

CLOSING THE DIGITAL DIVIDE – SUMMARY OF STAKEHOLDER DISCUSSIONS

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Department of Labour

May 2001

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CLOSING THE DIGITAL DIVIDE – SUMMARY OF STAKEHOLDER DISCUSSIONS

Executive Summary

As part of its goal to “grow an inclusive and innovative economy for the benefit of all”, the Government is keen to see all New Zealanders have the opportunity to access and effectively use information and communications technology (ICT). To this end, the Government directed an officials’ Working Group to develop an initial policy response, in the form of a “digital opportunity” strategy and action plan, for announcement in early July. This “digital opportunity” strategy will complement the previously announced e-commerce and e-government strategies.

In order to do this effectively, the Working Group has talked to a large number of interested people since the start of the year. They circulated a summary of these discussions in early April, seeking further comments from stakeholders. This note is a final summary of the stakeholder consultations, which summarises the main points from these discussions, as amended by stakeholders since the draft summary was circulated.

The Working Group has broken the digital divide issue into the dimensions of access, education and training, attitudes and motivations, and relevant content. Most respondents seemed to agree that this is a useful way to think about the issue. In addition, many respondents raised the need for Government to more effectively communicate an overall “information society” strategy, and to establish a co-ordinating body that could effectively progress a strategy to “close the digital divide”.

It should be emphasised that while the digital divide can be seen as having several dimensions, it is important to remember that the divide generally results from the interplay of the dimensions, rather than one dimension alone.

In terms of the dimensions identified by officials, the main messages that have come out of the consultation to date are:

- Further work is required to address the adequacy of the telecommunications infrastructure, especially in rural areas – lack of adequate bandwidth is a “showstopper”.
- Government could play a role in making Internet access and ICT equipment available to those who don’t have it (e.g. by donating used computers).
- There is interest in establishing community access centres for those who do not have home access – there are a number of models in place, and Government and other partners could assist communities to develop their own preferred solutions to providing community access.

- Other means of providing access, such as through schools and libraries, in homes via the Computers in Homes programme, or by employers, could also be supported by Government policy.
 - The large investment in infrastructure in schools needs to be supported by greater investment in ICT training of teachers and principals, and better integration of ICT into the curriculum.
 - Government could encourage more people to become “information literate”, to gain basic ICT skills, and to pursue tertiary ICT qualifications – in particular, it could encourage more women, Māori and Pacific people and people with disabilities to do so.
 - Lack of mentors and technical support is an important obstacle to effective ICT use, although there may be untapped sources of this in communities (e.g. SeniorNet members).
 - There is a significant group of people who are suspicious of ICT, or do not see how it is “for them”. There are a number of ways that Government could attempt to promote more positive attitudes to ICT, but it also needs to accept non-use of ICT as a valid choice, and ensure that people who do not want to use ICT are not excluded.
- ♀ For some people, the problem with content is that there is so much, while for others, there is little that is personally relevant. There are a number of ways that Government could assist some groups to make better use of ICT to generate relevant content.

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It will not be possible for Government to address all of the issues raised, and indeed, in some cases, it might not be appropriate or necessary for Government to be involved. Closing the digital divide will also be an ongoing process, and some areas clearly need further work, and the development of partnerships, before it is possible to implement appropriate actions.

CLOSING THE DIGITAL DIVIDE – SUMMARY OF STAKEHOLDER DISCUSSIONS

Introduction

- 1 One of the Government’s goals is to “grow an inclusive and innovative economy for the benefit of all”. An important part of this is to adopt strategies and policies for making New Zealand successful in the “information age” – most, if not all, developed countries are already moving in this direction. This has focused attention on the gap between those people who have good access to information and communications technology (ICT)¹, and the skills and motivations to make effective use of it, and those who do not. This gap has become popularly known as the “digital divide”.
- 2 The Government has accepted that the digital divide is an issue in New Zealand, and is keen to turn it into a “digital opportunity”. They have agreed to a vision statement that sums up where they would like New Zealanders to be, and how they expect people to benefit:

All New Zealanders, either as individuals or as members of communities, have the opportunity to access and effectively use current and emerging information and communications technologies. This will enable individuals and communities to participate fully in the economic, social, educational, cultural and democratic opportunities available in an information society.
- 3 An officials Working Group, led by the Labour Market Policy Group of the Department of Labour, was established to gather information on the state of play in New Zealand, and to provide Ministers with policy advice on how to close the digital divide in New Zealand. The first major task of the Working Group was to compile stocktakes of the New Zealand situation, focusing on what we know about the nature of the digital divide and what is already being done to eliminate it. These stocktakes, which were published in December 2000, can be found on the Minister of Social Services and Employment’s website (<http://www.executive.govt.nz/minister/maharey/divide/index.html>). They should be regarded as an indicative snapshot – there have been a number of developments even in the six months since they were published.
- 4 Since the start of this year, the Working Group has been discussing the digital divide issue with the wider community, testing our understanding of the issue and the things that are being done about it, and getting ideas about where central government and others could make a difference. While this consultation has not been fully representative, officials are confident that the major issues have been identified in discussions with stakeholders from the following sectors:
 - The information technology (IT) and telecommunications industries, including representative groups like the Information Technology Association of New

¹ Although it is most usual to think of computers and the Internet when people talk about ICT, it includes other technologies such as telephones and television.

Zealand (ITANZ) and the Telecommunications Users Association of New Zealand (TUANZ);

- Other relevant business people;
- The research, science and technology sector;
- Local government;
- The education sector, at all levels from pre-school to tertiary and community education;
- The community and voluntary sector, including groups representing the interests of women and migrants, and groups that are actively involved in delivering solutions to the digital divide (e.g. the 2020 Communications Trust);
- People in rural communities;
- Senior citizens;
- Māori;
- Pacific people;
- People with disabilities; and
- The library and information management sector.

- 5 A summary of these discussions was circulated back to stakeholders in early April, seeking further comments and clarification. This note is a final summary of the stakeholder consultations, which summarises the main points from these discussions, as amended by stakeholders since the draft summary was circulated.
- 6 It should be noted that this document is a summary of what stakeholders have said. It does not contain detailed analysis of the suggestions made, and should not be taken as a commitment that Government will resolve all of the issues raised. It would not be possible for Government to address all of the issues raised, and in some cases, it may not even be appropriate or necessary for Government to get involved. In general, sustainable solutions are likely to require partnerships between government (both central and local), business and the community.
- 7 The contents of this paper have fed into the development of a “digital divide/opportunities” strategy, which is scheduled to be announced in early July. This is a bit later than originally indicated, as there are some areas where further work is required to come up with appropriate policy responses. The strategy will contain an action plan, which sets out initial policy responses and areas where further work is required - policy development and implementation will be an ongoing process.
- 8 The strategy will complement the already announced e-commerce and e-government strategies. All three strategies contribute to the Government’s overall goal of New Zealand becoming a “knowledge society”. There are a number of issues raised in this paper that are also relevant to the other two strategies. Equally, there are some issues

that have not been raised to any great degree in this paper that are more relevant to the other strategies (e.g. policies to increase e-commerce uptake).

