companies, non profit organisations, government departments and enterprises. The ANZSIC has four levels of categories, ranging from the broadest (the division) through increasingly detailed dissections (the subdivision, group and class).
- <sup>6</sup> Broadband is defined by the ABS as an ‘always on’ Internet connection with an access speed equal to or greater than 256Kbps.
- <sup>7</sup> With a focus on financial data, the results are being used for the 2002-03 ICT satellite account, to be released end 2005.
- <sup>8</sup> A very comprehensive (but by now outdated) study on the use of computers in Australia’s primary and secondary schools was published 1998. The “Real Time: Computers, Change and Schooling” report, funded by the Commonwealth Department of Education, Training and Youth Affairs, was the result of a survey returned by 220 school principals, almost 1’300 teachers, and over 6’000 students in the final year of primary school and the final year of junior secondary school. Data on information technology policy were obtained from every major school system in Australia and from a number of smaller, independent authorities. The emphasis of the study was on determining which information technology (IT) skills students and teachers were using in the classroom, and not on the administrative uses of computers in the school. See <http://www.abs.gov.au/Ausstats/abs@.nsf/0/d34a3b2e9ed5bc12ca2569de0028de8f?OpenDocument> [Accessed 14 July 2005].
- <sup>9</sup> See the MCEETYA web site, at: <http://www.mceetya.edu.au> [Accessed 14 July 2005].
- <sup>10</sup> See <http://www.dest.gov.au/schools/adelaide/adelaide.htm> [Accessed 14 July 2005].
- <sup>11</sup> MCEETYA Performance Measurement and Reporting Taskforce. Information and Communication Technology Assessment Project (ICTAP). Assessment Framework for ICT Literacy. December 2003. DRAFT.
- <sup>12</sup> See <http://www.edna.edu.au/edna/go/pid/337> [Accessed 14 July 2005].
- <sup>13</sup> Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) ICT in Schools Taskforce. Learning in an online world: the school education action plan for the information economy. Infrastructure progress report 2003.
- <sup>14</sup> ABS, at [http://www.ausstats.abs.gov.au/ausstats/free.nsf/Lookup/25B1EF3F1C490F3ACA256F1100812D17/\\$File/42310\\_2004.pdf](http://www.ausstats.abs.gov.au/ausstats/free.nsf/Lookup/25B1EF3F1C490F3ACA256F1100812D17/$File/42310_2004.pdf) [Accessed 14 July 2005].

- <sup>15</sup> For an overview of the dimensions, characteristics, indicators, and the results see <http://www.abs.gov.au/Ausstats/abs@.nsf/94713ad445ff1425ca25682000192af2/4f377c757da4394fca256d97002c1a68!OpenDocument> [Accessed 14 July 2005].
- <sup>16</sup> No data were collected for the period 2000/01 as the Agriculture Census was conducted for this period and information technology data were not collected in the Agricultural Census.
- <sup>17</sup> For a discussion on the reasons for this change, see Box 4.1.
- <sup>18</sup> Modules are, for example, added to the Economic Activity Survey and Manufacturing Industry Survey.
- <sup>19</sup> Non-employing businesses are excluded.
- <sup>20</sup> The remaining 11 per cent were spread across the other industries surveyed.
- <sup>21</sup> Some time series, when available, will be included in the ICT Satellite Account.
- <sup>22</sup> The supply side, would, for example include imports and domestic production of ICT services and goods, whereas the use side refers to the consumption of ICT by the government, households, businesses, and the export of ICT services and goods.

## 6. INTERNATIONAL BENCHMARKING

*“Australia must measure its response against [its] global peers, not against our own past performance, strong as it has been.”*

(from Department of Communications, Information Technology and the Arts. Australia’s Strategic Framework for the Information Economy, 2004-2006. Opportunities and Challenges for the Information Age. July 2004)

Australia frequently puts its own performance into perspective by comparing itself to other countries. International comparisons are used to promote different sectors and particularly to attract international investors:<sup>1</sup>

- Australia’s economy has been ranked the most resilient in the world for the third year in succession (World Competitiveness Yearbook (WCY) 2004).

- Australia has the lowest risk of political instability in the Asia Pacific and the third lowest risk in the world (WCY 2004).
- Australia’s telecommunications and IT market is the fourth largest in the Asia Pacific region (World Information Technology and Services Alliances 2004).
- Characterised by early technology adoption rates and strong B2B growth, Australia is ranked third in the Asia Pacific region for “e-business readiness”(Economic Intelligence Unit – EIU 2004).

**Table 6.1: 2004 Information Economy Index Ranking**

Rank	Country	Score
1 <sup>st</sup>	US	65.1
2 <sup>nd</sup>	Canada	64.9
3 <sup>rd</sup>	Sweden	62.4
4 <sup>th</sup>	Hong Kong	59.7
5 <sup>th</sup>	Netherlands	58.6
6 <sup>th</sup>	Australia	58
7 <sup>th</sup>	UK	55.5
8 <sup>th</sup>	Japan	52.4
9 <sup>th</sup>	Germany	49.1
10 <sup>th</sup>	Spain	44.2
11 <sup>th</sup>	Italy	43.4
12 <sup>th</sup>	France	42.9

Source: DCITA.

In the area of ICT, the country’s high ranking in terms of e-government has been highlighted in Box 5.1. The latest ABS Business Use of Information Technology (BUIIT) survey shows that Australian businesses, compared to a number of OECD countries, are doing relatively well in terms of their Internet use and e-commerce activity (Figure 5.2, bottom).

At the same time, comparisons are used to highlight weaknesses, for example in the area of broadband: *“While Australia was a fast adopter of earlier generations of communication technology, Australia is currently lagging behind other Organisation for Economic Cooperation and Development (OECD) countries in broadband take-up”*.<sup>2</sup> (See Box 4.1 for a discussion on broadband statistics and benchmarking)

DCITA extensively uses the ABS and other statistics to analyse ICT developments, compare Australia to other countries and, based on these, make policy adjustments. In its 2002 Regional

Telecommunications Inquiry Report, for example, it compared Telstra's call drop-outs to those in the UK, concluding that "*Telstra compares favourably with UK carriers in terms of dropped calls*".<sup>3</sup> To compare Australia's performance internationally, DCITA's Information Economy Division has developed the **Information Economy Index** (Table 6.1). The annual report benchmarks Australia's and eleven other countries' performance in the information economy, presenting an Index of 19 indicators relating to readiness to participate in the information economy, and intensity of this participation (Table 6.2). The indicators for the Index have changed from previous years and were chosen and developed in accordance with the following parameters:

- relevance of the indicator as a measure of development and progress of the information economy for each one of the countries benchmarked;
- while the Index is an aggregation of heterogeneous indicators, for each indicator the data used is to be homogenous in terms of methodology, reference period and clear units of measure;
- likelihood of future availability of compatible data for continued benchmarking.

While these factors limit the scope of the index in terms of the number of countries and indicators that can be included, they make it a very straightforward index in terms of methodology. Each indicator is given equal weighting for its contribution to the final ranking and the indicators include the *access* and *use/intensity* of Information and Communication Technology.

