Synopsis

Mechanisms allowing the public to access, and contribute to, government services must be incorporated in the e-government process from the very beginning. Government organisations must also change to be able to properly use new technology and transform government in ways that use that technology to enhance governance and citizenship.

Public access does not simply mean addressing technical issues, by making government services available to the public, but also means educating the public on how to use the services. The groups who are most dependant on government services are currently those who are least likely to have the knowledge and resources to use online services. Technical expansion of e-government must go hand in hand with initiatives to enhance the capacity of disadvantaged citizens to access online services.
Introduction

Australia was recently ranked third among countries in the world in terms of its ‘e-readiness’, based on the amount of government services and products offered over the Internet, combined with the infrastructure (telephones, computers and Internet connections) and education needed to access them (United Nations 2003). Yet while Australia may be a world leader in its readiness to move to e-government, there remain many challenges to overcome before this is a reality.

Access can have different meanings in different contexts. The Australian Government has recognised the need for access to information networks by all Australians (Rimmer 2003). Here access is understood as removing the barriers to participation in the information society.

The Human Rights and Equal Opportunity Commission shares this view of access and calls for greater support for community access points. Access is sometimes interpreted more narrowly as a problem of lack of access to the opportunity to connect to physical infrastructure such as the Internet and broadband. The World Wide Web Consortium (W3C) guidelines on accessibility (1999) interpret access as ‘usability’, and cover areas such as access to adapted equipment, accessibility of community facilities for people in wheelchairs or with memory problems, or design of web pages for people with vision impairments, or for slower and/or older equipment.

This paper adopts an expanded understanding of access. Access cannot be confined to questions of opportunities to access physical infrastructure, nor can it be separated from usability. People on low incomes, with low educational attainments, and those not in the workforce are at significantly higher risk of not participating in online activities, thus suffering the impact of the digital divide and the doubling of marginalisation in Australia’s labour and information economies. E-government technologies need to be considered as sociotechnical systems. Technologies are always embedded in systems where human skills and organisational attributes are as crucial as the micro-electronic or other material components. Access is not something that comes after a technology is developed; access is an outcome of how a sociotechnical system is built and operates. Access is co-produced in the making of the technology.

In this context the question of access needs to be expanded. It includes:

- access to Internet connectivity
- access to the skills needed to use and contribute to e-government services
- access to opportunities to influence decision making and shape the production of e-government.

People will only value Internet connectivity and go online if the content they encounter meets their needs and interests and addresses their cultural, social and economic goals. As recognised in programs such as the Community Online Access Centre Program and the Telecommunications Action Plan for Remote Indigenous Communities, governments have a role to play in facilitating this development. Such action enhances citizenship and social inclusion. It creates the awareness and access within user communities that will enable online transaction with governments and that will strengthen community governance.

Access can also be considered from the perspective of government organisations. They need the capabilities to make careful choices that will promote information and communications technology not as an end-in-itself but as a means to better government, to socially and economically sustainable communities and to citizens who are able to participate, individually and collectively, in the information society. Government organisations need to have access to the organisational processes and innovations that will enable information and communications technology to be embedded in ways that allow e-government to evolve productively.
Access to Internet connectivity

In the week prior to the 2001 Census, 42 per cent of Australians used a computer at home, while 37 per cent used the Internet,\(^1\) compared with 54 per cent who did not use a computer at home, and 58 per cent who did not access the Internet. Lloyd and Bill's analysis of the Census shows that use of technology varies according to a range of socioeconomic factors, with differences generally more pronounced for Internet use. The key factors are income, education, family structure, labour force status and age (Lloyd & Bill 2003).

The unconnected

People with the following characteristics had low rates of home computer and Internet use:

- poor English skills
- few academic qualifications
- the aged
- low income
- indigenous
- born in Southern and Eastern Europe
- not in the paid labour force
- unemployed
- living in small country towns
- without dependent children.

Table 1 indicates the percentage of key groups in Australian society who are disadvantaged in their use of online technology.