Summary of stakeholder discussions

- 9 In previous papers that the Working Group have prepared on the digital divide issue, we identified four dimensions of “digital disadvantage”:
- *Lack of access to ICT.* In itself, “lack of access” incorporates a number of different factors:
 - Inability to afford hardware, software or ongoing Internet access. This also includes the inability to upgrade as technology advances.
 - Lack of adequate telecommunications infrastructure. This is particularly the case in rural areas.
 - Inability to physically access technology, e.g. location of technology for community access in a location inaccessible by people with disabilities.
 - Inability to read, relate to or understand content, e.g. websites that cannot be “read” by special software for the blind, content intended for certain groups written or presented in an inaccessible way.
 - *Lack of ICT education and training.* This includes acquiring basic skills in using technology, such as acquiring basic computer literacy skills, as well as the more advanced training required to meet the demand for IT professionals. It also encompasses the acquisition of “information literacy”, which are the skills required to find, collate, interpret, manipulate and transform information. Linked to the provision of training is access to mentoring and technical support.
 - *Negative attitudes towards, and lack of motivation to use, ICT.* People have to want to use ICT if they are to benefit fully from it. People may be uncomfortable with technology, or they may simply be unaware of what technology can do for them. They may also prefer to do things in other ways (e.g. personal contact).
 - *Lack of relevant content.* This is linked to attitudes and motivations, in that many people will develop positive attitudes to ICT if they can see a reason to use it. The more relevant content that they can find, the more likely are people to have positive attitudes. They may also start to develop relevant content themselves, becoming active creators rather than passive recipients.
- 10 Stakeholders have provided feedback on each of these dimensions, as well as on the issue of co-ordination of “knowledge society” initiatives, and on some other related issues (e.g. telework, development of call centres). The rest of the paper summarises this feedback, and identifies some issues where there may be potential for central government and others to play a positive role.
- 11 Before summarising the comments of stakeholders, it is worth noting that there is great diversity in their experiences, and hence, the range of issues raised. What were big issues for some people were less significant for others, and while there was probably no

one issue that everyone mentioned or agreed on, there were some clearly important themes that came through the consultations. The document attempts to give a flavour of how often certain issues came up, and where there were disagreements, without getting into precise detail about who said what.

- 12 It should also be noted that the purpose of this paper was not to present a stocktake of initiatives, although this material is clearly important and useful, particularly for policy development. Some examples of things that are happening are included where they provide useful context – this is not meant to suggest that the examples used are the only relevant things happening. As noted in paragraph 110a, disseminating information on what is happening is a task that many respondents considered to be important.

Access to ICT

- 13 Comments on access issues fell broadly into the following categories: access to the telecommunications infrastructure; provision of Internet access; provision of ICT equipment; development of community access centres; provision of home ICT access; and access for people with disabilities.

Access to the telecommunications infrastructure

- 14 Many stakeholders reinforced the point that access is the most basic issue, i.e. without providing access, you cannot close the digital divide.
- 15 In this context, the main issue that was raised was the adequacy of the telecommunications infrastructure, especially in rural areas. In the words of Ernie Newman of TUANZ, bandwidth² is a “showstopper”. The announcements in December 2000 of data capability of 9.6 kilobits of information per second (Kbps) for 99% of all residential lines and 14.4 Kbps for 95% of residential lines within 2 years were seen as a step forward. However, there is still a feeling that they do not deliver an adequate level of bandwidth to rural areas, and that there remain a number of technical problems that prevent rural dwellers from enjoying the same phone system that urban dwellers do.
- 16 The National Information Policy Summit 2000³ recommended implementation of high-speed (i.e. greater than 9.6 Kbps) Internet access, and development of a national “broadband⁴” strategy, as in Canada and Singapore. Ernie Newman notes that “many governments have recognised that the availability of broadband across the regions is a matter of crucial significance to regional development and national economic policy, and some – including Ireland and West Australia – are subsidising it”⁵.
- 17 This latter point was emphasised by a number of respondents, who considered that the Internet needs to be seen as part of a regional development process – for isolated disadvantaged regions, it promises to minimise the “tyranny of distance”. In the same way that the development of a region with a sub-standard transport infrastructure will be

² The data throughput capacity of a particular communications link, such as a phone line.

³ Organised by the School of Communications and Information Management of Victoria University, the summit was held in November 2000. It was attended by a number of government departments, and representatives from the IT sector and the library and information management sector.

⁴ Broadband is generally defined as a data throughput capacity of more than 2 Mbps (2,000,000 “bits” of information per second).

⁵ “Better telecomms from regulatory decisions, *InfoTech*, 5 February 2001. (<http://www.stuff.co.nz/inl/index/0,1008,627994a1983,FF.html>)

constrained, so will the development of a region with a sub-standard telecommunications infrastructure be constrained in the information age.

- 18 Some specific suggestions about how to make greater bandwidth more widely available were:
- a Full unbundling of the “local loop”, to allow telecommunications providers other than Telecom to offer services without requiring them to construct their own networks (the Government declined to regulate for this in its response to last year’s Ministerial Inquiry into Telecommunications).
 - b Pooling of local demand for bandwidth (e.g. from schools, police, hospitals, local government) to generate incentives for telecommunications providers to enter rural markets.
 - c Running fibre optic cable down all the major railway lines in New Zealand would provide good connection for the major rural centres (it has been suggested that this has already happened, without solving the problems of access for smaller rural centres).
- 19 Most respondents agreed that there was little financial incentive for telecommunications providers to address the rural infrastructure issue, and that there was a clear role for government (although they were less clear about what the role was). Nevertheless, it was noted that there are groups and regions that are pursuing their own solutions to the bandwidth issue, and that government should be careful not to stifle these. There can be a tendency for people to hold off on developing their own solutions if they think government is about to “solve” the problem for them. This might also lead to implementation of a “one size fits all” solution that might not be the best for all regions.
- 20 A number of respondents raised some related issues about access to telecommunications infrastructure:
- a in some areas, the reliability of the power supply is also a factor in telecommunications access (e.g. the East Coast);
 - b some people do not even own phones, let alone computers;
 - c some people experience interference from electric fences; and
 - d some people in rural areas need to make toll calls to access the nearest Internet Service Provider (ISP).
- 21 Other information on the last point suggests that all ISP access calls are free calls. However, it also raises the issue of the Telecom IPNet (0867) service for ISPs, about which there has been considerable debate. In announcing “interconnection with Telecom’s fixed telephone network” as a designated service late last year, the Government indicated that it felt that this would ensure that efficient interconnection prices are charged, and that the 0867 issue would be resolved.

Provision of Internet access

- 22 A large number of respondents saw a role for government in the provision of Internet access to the general public, especially disadvantaged groups. A couple of respondents made the suggestion of providing everyone with an email address, which they could choose whether or not to use. This would also provide a channel by which government could contact people who regularly change address, or have no fixed abode (although such people would still need to have some way of checking their email).
- 23 One of the recommendations from the National Information Policy Summit was that there should be free Internet access from public libraries and community facilities (including marae). Further discussion of the use of these locations as community access sites can be found in the section on “Development of community access centres” (paragraphs 32-47). It was also suggested that the Government should make available places from which people could access government content free of charge.
- 24 Another suggestion was that the government should finance free Internet access for non-profit organisations, and that this would pay for itself in increased efficiency of organisations that do work that the government would otherwise have to pay for.

Provision of ICT equipment

- 25 Many respondents saw a role for government and business in providing ICT hardware, by way of donations of used computers to computer recyclers, for refurbishment and redistribution to those who need them. A number of government agencies have donated used hardware in the past, or are keen to do so in the future. The same goes for a number of businesses.
- 26 Some people saw a role for government (perhaps through a co-ordinating body) in better managing its part of the donation process. This would potentially involve running some sort of register of computer donations, arranging for them to be recycled, and ensuring that they are made available to people who need them. A co-ordinating body might also be able to exploit economies of scale to get better deals on software for the recycled computers.
- 27 The recycling process is key to addressing the security concerns of donors, who want to be sure that the computers do not contain sensitive data when they are redistributed. It also helps organisations address the issue of how to dispose of their used equipment, and may generate employment in the computer recycling area.
- 28 A number of community organisations have noted that they do not have the resources to purchase ICT equipment, and that they could make use of donated equipment to improve their own administration and research, to provide services and training to clients, and to model ICT usage.
- 29 A number of refurbished computers have been donated to schools. For many purposes, recycled computers will be perfectly adequate for school use. However, some members of the TUANZ board have suggested that the computer users of tomorrow should be learning on the latest equipment, and that it is increasingly the quality of the equipment rather than the quantity that should be the focus in the education sector.