According to the report, "*Australia is ranked highly in indicators targeting Internet access, number of secure servers per million inhabitants, penetration of online government services, and most importantly price of broadband, reflecting the declining entry-level price of broadband in Australia.*" Despite the low cost of broadband, Australia ranks last in *Internet connection speeds* (indicator 4) and second last in terms of *broadband households as a percentage of total households* (indicator 5). Overall, Australia ranks 6<sup>th</sup> and one position lower than in the 2003 Information Economy Index. While 16 indicators have remained exactly the same between 2003 and 2004, the total number of indicators was reduced from 23 in 2003, to 19 in 2004. The indicators "*Price of 40 hours of Internet use at peak times*" and "*Charges for a basket of national leased lines of 2 megabits per second*"

**Table 6.2: Information Economy Index indicators**

1. Percentage of persons 16 years and over with use of a mobile phone
2. Percentage of households which own / lease a PC
3. Percentage of households online
4. Internet connection speeds
5. Broadband households as a percentage of total households
6. Percentage of persons 2 years and over with Internet access via a home PC
7. Percentage of persons 16 years and over with Internet access from any location
8. Percentage of persons 16 years and over with Internet access at home or work
9. Wireless Internet access
10. Percentage of persons 16 years and over with Internet access by gender
11. Percentage of persons 16 years and over with Internet access by age group
12. Number of secure servers per million inhabitants
13. Price of broadband access
14. Average number of Internet sessions and hours online per month
15. Percentage of persons 16 years and over purchasing online
16. E-readiness rankings
17. Percentage of businesses online
18. Penetration of online government services
19. E-government rankings

were replaced by the "*price of broadband access*". Some other indicators were modified. While these changes make the index more flexible in terms of recent developments, it somewhat limits the comparability from one year to the other. Surprisingly, the changes in indicators are not discussed in the 2004 Index report.

To make data comparable across countries, the index does not use any national statistics (for example the ABS) but primarily Nielsen/NetRatings, eMarketer, OECD and some other sources. Particularly private marketing research companies do not always indicate the source of their data, which limits the transparency of the information and makes it difficult to verify. In the case of Australian "households with Internet access", for example, the source for the Nielsen/NetRatings data is not quite clear. While Nielsen/

NetRatings estimate that between the fourth quarter of 2002 and the fourth quarter of 2003, 54-58 per cent of Australian households had Internet access, the Australian Bureau of Statistics estimated this number to be at 53 per cent (in 2003). The figures are even more divergent for 2002, when Nielsen/NetRatings estimate that 54 per cent of households had access to the Internet, compared to 46 per cent according to the ABS.

These problems highlight the difficulties that countries and international organizations and research companies are facing in making international

comparisons, including the developed countries. The major problem is the lack of internationally agreed definitions of indicators. Even amongst the countries of the Organisation for Economic Cooperation and Development (OECD), which tries to encourage its member countries to implement appropriate collections, only some carry out regular ICT surveys. When countries collect data on Internet users, for example, it is not always clear which age groups they include, and how often a person must use the Internet to be considered a 'user'. Other definitional problems that have been discussed are 'broadband' and 'e-commerce'.

---

<sup>1</sup> These examples are taken from Invest Australia. 10 Good Reasons to Invest in Australia. The Future is Here. Technology Australia. 2004.

<sup>2</sup> Australian Bureau of Statistics. Broadband. Definitional issues, comparability and Australian experiences. Paper presented at the 2004 Asia-Pacific ICT Technical Meeting. Wellington, New Zealand. November/December 2004.

<sup>3</sup> Connecting Regional Australia. Report of the Regional Telecommunications Inquiry. 2002. Department of Communications, Information Technology and the Arts.



## 7. INFORMATION FOR POLICIES & POLICIES FOR INFORMATION

Statistical information plays an important role in analysing existing and formulating future policies in the Australian telecommunication sector. The Department of Communications, IT and the Arts (DCITA), through its Communications Research Unit (CRU), collects and analyses existing industry performance data, undertakes economic research, and prepares ICT briefings on developments to advise policy-makers. The Department's Information Economy Division (IED)<sup>1</sup> provides advice on emerging issues related to the information economy, such as e-business and e-security. It is also in charge of benchmarking Australia within the global information economy, which requires it to gather the appropriate statistics.

DCITA is also responsible for providing ICT statistics in a user-friendly format that will help decision-makers, as well as analysts, researchers and the public understand Australia's progress in the sector. These include a regularly updated web site, publications and the *Pocket Stats*, a collection of Australian and international Internet statistics in a pocket format that is produced twice a year.

One example of how information is used to adapt policies is the 2000 and 2002 Telecommunications Services Inquiry. When the 2000 report found that while Australians generally had adequate access to services, *"a significant proportion of those who live and work in rural and remote Australia have concerns regarding key aspects of services, which, at this stage are not adequate"*, the government reacted with a number of policy changes. These included regulatory modifications, a project to extend mobile coverage to towns with a population of 500 or more, and a total of AUS\$ 163 million in funding to extend access to ICT. Two years after the initial Inquiry, the 2002 Regional Telecommunications Inquiry was published to assess how far these policies and projects had improved services in rural and remote areas.

Statistics had a similar impact in the area of broadband. When international comparisons showed that Australia was lagging behind in terms of broadband penetration, the government launched an extensive review of broadband policies, which led to a new policy framework, the National Broadband Strategy.

The ABS' statistics are an important source used to monitor how Australia's information economy and society are evolving. In particular, its household and business surveys help track policy objectives, such as those outlined in the recently published Strategic Framework for the Information Economy.<sup>2</sup> There is some pressure on the National Statistical Office to continuously adapt its statistical work to policy needs and to provide up-to-date information. To meet these policy needs and to identify information gaps, the ABS liaises with its statistical users.

Just as ICT statistics are used to alter and improve policies, directives and guidelines are established to produce up-to-date and relevant information and overcome information gaps.

When in 2003 the Minister for Communications, IT and the Arts requested the ACCC to provide more detailed broadband statistics, the policy-maker was requesting more information for better policies: *"The objective of the enhanced monitoring and reporting arrangements is to provide more information to improve transparency in the market. A more efficient market is also expected to have flow on benefits such as promoting competition, and assisting rational investment in the industry. Additionally, the information will be used to evaluate the effectiveness of the Government's telecommunications reforms and assist further policy development."*<sup>3</sup>

The use of existing data and the commissioning of new surveys is often the result of top-level policy statements or an identified lack of information. An example is the 2002 request by the Prime Minister addressed to the Minister for Communications, IT and the Arts to develop an ICT Framework for the Future (F3). The objective of this framework was to assess the current state and trends of the ICT industry, to understand the impact of ICT as a tool for social and economic development and, based on this, to develop a medium-term framework for the ICT industry. The F3 report, which was released in April 2003, highlighted a number of priority areas and provided a strategic policy framework to make sure that the ‘information capability’ of ICT was adequately exploited to achieve broad national goals. The report, which highlighted that “*good information underpins good policy-making*”, included concrete recommendations on monitoring the ICT industry and its impact. While the report recognized the ABS as the major source of information, it pointed to a number of concerns, particularly timeliness and the classifications adopted by the ABS. Reliable data were up to three years old and “*...statistical information on the ICT industry is incomplete, and work is required to better map and*

*measure the industry, particularly that component of ICT activity which takes place outside the traditional boundaries of the industry.*”<sup>4</sup> Following this report, DCITA developed an informal discussion paper to address Australia’s ICT information needs and statistical collections. While the ABS has highlighted that it is difficult to improve the collection frequency and timeliness (mainly for resource reasons), it is in the process of updating the industry classification standard to ensure that the standard better reflects the structure of the current economy. It is also closely working with the OECD, which is set to propose a classification of ICT manufactured goods and to encourage more work towards the classification of ICT services.

Another area where policy-makers have voiced their concerns about the lack of statistics is ‘IT security’. To formulate appropriate policies, the government is currently exploring ways of improving the availability of statistical information on security risks, breaches, and their related costs. This issue was one of the main topics discussed at the last ICT Reference Group meeting in April 2005.

---

<sup>1</sup> The Information Economy Unit was formerly part of the National Office for the Information Economy but following reorganisation it is now part of DCITA.

<sup>2</sup> Department of Communications, IT and the Arts. Australia’s Strategic Framework for the Information Economy 2004-2006. Opportunities and Challenges for the Information Age. 2004.