Table 1: Percentage not using home computer and Internet for key disadvantaged groups compared to Australian average

<table>
<thead>
<tr>
<th></th>
<th>Not using home computer</th>
<th>Not using the Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not speak English at all</td>
<td>94.6%</td>
<td>94.9%</td>
</tr>
<tr>
<td>Did not go to school</td>
<td>93.9%</td>
<td>94.5%</td>
</tr>
<tr>
<td>Attended school to Year 8 or below</td>
<td>90.9%</td>
<td>93.3%</td>
</tr>
<tr>
<td>Aged 65+ (women)</td>
<td>88.3%</td>
<td>90.6%</td>
</tr>
<tr>
<td>Aged 65+</td>
<td>85.5%</td>
<td>88.4%</td>
</tr>
<tr>
<td>Family Income ($300–$399 pw)</td>
<td>77.4%</td>
<td>82.9%</td>
</tr>
<tr>
<td>Indigenous</td>
<td>78.7%</td>
<td>78.8%</td>
</tr>
<tr>
<td>Born in Southern and Eastern Europe</td>
<td>78.4%</td>
<td>79.9%</td>
</tr>
<tr>
<td>Not in labour force</td>
<td>70.8%</td>
<td>75.3%</td>
</tr>
<tr>
<td>Labourers</td>
<td>68.7%</td>
<td>74.0%</td>
</tr>
<tr>
<td>All Australians</td>
<td>54%</td>
<td>58%</td>
</tr>
</tbody>
</table>

While living in a rural or regional area does not in itself determine rates of Internet use, there remains a regional element to the ‘digital divide’. Those living in small to medium towns (defined as population clusters of 200 to 99,999) have the lowest rates of use of computers and the Internet compared to residents in other locations. It is likely that the socioeconomic disadvantage experienced in small to medium towns contributes to reduced access to information technology (Lloyd & Bill 2003, p. 30; Curtin 2001; see also, Table 2 in the Attachment to this paper).

Socioeconomic factors interact with physical infrastructure provision in shaping the distribution of access to the Internet. The needs of smaller, more remote and household users will need to continue to receive systematic attention. The $250 million allocated to ‘Networking the Nation’ in 1996, from the first part sale of Telstra, and its increase by $214 million following the second part sale of Telstra in 1999, has seen improved roll-out of information and communications technology infrastructure in rural Australia. These rural information society funds have been spent on telecommunications infrastructure, mobile coverage, Internet services, information and communications technology training, software development, web and portal services, community awareness programs, and public access facilities to connect rural and remote residents to the information society. The broadband capacity provided by Asymmetric Digital Subscriber Line (ADSL) makes possible the convergence of voice, data, image and video, which will make the use of online options attractive to citizens. But this technology can only supply all four functions at a distance of five kilometres from the relevant telephone exchange. Despite growing rates of broadband use in Australia (NOIE 2003), without a national strategy to deliver broadband outside the ADSL range, for example via satellite, a new ‘broadband divide’ will be created.

The 2001 Census suggests that a significant proportion of Australians do not participate in the information economy and that this is largely because of social and economic circumstances. The Census measures use of information and communications technology by individuals, and thus describes current levels of participation by individuals in the information economy. Other surveys measure access to information and communications technology for households, by surveying the number of households that own or lease computers and that have Internet connections (ABS 2003b; NOIE 2003). Such figures show potential use of information and communications technology rather than actual use. They record significantly higher levels of access, with 65 per cent of households owning or leasing a personal computer in 2003, and 55 per cent of households with Internet access at home (NOIE 2003). The fact that these surveys recorded similar access levels in 2001 (when the Census was taken) indicates there is a considerable gap between potential and actual use of information and communications technology in Australia (of more than 20 per cent). This gap shows that access to e-government is determined by far more complex factors than physical infrastructure.

Access to skills and capacity building: strengthening communities and social capital

E-government is about social inclusiveness and using the virtual community to strengthen the collaboration of all Australians in the making of their communities and their nation. Information and communications technology can make significant contributions to the strengthening of communities and social capital through improvements in access to a wider range of government services, such as education, health and social security, as well as commercial, social and cultural services. It can also create a greater sense of community by facilitating contact between people with common interests. However, it is clear from the above that those who suffer socioeconomic disadvantage, who are more likely to be dependent on government services, are less likely to have the capacity and ability to use online
technologies. Policies and business cases for the expansion of online delivery of government services must therefore take account of the capacity of intended recipients and users to access those services.

Official statistics identifying users of government services together with their level of access to the Internet are not available. However, some inferences may be drawn from ABS Census and survey data. This can be done by looking at the characteristics of users of government services and comparing these with the characteristics of Internet users\(^2\) (see Tables 2 and 3).