- 30 There is a similar issue for people with disabilities, as the features required to provide them with access often require greater processing capacity. One interesting suggestion was that in some circumstances, using the Linux operating system may provide a cost effective solution. Although the system is complex to install, the Linux community, with its culture of free sharing of knowledge, can provide help. The operating system and screen reading solutions are freely available, and a responsive, effective access solution can be set up on a 486 computer.
- 31 The possibility of Internet access via television was raised by a couple of respondents. Some importers have been looking into selling set-top boxes, which with the addition of a keyboard, would allow Internet access via a television set. While cheaper than a computer, the user would still need to provide the Internet connection.

Development of community access centres

- 32 In looking at the digital divide in the United States, the influential Gartner Group noted that “while the ideal might be to have Internet access in every home, that is not realistic at this time. For the foreseeable future, therefore, public Internet access in schools, libraries, community centers and government locations is extremely important to ensure equal access to public services, private sector opportunities and overall socioeconomic advancement”⁶.
- 33 The community access model was recommended by many respondents as a way of bringing ICT to people who don’t have it, especially those who cannot afford it in their homes. Some recent research commissioned by MAF⁷ reported that a quarter of people they surveyed would access the Internet at a community access centre, with nearer to 30% of Māori reporting that they would use community access centres. When asked whether they would access reasonably priced training at a community access centre, more than 70% of respondents indicated that they would. Respondents were prepared to travel a mean distance of 23.1 km to a community access centre.
- 34 There are a number of possible locations for such centres. One option is to exploit the technology that is already available in communities, and extend its use to other groups (what Botha, Small and Crutchley (2001) call the “extension” model). The existing site that is most likely to be accessible in most communities would be a school – as a result of the sizeable investment that has gone into wiring schools, many schools will have at least some technology that could potentially be accessed by the community in the school’s downtime.
- 35 While there is some interest from schools in providing ICT access and training to the community, there are some issues that they would need to consider in doing so. These were highlighted in Botha et al’s case study of the Piopio College community access project:
- a The attitudes of the principal and Board of Trustees are crucial, as they decide whether the school will make its facilities available.

⁶ Gartner Group (2000). *The Digital Divide and American Society – Conclusions*. pp 1-2.

⁷ Botha, N., B. Small and P. Crutchley (2001, unpublished). *Addressing the Rural Digital Divide in New Zealand*. Draft report to the Ministry of Agriculture and Forestry. MAF are in the process of finalising this report, at which point it will be made available on their website (<http://www.maf.govt.nz>).

- b The centre needs to be independently managed, to take the load off school staff. This is also essential if the school is to be a venue for SeniorNet training (Telecom require it). The manager needs to have the right attitude and capability.
 - c A lot of voluntary effort is required.
 - d The site needs to be easily physically accessible by the community.
 - e There are security issues that need to be addressed before a school will be comfortable making facilities available, including preventing improper use of ICT, and preventing access by people who are not permitted to access school premises.
- 36 It should also be noted that if computers are distributed across classrooms, which will enhance their integration as a learning tool into classes, this complicates their use after hours (e.g. access to more classrooms would be required).
- 37 As well as schools, many communities will have public libraries, which could also be a key point for providing community access. A number of libraries are pursuing initiatives to expand community access to ICT.
- 38 In addition, there has been a significant push from the library and information management sector to make better use of libraries as community access points. The Library and Information Association of New Zealand Aotearoa (LIANZA) have developed a “National Information Strategy”, in which they make a number of recommendations about (among other things) changes to local government legislation that they consider would increase the ability of public libraries to do this:
- a That in the review of the “Local Body Act” (sic), public libraries become mandatory services for all local authorities.
 - b That the government endorses a set of non-mandatory standards for public libraries to be prepared by LIANZA. The guidelines will act as a code of practice to local authorities and will give elected representatives and library users a guide to what level of service should be considered a minimum standard for public libraries.
 - c That the guidelines should be referred to as a code of practice in any new “Local Body Act”.
 - d That the new act exempt libraries from the private vs public good provision in the Local Government Amendment Act (No. 3) 1996 for assessing their services. That public libraries be recognised as a public good in the work they do to close the digital divide.
 - e That under the proposed “Powers of Funding Review” central government should be able to enter into funding arrangements with local government. We would like to see central government fund public libraries on a contestable basis for any services or improvements to infrastructure that enhances their ability to close the digital divide for their communities.

- 39 While it is tempting to try to make use of existing resources, it has been noted that in some cases, there may be a tension between the goals of community access and of the host organisation. It also needs to be recognised that this will only be successful if the site chosen suits the community. For example, Papatoetoe Central School has run adult training courses in the evenings in the past, but found that many adults did not feel like participating in training after a hard day's work. For some people, schools do not represent a non-threatening environment in which they are going to be comfortable learning. If community access centres are to be used, they have to be located where people want to go – it is not a case of “if you build it, they will come”. They also need to be physically accessible to everyone in the community.
- 40 Where people are most comfortable going to access ICT will differ from one community to the next, and to be successful, solutions will need to take account of the needs of each community, and be developed by them. These community access centres are what Botha, Small and Crutchley (2001) characterise as the “Social Service Model”.
- 41 A good example of this model is the Wairoa community hub (Wairoadot.com), which was officially launched by the Deputy Prime Minister in November 2000. Wairoadot.com is being managed by a board that has representation from a number of key community players, and buy-in from a wide cross-section of the community (a sense of community ownership). The Wairoa experience also contains a number of lessons about how best to establish a community access centre.
- a It would not have happened without government funding, and it does not appear to be sustainable without continued support.
 - b Partnerships between the community, government and business are key to the project's success.
 - c Although the necessary equipment has been found, supporting the key people who will make it work, and dealing with a lack of technical support, are key “people” issues to be addressed.
 - d Community access centres need to be user friendly and welcoming, have a good leader from the community who is provided with appropriate leadership development and ICT training, and provide skilled tutors.
- 42 For Māori communities, there is the possibility of providing community access on marae. For example, the 2020 Communications Trust is currently piloting Marae Net at Pipitea Marae in Wellington, with funding from the Wellington City Council. The Marae Net pilot provides local Māori with access in a supportive environment, and with training to help build their confidence in the use of ICT. The Trust has been approached by other marae that are interested in the programme.
- 43 A number of Pacific respondents mentioned the value of the church as an institution in Pacific communities, and as a possibility for providing community ICT access in a non-threatening environment, in a similar way to the Marae Net programme. One respondent suggested using an empty state house as a community access site for the surrounding community.