<sup>3</sup> The Minister for Communications, IT and the Arts. Monitoring and reporting on competition in the telecommunications industry determination 2003 (no. 1). Explanatory statement. 2003.

<sup>4</sup> Department of Communications, IT and the Arts. Australia’s Strategic Framework for the Information Economy 2004-2006. Opportunities and Challenges for the Information Age. 2004.

## 8. CONCLUSIONS

Australia's accomplishments in the collection, dissemination and use of Information and Communication Technology (ICT) statistics make it an insightful case study. A number of points that might help other countries improve their own ICT data collection process should be highlighted:

1. Australia's National Statistical Office, the Australian Bureau of Statistics (ABS), is an independent statutory authority with a strong mandate and legal foundation. While there is a legislative process that needs to be followed in order to approve the collection of data, the ABS has the right to compel Australian citizens, businesses etc to provide information. This clearly strengthens the national statistical office and facilitates the collection of data. In the area of ICT and telecommunications, the Australian Competition and Consumer Commission (ACCC), the competition regulator, also benefits from a strong legal basis. As part of the regulatory reporting requirements under the Regulatory Accounting Framework (RAF), the telecom operators are required to provide the ACCC with revenue and usage information. The importance of this legal foundation should not be underestimated. In many countries market information is provided on a voluntary basis, with operators reluctant to provide financial and usage data.
  - a. In countries such as Australia, where individuals and businesses are required to provide the government with market information, it is up to the administrations to limit the burden on operators (and individuals). In Australia, data requirements are often the result of a negotiation process between, for example, the regulators and the industry. The regulators also try to use already existing and published information provided by the operators and to harmonize and adapt this information to their own needs.
2. The Australian Bureau of Statistics (ABS) has tailored its data collecting process to fit the information requirements called for by the monitoring of the information society and economy. ABS has, over time, introduced specific surveys to expand from supply side statistics essentially covering the ICT industry to include the demand side of the sector. Demand side statistics monitor the use of ICT by different groups and sectors of the economy and society, such as households, individuals, businesses, and the government. This is particularly important since information on the use of ICT is significant in monitoring the progress made towards the information society.
  - a. A user funding arrangement allows government departments and agencies to provide funding to enable the ABS to collect a greater range of data than would otherwise have been possible within ABS resource constraints.
  - b. Some of the ICT-related data, for example the Household Use of IT (HUIT) data, are not collected on standalone surveys but attached to other surveys. This flexible approach helps reduce costs and resources.
  - c. ABS surveys are characterized by detailed information on the survey methodology, including: survey questions (and how they were asked), definitions, scope and coverage of the survey, sample sizes and data comparability. Explanatory notes are used to highlight if results from different years are not comparable, and in which way the methodology has changed.
  - d. The ABS monitors international and national data collection efforts, indicator concepts and definitions to avoid duplication and to allow for comparability of its statistics.

The major shortcoming of the ABS surveys is the time it takes to process and release the information once it has been collected. Since it takes the ABS between 12-18 months to release most survey results, data are often out-of-date by the time they are published. This is particularly problematic in the area of ICT, where things change rapidly.

3. Australia's organizations involved in the collection and use of ICT statistics have been cooperating well. Collaboration is crucial to producing meaningful ICT statistics, particularly as Information and Communication Technology as a tool for social and economic development will cut across different sectors of the economy and involve various players.

- a. While there is no official national ICT statistical focal point, the ABS has developed into the key coordinator, and through the recent introduction of the ICT Reference Group, formalized this process.
- b. There are a number of formal and informal mechanisms that allow ICT statistic users to provide input to the ABS statistical collection process, and the ABS reviews its user requirements regularly.

4. Australia's policy-makers recognize the need for reliable and up-to-date statistical information to make appropriate policy decisions and to feed the 'statistics-knowledge-policy' circle.

- a. The importance of ICT received high-level recognition by being included on the 2001 and (upcoming) 2006 Population and Housing Census. Census results in general are very useful for policy input in that they provide in-depth information because data can be cross-tabulated across a range of other variables, including geographic location, socio-economic characteristics etc. The inclusion of two ICT-related questions (on computer and Internet use) has much helped the government identify and measure the country's digital divide. The inclusion of a question concerning the use of

broadband on the 2006 Census will provide detailed information on this important issue and shows the adaptability of the data collection process to reflect current priorities.

- b. The government uses international benchmarking to put Australia's achievements into perspective. It uses existing indices and studies to highlight strengths and weaknesses and carries out its own benchmarking, in the form of its Information Economy Index.

- c. The ACCC is required to provide the Minister for Communications, Information Technology and the Arts with three annual telecommunication reports, (on competition safeguards, Telstra's compliance with price control arrangements and changes in the prices paid by consumers for telecommunication services). This 'automated' reporting process guarantees that the government receives regular updates and stays on top of developments in the sector.

- d. Specific surveys are carried out to understand if government funding/subsidies for a certain service or a certain technology have proved successful. This monitoring process allows the government to evaluate its policies.

- e. Much more than in most other countries, Australia's statistical monitoring process has taken a strong "consumer-oriented perspective". To evaluate the efficiency and adequacy of its telecommunication sector, the government looks at the consumer's satisfaction levels, for example through the ACA's Consumer Satisfaction Survey.

5. The private sector plays an important role in collecting ICT statistics, particularly to fill information gaps. While the continuity and scope of the ABS surveys are crucial in understanding Australia's progress towards becoming an information society and economy, ad-hoc studies can provide greater flexibility and provide more rapid answers to pressing issues, for example in the area of e-security or e-commerce.

## REFERENCES

- Australian Bureau of Statistics. Broadband. Definitional issues, comparability and Australian experiences. Paper presented at the 2004 Asia-Pacific ICT Technical Meeting. Wellington, New Zealand. November/December 2004.
- Nikki Deighton. An overview of ICT data sets collected in Australia, the United States, United Kingdom, across the OECD and New Zealand, Japan, Korea and Singapore. Prepared for the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) ICT in Schools Taskforce. 2003.
- Department of Communications, Information Technology and the Arts. The Current State of Play. 2004.
- Department of Communications, Information Technology and the Arts. Information Economy Index. 2004.
- Department of Communications, Information Technology and the Arts. Australia's Strategic Framework for the Information Economy 2004-2006. Opportunities and Challenges for the Information Age. 2004.
- Department of Communications, Information Technology and the Arts. Connecting Regional Australia. Report of the Regional Telecommunications Inquiry. 2002.
- Department of Communications, Information Technology and the Arts. Enabling our Future. A Framework for the information and communications technology industry. The report of the Framework for the Future Steering Committee to the Minister for Communications, Information Technology and the Arts. April 2003.
- Department of Finance and Administration. Australian Government Information Management Office. Australian's Use of and Satisfaction with E-government Services. June 2005.
- Donald J. Johnston, Secretary General of the Organization for Economic Co-operation and Development. "Statistics, Knowledge and Policy", presentation made at the OECD World Forum on Key Indicators in Palermo, 12 November 2004.
- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA). Performance Measurement and Reporting Taskforce. Information and Communication Technology Assessment Project (ICTAP). Assessment Framework for ICT Literacy. December 2003. DRAFT.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) ICT in Schools Taskforce. Learning in an online world: the school education action plan for the information economy. Infrastructure progress report 2003.
- National Office for the Information Economy. Better Services Better Government. The Federal Government's e-government Strategy. November 2002.
- National Office for the Information Economy. The Current State of Play. Online Participation and Activities. 2003.
- National Office for the Information Economy. The E-government Benefits Study. May 2003.
- National Office for the Information Economy. Australian Communities Online. 2002.
- Tim Power, ABS, Information & Communication Technology (ICT) Statistics.
- I. Richard Kenneth Robert Alston, Minister for Communications, Information Technology and the Arts. Monitoring and Reporting on Competition in the Telecommunications Industry Determination 2003 (No. 1). May 5, 2003.
- Sensis e-Business Report. The Online Experience of Small and Medium Enterprises. July 2004.
- Sensis Consumer Report. June 2004.
- Sensis Business Index. Special Report for the Department of Communications, Information Technology and the Arts. ICT Production in Australian SMEs. November 2004.



