

## **The Internet in New Zealand: An Overview of the Literature**

***Excerpted from Goodwin, I., Smith, N., Sherman, K., Crothers, C., Billot, J., & Smith, P. (2009). Internet Use in New Zealand: Implications for Social Change. In G. Cardoso, A. Cheong & J. Cole, (Eds.), World Wide Internet: Changing Societies, Economies and Cultures. Macao: University of Macao Press. (forthcoming)***

New Zealand first became connected to the Internet in 1986, when Victoria University of Wellington began providing dialup access to international USENET services. In 1989, Waikato University established a connection to ARPANET via UCLA. Both Victoria and Waikato initially acted on behalf of other Universities and third party users, until the establishment of commercially based ISPs in the early 1990s (Newman, 2008). Since then government statistics demonstrate that Internet technology has diffused rapidly within New Zealand. For example, according to census data, by 2006 60.5% of New Zealand households had Internet access (Statistics NZ, 2007a). In that same year 69% of individuals had used the Internet from any location in the past 12 months, with those aged 15-24, in particular, going online in large numbers (84.5%) (Statistics NZ, 2007b).

Although the adoption of the Internet in general has spread relatively rapidly within New Zealand, the growth and use of broadband has been – by contrast – slow by international standards. It was not until 2007 that broadband subscribers (at 19.6 per 100 inhabitants) outnumbered dial-up subscribers (at 15.9 per 100 inhabitants) (Statistics NZ, 2008a). During 2008 the use of broadband continued to grow, albeit at a declining rate, and the latest government statistics suggest 59.2% of all subscribers use broadband technology (Statistics NZ, 2008b). The reasons behind this relatively slow rate of broadband growth are complex and contested. However there is general agreement that New Zealand's largest, incumbent telecommunications company – Telecom NZ (formerly government owned) – has held too much sway in the marketplace, and has under-invested in technical infrastructure, since its privatisation in 1990. As a consequence, there remain considerable issues with the performance and coverage of the central telecommunications network outside of the CBDs of the main urban centres, where there is a lack of fibre and an over-reliance on ageing copper cables. In the general absence of fibre, the dominant broadband technology remains DSL

which limits data speeds, and over 90% of broadband subscribers have a data cap on their accounts (Statistics NZ, 2008b).

Despite ongoing broadband issues offsetting the high Internet penetration, the technology has become central to New Zealand life in a range of areas. In the first instance, the State itself has become an enthusiastic adopter and promoter of information and communication technologies (ICTs) in general, and the Internet in particular. Mirroring international trends, successive New Zealand governments have placed ICTs at the heart of State sector reform and policy development culminating in the release of the *Digital Strategy* in 2005, and its successor the *Digital Strategy 2.0*, in 2008 (Ministry of Economic Development, 2005, 2008). In order to “capitalise on the profound changes and opportunities offered by ICT and digital technologies” (Ministry of Economic Development, 2008, p. 4) the current strategy seeks to facilitate the provision of effective national digital networks through governmental research and development in collaboration with business and community sectors.

These ambitious policies aim to use ICTs to ‘transform’ government to “meet the needs of the information age” (Ministry of Economic Development, 2008, p. 11). That is, via uses of ICTs, the plan is for the disparate arms of the State bureaucracy to become better coordinated via ‘joined-up government’, and to offer new channels of electronic interaction with the public, thereby putting government in a better position to provide more responsive services to businesses, communities, and individual citizens. Ninety seven percent of all government organisations now have a website, with 56% of these sites containing interactive content and 26% offering online transaction services (Statistics NZ, 2007c). Moreover, this growing shift towards more interactive websites marks an historical break, as most previous analyses of ‘egovernment’, at both a local and national level, suggest websites have focused on relatively static forms of information provision and have been difficult to navigate (Cullen & Houghton, 2000; Deakins & Dillon, 2002; Dillon, Deakins & Chen, 2006). Such initiatives are opening up new ways for citizens to interact with government. However, in the New Zealand context we know very little about what *uses* are made of egovernment services by citizens and groups, nor much about these *users* themselves (see Lips, 2008), and the few studies that do exist suggest online services have had only a marginal impact on citizens’ relationship with government to date (Cullen & Herson, 2004; Curtis, Vowles & Curtis, 2004). Indeed, Lips (2008) argues that the ICT-driven, grand reform objectives of the

government need to be treated with considerable caution, as the “transformational potential for government is certainly there, but not at all evident to us at the moment” (p. 21).

