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A Digital Divide in Rural and Regional Australia?

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In the last four years, Australians have increasingly taken up use of the Internet, to the point where they are one of the highest user populations in the world, third after Sweden and the United States.

Research in both Australia and the United States suggests that inequalities exist in Internet access according to income, education and age. In the United States, race and ethnicity also have an impact on Internet access (similar research on these factors has yet to be undertaken in Australia).

Living in rural or regional areas of Australia does not in itself determine Internet access, but there remains a regional dimension to the digital divide.

There has been an increase in the percentage of people in rural and regional Australia who have access to computers at home and the percentage of country people with access to the Internet has more than doubled since 1998. However, use by country people has yet to reach the level of use in capital cities.

Rural and provincial electorates have fewer young, tertiary educated people and high income earners than city electorates, factors which determine Internet usage.

The cost of Internet access remains higher for those who live in rural and regional Australia compared to those in metropolitan areas.

Country people are beginning to use the Internet to shop, pay bills and access political information on-line. Parliamentarians are increasing their use of personal homepages in an effort to connect with their constituents.

However, whether the Internet can lead to a more participatory democracy, without addressing the broader socio-economic dimensions of the digital divide, remains to be seen.

Introduction

Since the creation of the World Wide Web in 1989, there has been significant increase in the use of the Internet as a source of communication, information and commerce. Internationally, the size of the on-line community is doubling every year. In the last four years, Australians have increasingly taken up use of the Internet, to the point where they are one of the highest user populations in the world, third after Sweden and the United States. That Australia compares so favourably with other nations is positive given the increasing importance of the Internet to education, politics and business.

Table 1: Percentage of population with Internet Access, by Country

Country	1997	2000	% point increase
Australia	6.7	43.9	37.2
Canada	15.0	43.0	28.0
New Zealand	9.1	39.0	29.9
Sweden	21.3	56.0	34.7
United Kingdom	2.0	33.5	31.5
United States	21.0	56.0	35.0

Source: http://www.nua.ie/surveys/how_many_online

Some commentators and scholars are optimistic about the potential the Internet has to enhance people's access to knowledge, work, culture and politics, particularly given its capacity to transcend geography. Their expectation is that, sooner rather than later, the Internet will be as popular as television, with a penetration rate of 95 per cent.[1]

Others however, are more reserved in their predictions.[2] New technology in the past has tended to be most utilised by the more educated and affluent. So, with the recent growth of on-line activity, have come concerns about the existence of a 'digital divide', a term now commonly used to describe the inequalities that exist with respect to the use of Internet and other telecommunication services. Globally, this divide matches the first–third world divide, with African countries in particular, significantly less connected than first world countries.[3]

There are also questions about inequality of access within nation-states. For example, are particular groups in Australian society systematically excluded from using the Internet? Do factors such as income, education, age, gender and ethnicity have an impact on access to the Internet, leading to further disadvantage for some Australians in terms of access to

work, education, community networks, information and political participation? In other words, if there is an uneven distribution of new technology use, to what extent do socio-economic factors influence this outcome?

Just as our economic and social worlds are becoming increasingly exposed to, and dependent on, information technology, so too is our political world. There is a belief that the Internet will enhance the democratic nature of our political system allowing many more people to participate more directly in policy and political discussions. Others fear the existence of social inequality of access will lead to the emergence of a 'democratic divide'. This democratic divide refers to the gap between those who do and do not use on-line resources to engage, mobilise and participate in public life either as members of groups or as individual citizens.[4]

Whether or not rural and regional Australians are on the disadvantaged side of the digital divide remains a contested issue. In 2000, Internet speed, cost and availability were the third most significant grouping of issues expressed in submissions to the Telecommunications Service (Besley) Inquiry.[5] Prior to this, the *Time Running Out* Report had recommended Universal Service Obligations be extended to include Internet access for regional and rural Australia, to combat geographical disadvantage.[6] Yet press reports in the past 12 months offer various interpretations on the issue, some highlighting the lag between rural and regional Australia and the cities, others reporting 'Bush no barrier to net access'[7] and 'Bush-city digital divide a 'myth'.[8]

This paper seeks to shed some light on the debate by reviewing the socio-economic and democratic aspects of the digital divide and integrating throughout a rural and regional perspective on Internet access.[9] Unless otherwise stated, rural and regional refers to those areas outside the capital cities.[10] In terms of Internet access, many of the studies cited here focus on access at home. In Australia, home is now the most likely site at which adults access the Internet. There are however, a significant percentage of Australians who access the Internet at other sites, including work.[11]

Socio-economic Factors and the Digital Divide

International studies indicate that a range of social factors influence the existence of a digital divide. For example, research in the United States suggests that sharp inequalities exist in Internet access according to income, education, age and race and ethnicity. In other words, the poor, minorities (particularly the black population), poorly qualified and single mother households are much less likely to be on-line than their younger, more educated and upper income professional counterpart Americans.[12]

The OECD has documented similar patterns of stratification among the Internet population across developed countries. For example, for every US $10 000 increase in income, the likelihood of a household owning a computer increases by seven percentage points. With respect to Internet access, households with higher incomes are far more likely to be

connected, compared to those with lower incomes. Cross-national statistical evidence also suggests that ethnicity and race are determinants of participation on-line, even when corrected for income. The fact that the English language dominates Internet-based commerce and general information sites no doubt enhances the ethnic–race effect that appears to exist. However, as the North American share of Internet sites declines, it is likely that more multi-lingual sites will appear, particularly as firms attempt to expand into new markets. People with disabilities and single parent families are also less likely to have Internet access.[13]

A recent study by NATSEM suggests similar trends evident in Australia.[14]

Age

Younger people are only slightly more likely to have Internet access at home compared to those in the 25–54 age bracket. It is those over 55 years of age that have much lower rates of access.