## ANNEX 1

### HUIT Question Module - GSS

#### New Economy NSC WDB

Michael Robertson 05/04/2004 10:20 AM

### HOUSEHOLD USE OF INFORMATION TECHNOLOGY (HUIT)

The questions below were used to collect HUIT data in the 2002 General Social Survey conducted by the Australian Bureau of Statistics. HUIT was one of the areas of questions asked in this survey.

This survey is a household based survey enumerated by trained interviewers in face to face interviews.

The survey was conducted using Computer Assisted Interviewing (CAI). The questions are broken into small modules. Each module has the following characteristics:

Sequence - this indicates the order in which the modules are asked.

Module Id & Name - labels

Population - specifies the population for whom the module is asked. This sequence checking is done automatically by the computer. Where a person/household is not in the target population for a module they are moved to the next module, and so on.

Upper case text - question wording asked of the respondent. Where text appears in "[ ]" the interviewer chooses the most appropriate wording.

Lower case text - response categories. At the end of each category is indicated the next question to be asked based on that response. Where "End" is specified it means that no more questions are asked in that module. The respondent goes on to the next module.

Italics - these are instructions to the interviewer. They are not read out to respondents.

Prompt Cards - these are used to enable respondents to see the categories for responses. In these modules of questions a prompt card will list the response categories for that question, excluding "Don't know".

Sequence: 11.1  
 Module Id: HHAT  
 Module Name: Household access to technologies  
 Population: All persons

Q1 *Interviewer: Show Prompt Card 24*

[DOES ANY MEMBER OF THIS HOUSEHOLD/DO YOU] USE ANY OF THESE AT HOME?

*Interviewer: If 'yes', prompt for which ones.  
 More than one response is allowed.*

- |   |     |
|---|-----|
| 10 - Telephone (fixed or cordless)                    | End |
| 11 - Answering machine                                | End |
| 12 - Facsimile machine (fax)                          | End |
| 13 - Mobile telephone                                 | End |
| 14 - Pay television service                           | End |
| 15 - Standard television set (analogue)               | End |
| 16 - Digital television set                           | End |
| 17 - Set top conversion box (for analogue television) | End |
| 18 - Video recorder                                   | End |
| 19 - DVD player                                       | End |
| 20 - Games machine (PlayStation, Nintendo or similar) | End |
| 21 - None of the above                                | End |
| 22 - Don't know                                       | End |

Sequence: 11.2  
 Module Id: HHC  
 Module Name: Household access to computer at home  
 Population: All persons

Q1 I AM NOW GOING TO ASK ABOUT YOUR [HOUSEHOLD'S] USE OF COMPUTERS AND THE INTERNET.

[DOES ANY MEMBER OF THIS HOUSEHOLD/ DO YOU] HAVE ACCESS TO A COMPUTER AT HOME, REGARDLESS OF WHETHER IT IS USED?

1 - Yes	Q2
2 - No	Q3

Q2 THINKING ABOUT LAPTOPS, NOTEBOOKS, DESKTOP COMPUTERS OR ANY OTHER COMPUTER, HOW MANY COMPUTERS ARE USED IN THIS HOUSEHOLD?

*Interviewer: Record number of computers. If Don't know, enter 99.*

*0...98	End
99 - Don't know	End

Q3 WHAT IS THE MAIN REASON FOR NOT HAVING A COMPUTER AT HOME?

1 - Costs are too high	End
2 - Lack of interest in computers	End
3 - No one in household knows how to use a computer	End
4 - No need for a computer	End
5 - Have access to a computer elsewhere	End
6 - Other	End
7 - Don't know	End

Sequence: 11.3  
 Module Id: HHI  
 Module Name: Household access to the Internet at home  
 Population: All persons

Q1 THE NEXT FEW QUESTIONS ARE ABOUT [THIS HOUSEHOLD'S/ YOUR] USE OF THE INTERNET. BY INTERNET WE MEAN USE OF E-MAIL OR THE WORLD WIDE WEB.

[DOES ANY MEMBER OF THIS HOUSEHOLD/ DO YOU] HAVE ACCESS TO THE INTERNET AT HOME?

- |                |    |
|----------------|----|
| 1 - Yes        | Q2 |
| 2 - No         | Q6 |
| 3 - Don't know | Q7 |

Q2 *Interviewer: Show Prompt Card 25*

WHICH OF THE FOLLOWING IS USED TO ACCESS THE INTERNET AT HOME?

*Interviewer: More than one response is allowed.*

- |  |    |
|--|----|
| 1 - Television (digital television or via set top box) | Q3 |
| 2 - Mobile phone                                       | Q3 |
| 3 - Computer via a modem                               | Q3 |
| 4 - Games machine                                      | Q3 |
| 5 - Other  | Q3 |
| 6 - Don't know   | Q3 |

Q3 *Sequence guide:*

- |   |    |
|---|----|
| 1 - If at least two computers in household (OR number of computers = Don't know) and computer via a modem used to access the internet (HHC/Q2 >=2 AND HHI/Q2=3) | Q4 |
| 2 - Else  | Q5 |

Q4 HOW MANY COMPUTERS IN THIS HOUSEHOLD ARE USED TO ACCESS THE INTERNET?

*Interviewer: Record number of computers in household used to access the Internet. If Don't know, enter 99.*

- |                 |    |
|-----------------|----|
| * 1..98         | Q5 |
| 99 - Don't know | Q5 |

Q5 Interviewer: Show Prompt Card 26

HOW OFTEN WAS THE INTERNET ACCESSED IN THIS HOUSEHOLD IN THE LAST 12 MONTHS?

- |                               |     |
|-------------------------------|-----|
| 1 - Seven days a week         | End |
| 2 - Two to six days a week    | End |
| 3 - One day a week            | End |
| 4 - One day a fortnight       | End |
| 5 - One day a month           | End |
| 6 - Less than one day a month | End |
| 7 - Not at all                | End |
| 8 - Don't know                | End |

Q6 WHAT IS THE MAIN REASON FOR NOT HAVING ACCESS TO THE INTERNET AT HOME?

- |  |    |
|--|----|
| 1 - Insufficient capacity/Need to upgrade computer       | Q7 |
| 2 - Costs are too high                                   | Q7 |
| 3 - Lack of confidence/skills with computer              | Q7 |
| 4 - Lack of interest in Internet                         | Q7 |
| 5 - Poor opinion of Internet                             | Q7 |
| 6 - No one in household knows how to use the Internet    | Q7 |
| 7 - Concern that children may access inappropriate sites | Q7 |
| 8 - Have access to Internet elsewhere                    | Q7 |
| 9 - No use for Internet                                  | Q7 |
| 10 - Privacy concerns                                    | Q7 |
| 11 - Other   | Q7 |
| 12 - Don't know  | Q7 |

Q7 IN THE NEXT 12 MONTHS [DOES ANY MEMBER OF THIS HOUSEHOLD/DO YOU] INTEND TO GET ACCESS TO THE INTERNET AT HOME?

- |                |     |
|----------------|-----|
| 1 - Yes        | End |
| 2 - No         | End |
| 3 - Don't know | End |

Sequence: 11.4  
Module Id: PCI  
Module Name: Personal use of computers and the Internet  
Population: All persons, excluding 1 member households

Q1 THE NEXT FEW QUESTIONS ARE ABOUT YOUR USE OF COMPUTERS AND THE INTERNET.