This governmental focus on ICTs has had considerable consequences for Internet use in New Zealand. Simultaneously, the broader uptake of the Internet has been actively encouraged via targeted funding initiatives announced as part of the *Digital Strategy*. Despite Lips’s (2008) concerns, the government remains committed to becoming a key ‘enabler’ of a New Zealand ‘knowledge society’, which is in turn linked to nothing less than environmentally sustainable economic, cultural, and democratic revitalisation (see Goodwin (2007) for a critique of these ambitious and integrative goals).

Outside of the State sector, commercial uses of the Internet have grown rapidly, particularly in the last few years. In one of the first large scale studies of ‘ecommerce’ in New Zealand, Clark, Bowden & Corner, (2002, 2003) reported that the adoption of websites by New Zealand businesses grew from 55% in 2001 to 64% in 2002. However, this diffusion of Internet technology varied according to company size, with smallest companies (44%) being much less likely to have a website than the largest (87%). Moreover, the up-take of Internet technology varied across industry sectors, with the tourism, export, and ‘business services’ sectors being the biggest adopters. A more recent Statistics New Zealand (2007c) study found a similar variation in terms of these variables, but a much higher business take-up overall (91%), and found the top users to be in the electricity, finance and ‘wholesale trade’ industries. Such baseline figures say little about the specific uses to which the Internet is being put, or to what extent it has transformed business practices (see Ramsey & McCole (2005) and Al-Qirim (2007)) for studies of detailed issues surrounding Internet adoption by New Zealand businesses). However, more specific sectoral studies have confirmed the growing importance of the Internet to conducting business successfully in New Zealand, particularly in terms of banking (Gan, Clemes, Limsombunchai & Weng, 2006; Shergill & Li, 2005).

As is the case with the State sector, while business adoption of the Internet seems to be growing rapidly, in New Zealand we know little about Internet users’ engagement with these new developments. Much ecommerce, including website development, is bound up with facilitating business-to-business (as opposed to business-to-consumer) transactions, and may have only minor consequences for the end user/customer. However the few studies available

suggest that New Zealanders have engaged with ecommerce to a far greater degree than e-government. For example, Doolin, Dillons, Thompson & Corner, (2007) found that 60% of Internet users had made an online purchase in the last 12 months, although they tended to buy online relatively infrequently (with only 11.5% purchasing at least monthly). Several studies of such transactions have highlighted the importance of building 'trust' to encouraging the growth of online purchasing (Corbitt, Thanasankit & Yi, 2003; Doolin et al., 2007; Shergill & Li, 2005).

Much of this online behaviour is likely to involve transactions with foreign companies. However the trend towards near-ubiquitous use of Internet technology by New Zealand businesses remains extremely important to understanding New Zealanders' overall Internet use. Not only do 91% of businesses now use the Internet, but 46% of their staff accessed the Internet from work (Statistics NZ, 2007c). This issue is particularly pertinent in a New Zealand context, given that 83% of businesses were found to have a broadband connection (Statistics NZ, 2007c), a figure above the level of broadband penetration in New Zealand homes.

Internet penetration in the commercial sector has accelerated only in the past few years. However, the educational sector in New Zealand has, since the Internet's origins in the country, been a key user of the technology and a driver of its development. For example, by 2005 100% of New Zealand schools were connected to the Internet, over 78% via broadband (Johnson, Kazakov & Švehla, 2005). In tertiary education, not only were universities the early pioneers of the Internet in New Zealand, but their contemporary involvement in research networks such as Building Research Capability in the Social Sciences (BRCSS) now provides these institutions with access to one of New Zealand's highest speed (10 Gb/sec) networks, known as KAREN (Kiwi Advanced Research and Education Network) (Research & Education Advanced Network New Zealand Ltd, 2007). Aside from such infrastructural issues, a number of studies have documented the benefits, impediments, pedagogical issues and detailed outcomes of innovative educational uses of the Internet in New Zealand secondary schools (Lai & Pratt, 2004), libraries (Carnaby, 2005), and universities (Johnson & Walker, 2007; Scott, Gilmour & Fielden, 2008; Suddaby & Milne, 2008; Uys, 2007; Wells, De Lange, & Fieger, 2008; Zolezzi & Blake, 2008). These studies often draw cautious conclusions as to the benefits of the technology, however this breadth of enquiry equally

demonstrates the extent to which the Internet has already begun to restructure educational practices in New Zealand.