Important observations include:

- The unemployed and people not in the labour force (including retirees, parents caring for children, and students) receive the highest cash benefits. Households headed by a person in one of these groups receive relatively high non-cash benefits, though not as high as households headed by a part-time employee.
- People who have no post-school qualifications have the highest receipt of cash benefits and generally the average benefit amount decreases as education levels increase.
- People born in Southern and Eastern Europe or North Africa and the Middle East receive the highest average cash benefits. The latter group also has the highest level of non-cash benefits.
- Households with low disposable incomes receive the most support from the government both in terms of cash and non-cash benefits.

There is clearly a strong correlation between those with low rates of use of the Internet and those who receive significant government support.\(^3\) This data does not indicate the level of government benefits received by the Indigenous,\(^4\) people with poor English skills or those living in non-metropolitan areas, but all of these groups tend to have labour market outcomes worse than average and are hence likely to receive significant government support. The notable exception to these trends is households with dependent children who may be both in receipt of significant government support and also able to avail themselves of online government services.

This analysis has important implications for the success of e-government initiatives. The development of policies and schemes for expansion of e-government services must necessarily take account of the limited opportunities of key groups in society to access the services and the skills to use them. It is vital therefore, that expansion of e-government be carried out hand-in-hand with proposals to enhance the capacity and motivation of disadvantaged citizens for online interaction. Gains will be few without the necessary focus on empowering citizens to use the services. Attention must be given to increasing awareness and understanding of new technology, and providing education in the use of that technology. Language and literacy skills must also be developed so citizens may access online services without the aid of a mediator or facilitator. One example of a government agency initiative in this direction is where Centrelink supplied recycled computers to people housebound by disabilities, in order to facilitate access to online services. One problem faced in this program has been the cost of Internet access.\(^5\)

Currently, several initiatives are being developed, in different tiers of government, to enhance community access to the Internet. Community access centres and public libraries can be a useful means of promoting access to Internet services by those who may not have the means to buy home computers. But they can also serve a more important function of enabling indirect access to Internet services through a facilitator.

The potential of information and communications technology to reduce the costs and increase the variety of services offered to distant communities is particularly important in a country like Australia where there are vast areas with very low population densities and high costs of service provision. Good broadband
facilities for these communities can promote access to a range of services such as education, health and legal services at a much lower cost than was previously possible. There are numerous examples of this in the international and the Australian experiences. In early 2003, for example, the New South Wales Community Technology Centre program established community online access centres throughout the state. Access to the Internet in the Torres Strait has facilitated dissemination of weather forecasts, an extremely valuable commodity to fishermen working there. Information and communications technology has offered employment opportunities in remote areas and it has opened up marketing opportunities for regional businesses. Communities have used information and communications technology in a cost-effective and far-reaching way to advertise important local events and to link in with national events.\(^6\)

Remote Indigenous communities face particular problems in encouraging access to information and communications technology by community members. Many of these communities do not even have reliable access to a public telephone. They face special disadvantages in terms of language and literacy skills, income and employment prospects. The challenge is to promote community acceptance of the potential benefits of information and communications technology and to encourage the use of new technologies to strengthen these communities. One of the projects funded by Telecommunications Action Plan for Remote Indigenous Communities has shown that information and communications technology can be used to preserve language and culture and to promote communication between geographically isolated groups. The Telecommunications Action Plan for Remote Indigenous Communities also includes subsidies for the cost of connecting telephone services to remote communities and subsidies to enable remote communities and outstations to install public access Internet computers. It also addresses the lack of appropriate content, an issue seen as a major impediment to effective Internet use by Aboriginal communities (NOIE 2002a). However, success will depend on the development of a sense of community ownership and management of any facilities developed.

These examples clearly indicate that access is not simply a function of disadvantage defined by a set of socioeconomic characteristics. There are other dimensions that constitute the digital divide and turn socioeconomic characteristics into barriers to Internet access. Government policy, in relation to community Internet access points, influences the extent of exclusion suffered by virtue of factors such as low income.

A further dimension of the access problem illustrated in these examples is the importance of appropriate content, localised to fit the needs of a particular community. People will not want to access online material and events unless it addresses them specifically and attracts their attention and interest.\(^7\)

Infrastructure investment must be augmented with timely, flexible and appropriate training. Operators of an access centre, for example, need to be more than technically competent to operate the facilities; they must also be able to encourage use of the facilities by community members who may lack the skills, confidence or desire to use them.