*Interviewer: If respondent volunteers that they never use computers or the Internet anywhere, select 2.*

- 1 - Continue End
- 2 - Respondent volunteers that they never use computers or the Internet End

Sequence: 11.4.1  
Module Id: PCMU  
Module Name: Personal use of computers in multi-person households  
Population: Persons from households with more than one person where computer is used who have not volunteered they never use a computer or the Internet (HHT not lone person and HHC/Q2>0 and PCI/Q1=1)

Q1 IN THE LAST 12 MONTHS, DID YOU USE A COMPUTER AT HOME?

1 - Yes

End

2 - No

End

Sequence: 11.4.2  
 Module Id: PCH  
 Module Name: Personal use of computers in all households  
 Population: Persons who have used a computer at home in last 12 months  
 (HHT not lone person and PCMU/Q1 = 1) or  
 (HHT lone person and HHC/Q2>0)

Q1 *Interviewer: Show Prompt Card 27*

FOR WHICH PURPOSES DID YOU USE A COMPUTER AT HOME IN THE LAST 12 MONTHS?

*Interviewer: More than one response is allowed. Press space bar between responses.*

- |                                |    |
|--------------------------------|----|
| 1 - Work/business              | Q2 |
| 2 - Education/study            | Q2 |
| 3 - Volunteer/community groups | Q2 |
| 4 - Personal/private           | Q2 |
| 5 - Other                      | Q2 |

Q2 *Sequence guide:*

- |   |     |
|---|-----|
| If more than one purpose for using a computer at home<br>(PCH/Q1 >1 response) | Q3  |
| Else  | End |

Q3 *Interviewer: Show Prompt Card 27*

FOR WHICH PURPOSE DID YOU SPEND THE MOST TIME ON THE COMPUTER AT HOME IN THE LAST 12 MONTHS?

- |                                |     |
|--------------------------------|-----|
| 1 - Work/business              | End |
| 2 - Education/study            | End |
| 3 - Volunteer/community groups | End |
| 4 - Personal/private           | End |
| 5 - Other                      | End |
| 6 - Don't know                 | End |

Sequence: 11.4.3  
 Module Id: PIMU  
 Module Name: Personal use of the Internet in multi-person households  
 Population: Persons from households with more than one person whose household has accessed the Internet in the last 12 months who have not volunteered they never use a computer or the Internet (HHT not lone person and HHI/Q1 = 1 and HHI/Q5 ne 7 and PCI/Q1=1)

Q1 IN THE LAST 12 MONTHS, DID YOU ACCESS THE INTERNET AT HOME?

- 1 - Yes
- 2 - No

Q2  
End

Q2 *Interviewer: Show Prompt Card 28*

HOW OFTEN DID YOU ACCESS THE INTERNET AT HOME IN THE LAST 12 MONTHS?

- 1 - Seven days a week
- 2 - Two to six days a week
- 3 - One day a week
- 4 - One day a fortnight
- 5 - One day a month
- 6 - Less than one day a month
- 7 - Don't know

End  
End  
End  
End  
End  
End  
End

Sequence: 11.4.4  
 Module Id: PIH  
 Module Name: Personal use of the Internet in all households  
 Population: Persons who have used the Internet at home in last 12 months  
 ((HHT not lone person and PIMU/Q1 = 1) or  
 (HHT lone person and HHI/Q5=response and HHI/Q5 ne 7 ))

Q1 *Interviewer: Show Prompt Card 29*

FOR WHICH PURPOSES DID YOU ACCESS THE INTERNET AT HOME IN THE  
 LAST 12 MONTHS?

*Interviewer: More than one response is allowed. Press space bar between responses.*

1 - Work/business	Q2
2 - Education/study	Q2
3 - Volunteer/community groups	Q2
4 - Personal/private	Q2
5 - Other	Q2

Q2 *Sequence guide:*

If more than one purpose for using accessing the Internet at home  
 (PIH/Q1 >1 response)

Else Q3

End

Q3 *Interviewer: Show Prompt Card 29*

FOR WHICH PURPOSE DID YOU SPEND THE MOST TIME ON THE INTERNET  
 AT HOME IN THE LAST 12 MONTHS?

1 - Work/business	End
2 - Education/study	End
3 - Volunteer/community groups	End
4 - Personal/private	End
5 - Other	End
6 - Don't know	End

Sequence: 11.5  
Module Id: WDUV  
Module Name: Work done including unpaid and voluntary work  
Population: Persons who are out of work and have not done voluntary work in the last 12 months who have not volunteered they never use a computer or the Internet and who who have NOT indicated that they have 'never worked' (DWD/Q18=98 or DWD/Q18=no response and DWD/Q18 <> DK and VW/Q1=22 and TSLW/Q1<> 4 and (PCI/Q1=1 or lone person household))

Q1 IN THE LAST 12 MONTHS, DID YOU DO ANY WORK AT ALL IN A JOB, BUSINESS OR FARM?

1 - Yes

End

2 - No

End

Sequence: 11.5.1  
 Module Id: PCIW  
 Module Name: Personal use of computers and the internet at work  
 Population: Persons who have done work in the last 12 months including unpaid or voluntary work who have not volunteered they never use a computer or the Internet  
 (((DWD/Q18>0 and DWD/Q18ne98) or DWD/Q18 = DK or VW/Q1<22 or WDUV/Q1=1) and (PCI/Q1=1 or lone person household))

Q1 IN THE LAST 12 MONTHS, DID YOU USE A COMPUTER AT WORK? [PLEASE INCLUDE ANY UNPAID OR VOLUNTARY WORK YOU MAY HAVE DONE.]

1 - Yes	Q2
2 - No	Q2

Q2 IN THE LAST 12 MONTHS, DID YOU ACCESS THE INTERNET AT WORK? [PLEASE INCLUDE ANY UNPAID OR VOLUNTARY WORK YOU MAY HAVE DONE.]

1 - Yes	Q3
2 - No	End

Q3 *Interviewer: Show Prompt Card 30*

HOW OFTEN DID YOU ACCESS THE INTERNET AT WORK IN THE LAST 12 MONTHS?

1 - Seven days a week	End
2 - Two to six days a week	End
3 - One day a week	End
4 - One day a fortnight	End
5 - One day a month	End
6 - Less than one day a month	End
7 - Don't know	End

Sequence: 11.6  
 Module Id: PCIO  
 Module Name: Personal use of computers and the Internet in other places  
 Population: Persons who have not volunteered they never use a computer or the Internet  
 (HHT lone person or PCI/Q1=1)

Q1 *Interviewer: Show Prompt Card 31*

[EXCLUDING YOUR PLACE OF WORK,] IN THE LAST 12 MONTHS DID YOU USE A COMPUTER AT ANY OF THESE PLACES?

*Interviewer: If 'yes', prompt for which ones.*

*More than one response is allowed. Press space bar between responses.*

- |  |    |
|--|----|
| 1 - School                                 | Q2 |
| 2 - TAFE/tertiary institution              | Q2 |
| 3 - Public library                         | Q2 |
| 4 - Government agency/department/shopfront | Q2 |
| 5 - Internet/cyber cafe or similar         | Q2 |
| 6 - Community or voluntary organisation    | Q2 |
| 7 - Neighbour's/friend's/relative's house  | Q2 |
| 8 - Other                                  | Q2 |
| 9 - <u>No</u>                              | Q2 |

Q2 *Interviewer: Show Prompt Card 31*

[EXCLUDING YOUR PLACE OF WORK,] IN THE LAST 12 MONTHS DID YOU USE THE INTERNET AT ANY OF THESE PLACES?