Beyond the educational sector, far less is known about broader social and cultural uses of the Internet in New Zealand. In particular we know little about the extent to which the Internet is changing social relations and impacting on cultural identities. The few studies that do exist are highly suggestive of important changes underway. For example they indicate that the Internet is implicated in transforming diasporic and national senses of identity for Pasifika New Zealanders (Franklin, 2003; Spoonley, Bedford, & MacPherson, 2003), as well as being bound up with new ways of managing gender identities (Henrickson, 2007). There has also been some work completed on examining effective uses of the Internet for community connectivity at the local level (Ashton & Thorns, 2007; Williams, Sligo, & Wallace, 2005), and on uses of the Internet in the community and voluntary sectors (Williamson & Dekkers, 2005; Zorn, Li & Lowry, 2007). In combination, these studies indicate that New Zealanders are engaged in a broad range of social and cultural activities on the Internet. However, there remain a range of key areas, such as youth online social networking, lacking sustained attention. Overall, the consequences of social and cultural Internet use remain under-explored.

Internet penetration and use is far from uniform in New Zealand and remains socially stratified in a number of ways. In general a consistent range of findings suggest access to the Internet is influenced by age, location (rural versus urban), ethnicity, income and educational achievement. More specifically, studies suggest Maori and Pasifika people have significantly less access to the Internet than other groups (Crump & McIlroy, 2003; Cullen, 2001, 2002; Maharey & Swain, 2000; Parker, 2003; Weaver, 2005). Meanwhile access to the Internet in general, and to broadband technology in particular, is influenced by regional differences, with the main urban centres consistently having higher rates of access. For example, a recent survey suggested 72.7% of Wellington households have Internet access, compared to just 54.1% of those in Gisborne/Hawkes Bay (Statistics New Zealand, 2007c). This disparity between Internet access for urban and rural people in New Zealand remains a matter of public debate, fuelled by the strategic importance of the agricultural industry and the difficulties of funding costly infrastructure investment across difficult terrain with a low population base (Barton, 2003). Mirroring international trends, several studies in New Zealand have also shown that the higher a household's income and educational achievement, the more likely the

household is to have Internet access (see in particular Statistics NZ, 2004). Finally, older people are less likely to be users of the Internet in New Zealand (see Richardson, Weaver, & Zorn, 2005 for a detailed summary of this issue).

This brief overview of the Internet highlights the extent to which the technology has, in a relatively short space of time, become central to New Zealand society and a contributor to social change across a broad range of areas

## References

- Al-Qirim, N. (2007). The adoption of ecommerce communications and applications technologies in small businesses in New Zealand. *Electronic Commerce Research and Applications*, 6(4), 462-473.
- Ashton, H., & Thorns, D.C. (2007). The role of information communications technology in retrieving local community. *City and Community*, 6(3), 211-229.
- Barton, H. (2003). New Zealand farmers and the Internet. *British Food Journal*, 105(1/2), 96-110.
- Bell, A., Billot, J., Crothers, C., Goodwin, I., Kripalani, K., Sherman, K., et al., (2008). *World Internet Project. International comparisons 2008: Highlights from a New Zealand perspective*. Auckland: Institute of Culture, Discourse and Communication, AUT University.
- Bell, A., Crothers, C., Goodwin, I., Kripalani, K., Sherman, K., & Smith, P. (2008). *The Internet in New Zealand 2007. Final Report*. Auckland: Institute of Culture, Discourse and Communication, AUT University.
- Carnaby, P. (2005). E-Learning and digital library futures in New Zealand. *Library Review*, 54(6), 346-354.