Successful initiatives attending to skill building provide good models for development of programs for effective information and communications technology adoption by communities. One example is the Internet Advocate Pilot Program in Alice Springs.\(^8\) In another example, the New South Wales Community Technology Centre program, has established local technical support units for community centres so they do not need to rely totally on Sydney for assistance. Courses on basic computer skills are taught widely within the Community Technology Centres. These offer adults the opportunity to become computer literate and to access services over the Internet. For example, during the drought in 2002–03, courses were set up for farmers at the Wilcannia Community Technology Centre to introduce them to the use of information and communications technology in running a farm.
Increasingly the focus is shifting to the social aspects of information and communications technology in relation to e-government. This means embedding information and communications technology use in local communities – geographic and social. Issues of education, literacy, content and community resources need to be addressed at the local level. Content and online features need to reflect local community interests.

**Access to opportunities to influence decision making and shape the production of e-government**

The question of access is also a question of access to participation in decision making and design.

E-government means tailored sociotechnical products for different segments of the population. This will mean partnerships, so local knowledge can inform design, and ensure there are opportunities for individuals and communities to be active in the design process. Local community involvement in the planning and development of a project can engender the sense of ownership and commitment that is crucial to its success. It will also ensure the services offered reflect the needs of the local community.

In its performance audit of federal government agencies the Australian National Audit Office observed that monitoring and evaluation of Internet services were inadequate, and that very little user research had been done (Australian National Audit Office, 2003–04).

Training for participation in decision making and to inform design and development is essential for user communities and needs to be developed and delivered in a form that is accessible to them and takes account of their expertise and familiarity with the technology, including those with little or no knowledge of the technology. Maximising the benefits to be gained by Internet mediated connectivity will require ongoing participatory capacity building. This means investing in the development of capabilities for:

- evaluating and improving programs through user research
- encouraging creative ways of using the new technologies to enhance the wellbeing of communities and their diverse members
- ensuring the availability of locally accessible know-how for maintaining information and communications technology hardware and software, including web development
- building networks that enable knowledge and training to be passed on to others at various skill levels.

Training will be needed to boost the aptitude of communities to bring their local knowledge and interests into partnership with government and government agencies. This may mean skill building in policy development and implementation, including training in business and project management.

Usage will only occur where stakeholders see benefits. This is more likely to occur where stakeholders, including users, are represented and embraced in design processes. An important aspect of e-government is designing appropriate content, with high levels of usability and relevance matched to user characteristics and interests. People with less experience as web users and facing disadvantage at particular points in their life are more likely to lack the time, resources and background knowledge to overcome barriers they may encounter in using online communication.

Several issues are important to ensure online services provide value to users. People seeking government services must be recognised as individuals with questions, problems and interests. This has been recognised in some areas. For example, HealthInsite – the portal developed by the federal government to provide information for health consumers – provides a number of entry points such as ‘Conditions/Diseases’ and ‘Lifestages/Events’.
Another example of this approach is the Families Portal <http://www.families.gov.au>. This is a central point from which Australian families, or people working with families, can access relevant information about services provided by all levels of government and the non-government sector. This citizen-responsive structure also underlies the architecture of Service Tasmania the online portal, developed with NOIE’s Trials in Integrated Government Electronic Regional Services (TIGERS) program, as a one-stop government online shop for Tasmanians and Tasmanian visitors (Service Tasmania 2000; Croger et al., 2003). Government entry points need to be structured by citizen interests, such as having a baby, buying a second-hand car, or finding respite care for an elderly parent. This citizen-centred design must begin from the citizen’s perspective rather than that of government agencies. People approaching government in order to fulfil their obligations or to access services may not know what government services and programs they have available to them or require. For citizens to transact government business online, agencies (both government and non-government) need to be joined up. Citizens must be able to channel their requirements seamlessly across boundaries – between levels of government, various government departments and the many organisations increasingly involved in delivering government services.

Participation in the shaping of e-government is a key dimension to the question of access. The question of access needs to be considered in relation to production as well as to consumption (Thomas & Wyatt 2000). This influences what users will find when they do go online and thus their motivation to be online. E-government can play a role in strengthening Australian communities through adding virtual connectivity. By this we mean using Internet communication and online communities to build and increase feelings of belonging and mutuality between citizens; between communities and their members; and between individual citizens and government organisations. To be effective, e-government needs to think local – fostering opportunities for localising content, pathways, portals and other features of online communication and support facilities (for example, see Starthere, 1998–2003). Local here refers not only to geographic locality but to social locality where people share common social identities, such as young mums, post-employment 50–65 year-old males, or people facing homelessness. In turn, this will require local involvement in planning and design, and local skill building to facilitate such cooperation.