*Interviewer: If 'yes', prompt for which ones.*

*More than one response is allowed. Press space bar between responses.*

- |  |     |
|--|-----|
| 1 - School                                 | Q3  |
| 2 - TAFE/tertiary institution              | Q3  |
| 3 - Public library                         | Q3  |
| 4 - Government agency/department/shopfront | Q3  |
| 5 - Internet/cyber cafe or similar         | Q3  |
| 6 - Community or voluntary organisation    | Q3  |
| 7 - Neighbour's/friend's/relative's house  | Q3  |
| 8 - Other                                  | Q3  |
| 9 - No                                     | End |

Q3 *Interviewer: Show Prompt Card 32*

HOW OFTEN DID YOU ACCESS THE INTERNET AT [THAT PLACE/insert place/THOSE PLACES] IN THE LAST 12 MONTHS?

- |                               |     |
|-------------------------------|-----|
| 1 - Seven days a week         | End |
| 2 - Two to six days a week    | End |
| 3 - One day a week            | End |
| 4 - One day a fortnight       | End |
| 5 - One day a month           | End |
| 6 - Less than one day a month | End |
| 7 - Don't know                | End |

Sequence: 11.7  
 Module Id: I  
 Module Name: Uses of the Internet  
 Population: Persons who have used the internet in the last 12 months ((HHT = lone person and (HHI/Q1 = 1 or PCIW/Q2 = 1 or PCIO/Q2 ne 9)) or (HHT = multiperson household and (PIMU/Q1 = 1 or PCIW/Q2 = 1 or (PCIO/Q2=response and PCIO/Q2 ne 9))))

Q1 IN THE LAST 12 MONTHS, DID YOU USE E-MAIL OR ACCESS CHAT SITES VIA THE INTERNET?

- |         |    |
|---------|----|
| 1 - Yes | Q2 |
| 2 - No  | Q2 |

Q2 IN THE LAST 12 MONTHS, DID YOU BUY OR SELL SHARES VIA THE INTERNET FOR PRIVATE PURPOSES?

- |         |    |
|---------|----|
| 1 - Yes | Q3 |
| 2 - No  | Q3 |

Q3 IN THE LAST 12 MONTHS, DID YOU PURCHASE OR ORDER GOODS OR SERVICES FOR YOUR OWN PRIVATE USE VIA THE INTERNET?

- |         |     |
|---------|-----|
| 1 - Yes | Q4  |
| 2 - No  | Q10 |

Q4 *Interviewer: Show Prompt Card 33*

WHAT TYPES OF GOODS AND SERVICES DID YOU PURCHASE OR ORDER VIA THE INTERNET IN THE LAST 12 MONTHS?

*Interviewer: More than one response is allowed. Press space bar between responses.*

- |                                       |    |
|---------------------------------------|----|
| 10 - Food and groceries               | Q5 |
| 11 - Alcohol                          | Q5 |
| 12 - Toys                             | Q5 |
| 13 - Videos/DVDs                      | Q5 |
| 14 - Music/CDs                        | Q5 |
| 15 - Books/magazines                  | Q5 |
| 16 - Computer software                | Q5 |
| 17 - Computer hardware or peripherals | Q5 |
| 18 - Clothing/shoes, etc.             | Q5 |
| 19 - Sporting equipment               | Q5 |
| 20 - Travel/accommodation             | Q5 |
| 21 - Tickets to entertainment/cinema  | Q5 |
| 22 - Financial services               | Q5 |
| 23 - Other                            | Q5 |

Q5 ON HOW MANY OCCASIONS DID YOU PURCHASE OR ORDER GOODS OR SERVICES VIA THE INTERNET IN THE LAST 12 MONTHS?

*Interviewer: Record number of occasions. If Don't know, enter 999.*

* 001...998	Q6
999 - Don't know	Q6

Q6 *Interviewer: Show Prompt Card 34*

WHAT WAS THE TOTAL VALUE OF GOODS AND SERVICES PURCHASED OR ORDERED VIA THE INTERNET IN THE LAST 12 MONTHS?

1 - \$0-\$250	Q7
2 - \$251-\$500	Q7
3 - \$501-\$1,000	Q7
4 - \$1,001-\$2,000	Q7
5 - \$2,001-\$5,000	Q7
6 - \$5,001-\$10,000	Q7
7 - \$10,001 or more	Q7
8 - Don't know	Q7

Q7 DID YOU PAY FOR ANY OF THOSE GOODS OR SERVICES BY ENTERING YOUR CREDIT CARD DETAILS ONLINE?

1 - Yes	Q8
2 - No	Q9

Q8 *Interviewer: Show Prompt Card 34*

HOW MUCH DID YOU PAY ONLINE FOR GOODS AND SERVICES PURCHASED OR ORDERED VIA THE INTERNET IN THE LAST 12 MONTHS?

1 - \$0-\$250	Q9
2 - \$251-\$500	Q9
3 - \$501-\$1,000	Q9
4 - \$1,001-\$2,000	Q9
5 - \$2,001-\$5,000	Q9
6 - \$5,001-\$10,000	Q9
7 - \$10,001 or more	Q9
8 - Don't know	Q9

Q9 DID YOU PURCHASE OR ORDER THOSE GOODS OR SERVICES FROM AUSTRALIA OR OVERSEAS?

1 - Australia	Q11
2 - Overseas	Q11
3 - Both	Q11
4 - Don't know	Q11

Q10 WHAT WAS THE MAIN REASON FOR NOT PURCHASING ANY GOODS OR SERVICES?

- |   |     |
|---|-----|
| 1 - Have no need  | Q11 |
| 2 - Prefer to shop in person/like to see the product                        | Q11 |
| 3 - Security concerns/concerned about providing credit card details on-line | Q11 |
| 4 - Privacy concerns/concerned about providing personal details on-line     | Q11 |
| 5 - Trust concerns/concerned about receiving or returning goods             | Q11 |
| 6 - Other   | Q11 |

Q11 *Interviewer: Show Prompt Card 35*

IN THE LAST 12 MONTHS, DID YOU USE THE INTERNET TO ACCESS ANY GOVERNMENT SERVICES FOR PRIVATE PURPOSES?

*Interviewer: If 'yes', prompt for which ones.*

*More than one response is allowed. Press space bar between responses.*

- |  |     |
|--|-----|
| 10 - Tax returns                                   | Q12 |
| 11 - Applications or claims for benefits           | Q12 |
| 12 - Applications for permits etc.                 | Q12 |
| 13 - Bill payments e.g. rates and car registration | Q12 |
| 14 - Taxation                                      | Q12 |
| 15 - Pensions or other benefits                    | Q12 |
| 16 - Employment/unemployment                       | Q12 |
| 17 - Other   | Q12 |
| 18 - No  | Q12 |
| 19 - Don't know                                    | Q12 |

Q12 IN THE LAST 3 MONTHS, THAT IS, SINCE THIS TIME IN [MONTH], DID YOU ACCESS THE INTERNET TO PAY BILLS, TRANSFER FUNDS OR FIND OUT ACCOUNT BALANCES?

- |         |     |
|---------|-----|
| 1 - Yes | End |
| 2 - No  | End |

Sequence: 11.8  
Module Id: EBNK  
Module Name: Electronic Banking  
Population: All persons

Q1 IN THE LAST 3 MONTHS, THAT IS, SINCE THIS TIME IN [MONTH], HAVE YOU USED THE TELEPHONE TO ACCESS BANK ACCOUNTS TO PAY BILLS, TRANSFER FUNDS OR FIND OUT ACCOUNT BALANCES?

1 - Yes

End

2 - No

End

Sequence: 11.9  
 Module Id: WFH  
 Module Name: Working from home  
 Population: Wage and salary earners ((DWD/Q2=1 or DWD/Q3=9) and DWD/Q18ne98)

Q1 DO YOU HAVE AN AGREEMENT WITH YOUR EMPLOYER TO WORK FROM HOME ON AN ONGOING BASIS [IN YOUR MAIN JOB]?

- |         |     |
|---------|-----|
| 1 - Yes | Q2  |
| 2 - No  | End |

Q2 *Interviewer: Show Prompt Card 36*

WHICH OF THESE DO YOU USE TO ALLOW YOU TO WORK FROM HOME?