Family Structure

Two parent families with dependents are more likely to have home Internet access (49 per cent) than those without dependents (28 per cent) or sole parent households (26 per cent). However, in the last two years, the proportion of households with home Internet access has doubled for all family types.[15]

Income

More significant differences were found with respect to income, whereby the higher the income the more likely an individual is to have access to the Internet at home. Those on over $84 000 are almost eight times more likely to have Internet access at home than those on under $19 000. Furthermore, the growth in access was greater amongst those in higher income brackets, suggesting that at least in the short term, an income-derived digital divide will continue to exist.

Education

Educational qualifications are also important in predicting Internet access. The higher qualified the individual, the more likely that person is to have Internet access at home. Overall, NATSEM's analysis reveals that those with lower education, in blue collar occupations, those over 55 years of age and women are less likely to be connected on-line.

Geography

Metropolitan Australians have highest access rate (40 per cent) with other urban areas, that is, provincial centres with populations greater than 2500, showing the lowest rate of access (28 per cent). The access rate for rural areas sits between these two, at 33 per cent.[16] In projecting who is likely to remain unconnected to the Internet, NATSEM findings indicate that those unemployed in rural Australia are much less likely to have Internet access at home compared to the unemployed in metropolitan areas.[17]

Overall, the study suggests that socioeconomic factors matter more than where a person lives.

Rural and Regional Dimensions to the Digital Divide

Information technology has been heralded as the medium which will lead to the 'death of distance',[18] whereby, individual citizens and businesses, irrespective of where they are located, will be able to participate effectively in the new knowledge-based economy and society. In other words, the tyranny of distance, felt so acutely by many of those living in rural and remote Australia, has the potential to be undermined if not extinguished by the Internet.

However, the removal of government service offices from country areas, the closure of banks, the introduction of national competition policy and the part-privatisation of Telstra, have ignited some concerns amongst those in rural and regional Australia about being left behind in the new globalised and Internet-connected world. With this has come an anxiety that uneven distribution in access to the Internet may further separate the country from the city.

Table 2: Computer and Internet Access in City/Country areas*

	Access to Computer (at home)			Access to Internet (at home)		
	City	Country	Gap	City	Country	Gap
Nov 1998	50	43	7	22	13	7
Nov 1999	53	44	9	30	17	13
Nov 2000	59	52	7	40	32	8

*City refers to capital city statistical divisions.
Source: Australian Bureau Statistics 8147.0 February 2001

So what do we know about rural and regional access to information technology? Data provided by the Australian Bureau of Statistics (ABS) (Table 2) indicates that, while there has been an increase in the percentage of people in rural and regional Australia who have access to computers at home, there remains a gap between them and those who live in capital cities. Similarly, the percentage of country people with access to the Internet has

more than doubled since 1998, (with significant growth between 1999 and 2000), but has yet to reach the level of use in capital cities.

Looking at farms in particular (Table 3), it is evident that an increasing number have installed computers but significantly fewer have installed the Internet. There has however, been an increase in the percentage of farms connected to the Internet between 1997 and 1999. Recently, an Internet measurement firm found that rural and regional Australians were as likely as their city counterparts to trial an Internet service and had equally sophisticated computer set ups, albeit with slower modem speeds. They also found that while rural Australia was initially slow in taking up Internet connection, their uptake rate had since increased.[19] A similar trend is evident in the United States, where one of the most dramatic shifts that has occurred in the last three years has been the increase in Internet access by rural households which has occurred at all income levels.[20]

Table 3: Computer and Internet Access on Farms

	Access to Computer (at home)			Access to Internet (at home)		
	Farms	All homes	Gap	Farms	All homes	Gap
1998	39.5	47	7.5	10.8	19	8.2
1999	49.3	50	0.7	17.6	25	7.4

Source: Australian Bureau Statistics 8147.0 Feb 2001 and
Australian Bureau Statistics 8150.0 October 2000

As already noted, living in rural or regional areas of Australia does not in itself determine Internet access, but there can be no doubt that there remains a regional dimension to the digital divide. In Table 4, the variables identified in the literature as socio-economic determinants of the digital divide are categorised by electorate type in order to illuminate the rural and regional dimension from a political perspective.

Region and Age

Age is considered to be one indicator of Internet use, with the take-up rate being higher amongst younger people. While there is an even spread of older people across electorate type, a smaller percentage of young people live in rural and provincial electorates, which could affect the lower rates of overall Internet use in the country. There are also different access rates between young people. Research suggests that low access rates among young people are affected by family income, school sector (Catholic and Government), school location (rural and low-income areas), school size (small) and gender.[21] Given that many country schools are small, either Catholic or Government and, as is expanded on below, and are in electorates with low family incomes, young people in rural and regional Australia could be at a disadvantage. The Human Rights and Equal Opportunity Commission's Report on rural education found that in many rural and remote areas, Internet access was costly and unreliable which, for students undertaking distance education at home, could prove a serious disadvantage.[22]