- 44 In some locations, ICT access is already being provided as a commercial enterprise. Many locations (especially tourist destinations) already have cybercafes, where time-limited access is commercially available. However, these may have limited appeal or utility as a site for access and training for those who are not confident with ICT. Botha et al also did a case study of the Kapiti Telecentre, which is a combination of their Social Services Model and a commercial model. The Telecentre has a partnership with Unisys, whereby staff members who live on the Kapiti Coast can use the centre to work from, rather than commuting into the Wellington office. The revenue from these sorts of partnerships can help to sustain the community access side of the Telecentre. There are relatively few telecentres in operation that attempt to combine providing service to business with community access. Of all the telecentres operating in the United Kingdom and Ireland, only one in Wales appeared to operate successfully under this model. There is further discussion of teleworking, telecentres and call centres in the “Other issues raised” section (pages 28-29).
- 45 Botha, Small and Crutchley (2001) considered the range of community access models above, and concluded that “none of the local access centre models (in their present form) is suitable for a national program either” (p. 49). Instead, they suggest “the solution lies in a national strategy that allows flexibility to do what makes sense at a community level. In other words we would rather propose a single co-ordinated strategy/model” (p. 49). They describe the model as a “Combined Social Service Model”, which is based on the Canadian Community Access Program.
- 46 The key features of the model they describe are:
- a Cash grants to community groups that want to run a community access centre, and the provision of software and on-line education packages to create community interest.
 - b Communities make the applications, as well as drive the implementation.
 - c A small, independently managed National Co-ordinating Team would set the parameters of the programme and approve grants to applicants⁸. They would also help to arrange government and corporate involvement in the community access centres, and ensure that communities receive the support necessary to manage the access centres.
 - d Communities would appoint a Steering Group to manage their community access centre.
- 47 Where there are already ICT access providers in a community, it was suggested by some that the government could have a role in subsidising access, where it is not provided free of charge. For example, not everyone will be able to afford to use a cybercafe or library if there are charges for Internet access. Similarly, not every senior citizen will be able to afford to attend SeniorNet courses. Rather than building a new access centre though, it might make more sense to assist people to use existing sites (although there is again the issue of whether people are comfortable using these sites). In any case, it is important in developing additional community access sites to consider

⁸ Botha et al propose that the cost of the programme would be \$6.000 million annually, made up of \$0.500 million for the operation of the National Co-ordinating Team, \$0.500 million to support community access centre managers, and \$5.000 million in grants for 100 centres.

the potential impacts that they may have on commercial access providers, such as cybercafes.

Provision of home ICT access

- 48 As noted in paragraph 32 above, home ICT access could be seen as an ideal. The Gartner Group (2000) note that “the opportunities created by public Internet access sites do not equal those created by home and work access, given that the Internet is becoming integrated into the daily lives of the ‘haves’ ”⁹. Respondents made some additional comments about the value of home versus community access:
- a Privacy may be an issue for ICT access in public places.
 - b Lack of home access can inhibit people from practising the skills they have learnt in training courses they’ve attended.
 - c Some community access sites may be difficult for people with disabilities to access, and the equipment and software available may not be sufficient to meet their specific needs. Their specialised training needs may also be best met at home rather than in a community access centre.
- 49 There are at least a couple of models being tried in New Zealand to promote home access. The 2020 Communications Trust has been conducting a pilot Computers in Homes initiative in Cannons Creek and Panmure, with funding from the Ministry of Education. The scheme covers 50 families with children in decile 1 schools, and provides each family with a computer, Internet access, a phone line if required, training and technical support. The programme has been running since July 2000, and results to date are promising. More recently, a rural pilot involving 125 families has been launched on the East Coast and Eastern Bay of Plenty.
- 50 A number of respondents have identified Computers in Homes as a good model to support. They have suggested expanding it to all decile 1 schools, to other disadvantaged communities, or to other disadvantaged groups (e.g. providing computers in homes for low-income people with disabilities).
- 51 It has also been noted that a number of employers have started providing their employees with access to computers and the Internet at home, as a way of encouraging them to gain ICT skills. In some cases, the jobs of these workers do not have much ICT content, so the training is of more general than specific value. This activity has attracted the attention of the Inland Revenue Department, and it appears that employers are liable for fringe benefit tax (FBT) in these cases. Making the provision of computers and Internet access by employers to their workers exempt from FBT might encourage more employers to provide ICT access to staff.

Access for people with disabilities

- 52 The first point to note is that people with disabilities are not a homogeneous group. While the label is a convenient shorthand, it also serves to disguise the different needs of different disability communities, and the different ways in which ICT can assist

⁹ Gartner Group (2000) *The Digital Divide and American Society – The First Digital Divide – The “Haves” and the “Have Nots”*. p. 10.

different groups. For example, the issues that ICT raises for blind people will be different from those it raises for deaf people, or for other groups.

- 53 Notwithstanding these differences, people from the disability sector seemed fairly united in the belief that there needed to be a greater level of investment in assistive technology for people with disabilities. It was also contended that the system for delivering this technology is patchy, and leads to certain groups (e.g. those not in education or employment) missing out. This is something that the Government could look at in the context of the New Zealand Disability Strategy.
- 54 There were some related issues raised:
- a The software that some people with disabilities use to make ICT accessible requires significant computer capacity – this may limit their potential to benefit from outdated equipment. It is also very expensive, particularly for a group that is over-represented amongst those with low incomes. For example, quality screen reading software for the blind costs a minimum of \$1,500, while Braille display technology, which many prefer, costs a minimum of \$10,000.
 - b There are potential human rights issues around accessibility of ICT, which have resulted in legal action overseas. There has already been a complaint to the Human Rights Commission about the use of and access to a TTY (text telephone) relay for the deaf.
 - c The need for accessible web sites is particularly important for some groups of people with disabilities. Making greater use of international best practice and the W3C guidelines in web design could help to make web sites more accessible to people with a range of disabilities.
 - d While access at home may be preferable for people with disabilities for a number of reasons, this should not be seen as an excuse for excluding them from community access centres. Community access centres should welcome people with disabilities, rather than simply tolerate them. Indeed, people with disabilities should be included in the planning of community access centres.

ICT education and training

- 55 Feedback received on issues relating to education and training can be further categorised by: ICT and the pre-school/school system; ICT at tertiary level; adult and community learning; information literacy; and mentoring and technical support.

ICT and the pre-school/school system

- 56 It was acknowledged by many respondents that a lot had already been done to wire up schools, and in some cases, pre-schools. An indication of this may be the low number of schools that have signed up for Netday this year, compared with earlier years – this has been put down to the fact that most schools have now been internally cabled. The Digital Opportunities pilot projects announced earlier this year are exploring bandwidth solutions that would allow schools to make use of more sophisticated applications, such as video conferencing.

- 57 However, it was felt by many that considerably more needed to be done in terms of education and training to support this investment in technology. At the pre-school and school level, the two most common points made were:
- a There needs to be much more investment in *professional development of teachers and principals*, so that they are able to make the best use of ICT in teaching. Anecdotes about children knowing more about the technology than their teachers abound. It is also vitally important that principals see the value of ICT, so that they promote its use. A supportive board of trustees would also be helpful. Progress is already being made in this area, with the Government having already funded ICT Professional Development clusters (over 500 schools are currently participating, and 1,125 teachers have participated in IT professional development). Most principals have participated in an ICT workshop *Principals First: First Principles*.
 - b There needs to be some thought given to better *integrating ICT into the curriculum*, and on communicating best practice for the pedagogical use of ICT. This includes using ICT as a tool for teaching all subjects, as well as running specific computing classes. As an example, Papatoetoe Central School has developed a curriculum for teaching ICT skills at primary school level, and recognising learning progress – there are currently around 200 schools that are using the system they have developed. By providing parents with a measure of the ICT learning of their children, this system should allow parents to assess the value of the investment in ICT equipment in the school. Gordon Dryden has also noted that Tahatai Coast Primary School in Papamoa has achieved success with its pupils. He suggests that there are already world-leading models like Tahatai Coast Primary School in New Zealand, and we should get on and put them into practice more widely.
- 58 In relation to the second point above, it has been suggested by some that there needs to be greater equality of access to ICT within schools. We have heard some stories of schools reserving computer usage for senior students, or for students taking particular subjects.
- 59 It is important in integrating ICT into the curriculum to not go too far in the other direction. The Alliance for Childhood has called for a moratorium on the introduction of computers at pre-school and primary school level until there is further research on whether computers are harmful to young children physically, emotionally and developmentally¹⁰. The Alliance points out that young children need to be developing relationships, playing outdoors, participating in hands-on learning and creating and imagining for themselves. However, as educators have pointed out in response, computers can be used in a way that they are part of the learning process, leaving time for all of the other things that the Alliance for Childhood considers to be important.
- 60 We have also heard that some groups are still under-represented in “technical” subjects at school, such as science and mathematics. It is typically suggested that girls, Māori and Pacific students are under-represented in these subjects, which flows on to fewer of them taking technical subjects, including computing, at tertiary institutions. It may also reinforce negative attitudes to ICT in adulthood.