Access to processes that enable information and communications technology to become embedded in government organisations so their value increases in ongoing ways

The next two sections address access from the perspective of government organisations. These sections explore the implementation and consumption of new information and communications technology in government as ongoing processes, and look at some of the changes to organisations that are emerging in that process.

It tends to be seen as self-evident that the adoption of the new information and communications technology will produce the kind of organisational and business practices promoted by advocates of public sector reform. In Implementing E-Government: An Executive report for Civil Servants and their Advisors (2003) Gloria Evans argues, in the British case, that e-government is new governance, that is:

- Governance without the red tape.
- Governance where ministries and levels of government are joined up.
- Governance enabling individualised service delivery because digital information is available wherever, whenever, and in whatever mode stakeholders transact business with government.
Governance that replaces hierarchical, command-and-control work organisation with networks and flexible structures, facilitating easy adaptation to rapidly changing social, technological and global environments.

Governance where stakeholders – individuals and communities – are actively involved in initiating and influencing transactions with governments, and in shaping and collaborating in innovation and improvements to modes of transaction.

However, to achieve this will require not only the re-making of information and communication systems, but the re-engineering of organisations, work practices, and relations between workers both inside and outside the organisation. What are the kinds of organisations that are made possible by the new technologies and what kind of organisations do well in adopting and developing information and communications technology innovations?

The lessons learned from studies of the implementation of information and communications technology in organisational settings, such as McLaughlin et al. (1999), are yet to be fully appreciated, and need to be integrated into all aspects of e-government. It is commonly assumed that new information and communications technology is purchased because it is a rational choice for meeting defined needs and goals. Certainly large-scale and expensive purchases, that much information and communications technology acquisition involves, require a sound business plan that justifies acquisition in terms of necessarily pre-defined goals and benefits. However, the value of a technology to an organisation is not pre-set in the technology itself. Part of its value will be determined in the process of its implementation in the particular organisational setting.

The implementation phase of technological change is often misunderstood. Information and communications technology is not merely used by employees in organisations. It is partly invented in-use. Users, not makers, are often the source of innovation. Prioritising user learning and learning from users must underpin e-government initiatives. The challenge for change management is to capture, learn from and generalise novel pathways that only emerge as new information and communications technology is embedded within organisations.

The embedding of technologies in organisations is an ongoing process that involves reconfiguring the sociotechnical environments in which the new information and communications technology have to become functional. Work practices, organisational structures, internal and external relations can all be subject to change. Both the technical and social elements are adapted and customised during this process. Information and communications technology applications take on multiple meanings and uses, to become increasingly valuable in an organisation. This accretion of value and utility is brought about through multiple processes of mutual adaptation.

The organisation itself can be changed in this process. A good example of this has occurred in courts. Today, more and more courts are making court records available in electronic form. In Michigan, Indiana and Florida court sessions have been made available by web-cast. Initially the courts saw their role as administration of justice and adopted information and communications technology to enhance this role. However, during implementation, these digital resources were used, suitably edited to protect privacy, to make training packages on justice and justice administration. Some courts started to see themselves not only as justice administrators, but as educators responsible for citizenship education on justice matters. The courts changed their role and identity (Clark 2003). Courts in Australia are also transforming the concept of a court (Federal Court of Australia).
Building e-government will involve imagining or experimenting with very different organisational forms. Innovation in organisational forms needs as much attention as innovation centred on technologies. For Clegg (1990) and others, fundamentally new organisational forms have emerged (Piore & Sabel 1984; Lash & Urry 1987). Amongst the characteristics of what Clegg calls ‘the post-modern’ organisation are flexible specialisation, the de-differentiation of the labour process and contracting-out.