Table 4: Selected Characteristics for Electoral Regions

	Rural Electorates	Provincial Electorates	Outer City Electorates	Inner City Electorates
Persons aged 15–24 as per cent of total population	12.6	14.4	15.3	15.2
Persons aged 65 + as per cent of total population	27.7	26.5	28.9	27.1
Persons with tertiary qualifications as per cent of population aged 15+	11.5	13	15.2	23.5
Persons of indigenous origin as per cent of total population	4.0	1.7	1.0	0.9
Persons born in non-English speaking countries as per cent of total population	11.2	15	27.1	30.5
Family income below $500 per week as per cent of total families	39.5	37.2	27.6	28.3
Persons unemployed as per cent of labour force	10.1	11.1	8.4	8.5

Source: Andrew Kopras, 'Electorate Rankings: Census 1996 (2000 Electoral Boundaries)', *Research Paper* no. 11, Department of Parliamentary Library, pp. 141–3.

Region and Education

It is also apparent in Table 4 that those with tertiary qualifications are under-represented in rural electorates compared to metropolitan electorates. This is important given that the level of educational attainment is a key factor in determining access to the Internet. In Australia, those with a university education are two and a half times more likely to have access to the Internet at home.[23] Universities tend to provide an environment rich in information technology, providing students with free e-mail, web-surfing facilities, computer labs, as well as encouraging direct use of the Internet for research, training and technical support. Those without tertiary education are thus more likely to be in need of training and support facilities to enhance computer literacy and IT skills and knowledge.

Region and Aboriginal Population

The percentage of Aboriginal and Torres Strait Islander people living in rural electorates is significantly higher than in city electorates, and many live in remote parts of rural Australia. The NATSEM report did not investigate access to computers and the Internet by indigenous communities. However recent reports commissioned by Governments in NSW and the ACT indicate that Aboriginal and Torres Strait Islanders are less likely to have computers at home, and are much less likely to have access to the Internet.[24] As part of the 2001 Budget, the Federal Government has committed $400 000 in the coming year for research into the telecommunication needs of indigenous communities.[25]

Region and Ethnicity

Those from non-English speaking backgrounds are more likely to be resident in inner-city electorates and are also an under-investigated group when it comes to on-line connectivity. Multi-language web content is limited in Australia and research indicates that language and literacy barriers make it difficult for newly arrived migrants to access and use the Internet.[26]

Region and Income and Employment

Rural and provincial electorates have higher rates of unemployment and a higher proportion of low-income families than city electorates. Unemployment is around 11 per cent in provincial electorates, compared to 8 per cent in metropolitan electorates. Those people out of work are usually on low incomes, are much less likely to have Internet access at home (27 per cent), compared to those in work (57 per cent), and so are dependent on other sites such as public libraries.[27] There are almost 10 per cent more families with incomes of less than $500 per week in rural and provincial electorates than in city electorates. Given that evidence both here and overseas reveals that those on low incomes are significantly less likely to have Internet access at home, cost of access is an important issue if all Australians, including those in rural and regional Australia, are to participate in the new information economy.[28]

Infrastructure and Cost Issues

In October 2000, the Telecommunications Service Inquiry (Besley) Report was released, which had undertaken an analysis of telecommunication service and access issues for those living in metropolitan, regional, rural and remote Australia. The Inquiry considered over 100 submissions, 30 per cent of which were from the six per cent of Australians who live in remote Australia. The Report's findings were important in that the further privatisation of Telstra has become dependent on a plan of action addressing the problems faced by rural and regional Australians in particular.[29]

The Telecommunications Service Inquiry (Besley) Report found that almost all Australians can get some form of Internet access over their telephone line, but the speed of this access is not uniform for all Australians. The Digital Data Inquiry found that 14.4 kilobit per second (kbps) was the minimum speed required for effective use of e-mail and web-browsing.[30] However, for access to web pages with complex graphics and for those conducting business over the web, a speed of 28.8 kbps would be more effective. Approximately 15 per cent of Australians living in rural and remote Australia do not have access to the Internet at the speed of 14.4 kbps, (compared to 5 per cent in urban and provincial areas), and 40 per cent do not have transmission rates of 28.8 kbps.[31]

Table 5: Network Coverage and Transmission Rate by Region (Per cent)

	2.4 kilobit per second	9.6 kilobit per second	14.4 kilobit per second	28.8 kilobit per second
Urban and Provincial Centres Population > 2,500	100 per cent	99 per cent	95 per cent	75 per cent
Rural and Remote Areas Population < 2,500	99 per cent	90 per cent	85 per cent	60 per cent

Source: Telecommunications Service Inquiry (Besley) Report p. 103

As Table 5 shows, the Telecommunications Service Inquiry (Besley) Report takes the 'urban and provincial' category to mean all centres with a population of more than 2500, encompassing 87 per cent of the population. The remaining 13 per cent make up the rural and remote category. In this context, the Report found that while a small percentage of the population living in rural and remote Australia had limited or no access to the Internet, most customers received a 'reasonable' data speed (of between 14.4 and 28.8 kbps). However, realistically, 28.8 kbps would no longer be considered sufficient data speed for regular and effective Internet use, and this was recognised in the Coalition Government's requirement, announced in September 1998, that under the Universal Service Obligation, all Australians would have access on demand to a 64 kbps download service.[32]

In the United States rural areas were also found to be lagging behind urban areas in broadband availability, although small rural towns were better serviced than areas outside of the towns. The reason for this was the cost of providing a service to these areas. Low density combined with high cost means that technology dependent on telephone lines is unlikely to solve access issues for those in remote areas.[33] Satellite technology is emerging as a possible way of overcoming the economic difficulties associated with distance here and in the United States.