*Interviewer: More than one response is allowed. Press space bar between responses.*

- |   |    |
|---|----|
| 1 - Access your employer's computer system at home via a modem      | Q3 |
| 2 - Use of a portable PC (either personal or employer provided)     | Q3 |
| 3 - Use of a desktop (fixed) PC at home                             | Q3 |
| 4 - Use of floppy disks/CD ROMs containing work related information | Q3 |
| 5 - Mobile phone  | Q3 |
| 6 - Other   | Q3 |
| 7 - None of the above   | Q3 |

Q3 HOW MANY HOURS A WEEK DO YOU USUALLY WORK FROM HOME?

*Interviewer: Enter number of hours.  
 If more than 97 hours enter 97.*

- |                                |     |
|--------------------------------|-----|
| *01...97                       | End |
| 98 - Less than 1 hour/No hours | End |
| 99 - Don't know                | End |



## ANNEX 2



# Business Use of Information Technology Survey 2004 - 05

1BUII

In correspondence, please quote this number ▼

Australian Business Number

--	--	--	--	--	--	--	--	--	--

Please check for any errors

### Purpose of Collection

This survey will provide key measures on the use of Internet and web technologies by Australian businesses. These measures will be used by government and industry analysts to address policy issues relating to the uptake of information technology in Australia and to explore the impacts on efficiency and productivity.

### Collection Authority

The information asked for is collected under the authority of the *Census and Statistics Act 1905*. Your co-operation is sought in completing and returning this form by the due date. The Act provides me with the power, if needed, to direct you to provide the information sought.



### Confidentiality

Your completed form remains confidential to the Australian Bureau of Statistics.

### Due Date

Please complete this form and return it in the reply paid envelope to the Australian Bureau of Statistics by

### Help Available

If you have problems in completing this form, or feel that you may have difficulties meeting the due date, please contact the Australian Bureau of Statistics by:

#### Telephone

1800 110 791  
(Freecall)

#### Facsimile

1300 303 813

#### Mail

Reply Paid 76746  
Sydney NSW 2000

Dennis Trewin  
Australian Statistician

Person we should contact if any queries arise regarding this form

Name		Telephone Number							
Position or Title		Facsimile Number							
Signature		Date							

### Please read this first

This form will be read using electronic equipment. Therefore:

- Use **black** pen when completing this form.
- Keep each number or tick within the data entry boxes provided, for example

or

- Leave answer boxes blank where you have no response or data to enter, for example

- Do not use 'nil', 'n/a' or '-'
- Information reported on this form should comply with Australian accounting standards.
- Report all income items **exclusive of Goods and Services Tax (GST)**.

- If exact figures are not available, please provide careful estimates.
- Please report all monetary values in **thousands of dollars (\$,000)**. Where the value in this business's accounts is not expressed in thousands of dollars, round the value up or down to the nearest thousand dollars.
- Only the Australian-based activities (including imports and exports) of the business shown on the label should be included on this form. Include details of the business's participation in any unincorporated joint ventures.
- The items listed under **Including** and **Excluding** are examples and should not be taken as a complete list of items to be included or excluded.

Sample



**5 Did this business use the Internet during the year ended 30 June 2005?**

*Note*

- Report any use of the Internet by this business, on business premises or elsewhere.

*Including*

- World Wide Web
- Email
- Extranet

*Excluding*

- Computer networks other than the Internet

No  [Go to Question 9](#)

Yes

**6 What was the main type of connection used by this business to access the Internet as at 30 June 2005?**

*Note*

- For dial-up (Analog) include PSTN (Public Switch Telephone Network) but exclude DSL (Digital Subscriber Line).
- For ISDN (Integrated Services Digital Network) exclude DSL and Wireless subscribers.

*Definition*

- **Broadband**: defined by the ABS as an 'always on' Internet connection with an access speed equal to or greater than 256kbps.

Tick one box only

Dial-up (Analog) ...

ISDN Dial-up ...

ISDN Non dial-up ...

Broadband ...  [Go to Question 8](#)

4

**7 What were the reasons this business did not use a broadband connection to access the Internet as at 30 June 2005?**

Tick all that apply

Unavailable in business location ...

Start up connection costs too high ...

Ongoing connection and usage costs too high...

Business's hardware incompatible ...

Lack of perceived benefit ...

Other (Please specify) ...

Not considered ...

[Go to Question 9](#)

**8 What was the main type of broadband connection used by this business to access the Internet?**

*Note*

- This information should be available on the account issued by the business's Internet Service Provider (ISP).

Tick one box only

DSL (Digital Subscriber Line) ...

Cable (including Fibre Optic, Coaxial and Hybrid Fibre Coaxial) ...

Fixed Wireless Internet Access via point-to-point microwave, etc. ...

Mobile Wireless Internet Access via WiFi, IEEE 802.11x ...

Satellite ...

Frame Relay ...

Other high speed access, e.g. ATM (Please specify) ...

**9 Did this business have a web presence as at 30 June 2005?**

*Note*

- Web presence includes web site, home page or presence on another entity's web site.

*Excluding*

- Online listings, e.g. Yellow Pages

No   Go to Question 12

Yes

**10 Did this business's web presence include any of the following as at 30 June 2005?**

*Definition*

- Back end systems: computer systems (e.g. for accounting, stock control or ordering) used to manage non-Internet aspects of the business.

Tick all that apply

- Information about this business ...
- Inquiry or contact facility ...
- Online ordering ...
- Shopping cart facilities ...
- Online payment capabilities ...
- Capability for secure access or transactions ...
- Account information ...
- Facility to track orders ...
- Personalised page for repeat customers ...
- Automated link with back end systems

5

**11 What is the primary web site address (URL or URI) of this business's web site, home page or web presence?**

*Note*

- For example, www.abs.gov.au
- URL: Uniform Resource Locator, or URI: Uniform Resource Indicator, refer to the unique address assigned to each page on the World Wide Web.

www.....  
.....

**12 Did this business electronically lodge any of the following with government organisations via the Internet or web during the year ended 30 June 2005?**

*Including*

- Federal, state, territory or local government organisations

Tick all that apply

- Taxation forms, e.g. BAS, FBT ...
- Claims for grants or benefits ...
- Applications for licences or permits ...
- Payments, e.g. rates, licence fees ...
- Other electronic lodgements (Please specify) ...
- 
- No electronic lodgements undertaken ...

**13 Did this business place orders via the Internet or web for any goods or services during the financial period?**

*Note*  
 • An order is a commitment to purchase goods or services.

- Including**
- Orders placed via the Internet or web **with or without** online payment
  - Email or Extranet orders placed
- Excluding**
- Orders placed over any computer network other than the Internet or web
  - Cancelled Internet or web orders

No

Yes

**14 Did this business receive orders via the Internet or web for any goods or services during the financial period?**

*Note*  
 • An order is a commitment to purchase goods or services.

- Including**
- Orders received via the Internet or web **with or without** online payment
  - Email or Extranet orders received
- Excluding**
- Orders received over any computer network other than the Internet or web
  - Cancelled Internet or web orders

No  **Go to Question 19**

Yes

**15 How did this business receive orders via the Internet or web for goods or services?**

Tick all that apply

- Email not linked to web site ...
- Web site with linked email facility ...
- Web site with online order form ...
- Web site with shopping cart...
- Other (Please specify) ...

6

**16 Of the income reported in Question 3, please estimate the percentage which resulted from orders received via the Internet or web for goods or services**

*Note*

- For Internet orders made on behalf of other organisations, include only the commission or fees earned on those orders.
- For financial services, include only the fees earned for providing services as a result of orders received via the Internet or web.