Many parallel changes were imported into public sector organisations during the 1980s and 1990s in Australia (Halligan 2003). There has been a fundamental shift away from a unified, traditional bureaucratic structure, with its centralisation of authority and strongly bounded departments, to a more decentralised structure with fluid interchange with the private and community sectors and more responsiveness to clients and stakeholders. Flexible specialisation is now routine for Centrelink and job-network providers, who are expected to tailor individualised packages for clients, customised to their needs (Howard 2003). HealthInsite recognises the principles of de-differentiation in health care, where health consumers expect to be involved as team members in their treatment team, and want access to the information to make informed decisions. Contracting out is now an integral part of government service delivery.

This public sector organisational reform agenda interacts with technological change in complex ways. It is neither driven in any straightforward way by technological change, nor is it simply the outcome of technological change. How the two interact is an empirical, case-by-case matter. New technologies emerge into, and are designed to meet, public sector reform agendas. They are not neutral. The technologies we end up with depend in part on conflicting political agendas and organisational reform processes (Geiselhart 1999). They are shaped by such imperatives, whilst at the same time contributing to the setting of reform agendas. Rather than seeing e-government as driven by technological change, we need to think of the new technologies and new governance practices as being co-produced (McKenzie & Wajcman 1985). More research is needed on the intermeshing of technological and organisational change and their interactive co-constitution of the future shape of government service provision.

**Conclusion**

This paper has identified some of the problems facing Australian governments and government organisations as Australia continues to progress as an information society and moves towards extending government involvement in the information economy. One of the challenges facing Australia is to move from government information online to e-government, that is, to utilise innovative information and communications technology to build new forms of citizen–government and citizen–citizen interaction to strengthen Australian communities and the Australian nation.

Perhaps the leading challenge to the success of e-government is the lack of participation in the information economy by those groups in the population who are the biggest users of government services. These groups are particularly at risk of marginalisation and lack of inclusion in Australia’s progress as an information society. E-government has much to offer segments of the population underserved by Internet connectivity and presently least likely to be online. Government initiatives providing access to infrastructure, training, and capacity building in content development are promising. As these initiatives demonstrate, e-government needs to be two-way; to support online activities communities identify as wanted and, at the same time, build the capacity for use of online services. By encouraging participation of underserved communities in the design and development of e-government and the content of online sites and events, it is more likely that e-government will evolve to foster social and economic inclusion. To not do so risks deepening social and economic divisions.
Access to information and communications technology from the perspective of government organisations implementing e-government has also been explored. In this area, the paper focuses on two sets of challenges facing government organisations. First, organisations have to ‘face up to’ developing the expertise and processes to enable them to integrate innovations in information and communications technology and e-government in ways that continue to add value and utility to investments in technological change as an ongoing process. Second, taking advantage of Internet technologies and reaping the benefits promised by e-government will mean innovation and experimentation with organisational forms.

**Acknowledgments**

The authors would like to thank Rachel Lloyd, Craig McDonald, Neil Lynch, Milind Sathye, Eugene Clark, Petra Bouvain and Alan Jarman for their input, suggestions and comments on earlier drafts.

**Attachment**

**Figure 1: Home computer and Internet use by Section of State, 2001**

![Chart showing home computer and Internet use by Section of State, 2001]

*Note*: Section of State represents an aggregation of non-contiguous geographical areas of a particular urban/rural type. The Sections of State defined here are Major Urban (population clusters of 100 000 or more), Other Urban (population clusters of 1000 to 99 999), Bounded Locality (200 to 999), and Rural Balance (remainder of state/territory) but exclude Migratory (ABS 2002).

*Data source*: ABS custom table, 2001 Census of Population and Housing, Family Income by Section of State by Computer Use at Home then Internet Use for Persons; (Lloyd & Bill, 2003 p. 30).
Table 2: The average value of government cash benefits for individuals with different characteristics

<table>
<thead>
<tr>
<th>Age</th>
<th>Average weekly government cash benefit</th>
</tr>
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<tbody>
<tr>
<td>15–24</td>
<td>$28</td>
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<tr>
<td>25–34</td>
<td>$45</td>
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<tr>
<td>35–44</td>
<td>$44</td>
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<tr>
<td>45–54</td>
<td>$30</td>
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<tr>
<td>55–64</td>
<td>$66</td>
</tr>
<tr>
<td>65+</td>
<td>$140</td>
</tr>
</tbody>
</table>

**Highest educational qualification**

- Higher degree $16
- Postgraduate diploma $13
- Bachelor degree $21
- Undergraduate diploma $37
- Associate diploma $36
- Skilled vocational qualification $46
- Basic vocational qualification $68
- Without post-school qualification $75
- Still at school $12