Region and Cost

There are around 950 Internet Service Providers in Australia, 416 of which service rural areas.[34] Those living in rural and regional Australia however, have significantly less choice in which ISP they use and not all of these are accessible at the cost of an untimed local call. The issue of untimed local calls is an important one while telephone lines remain the main source for Internet connection. For example, the Human Rights and Equal Opportunity Commission found that the high cost of linking outlying rural homes and schools to the Internet has a negative impact on the survival of many small towns, as well as cementing disadvantages faced by children in these small towns.[35]

The cost differential is greater during peak hours, which can impact on businesses that need to be on-line during business hours. This becomes a further disadvantage if the data speed is also slower, thereby extending the amount of time required on-line to download data. Research undertaken by the OECD suggests that access to the physical network and

high bandwidth capabilities will affect the future take-up and implementation of electronic commerce activities, particularly for small and medium sized enterprises located outside urban centres.[36]

Table 6: Comparative Charges for Internet Access

Service	Total Cost* peak time	Total Cost* off peak time
Big Pond no local call access	$12.38	$4.57
Alternative ISP no local call access	$12.38	$4.67
Big Pond Rural Connect	$4.62	$4.62
Big Pond local call access	$1.92	$1.92

*total cost refers to call charges and Internet Service Provider charges.
Source: Telecommunications Service Inquiry (Besley) Report.

Table 7: Comparing Annual Cost of Access

	Farms (1999) per cent	All homes (1998) per cent
Nil or don't know	6.5	14.5
$1–100 per cent	22.7	23.3
$101–250 per cent	36.7	32.6
$251–500 per cent	23.7	19.0
$501+	10.4	10.6

Source: Australian Bureau Statistics 8150.0 and 8147.0

Looking specifically at the cost of access for farms we see that 37 per cent of farms had costs in the range of $101–$250 compared to 33 per cent of all homes with similar costs. Twenty four per cent of farms had costs of between $251 and $500 compared to 19 per cent of all homes. In the lowest and highest cost categories, the figures were similar for the farm and all homes categories. So it seems that while Australia compares favourably to many other nations in terms of the cost of being on-line, within Australia, some geographical disparities according to cost remain.[37]

Table 8: Main Reasons why Households with Computers do not have Internet Access

Household Income ($)	Costs too high	Lack of Interest
0–$14 000	57.3	17.6
14 001–27 000	41.0	28.3
27 001–44 000	36.6	25.0
44 001–66 000	24.4	31.7
Over $66 000	21.4	31.0

Source: Australian Bureau Statistics 8128.0 (1998)

More generally, cost of access is cited as a major reason why households with computers have not connected to the Internet (Table 8). While a significant percentage of households also cited lack of interest, cost prevailed as the most common response for no connection amongst low-income households. The reverse was apparent for those on higher incomes, although 21 per cent of those on over $66 000 still cited cost as the main reason. The $44 000 mark was where the cost/lack of interest nexus occurred. Other reasons for non-access included inadequate computer capacity and adequate access outside the home. These survey results are similar to what has been found in the United States, in that cost of access remains the main barrier for those on low incomes.[38]

Internet Usage

E-mail or using chat rooms are the most common activities amongst all users (68 per cent), followed by general browsing and finding information relating to work. Purchasing or ordering goods and services is not common (7 per cent), but appears on the increase (up from 5 per cent in 1999). Indeed, in 2000, 15 per cent of Internet users were Internet shoppers compared to 12 per cent in 1999. Those living in metropolitan areas were more likely to use Internet shopping than were adults living in other areas, while only 3.8 per cent of all farms are using the Internet for shopping. However, of the farms that have Internet access, 21.6 per cent were using it for the purchase of goods and services in 1999.[39]

The use of the Internet by goods and service providers, both public and private is on the increase. This could be seen as a positive development for those living in parts of country Australia which have seen the removal of government service offices, bank closures and other business that close or move—the latter often occurs as a consequence of the former two.

Between 1999 and 2000, the proportion of adults performing a transaction via the Internet rose from 3 per cent to 9 per cent. Eleven per cent of those in capital cities paid bills or transferred funds using the Internet compared to 6 per cent in regional areas. The ABS has also begun collecting data on the extent to which the Internet is used for accessing government services and information. Most government departments at both state and federal level now have Internet websites. In 1999, 12 per cent of all adults used government on-line facilities, but by 2000 this had dropped to 9 per cent. Of this 9 per cent most used the government on-line service to pay bills, or access information or services in the area of taxation and employment. People in metropolitan areas were more likely to use this service compared to other areas.[40]

Thus, access to the Internet does allow for banking, the payment of bills and purchasing on-line, with many products now cheaper to purchase through the Internet than by phone or in person. However, anecdotal evidence suggests that those without Internet access, (many of whom are on low incomes, some of whom live in country Australia), may pay more for their goods and services.[41]

This may change once more businesses look to use the Internet for commercial activity. Since 1997, the proportion of businesses with Internet access has almost doubled (29 per cent to 56 per cent), although businesses in capital cities are still more likely to have access (58 per cent) than businesses in regional Australia (52 per cent). While many of these businesses use the Internet for e-mail and information searches, few businesses are using the Internet for commercial activity (6 per cent), measured in terms of whether they receive sales income from Internet activity. However, 46 per cent of businesses are using the Internet and the web to facilitate business processes. Again, there is a gap between country and capital city use in (42 per cent compared to 48 per cent).[42]

Programs and Policies

Infrastructure and cost issues are obviously important. International research suggests that growth in Internet demand has been driven by a combination of faster connection speed, improved reliability and service, easier technical use, and declining real access costs.[43]

These issues have not gone unnoticed by governments in Australia. In 1996, the Coalition Government commissioned a Review of the Standard Mobile Service. Following the Review in 1997, the Government launched the Networking the Nation program, worth $250 million over five years, which aimed to 'bridge some of the gaps in telecommunications services, access and costs between urban and non-urban Australia'.[44] This was followed by two more Reviews—The Digital Data Inquiry and the Telecommunications Service Inquiry.