¹⁰ Let's log off those computers, for the sake of our children. *The Evening Post*, 19 September 2000, p.5.

- 61 A few people suggested that as well as integrating ICT into the curriculum, technical learning should start at secondary school level, with a Bursary-level course in computing.
- 62 Some respondents from the disability sector noted the importance of integrating children with disabilities into mainstream technical education in schools, rather than keeping them apart from other children. However, others noted that this wasn't a reasonable expectation for children who needed alternative means of interacting with ICT, and required more intensive training by someone experienced with the required assistive technology.

ICT at tertiary level

- 63 It is widely accepted that there is a world-wide shortage of skilled ICT workers. It was estimated earlier this year that the shortage in New Zealand was around 3,000 to 5,000¹¹. New Zealand has already made changes to its immigration policy to encourage people with ICT skills to emigrate to New Zealand, to fill this gap. There have also been large increases in university enrolments in computer courses in the past few years, as the lure of high salaries draw students away from other courses¹².
- 64 At the same time as this shortage exists, there are also reports that local IT graduates have been having difficulty finding work, because they do not have the experience. Dale Gray, technology manager at (then) Morgan and Banks, was reported as saying that many companies let IT vacancies sit for 6-12 months waiting for an expert, but with technology moving so fast, there were few people with the skills sought. Mr Gray suggested that companies needed to start recruiting IT graduates or they would get "left behind"¹³.
- 65 Some respondents made other specific suggestions about training ICT workers locally:
- a implement affirmative action policies to increase total enrolments in tertiary IT courses, and to increase the enrolment of certain groups that are under-represented (e.g. Māori, Pacific people, women, people with disabilities);
 - b increase government funding for the Diploma of Māori and Information Management taught by Te Wananga o Raukawa;
 - c include a Māori component in courses on information management and literacy skills;
 - d that the Ministry of Education and universities develop a partnership for implementing targeted IT courses to increase available skills in New Zealand;
 - e develop apprenticeship schemes to combine IT learning with on-the-job experience;

¹¹ A (then) Morgan and Banks survey, cited in "Kiwi IT grads overlooked at home – technology expert", *Infotech*, 7 February 2001. (<http://www.stuff.co.nz/inl/index/0,1008,633565a13,FF.html>)

¹² "University IT enrolments sky-rocket" (<http://www.stuff.co.nz/inl/index/0,1008,627938a1896,FF.html>) and "Downsides to NZ university IT study boom", *Infotech*, 5 February 2001. (<http://www.stuff.co.nz/inl/index/0,1008,627947a1983,FF.html>)

¹³ "Kiwi IT grads overlooked at home – technology expert", *Infotech*, 7 February 2001. (<http://www.stuff.co.nz/inl/index/0,1008,633565a13,FF.html>)

- f encourage larger businesses to fund bursaries and training programmes; and
- g introduce scholarships to support high level qualifications in IT project management, systems analysis and systems development.

66 Some respondents have raised issues about the responsiveness of the National Qualifications Framework (NQF) and Skill New Zealand funding to the emerging training needs in ICT. The New Zealand Qualifications Authority has put considerable effort into reviewing the relevant parts of the NQF over the past year. There have also been some changes in practice at Skill New Zealand recently, such as dropping the requirement that trainees achieve credits at a particular rate (e.g. 1.5 credits per week per trainee). These changes should improve the responsiveness of the training system to the need for ICT skills.

Adult and community learning

- 67 While much of the education focus in ICT has been on the formal education system, it should be noted that a vast majority of the labour force over the next 10-20 years has already left the education system, in many cases without great exposure to ICT. An approach that focuses solely on the school system will mean that a majority of New Zealanders miss out, which may have implications for their longer term standard of living.
- 68 This points to a need for finding ways of providing ICT training in an adult and community learning context. One option is to encourage as many New Zealanders as possible to acquire some basic ICT skills. At present, there are (at least) two options for encouraging this. The New Zealand Computer Society is promoting the International Computer Driver's Licence (ICDL), while a group comprising the NZ Qualifications Authority and the Electro-technology and Printing ITOs has developed a similar proposal called TickIT. From talking to the two groups, it appears that ICDL and TickIT would be complementary, rather than substitutes. Government could have a role in encouraging people to obtain the ICDL or TickIT.
- 69 Other respondents focused on the SeniorNet model, and suggested that it was worth extending to the wider community. People involved with SeniorNet groups suggest that it is successful because it has small class sizes for its courses, learning is at the right pace for older people, and they are taught by older people who have been through many of the same problems as them. It provides a supportive environment within which senior citizens can try out ICT, and see if it is "for them".
- 70 A number of other respondents echoed the idea that people need to learn in a neutral and supportive venue and at a time that suits them. For example, not everyone will be comfortable going to a school to learn, especially if they did poorly at school first time round. This has been explicitly acknowledged in the Smart Newtown project, where the community centre is to be used as a site for training. Consultation with Pacific stakeholders has highlighted the role of the church as a "comfort zone" within which people could experience ICT in a non-threatening way.
- 71 However, this needn't mean that older people can only learn with other older people, for instance. There are many anecdotes about the potential for intergenerational learning, especially within families. This is an integral part of the Computers in Homes project.

We have heard many other examples of children showing parents what can be done with ICT.

- 72 Many SeniorNet members have long experience in the ICT area, and much still to offer. It has been suggested that their skills could be utilised in providing training and technical support in schools or community access centres. Reference was also made to some recent work from Massey University that suggested that older people were missing out on ICT training at work. SeniorNet group trainers could potentially assist businesses to provide ICT training to their older workers.
- 73 Education and training could also be supported in other contexts. Government could support and encourage moves by employers to raise ICT skills in the workplace (e.g. the FBT example in paragraph 51 above). In particular, they could look at ways of encouraging employers to provide their older employees with ICT training.
- 74 Training could also be provided in the context of people's relationships with government agencies. For example, where government agencies want to encourage people to use their services electronically, they could provide some basic training in how to do so. It was suggested by some respondents that other site owners, such as banks, local government and retailers could also take some of this responsibility – it would, after all, make their sites more effective if people were trained to get the most out of them.
- 75 A number of groups have already become involved in the Cisco Regional Academy scheme, or are looking at doing so. Government may have a role in supporting groups that want to follow this path but don't have sufficient resources to purchase the computers and the ongoing connection.
- 76 Much of the available evidence suggests that there is a training need in community organisations. Often these groups are struggling for resources, and will make do with no or old equipment, but can't stretch to providing ICT training for staff.
- 77 There may also be areas where the Government could assist in developing the capacity of trainers. There is a real shortage of ICT trainers who are also experienced in working with people with disabilities. The YWCA has also been struggling to find trainers for its Wellington Women's Access Computer service. Trainers and people to provide technical support (discussed later in paragraphs 84-86) are in relatively short supply, especially in rural areas. It was also noted that the fast pace of ICT often meant that training materials dated quickly, and groups that were short of resources struggled to modify their training resources.