**Labour force status of the person**

- Employed full-time $4
- Employed part-time $35
- Self-employed $19
- Unemployed $111
- Not in labour force $118

**Country of birth**

- Australia $52
- Other Oceania and Antarctica $47
- North-west Europe $71
- Southern and Eastern Europe $84
- North Africa and Middle East $98
- South-East Asia $54
- North-East Asia $30
- Southern and Central Asia $50
- Americas $49
- Sub-Saharan Africa $38

Source: ABS Household Expenditure Survey confidentialised unit record file
<table>
<thead>
<tr>
<th>Table 3: The average cash and non-cash benefits for households with different characteristics</th>
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<tr>
<td><strong>Age of household head</strong></td>
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<td>Age of household head</td>
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<td>15–24</td>
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<td>55–64</td>
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<tr>
<td>65+</td>
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<tr>
<td><strong>Labour force status of household head</strong></td>
</tr>
<tr>
<td>Labour force status of household head</td>
</tr>
<tr>
<td>Employed full-time</td>
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<tr>
<td>Employed part-time</td>
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<tr>
<td>Self-employed</td>
</tr>
<tr>
<td>Unemployed</td>
</tr>
<tr>
<td>Not in labour force</td>
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<tr>
<td><strong>Country of birth of household head</strong></td>
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<tr>
<td>Country of birth of household head</td>
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<tr>
<td>Australia</td>
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<tr>
<td>Other Oceania and Antarctica</td>
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<tr>
<td>North-west Europe</td>
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<td>Southern and Eastern Europe</td>
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<td>North Africa and Middle East</td>
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<td>South-East Asia</td>
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<tr>
<td>North-East Asia</td>
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<tr>
<td>Southern and Central Asia</td>
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<tr>
<td>Americas</td>
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<tr>
<td>Sub-Saharan Africa</td>
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<tr>
<td><strong>Equivalent disposable household income</strong></td>
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<tr>
<td>Equivalent disposable household income</td>
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<tr>
<td>Bottom 20%</td>
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<td>Quintile 2</td>
</tr>
<tr>
<td>Quintile 3</td>
</tr>
<tr>
<td>Quintile 4</td>
</tr>
<tr>
<td>Top 20%</td>
</tr>
<tr>
<td><strong>Household type</strong></td>
</tr>
<tr>
<td>Household type</td>
</tr>
<tr>
<td>Couple only</td>
</tr>
<tr>
<td>Couple with dependent children</td>
</tr>
<tr>
<td>One parent with dependent children</td>
</tr>
<tr>
<td>Person living alone</td>
</tr>
<tr>
<td>Other household types</td>
</tr>
</tbody>
</table>

Source: ABS Household Expenditure Survey confidentialised unit record file
References


Clark, E 2003, personal communication based on papers presented at 8th Court and Technology Conference, Kansas City, Kansas, USA, October 2003.


Notes

1 There are other surveys of use of information technology (ABS 2003b; NOIE 2003). These figures often count household, rather than individual, use of online technology. We have used the Census because of the number of respondents and because it is possible to disaggregate the data and link computer usage with a number of other important variables.

2 The 1998–99 Household Expenditure Survey Fiscal Incidence Study (ABS 2001c) was used to look at the characteristics of recipients of government services. As part of the study, participants were asked about their receipt of government cash benefits. Using the characteristics of participants and information from other sources, such as hospital and schools data, the ABS estimated the value of government non-cash benefits received by such households.

3 Surveys have found that Internet usage is highly correlated with levels of personal income. In June 2003, more than 90 per cent of people earning more than $100 000 used the Internet, while only 36 per cent of people with a personal income of between $10 000 and $14 999 used the Internet (NOIE 2003).

4 In 1994 the ABS conducted the National Aboriginal and Torres Strait Islander Survey (NATSIS) which showed that government transfers were the principle source of income for 55 per cent of Indigenous adults.

5 There is also a range of organisations that supply subsidised or free computers to disadvantaged people and to community organisations <http://www.noie.gov.au/projets/access/Access/subsidised_comp.htm>.


7 It is notable that a recent United Nations report on e-government estimated that only 20 per cent of Internet users accessed government web sites (United Nations 2003).

8 This project involved placing an ‘Internet advocate’ in a regional community as a dedicated community resource to promote and champion online access <www.alice.netadvocate.nt.gov.au>.