 .  %

**17 Which benefits, if any, have been achieved as a result of receiving orders via the Internet or web?**

Tick all that apply

- Improved quality of customer service ...
- Lower transaction costs ...
- Increased sales ...
- Increased number of customers ...
- Faster business processes ...
- Keeping pace with competitors ...
- Other (Please specify) ...

No benefits achieved ...

**18** Did the systems used by this business to receive orders via the Internet or web, link automatically with any of the following as at 30 June 2005?

Tick all that apply

Your suppliers' business systems ...

Your customers' business systems ...

Your business's systems for:

Reordering replacement supplies ...

Invoicing and payment ...

Production or service operations ...

Logistics, incl. electronic delivery

Marketing operations ...

Other (Please specify) ...

Systems not linked to any of the above ...

▶ **Go to Question 20**

7

**19** What are the reasons this business did not receive orders via the Internet or web during the financial period?

Tick all that apply

Goods or services produced by this business unsuitable ...

Lack of customer demand ...

Security concerns ...

Costs to develop and maintain the technology too high ...

Lack of skilled employees to develop, maintain and use the technology ...

Timing, e.g. technology currently under development or in future work program...

Prefer to maintain current business model, e.g. face to face interaction ...

Other (Please specify) ...

Did not use the Internet and did not have a web presence ...

8

**20 Please supply details of any other contact who assisted with the completion of this form, e.g. IT Manager, Financial Accountant**

Name	<input type="text"/>
Position or Title	<input type="text"/>
Telephone Number	<input type="text"/> <input type="text"/>
Facsimile Number	<input type="text"/> <input type="text"/>

**21 Please provide comments**

- on any of the information you have supplied on this form
- on any questions which caused problems
- if you would like to suggest improvements to this form
- if the period covered by this form is not 12 months

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**22 Please provide an estimate of the time taken to complete this form**

*Including*

- The time taken actually spent reading the instructions, working on the questions and obtaining the information
- The time spent by all employees in collecting and providing this information

hrs  mins

**23 Before returning this form please check that you have:**

- corrected any errors on the address label (on the front of this form)
- completed contact details (on the front of this form)
- recorded the time taken to complete this form (Question 22)
- photocopied the completed form to retain for your own records

**Thank you for completing this form**

## ANNEX 3

### Core Dimensions of the ABS "Measures of a knowledge-based economy and society" (KBE/S) framework: 3 dimensions, 13 characteristics, and 45 indicators

<b>Dimension 1: INNOVATION AND ENTREPRENEURSHIP</b>	
<b>Characteristics</b>	<b>Indicators</b>
<i>Research base and potential for knowledge creation</i>	Total R&D expenditure as a proportion of GDP
	Total R&D expenditure by sector of performance
	Expenditure on basic research
<i>Knowledge creation with the purpose of commercial potential</i>	Expenditure on applied research and experimental development
<i>Knowledge networks and flows</i>	Business funding of R&D by sector performing as a proportion of total Business R&D funding
	Proportion of Australian business R&D funded from overseas
	Proportion of business R&D performed overseas
	International mobility of human resources by selected qualifications and occupations
<i>Support for innovation</i>	Government funded expenditure on R&D by level of government
	Value of venture capital drawdowns
<b>Dimension 2: HUMAN CAPITAL</b>	
<b>Characteristics</b>	<b>Indicators</b>
<i>Stock of skilled people</i>	Proportion of all persons aged 15-64 with a non-school qualification
	Knowledge workers as a proportion of employed persons
	Researchers devoted to R&D
	Highest non-school qualification of employed persons by occupation
	Main field of highest non-school qualification by labour force status
<i>Flow of skilled people</i>	Participation in secondary and tertiary education
	Graduate employment outcomes by qualification
<i>Lifelong learning and access to education and training</i>	Proportion of population aged 15-64 in formal education
	Visits to public library facilities, per capita
	Unmet demand for education by labour force characteristics

<b>Dimension 3: INFORMATIONS AND COMMUNICATIONS TECHNOLOGY</b>	
<b>Characteristics</b>	<b>Indicators</b>
<i>ICT infrastructure and access</i>	Internet services: number of Internet service providers (ISPs), and access lines
	Internet workstations available in public libraries
<i>Household and individual use of ICT</i>	Proportion of households with access to a computer
	Proportion of households with access to a mobile phone
	Proportion of households with access to the Internet
	Proportion of individuals (adults) accessing the Internet
	Proportion of individuals (adults) using the Internet for particular activities
	Proportion of individuals (aged 15 years or over) with a disability, using the Internet for particular activities and purposes, including accessing government services
	Number of household ISP subscribers
	Volume of data downloaded by household ISP subscribers
<i>Business and Government use of ICT</i>	Proportion of businesses with computers, web sites and Internet access
	Proportion of farms using computers and the Internet for business purposes
	Proportion of businesses with Internet access, by broad industry group (highest and lowest)
	Number of non-household ISP subscribers
	Volume of data downloaded by non-household subscribers
<i>Prevalence of electronic commerce</i>	Proportion of businesses placing or receiving orders via the Internet or web
	Proportion of business income attributable to receiving orders via the Internet or web
	Business perceptions of the benefits for the business of receiving orders via the Internet or web
	Business perceptions of the benefits for the business of placing orders via the Internet or web
<i>ICT skill base</i>	Lack of skills as a constraint to household use of the Internet
<i>Strength of the ICT industry</i>	ICT industry total income
	Production of ICT goods and services income from domestic production
	Trade in ICT goods and services
	Research and experimental development (R&D) performed by the ICT industry
	ICT industry employment

## ANNEX 4

### Extract from the Australian Bureau of Statistic's 2003/2004 Agricultural Survey on Computer and Internet Usage

17

#### Computer and Internet usage

**23a Did this farm use a computer or the Internet as part of its business operations during the year ended 30 June 2004?**

**Including**

- Portable computers, e.g. laptop / notebook computers
- Personal organisers, etc. which can be plugged into larger computers
- Mobile telephones which can access the Internet

**Excluding**

- Computer or Internet activities **not** directly related to the farm's business operations

No  Go to Question **24a**

Yes

**23b Which of the following were used by the farm?**

Tick one box only

- Computer only ... ..
- Internet only ... ..
- Both computer and Internet ... ..

**23c Which of the following computer or Internet activities were undertaken as part of this farm's business operations during the year ended 30 June 2004?**

Tick all that apply

- Kept farm records (e.g. herd/flock information, paddock details, crop plantings, use of chemicals) ... ..
- Managed farm finances (e.g. GST, BAS, payroll, banking, accounting or book keeping) ... ..
- Obtained weather information ... ..
- Obtained market information (e.g. stock and crop prices) ... ..
- Searched for the availability or cost of goods or services ... ..
- Purchased or ordered goods or services ... ..
- Accessed government websites (e.g. Business Entry Point, ATOassist, etc.) ... ..
- Paid bills via the Internet ... ..
- Email ... ..
- Other computer or Internet activities (Please specify) ... ..



## ANNEX 5

### Meeting schedule

<i>Date</i>	<i>Time</i>	<i>Program/Contact</i>
Tuesday 27 July, 2004	9:30 – 12:30	Overview of the Department of Communications, Information Technology and the Arts (DCITA)
		DCITA: International
		DCITA: ICT Statistics, Communication Research Unit
	2:00 – 2:45	DCITA : ICT Industry Division
	2:45 – 3:45	DCITA : Information Economy Division
	4:00 – 4:45	DCITA : Telecommunications
Wednesday 28 July, 2004	9:30 – 1:00	Australian Bureau of Statistics (ABS)
	1:30 – 3:00	Department of Education, Science and Training
Thursday 29 July, 2004	9:30 - 12:30	Australian Competition and Consumer Commission (ACCC)
	2:00 – 5:00	Australian Communication Authority (ACA)
Friday 30 July, 2004	8:00 - 12:00	SENSIS