Information literacy

- 78 It was noted earlier that ICT needed to be integrated into school curricula. A more general issue is the impact ICT and the general proliferation of information has on what should be taught. In particular, a large number of respondents have identified "information literacy" (the ability to access, evaluate and use information from a variety of sources¹⁴) as a key set of skills that people will need in the "information age". That is, as well as traditional teaching of reading, writing and mathematics, there is a need to

¹⁴ Costa, A.L. (Ed). (1985). *Developing Minds: A resource book for teaching thinking*. Alexandria, VA: Association for Supervision and Curriculum Development.

also teach communication, critical thinking and problem solving skills. The goal is to increase the number of information literate people, who demonstrate the following behaviours:

- a recognise that accurate and complete information is the basis for intelligent decision making;
- b recognise the need for information;
- c formulate questions based on information needs;
- d identify potential sources of information;
- e develop successful search strategies;
- f access sources of information including computer-based and other technologies;
- g evaluate information;
- h organise information for practical application;
- i integrate new information into an existing body of knowledge; and
- j use information in critical thinking and problem solving¹⁵.

- 79 These are skills that are not explicitly taught in the education system. A number of respondents suggested that children should be taught how to manage information from a young age, as it is a skill that they will need throughout later life. If they pick up some basic information management skills at primary school level, they will be able to build more advanced cognitive skills at secondary school and beyond.
- 80 LIANZA recommend as part of their proposed National Information Strategy that the government develops a national information literacy strategy, to be championed by one strong central agency. The strategy would give information literacy greater prominence in the related work of government agencies, and would involve greater recognition of libraries as part of the necessary information and learning infrastructure for New Zealand.
- 81 The existence of an information medium like the Internet places a premium on information literacy skills. Because of the sheer volume of information available, finding material is often not the problem. However, assessing the value of the information is a different story. In the words of Nigel Horrocks, editor of NetGuide magazine, “young net users in a hurry for answers are especially prone to believing that because something is on the web it must be true¹⁶”. As he goes on to say, “it is important to be critical and make no assumptions about what a site represents. Because a site is listed high in the search engine results doesn’t mean the information is more authoritative than a result further down”.

¹⁵ Doyle, C. S. (1992). *Outcome measures for information literacy within the National Education goals of 1990. Final report to National Forum on Information Literacy. Summary of findings.*

¹⁶ Horrocks, N. (2001). Publish and be damned in Wallace case. *Sunday Star Times*, 13 May, p. C10.

- 82 There is also a role for libraries here, in providing mediated access to the Internet by selecting and organising sites for easy navigation. Many libraries also have access to electronic subscriber databases, which provide access to the best quality information.
- 83 People cannot display the behaviours described above if they do not have basic literacy and numeracy skills. Some respondents highlighted the fact that there are people without adequate skills in these areas, which will limit their ability to make effective use of ICT. People without basic literacy and numeracy skills are at particular risk of falling behind in the information age.

Mentoring and technical support

- 84 A related issue to training is access to technical support. This is an issue for schools, and it would certainly be an issue for community access centres. In the Wairoa case, there is a local person with ICT skills connected to the community centre, but this won't always be the case in other regions. People with home computers will also have a need for mentoring and technical support to help them make effective use of ICT. Especially in rural areas, this can be expensive, and for people without an ICT background, choosing the right person is difficult.
- 85 As noted earlier, there are often people in communities who have ICT skills, which under the right circumstances, they would be able to offer to others. For example, some SeniorNet members have considerable ICT expertise that they could pass on.
- 86 However, there needs to be recognition that this can result in a huge workload for mentors, because everyone assumes that they can help them with their problems. It has been suggested that if you want local mentors to come forward, they will need to receive some form of payment. The Government could have a role in identifying and supporting such mentors (see also the discussion of social cyber-entrepreneurs in paragraph 110g). One suggestion was that mentors submit a claim for community hours spent assisting people, and are compensated accordingly.

Attitudes towards and motivations to use ICT

- 87 There seems to be a general feeling that attitude and motivation is not an issue for young people, who are increasingly exposed to ICT as they go through the education system. However, there may be an issue for those who have left the formal education system. For example, a survey of working age people that the Ministry of Social Policy (MSP) conducted last year found that a sizeable proportion of people aged 50-64 (36.5%) did not have Internet access and did not want it. However, these attitudes have been changing, as the phenomenal growth of SeniorNet indicates.
- 88 The MSP survey also suggested that attitudes and motivations could be a factor for some ethnic groups. While only 12.9% of Chinese and Indians and 23.7% of European/Pākehā neither had Internet access nor wanted it, the proportions for Maori and Pacific people were 30.6% and 42.0% respectively.
- 89 A number of respondents considered attitudes to be the key dimension – if people care about ICT and can see its worth, they will find ways around the other dimensions. On the other hand, access, training and technical support may play a role in reinforcing attitudes and motivations. If access is unreliable, people can't get the training they need, or they can't easily get a technical problem resolved, they are likely to lose interest. For

some people, resolving these issues may render the attitude issue redundant. This reinforces the importance of a holistic strategy, that addresses all the dimensions together.

- 90 Many respondents saw a role for the Government in communicating more clearly what it sees as the potential of ICT, and why people should care about ICT. In their National Information Strategy, LIANZA recommend “that government support and encourage a more inclusive national awareness campaign around the issues and opportunities and challenges raised by the information society thus increasing awareness and participation at all levels of the community”. It has also been suggested that focusing on “digital opportunities” rather than the “digital divide” will promote more positive attitudes towards ICT.
- 91 There are many reasons why people may have negative attitudes towards ICT. ICT, like all technology, is a tool, and people won’t make use of it until they see the relevance of it for them personally. The government may have a role in identifying the “hooks” that will encourage people to use ICT. The consultations to date have identified some possibilities:
- a Māori and Pacific groups are interested in the cultural potential of ICT. The networking element of ICT has also been identified as consistent with Māori and Pacific culture and their way of “doing things”.
 - b Pacific people can keep in contact with family in the Pacific.
 - c Some migrant groups have identified homework centres as particularly important for enhancing their children’s education.
 - d Older people can keep in touch with relatives overseas, or use the Internet to support their interests (e.g. genealogy).
 - e Parents becoming interested in ICT so that they know what their children are doing.
 - f Rewarding businesses that use IT efficiently or punishing those that don’t, perhaps through a requirement for compliance (e.g. GST, FBT, PAYE) to be carried out on line.
- 92 Some people may have a “technophobia” about ICT, which may reflect discomfort with using new technology, or fears about security and privacy. There may be a case for legislative or policy change to address some of the security concerns that people have about ICT. Government may also have a role in allaying some of discomfort that people have with ICT. It is important to “cut through the hype”, which puts many people off. There are a number of channels through which this could be done:
- a providing opportunities for children to teach parents;
 - b identification and promotion of role models for groups with relatively low ICT engagement (e.g. Māori, Pacific, women, older people, people with disabilities);
 - c stories in media sources that are used by target groups;