In response to the latter Report, the Coalition Government has committed $163.1 million over five years to improving telecommunications in rural and regional Australia. Most of these funds have been dedicated to mobile phone services, with $9 million allocated to fund greater rural access to telecommunications technology including the Internet. Another $12 million (over three years) is being spent to provide on-line technical support particularly to rural and remote users.[45] Other initiatives over the last five years have been an upgrading of the Consumer Access Network to enable untimed local calls in extended zones in remote Australia and the installation of Rural Transaction Centres in small rural towns.

In its *Knowledge Nation* recommendations, the Opposition views universal access for households and businesses to digital broadband as an urgent national priority.[46] It outlines a range of strategies to achieve this including improving the current regulatory arrangements and maintaining majority government ownership of Telstra, providing incentives, including investing in broadband networks, for the take up of broadband technology and ensuring that all Australians, particularly those in regional areas, have the opportunity to access fixed price untimed calls nationwide, for both voice telephony and data services.

Numerous programs, which seek to enhance Internet access and encourage Internet use amongst citizens and business, have also been put in place at state level and by non-government organisations.[47] The Farm Wide Program, established by the National Farmers Federation in 1997, has sought to provide technical and support for farmers on-line as part of its program, in an effort to encourage farmers to feel comfortable about Internet use.[48]

Democracy and the Digital Divide

The Internet is increasingly being touted as offering citizens new opportunities to participate in the political process. Government policies and services are increasingly becoming available on-line, electoral material is available from a variety of sources, with most political parties now having their own websites. Citizens can discuss political issues in chat rooms, e-mail petitions are becoming a popular way of mobilising support and electronic voting is set to become a common feature in a number of democracies. The 'success' of groups protesting outside various World Trade Organisation meetings over the past few years is attributed to the capacity to organise protest events on-line. All this is possible because the Internet overrides not only geographical boundaries but also traditional political boundaries by bringing diverse groups together creating virtual communities.

Within Australia, some government departments at state and territory level are looking to use the Internet as a means for enhancing public consultation and this is something that has also been experimented with internationally.[49] More generally, we are seeing a shift, toward what has been labelled 'e-Government', whereby technology is used to:

> enhance access to and delivery of government services to benefit citizens, business partners and employees … It is about building a partnership between governments and citizens[50]

Obviously, while Internet use is growing across the population both within Australia and globally, there are problems with assuming that all Australians will look to this medium to participate more actively in the political process. As the previous section shows, the digital divide is exacerbated by pre-existing socio-economic inequalities, which will necessarily have implications for civic engagement.

There are optimists who argue that the gap between those who do and do not use the Internet for political purposes will close over time. In the United States, politicians are using the Internet to target first-time political donors, potential campaign volunteers and traditional non-voters, particularly young men. One United States commentator predicts that by 2004, there will a convergence of the technical and the political whereby Americans will be able to, and feel comfortable with Internet voting.[51] Internet voting has been experimented with in Brazil and the United States.[52] In January 2000, three districts in Alaska used Internet voting for their presidential primary straw poll. It was deemed to

be 'opening up a completely new domain to an Alaskan population that is handicapped by vast distances'.[53] Voting remotely, in the case of voluntary voting nations like the United States and Britain, may have the capacity to increase voter turnout.[54] In Australia, while we have compulsory voting, innovative use of the Internet may encourage young people to enrol to vote, an issue of concern that emerges prior to each federal election.[55]

But there are those who are not so optimistic. The jury is still out on whether there is indeed a causal link between increases in information and increases in popular political action.[56] And there are others who suggest a democratic divide is emerging in the digital arena, with those who are already politically active able to increase their power and influence while those who remain inactive and unconnected become increasingly excluded.[57] In other words, there are questions as to whether the Internet will be able to engender broader democratic participation and equalise information differences. For example, the Voting Integrity Project in the United States challenged the Arizona Democratic Party in the District Court, alleging that the use of Internet voting in the Democratic Party Primary would 'maximize white electoral participation at the expense of African Americans, Native Americans, Hispanics and other minority groups'. [58] Features of the digital divide in the United States were cited in evidence. While the Judge ruled in favour of the Arizona Democratic Party, allowing Internet voting to proceed, the Voting Integrity Project remains 'intent on proving that Internet voting violates the Voting Rights Act, given the state of the digital divide in America'.[59]

Parliament and the Internet

In Australia we know relatively little about individual use of the Internet for political purposes. In Europe in 1997, 10 per cent of people surveyed who were Internet users expressed an interest in contacting a politician on-line, or taking part in a political debate of some kind on-line. By 2000, 10 per cent had visited a political party website, 15 per cent had visited a government website, 19 per cent had visited a local authority website and 31 per cent had read articles on a national newspaper website.[60]

All the major political parties in Australia have websites, which provide details on leaders, candidates, policies, and offer feedback channels, usually through e-mail. Members and Senators have had desktop access to browsing facilities and external e-mail in their Parliament House offices since 1997. Each parliamentarian also has a parliamentary home page supplied, which includes their e-mail address, biographical information and terms of service as well as links to the relevant political party.[61] Members' and Senators' personal home pages may also be linked to their parliamentary home page but these personal home pages are not hosted by the Parliament.