- Clark, D.N., Bowden, S., & Corner, P. (2002). *Adoption and implementation of e-business in New Zealand: Comparative empirical results, 2001 and 2002*. Waikato, NZ: University of Waikato Management School.
- Clark, D.N., Bowden, S., & Corner, P. (2003). E-business in New Zealand 2000-2002: Are we ready for the digital economy? *University of Auckland Business Review*, 5(2), 2-13.
- Corbitt, B.J., Thanasankit, T., & Yi, H. (2003). Trust and ecommerce: A study of consumer perceptions. *Electronic Commerce Research and Applications*, 2, 203-215.
- Crump, B., & McIlroy, A. (2003). Why the 'don't-want-tos' won't compute: Lessons from a New Zealand ICT Project. *First Monday*, 8(12) accessed from <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/issue/view/165>
- Cullen, R. (2001). Addressing the digital divide. *Online Information Review*, 25(5), 311-320.
- Cullen, R. (2002). In search of evidence: Family practitioners' use of the Internet for clinical information. *Journal of the Medical Library Association*, 90(4), 370-379.
- Cullen, R. & Hernon, P. (2004). *Wired for well-being: Citizens' response to e-government: A report presented to the Egovernment Unit of the State Services Commission*. Wellington, NZ: State Services Commission.
- Cullen, R., & Houghton, C. (2000). Democracy online: An assessment of New Zealand Government websites. *Government Information Quarterly*, 17(3), 243-267.
- Curtis, C., Vowles, J., & Curtis, B. (2004). *Channel-surfing: How New Zealanders access Government*. Wellington, NZ: State Services Commission.
- Deakins, E., & Dillon, S. M. (2002). Egovernment in New Zealand: The local authority perspective. *The International Journal of Public Sector Management*, 15(5), 375-398.

- Dempster, N., Freakley, M., & Parry, L. (2001). The ethical climate of public school under new public management. *Leadership in Education*, 4(1), 1-12.
- Dillon, S, Deakins, E., & Chen, W. C. (2006). E-local government in New Zealand: The shifting policy maker view. *The International Journal of E-Government*, 4(1), 9-18.
- Di Maggio, P., Hargittai, E., Neuman, W. R., & Robinson, J.P. (2001). Social implications of the Internet. *Annual Review of Sociology*, 27, 307-306.
- Doolin, B., Dillons, S., Thompson, F., & Corner, J.L. (2007). Perceived risk, the Internet shopping experience and online purchasing behaviour: A New Zealand perspective. In A. Becker & S.A. Becker (Eds.), *Electronic commerce: Concepts, methodologies, tools, and applications*, pp. 324-345. New York: Idea Group.
- Gan, C., Clemes, M., Limsombunchai, V., & Weng, A. (2006). A logit analysis of electronic banking in New Zealand. *International Journal of Bank Marketing*, 24(6), 360-383.
- Franklin, M.I. (2003). I define my own identity: Pacific articulations of race and culture on the Internet. *Ethnicities*, 3(4), 465-490.
- Goodwin, I. (2007). New Zealand's Digital Strategy: A bright digital future for us all? *Communication Journal of New Zealand/He Kōhinga Kōrero*, 8(1), 77-88.
- Henrickson, M. (2007). Reaching out, hooking up: Lavender netlife in a New Zealand study. *Sexuality Research and Social Policy: Journal of NSRC*, 4(2), 38-49.
- Johnson, E.M., & Walker, R. (2007). *The promise and practice of e-Learning within complex tertiary environments*. Proceedings: The 7th International Conference on Advanced Learning Technologies, pp. 753-757.
- Johnson, M., Kazakov, D., & Švehla, M. (2005). *ICT in schools Report 2005: Information & Communications Technology in New Zealand schools 1993-2005*. Wellington: 2020 Communications Trust.

- Lai, K.-W., & Pratt, K. (2004). Information and Communication Technology in secondary schools: The role of the computer coordinator. *British Journal of Educational Technology*, 35(4), 461-475.
- Lips, M. (2008). Before, during or after the reforms? Towards information age government in New Zealand, *Policy Quarterly*, 4(2), 21-26.
- Maharey, S., & Swain, P. (2000). *Closing the digital divide: What do we know about the digital divide in New Zealand?* Retrieved 30 October 2008 from <http://www.executive.govt.nz/minister/maharey/divide/01-01.htm>
- Ministry of Economic Development (MoED). (2005). *The Digital Strategy*. Wellington: Ministry of Economic Development.
- Ministry of Economic Development (MoED). (2008). *The Digital Strategy 2.0*. Wellington: Ministry of Economic Development.
- Newman, K. (2008). *Connecting the clouds: The Internet in New Zealand*. Auckland: Activity Press.
- Organisation for Economic Cooperation and Development (OECD). (2008). *Growing unequal? Income distribution and poverty in OECD countries*. Paris, France: OECD.
- Parker, B. (2003). Maori access to information technology. *The Electronic Library*, 21(5), 456-460.
- Ramsey, E., & McCole, P. (2005). E-business in professional SMEs: The case of New Zealand. *Journal of Small Business and Enterprise Development*, 12(4), 528-544.
- Research & Education Advanced Network New Zealand Ltd (REANNZ). (2007). *About KAREN*. Retrieved 2 October 2008 from <http://karen.net.nz/about/>
- Richardson, M., Weaver, C. K., & Zorn, T. (2005). 'Getting on': Older New Zealanders' perceptions of computing. *New Media & Society*, 7(2), 219-245.