- d provision of basic information on use of ICT; and
 - e agencies dealing with disadvantaged groups modelling ICT use.
- 93 It has been suggested that the attitudes of many funders and administrators need to be addressed, with many not seeing the value of funding or supporting ICT projects. One example that was brought to our attention was a pilot programme to provide ICT training for inmates. It was noted that there was great difficulty convincing some prison administrators that such training should be provided. There was an attitude in some quarters that this was “rewarding” the inmates, as well as the fear that they would use the technology inappropriately. However, it is really no different from other forms of training, work experience and rehabilitation services that prisons provide, in that it is equipping inmates with skills that are going to give them a better chance of succeeding when they are released.
- 94 It has also been suggested that in order for New Zealanders to make “effective” use of ICT, they need to be encouraged to be “active” participants, generating “wealth” (be it financial, or valuable content), rather than passive recipients of ICT. This will help to ensure that any money spent on closing the digital divide is an investment in positive outcomes, rather than an expense.
- 95 While this section has been biased heavily towards encouraging people to embrace ICT, it is also important to recognise that there will be a proportion of people who have a strong wish not to use ICT. This needs to be recognised as a valid choice, and measures taken to avoid excluding these people. For example, there will need to be multiple channels for contacting government agencies – “government” cannot expect everyone to engage with it electronically. Some people may also prefer person to person contact (e.g. Māori preference for *kanohi-ki-te-kanohi*), which also has implications for the proliferation of 0800 numbers and the difficulty of finding a real person to speak to when contacting some organisations.
- 96 It also needs to be recognised that ICT is not unambiguously good. There are some negative issues that need to be considered in promoting ICT usage:
- a we are encouraging people to become dependent on equipment with a rapid rate of obsolescence;
 - b home ICT usage can fray relationships if people use ICT obsessively, tying up phone lines; and
 - c increased ICT access could be associated with an increase in gambling and access to pornography.

Relevant content

- 97 There seemed to be two main views in relation to content:
- a there is no shortage of content (if anything, there is too much content), and that people just need to know how to find it; and
 - b there is relatively little online content by, and for, some groups.

- 98 These statements are not mutually exclusive, and indeed, it seems that they represent different realities for different people. For well-educated Pākehā on high incomes, there is plenty of relevant content, much of it targeted directly at them. It is less clear that other groups can find as much of relevance to them, or are actively generating content.
- 99 It was suggested by many that Government could start by setting an example with its own content. It can ensure that it responds to the needs of the groups that content is intended for, and is presented in an accessible way (i.e. uses the language of the intended audience, and will be accessible by whatever technology they are likely to have access to).
- 100 In its National Information Strategy, LIANZA makes the following recommendations in relation to government content:
- a that the National Library be involved in the management of content based e-government projects; and
 - b that the government introduce standards for the quality and accessibility of content on the webpages of government agencies.
- 101 It was also suggested by some that the Government could go further, and legislate that all material on New Zealand websites should follow the Dublin Core international standard. This would make it easier to integrate data from several places onto one site. Short of that, the government could also exert pressure on its suppliers to be accessible online, to government and to others.
- 102 This raises another issue of the difficulties that groups face when they want to publish online content. Sometimes groups will run into copyright and liability issues when they seek to develop content, and it has been suggested that some of these issues scare people off from generating content. Creating some guidelines or information sheets for intending content creators may help to overcome this.
- 103 Some have raised bureaucratic control over content as a restriction on providing relevant content (this may be a wider issue than just government content). One example of this:
 “Where groups want to use the WWW innovatively, they find they cannot, because the corporate control and decision-making structure requires them to work through the bureaucracy rather than find their own solutions to their own problems, or opportunities. For example, health promotion workers want to manage their own web site so that it can be responsive and flexible, and available to a wider and more complex community of interest, but find that they must have a simple “annex” to the corporate web site, and fit into the existing contract requirements with the provider of that web site, and check every decision before arranging for changes to be made through the existing maintenance arrangement. Too cumbersome and inappropriate”.
- 104 The content issue seems to be particularly relevant for Māori and Pacific people, women, and people with disabilities, with some of these groups having a perception that the Internet is largely for (young) white males. It was suggested that greater assistance could be provided to groups to generate their own content (e.g. assisting iwi to develop websites), through Lottery and community grants. There was also a suggestion that Te Puni Kokiri and the Ministry of Pacific Island Affairs should administer special grants

to Māori and Pacific content creators. It was also noted in this context that content needs to be updated to remain relevant, and that the cost of ongoing site management should be built into any such grants.

- 105 Coming out of both the National Information Policy Summit and LIANZA’s National Information Strategy was a suggestion that official information be published online in te reo Māori as well as English. LIANZA also suggests surveying the information needs of Māori and Pacific people, and having Māori and Pacific peoples convene forums under the auspices of the National Information Strategy to determine how best to produce a knowledge society that will benefit them. One respondent specifically suggested that the Ministry of Pacific Island Affairs convene a Pacific Island IT think tank.
- 106 Robyn Kamira, founder of Te Wairere (a society for Māori women who work in IT), raised some issues about the importance of ownership and management of information to Māori. Government needs to recognise that what to them may be just data is to Māori a taonga. Recognition needs to be given to joint Māori ownership of information, such as family records. Events like the automation of Māori Land Court records can effectively take away the right of Māori to own and manage information of great significance to them.
- 107 Ms Kamira sees it thus: “Ownership leads to a clear and agreed understanding of who should control and manage *information* even when the technology is being controlled by others. At this time, legislation is weak and ownership is rarely challenged when non-Māori organisations control data. This therefore is a significant risk area. However, the most significant (sic) for a longer-term strategy would be lifting the skill capacity which in turn will alleviate the ownership and control issues. We will be able to have a more active part in the decisions and also be more aware of decisions being made elsewhere and their impacts”.

The need for strategic vision and co-ordination

- 108 The consultations have reinforced the impression from last year’s stocktakes¹⁷ that there are many things happening, both within government and in the wider community, to close the digital divide. While there are some gaps where government could have a role in initiating developments, there are clearly a number of areas where government’s role is more one of supporting people who are already doing things. Government should not look to “reinvent the wheel”, or establish inflexible “one size fits all” programmes that crowd out local innovation.
- 109 One thing that many respondents felt that government could do is to “pull things together”, by providing strategic leadership and direction. Respondents saw this as involving a few key components:
- a *Development and articulation of a coherent “digital opportunities” or “knowledge society” strategy.* This would pull together the disparate pieces of work that government agencies were doing, and indicate how they all contributed to achieving a unifying vision. There was a feeling that government needed to be clearer about what it expects to flow from increased takeup of ICT.

¹⁷ These can be found at <http://www.executive.govt.nz/minister/maharey/divide/index.html>

- b *Formulate a vision that captures the imagination of New Zealanders.* Jim O'Neill of ITANZ suggests something along the lines of "New Zealand will be a world leader in using information technologies to advance the economic and social prosperity of all New Zealanders".
- c *The identification of a champion Minister,* who would drive the progress of the strategy, and get the key messages out to the full range of stakeholders (although some felt that it was as important that all Ministers were champions of ICT use).
- d *Establishment of a dedicated unit to deal with the day-to-day implementation of the strategy* (similar to the E-Commerce Action Team that is overseeing progress with the E-Commerce Strategy).