Personal home pages are one mechanism that Members and Senators can use to bring the Parliament closer to the people by delivering information to citizens about their activities in Canberra and in the electorate. Home pages can also stimulate and incorporate more open democratic interaction, through the use of chat rooms, surveys and other feedback

channels. However, there are only limited signs that Australian parliamentarians are interested or active in pursuing the electronic connections with voters. For example, Magarey's survey of 76 parliamentarians' offices in 1999 revealed that there is minimal interest in using the Internet in a dynamic interactive way. There were also concerns about the limited reach of the Internet and about the legitimacy of, and amount of work generated by e-mail communication, which was not always from constituents.[62]

However, since 1999 it seems that interest in the Internet among Parliamentarians has grown. In 2001, 34 Members (23 per cent) and 14 Senators (18.5 per cent) had their own personal home pages connected to their parliamentary home page.[63] What these personal home pages included was variable. Some were very basic, providing links to other sites, uncut media releases and verbatim speeches given in the Parliament. In these cases, e-mail was the only channel for voter feedback. Others went beyond the basics, providing photos, informal summaries of their activities in Parliament and the electorate and a diary of upcoming events. Fourteen of the 48 personal home pages gave constituents additional channels of communication to e-mail, providing survey feedback forms, chat rooms and website question and answer sessions.

Internet Use and Election Information

A detailed analysis as to the extent to which individuals access these websites has yet to be undertaken. However, we can examine the extent to which voters accessed election information on-line in 1998 by drawing from Australian Election Survey data collected immediately after the 1998 election.[64]

Amongst country users, television and newspapers appear to be the main sources of election information in 1998. A similar pattern is apparent amongst city users, although the latter are more likely overall to access political information (Table 9). In comparison to other media, few people seem to have made use of the Internet irrespective of where they live. City residents did appear more likely than those in country Australia to make some or lots of use the Internet as a source of information, while those in the country were less likely to have Internet access, compared to those in the city.

Table 9: Access to 1998 Federal Election Information

	Lots or Some Use		Not much or no use	
	Country	City	Country	City
Newspapers	61.7	64.2	38.3	35.8
Radio	48.6	52.2	51.4	47.7
Television	73.3	79.1	26.6	20.9
Internet[65]	3.4	5.4	16.5	29.2
No Internet access			80.3	65.5

Source: Australian Election Survey 1998

Within the rural and regional category (Table 10), it is apparent that those in large towns were more likely to use the Internet than those in rural areas or small towns, although the percentage of use in both cases is still small.

Obviously constituents' access to a computer and the Internet is likely to influence the choice by parliamentarians to use this medium. Given that we know education, income and geography can influence the propensity to be connected to the Internet, it is unlikely that all parliamentarians will see a need for the provision of on-line information and communication services. However, given that we also know that Internet use is growing in both rural and urban areas in Australia, it is clear that the Internet is a medium that cannot be ignored. Further, early research suggests that those who live in rural and regional Australia would consider using the Internet to e-mail their local member and to stay informed on progress regarding local electorate issues, if that were available.[66]

Table 10: Access to Election Information within Rural and Regional Australia

	Lots/Some Use		Not much/no use	
	Rural/Small Towns	Large Towns	Rural/Small Towns	Large Towns
Newspapers	46.3	53.7	48.5	51.5
Radio	50.5	49.5	46.1	53.9
Television	49.2	50.8	43.6	56.4
Internet*	3.0	7.2	45.7	54.0
No Internet access	-	-	47.5	52.5

* See footnote 65. Source: Australian Election Survey 1998

Conclusions

There are some who argue that the Internet will soon become as popular as television, with the costs of purchasing hardware and service provision declining over time and competition ensuring that universal service will be provided without the need for state intervention. Others are not so sure. Those with higher socio-economic status were the first to utilise train travel and automobiles, and there are concerns that access to new technologies will continue to depend on education, literacy and income unless the state intervenes.[67] Furthermore, the Internet places different demands on the user than the medium of television—access and use requires both cognitive ability and technical skills.[68]

Digital technology has not created a new social divide. Rather it has built upon, and may exacerbate, inequalities that already exist in Australian society.[69] So, before the Internet can be heralded as an egalitarian medium, a range of social, economic and technical barriers will have to be addressed.

Many Australians do have 'reasonable' access to the Internet. A small percentage, those who live in rural and remote Australia in particular, have very limited access. But it is precisely this majoritarian position, which is problematic for those who live in rural Australia and feel their service levels seem to matter less *because* the majority of Australians are well serviced. Some commentators suggest that there is a rural perception of inequitable service, when in fact a sufficient service is being provided.[70] Yet this perception held by rural Australians is underpinned by one of the original objectives of Australian Federalism, which had as part of its foundation a commitment to equity over density of population.