- Rizvi, F., & Lingard, B. (2000). Globalisation and education: Complexities and contingencies. *Educational Theory*, 50(4), 419-426.
- Scott, S.D., Gilmour, J., & Fielden, J. (2008). Nursing students and Internet health information. *Nurse Education Today*, 28(8), 993-1001.
- Shergill, G.S., & Li, B. (2005). Internet banking: An empirical investigation of a trust and loyalty model for New Zealand banks. *Journal of Internet Commerce*, 4(4), 101-118.
- Smith, P., Smith, N., Sherman, K., Kripalani, K., Goodwin, I., Bell, A. & Crothers, C., (2008). The Internet: Social and demographic impacts in Aotearoa New Zealand, *Journal Observatorio (OBS\*)*, 2(3), 307-330.
- Spoonley, P., Bedford, R., & MacPherson, C. (2003). Divided loyalties and fractured sovereignty: Transnationalism and the nation-state in Aotearoa/New Zealand. *Journal of Ethnic Migration Studies*, 29(1), 27-46.
- Statistics New Zealand. (2004). *The Digital Divide: What it's about*. Wellington, NZ: Statistics New Zealand.
- Statistics New Zealand. (2006). *2006 Census of population and dwellings*. Wellington: Statistics New Zealand. Retrieved 23/3/07 from [www.stats.govt.nz](http://www.stats.govt.nz).
- Statistics New Zealand. (2007a). *QuickStats national highlights 2006 Census*. Wellington, NZ: Statistics New Zealand.
- Statistics New Zealand. (2007b). *Household use of information and Communication Technology: 2006*. Wellington, NZ: Statistics New Zealand.
- Statistics New Zealand. (2007c). *Information and Communication Technology in New Zealand 2006*. Wellington, NZ: Statistics New Zealand.

- Statistics New Zealand. (2008a). *Internet service provider survey: September 2007*. Wellington, NZ: Statistics New Zealand.
- Statistics New Zealand. (2008b). *Internet service provider survey: March 2008*. Wellington, NZ: Statistics New Zealand.
- Suddaby, G., & Milne, J. (2008). Coordinated, collaborative and coherent: Developing and implementing e-Learning guidelines within a national tertiary education system. *Campus-Wide Information Systems*, 25(2), 114-122.
- Uys, P. (2007). Enterprise-wide technological transformation in higher education: The LASO Model. *International Journal of Educational Management*, 21(3), 238-253.
- Weaver, K. (2005). It's New Zealand mate, but not as we know it: Imagining New Zealand as a globally connected knowledge society. *The Communication Journal of New Zealand - He Kōhinga Kōrero*, 6, 1-15.
- Wells, P., De Lange, P., & Fieger, P. (2008). Integrating a virtual learning environment into a second year accounting course: Determinants of overall student perception. *Accounting and Finance*, 48(3), 503-518.
- Williams, J., Sligo, F., & Wallace, C. (2005). Free Internet as an agent of community transformation. *Journal of Community Informatics*, 2(1), 53-67.
- Williamson, A., & Dekkers, J. (2005). *ICT as an enabler in the community and voluntary sector in Aotearoa/New Zealand*. Proceedings of the Community Informatics Research Network 2005 Conference, pp. 408-429. Cape Town, South Africa: Community Informatics Research Network.
- Zolezzi, M., & Blake, A. (2008). Principles-based learning design for an online postgraduate psychiatric pharmacy course. *American Journal of Pharmaceutical Education*, 72(5) accessed from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2630132>

Zorn, T., Li, C. & Lowry, S. (2007). *Survey of community and voluntary organisations' use of Information & Communication Technologies (ICT)*. Waikato, NZ: University of Waikato Management School.