110 Some of the things this unit could do are:

- a *Disseminate information about what is being done in the digital divide area, including helping to share "best practice".* Respondents noted that there were so many things happening, both in New Zealand and internationally, and that it was difficult to keep up with them. Being able to talk to other practitioners would help people to progress their own ideas. One specific suggestion in terms of looking at overseas experience was to go and look at the experience in Western Australia over the past decade or so on these issues.
- b *Identify, and co-ordinate the involvement of, various partners (e.g. government, business, communities) in specific initiatives, and help to put community groups in touch with appropriate contacts and funding sources.* Again, the sheer volume of potential partners, programmes and funding sources is difficult for people to get their head around. Providing some co-ordination could help to cut through this confusion. As noted in paragraph 46c, Botha, Small and Crutchley (2001) have suggested establishing a National Co-ordinating Team to manage the development of community access centres.
- c *Promote the importance of ICT to the general public.* The unit could manage a communications strategy for improving people's awareness of the potential benefits of ICT, and progress strategies for minimising the factors that discourage people from using ICT (e.g. security). It is considered very important by many respondents that Government clearly communicate to people how ICT can improve their lives economically, socially, culturally, and in many other ways.
- d *Co-ordinate computer recycling.* As noted in paragraph 25 above, there is a ready supply of used equipment, and no shortage of demand, but there could be some value in efficiently matching the two.
- e *Participate in international fora on digital divide issues.* There are several international organisations that have taken an interest in the digital divide issue (e.g. International Telecommunications Union, APEC). The unit could represent New Zealand's interests at these fora, inform these fora of New Zealand's experience, and disseminate lessons learned from what others are doing. It could also make people aware of relevant initiatives or funding sources abroad e.g. the William Gates Foundation.

- f *Co-ordinate a research programme.* There are a number of areas where we could benefit from further research into the digital divide. There are also a large number of researchers out there who are interested in investigating this area. Providing some co-ordination could help to identify where the research gaps are. The unit could also administer some research funding, or provide researchers with advice on funding sources (e.g. FoRST).
- g *Resource “social cyber-entrepreneurs”, who can catalyse local ICT initiatives.* In much the same way that the Minister of Social Services and Employment wants to support “social entrepreneurs” (people in communities with the ideas and drive to get community development initiatives going), it was suggested that social “cyber-entrepreneurs” should be supported to identify and progress local cyber-initiatives. This reflects a view that all community-focused initiatives should include an ICT dimension.

111 It was suggested by some that this unit needed to have local representation. Bevis England of Teletwork New Zealand (TNZ) suggested that TNZ already has many of the features above, and could do some of the other things mentioned with additional support.

112 There were a number of other things that were suggested to progress this strategy:

- a the government could show leadership through its own web presence;
- b the government could sort out the dividing line between central and local government responsibility for funding certain initiatives; and
- c the government could fast-track technology issues through the parliamentary process, to ensure that policy moves at the speed of technology.

National Information Strategy

113 The above discussion focused primarily on bringing coherence and co-ordination to what could be described as the government’s “digital” initiatives. Some respondents have been pushing for a broader strategy, which would cover the creation, dissemination and management of information, be it digital or otherwise.

114 These messages came through very strongly from, among others, the National Information Policy Summit organised by Victoria University’s School of Communications and Information Management in November 2000. LIANZA has also put considerable effort into promoting a National Information Strategy that would have a sponsoring minister and lead government agency at the top, and would be driven by an Information Commission. The Commission would comprise government representatives in the areas of “equity skills” (i.e. education), infrastructure, content creators, content distributors and content users, and non-government appointees nominated by each government representative. Its roles would be to:

- a further develop and implement the National Information Strategy;
- b encourage the creation and inputting of local and national content;
- c audit and monitor standards;

- d ensure that compliance with the National Information Strategy is considered in all legislation and government policy;
- e manage the relationship between central and local government; and
- f develop a citizen's information charter to define availability, format, timeframe etc.

Other issues raised

- 115 Some respondents raised some issues that are relevant to the broader issue of the "knowledge society", but which do not fit neatly under any of the dimensions previously discussed. So that these points are not lost, they are recorded here:
- a The Government needs to provide some inducements for technology companies to set up in New Zealand.
 - b In the absence of a considered and coherent strategy, the e-world is already happening in the Pacific, in the form of criminal activity, which has implications for New Zealand. There are also migration implications if living standards in the Pacific fall further behind those in New Zealand. This provides a rationale for addressing the digital divides in the Pacific and for the Pacific population in New Zealand jointly. We can use the expertise of New Zealanders in our overseas development assistance programme to help other countries, especially in the Pacific, to establish their telecommunications infrastructure.
 - c Policies to close the digital divide should be seen alongside general poverty reduction policies. The digital divide can be a symptom of low income, but addressing it may also provide a pathway to higher incomes.
 - d While there is less known about the digital divide in New Zealand than in other countries, we know enough about the issue to get on and try some initiatives for addressing it, rather than waiting for further research. It is also important to take some risks, to be prepared to try different things and see what works. This will build up a body of knowledge that is relevant to the New Zealand setting.

Teleworking

- 116 As noted previously, the Kapiti Telecentre combines community ICT access with teleworking, where Unisys staff work from the telecentre, rather than the Unisys office in central Wellington. One of the lessons that has come out of the overseas experience with telecentres is that government should not get involved at the operational level, but should focus on the vision/strategy, and where possible, support them by using their facilities.
- 117 Telecentres are one part of the larger concept of teleworking, the use of ICT to "work" at a distance from a central office. This could be from a site like a telecentre, or from home, or perhaps a combination of off-site and on-site work. There is a clear need for a better understanding of this area and its potential, as well as the implications it has for how people will work in future.

- 118 Bevis England defines telework more broadly than paid employment done at a distance, to include the sorts of activities described earlier under the section on community access centres. Under this definition, his suggestion of a national telework framework becomes similar to the suggestion of a coordinated coherent national strategy and unit described above.

Call centres

- 119 One specific area where technology has created new work opportunities is the call centre industry. Bill Lyons of Sydney-based CallCentres.Net said in March that there were 500 call centres in New Zealand run by 200 companies, employing about 40,000 people¹⁸. There have also been a number of recent high profile examples of New Zealand call centres obtaining overseas business. For example, Hawera based Marketing Concepts won a contract with a US pet food company in February to answer phone enquiries.
- 120 While call centres do not necessarily provide their employees with an advanced level of ICT skills, they do provide an exposure to ICT, and what it can do. It has been suggested that locating in disadvantaged communities may play an important role in raising people's horizons, in showing them that there are alternatives to the more traditional jobs in these communities.
- 121 If the telecommunications infrastructure supported it, it would be possible to locate call centres anywhere. They could become an important component of regional development policy. Government could also support them by using call centres to deliver their services.
- 122 Since July 1999, Trade New Zealand has been leading an initiative to attract call centre business to New Zealand. In that time, they have found 60 partner organisations to compete with the world and not each other in attracting call centres to New Zealand. With the New Zealand Call Centre Industry, Trade New Zealand has established callnz.com to promote New Zealand as the preferred site for international call centres. Press reports are generally positive about callnz.com, although industry sources have also suggested that the Government needs to do more to attract call centre business, in the face of major efforts by India¹⁹. The lack of incentives to companies to set up in New Zealand has been particularly noted.
- 123 More recently, there have been questions raised about workplace practices of call centres, with suggestions made that some call centres were "sweatshops of human battery hens"²⁰. While there is clearly potential for increased employment in the call centre industry, it should not be at the expense of decent working conditions. Such reports could have implications for the ability of the industry to attract employees.

¹⁸ \$3b spent on call centre industry, *InfoTech*, 19 March 2001.
(<http://www.stuff.co.nz/inl/print/0,1103,705862a28,FF.html>)

¹⁹ NZ missing out on call centre opportunities, *Computerworld*, 4 April 2001.

²⁰ Call centre workers slam "stressful" industry, *Computerworld*, 15 May 2001.