First expressed through equal representation of the States in the Senate, it was, in 1934, entrenched with the creation of the Commonwealth Grants Commission, which explicitly introduced the principle of Horizontal Fiscal Equalisation as a core organisational maxim of Australian federalism. Its aim was to ensure that all Australians, irrespective of where they lived, had access to roughly equal levels of government services, providing their State governments made a relatively equal effort at raising revenue.[71]

While the provision of telecommunications is no longer solely provided by government, there was a time which is still fresh in the memories of many rural Australians, when they could at least expect the right to similar services. In other words, there has been policy tradition underlying the principle of horizontal equalisation, which has informed rural peoples' expectations of entitlement to the same level of service as those in metropolitan Australia. Hence the recommendation for the extension of Universal Service Obligations to cover Internet access for those who live in country Australia.[72]

Although the on-line population is beginning to diversify, it is evident that the Internet has not yet become a medium of the masses. However, it is worth remembering that although television broadcasting became popularly accessible from the late 1950s, television did not 'exert its full influence on the practice of politics until the 1960s and 1970s'.[73] In other words, it remains too early to tell the extent to which the Internet will influence the practice of politics and whether it indeed has the capacity to produce a qualitatively different democracy.

Endnotes

1. P. Norris, *Digital Divide? Civic Engagement, Information Poverty and the Internet in Democratic Societies,* Cambridge University Press, forthcoming 2001. Draft chapters at http://ksghome.harvard.edu/~.pnorris.shorenstein.ksg/book1.htm
2. Gianni Zappalà, Vanessa Green and Ben Parker, 'Social exclusion and disadvantage in the new economy', Working Paper no. 2, December 2000, Research and Advocacy Team, The Smith Family.
3. Norris, op. cit.

4. ibid. This is not to suggest that there is currently an equality of citizen participation in politics. Indeed it may be that the Internet will reinforce an existing democratic divide, whereby those who are already politically active, become more so.
5. Telecommunications Service Inquiry (Besley) Report, *Connecting Australia*, October 2000; Report tabled by the House of Representatives Committee on Primary Industries and Regional Services, 2000.
6. Standing Committee on Primary Industries and Regional Services, *Time Running Out: Shaping Regional Australia's Future. Inquiry into Infrastructure and the Development of Australia's Regional Areas*, March 2000.
7. J. Stensholt, 'Bush no barrier to net access', *Australian Financial Review*, 25 August 2000
8. M. Gillchrist, 'Bush-city digital divide a myth', *Australian*, 25 August 2000
9. This paper does not dispute that there are also citizens in urban areas who are disadvantaged in terms of Internet access.
10. This is in line with the definition of rural and regional employed by the current Coalition Government.
11. According to the Australian Bureau of Statistics (ABS), in 2000 29 per cent of adults (eighteen years and over) accessed the Internet at home, 23 per cent at work and 22 per cent at other sites. Respondents could choose more than one site. Indeed, only 10 per cent accessed the Internet only at home (ABS, Household Use of Information Technology, ABS Catalogue 8146.0, May 2001).
12. E.P. Bucy, 'Social Access to the Internet', Press/Politics (2000), 5(1), pp 50–61; Norris, *Falling through the Net: Toward Digital Inclusion*, National Telecommunications and Information Administration (NTIA), Washington, 2000.
13. OECD, *Information Technology Outlook 2000*, www.oecd.org/dsti/sti/it/prod/it-out2000-e.htm (2000); also OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, p. 150. The latter Report estimates that currently 80–90 per cent of web purchases are made in North America, but that by 2002 this share will have shrunk to 64 per cent of total web sales.
14. R. Lloyd and O. Hellwig, 'Barriers to the Take-Up of New Technology', *Discussion Paper* no. 53, NATSEM (National Centre for Social and Economic Modelling), November 2000.
15. ABS Catalogue and Helling, 8146.0, May 2001
16. Lloyd and Hellwig, op. cit.
17. Those who live in metropolitan and regional Australia are more likely to access the Internet at home than at work or other sites (including libraries and cafes).
18. Caincross cited in OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, http://www.oecd.org/dsti/sti/it/ec/index.htm, p. 143
19. *Sydney Morning Herald*, 24 January 2001.

20. NTIA, *Falling through the Net: Toward Digital Inclusion*, Washington, 2000, http://www.ntia.doc.gov/ntiahome/fttn00/contents00.html
21. M. Doherty, 'Internet gap risk to quality of education', *Canberra Times*, 8 October 2000
22. Human Rights and Equal Opportunity Commission, *Recommendations: National Inquiry into Rural and Remote Education*, HREOC, May 2000.
23. G. Zappala, op. cit.
24. E. Clark, 'Report shows facts of national digital divide', *Canberra Times*, 2 April 2001; J. P. Moloney, 'Internet awareness to attract special funding', *Canberra Times*, 24 April 2001.
25. Department of Communications, Information Technology and the Arts (DCITA), Budget Paper No. 1, 2001–02, p. 46
26. M. Griffin, 'Digital Divide', *The Sydney Morning Herald*, 4 May 2000
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28. For a comprehensive discussion on the new economy and the place of information technology see G. Zappala, 'Understanding the New Economy: the economic and social dimensions', Australian Journal of Social Issues, vol. 35, no.4, 2001, pp. 317–31.
29. John Anderson, Media Release, 12 October 2000.
30. Australian Communications Authority, Digital Data Inquiry, August 1998, http://www.aca.gov.au/publications/reports/digital/ddrfinal.pdf
31. Telstra submission to Telecommunications Service Inquiry (Besley) Report, op. cit.
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34. Telecommunications Service Inquiry (Besley) Report, op. cit.
35. Human Rights and Equal Opportunity Commission, op. cit.
36. OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, op.cit., p. 144.
37. OECD, *Indicators on Internet and Electronic Commerce*, 2000. http://www.oecd.org/dsti/sti/it/cm/stats/newindicators.htm
38. NTIA, op. cit.
39. ABS Catalogue 8146.0, May 2001; ABS Catalogue, 8150.0, Oct 2000.
40. Part of the *Networking the Nation* funds are aimed at encouraging organisations and local government authorities in rural and regional Australia to provide more on-line access to information and services.

41. L. Schmidt, 'The Great Divide', *The Age*, 5 March 2001; S. Hayes, 'Digital Divide Dilemma', *The Australian*, 30 January 2001.
42. ABS, Business Use of Information Technology, ABS Catalogue 8129.0, December 2000.
43. OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, op.cit.
44. This is partly funded by the Social Bonus generated by the partial privatisation of Telstra.
45. DCITA, Budget Paper No. 1, op. cit. pp. 44–5. Half of the $12 million will come from the Rural Internet Access Fund, an existing Telstra Social Bonus Program.
46. Australian Labor Party, *An Agenda For The Knowledge Nation*, http://www.alp.org.au/kn/kn_report_020701.html#5
47. For example see R. Edwards, 'Communities on-line: a practical strategy for rebuilding rural and regional communities' in D. Glover and G. Patmore (eds), *For the people: Reclaiming our Government*, Australian Fabian Society, Pluto Press, 2000. The Digital Divide Task Force in the ACT has outlined a proposed broad program framework for use by key stakeholders including government, business and the community sector, to enhance access by identified disadvantaged groups, to IT and Internet services and facilities http://www.act.gov.au/whatsnew.cfm. One example of a non-Government initiative are the Smith Family computer clubs, see V. Green, 'Information Technology: Who Benefits?', *Research and Advocacy Briefing Paper* no. 6, October 2000. Obviously there are many more initiatives in place around the country.
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49. Professor Jon Pierre of University of Goteburg, 'Citizen Participation in the Policy Making Process', Presentation at the University of Canberra, 16 May 2001; see also http://www.e-envoy.gov.uk/; and the Queensland Department of Premier and Cabinet Community Engagement Division's e-Democracy project site at: http://statements.cabinet.qld.gov.au/cgi-bin/display-statement.pl?id=148&db=media
50. R. Silcock, 'What is e-Government?', *Parliamentary Affairs* vol. 54, no. 1, 2001, p. 88.
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52. Internet voting is different to electronic voting. The ACT Legislative Assembly has passed legislation that will allow computer voting and vote counting for the next ACT election in October 2001. However, voters must still present themselves at a polling booth to vote electronically.
53. In D. Dictson and D. Ray, 'The Modern Democratic Revolution: An Objective Survey of Internet-Based Elections', http://www.SecurePoll.com/VotingPaper.pdf p. 23.
54. ibid. At the last United States Presidential election, 250 Army personnel stationed overseas voted 'remotely' using the Internet.

55. S. Peatling, 'Roll Call', *Sydney Morning Herald*, 7 April 2001. In New Zealand it is possible to enrol to vote on-line.
56. B. Barbour, 'Community and the Internet', on-line mimeo, February 1999, http://home.vicnet.net.au/~strthmre/community.htm, accessed 18 April 2001.
57. Norris, op. cit.
58. http://www.voting-integrity.org/projects/votingtechnology/012100filing.shtml.
59. http://www.voting-integrity.org/text/2000/rel030300.shtml
60. Norris, op. cit.
61. K. Magarey, 'The Internet and Australian Parliamentary Democracy', *Parliamentary Affairs*, vol. 52, no. 3, 1999, pp. 404–28.
62. ibid
63. Research conducted by J. Curtin, *Voicing the Vote of the Bush: Representing Rural and Regional Australia in the Federal Parliament*, Department of the Parliamentary Library, Australian Parliamentary Fellow Monograph, forthcoming 2002. This count only includes those Parliamentarians who have their personal home pages linked into the Parliamentary site. It does not include Ministers or Parliamentary Secretaries who have links to their Departmental Websites.
64. These are mail-out surveys conducted after each election, with around 2000 responses per survey. Questions regarding Internet use were included after the 1998 election. The focus on rural and regional Australians (Table 10), means the number of respondents is cut to around 850. So the results from these data cannot be assumed to be exact, only indicative of possible patterns.
65. The survey question relating to the Internet had different categories to the others; 'no use', 'one or twice', 'on several occasions' and 'many times'. The 'no use' and 'once or twice' answers were combined and put into the 'not much/not at all' category, while the 'several/many times' answers were combined and put into the 'a good deal/some use'.
66. J. Curtin, op.cit.
67. Norris, op. cit.
68. Bucy, op. cit.
69. Griffin, op.cit.
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71. R. Gerritsen, 'The Management of Government and its Consequences for Service Delivery in Regional Australia', in B. Pritchard and P. McManus (eds), *Land of Discontent*, University of New South Wales Press, 2000, pp. 123–39
72. For a useful discussion of the political, economic and social difficulties in providing universal telecommunication service in the current deregulated environment see S. McElhinney,

'Telecommunications liberalisation and the quest for universal service in Australia', *Telecommunications Policy*, no. 25, 2001 pp. 233–48.

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