



New Zealand

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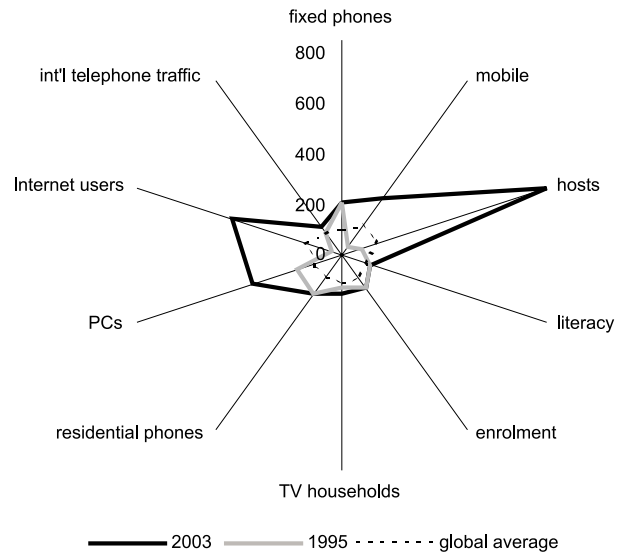
Overview

New Zealand is still working out how to maintain a sustainable ICT industry since the crash of technology companies in the stock market at the beginning of the millennium. While government initiatives in IT for social development continue with modest success, New Zealand's market economy assumes that the private sector should play a major role in socioeconomic development – but this has not been the case.

The state of ICT companies continues to highlight the difficulties faced by smaller firms in the globalising ICT market. Statistics New Zealand (2004) figures show that the value of sales in the IT sector fell by 1 percent in 2003 to around NZ\$7 billion. The value of IT exports fell 30 percent to NZ\$677 million, below even the 2001 figure.

Despite the downturn in ICT markets generally, consumer use of new technologies continues to increase, particularly in the use of mobile phones and related communications technologies. New Zealand telecommunications companies reported a massive upsurge in the use of text messaging and photo messaging over the December 2003–January 2004 holiday period. Christmas Day saw 4 million text messages sent from Telecom mobile phones and around 3.5 million sent on New Year's Day. That was up from a typical usage level of around 3 million. On New Year's Eve, Vodafone's network sent 3.8 million messages, up from 2.2 million the year before. Christmas Day had a record 4.8 million messages (Brislen, 2004).

However, in the business-to-business sector, two of the most well-known software exporters have faced difficulties – after being touted as the companies most likely to take New Zealand's ICT sector to “the next level”. Middleware vendor Jade Software lost NZ\$15.6 million in 2003 as operating revenue dropped by a third. Healthcare software provider Peace has had a couple of rounds of job cuts due to sluggish market conditions in the USA. Both companies create custom software solutions, and part of their decline could be related to the increasing emphasis on open standards and concerns about being locked into particular vendors.



Source: *Monitoring the Digital Divide*. © Orbicom 2004

Anti-spam software producer Marshall Software, which had been sold to US company NetIQ, announced that its New Zealand development team would be disbanded and future work done in Texas. One of the newer successes, Navman, exporter of GPS systems, is now mostly owned by US interests (Griffin, 2004).

These events are instructive for policy makers in other Asia-Pacific economies seeking to facilitate growth in their ICT sectors. The cliché of Internet economics during the 1990s was that in any given “marketspace” there would be one company making a lot of money, two making some money, and many losing money. This relates to Bartos's identification of a bimodal structure in network economies (Bartos, 1996), with a few large businesses and many very small ones. Simply put, in a global environment it is very difficult for smaller nations to create businesses that shape markets and achieve high levels of growth. Some attention needs to be given to the structure of these markets rather than assuming that all kinds of companies can be scaled effectively.

There are a number of ICT advocacy organisations in New Zealand, but the one best placed to respond to these issues is the ICT Taskforce, a government-convened group consisting of a range of industry leaders in the ICT sector. The ICT sector sits alongside biotechnology and the creative industries as one of three key areas on which the government is focusing resources as part of its Growth and Innovation Framework (GIF). The taskforce was charged with developing ambitious strategies to increase the contribution of ICT to New Zealand's economic growth. Their report (New Zealand Information and Communications Technology Taskforce, 2003) laid down a challenge to both industry and the government to remove the identified barriers to growth and establish 100 companies that each turn over more than NZ\$100 million over the next decade. This would help raise ICT's contribution to GDP from 4.3 percent in 2003/2004 to 10 percent. Developing such large organisations could be challenging with only 16 local ICT companies having annual

sales exceeding NZ\$100 million, half of those being arms of multinational enterprises. Some 7,500 companies identify themselves as part of the sector, represented by more than 40 diverse industry groups.

The barriers identified by the taskforce include limited access to capital, lack of management expertise, tax matters, and regulatory issues affecting growth. Interestingly, none of these are ICT specific. The other factor noted is a downward trend in the number of young people studying mathematics and the sciences, though how this relates to the growth of ICT firms is not clear, particularly when the identified shortcomings of many local firms lay in non-technical areas such as marketing and management.

While the goals recommended by the taskforce are interesting, the average New Zealand firm has fewer than five employees, a small customer base and a limited supplier base. For these businesses, generic applications such as email and web browsing (and applications based on this, such as online banking) are an area where significant productivity improvement can be made (Swain, 2003).

On the whole, the taskforce's recommendations perhaps show the limitations of single-sector thinking about national issues. The industry's response has been mostly along the lines of “give us money or tax relief and let us get on with it”. However, the New Zealand ICT industry's track record does not necessarily inspire confidence that it has a clear vision of how benefits for the country as a whole can be achieved. Rather than convening industry associations, there is a clear need to integrate industry, academic, policy-maker and community perspectives on ICT development strategies.

Government response to the ICT Taskforce's recommendations

The government's response to the ICT Taskforce's report has been rapid, with a number of projects announced totalling in excess of NZ\$50 million in expenditure, including the following. Statistics New Zealand (<http://www.statistics.govt.nz>) will prepare a range of new ICT statistics and redesign existing data collection techniques to meet OECD standards. An annual publication of all ICT statistics will be prepared with a view to providing a statistical base for monitoring progress towards the ICT growth target.

The Tertiary Education Commission (<http://www.tec.govt.nz>) is developing two initiatives to specifically help build the capability of the tertiary education system in response to the taskforce's report. The first initiative, Enterprise Training for Emerging Industries, explores new models for industry-oriented training with shared agendas between the educational sector and industry. The second initiative, Entrepreneurship and Knowledge Transfer, is specifically targeted at addressing the lack of commercial and entrepreneurial skills among graduates and existing decision makers in business.

In a project to increase support for technology (*hangarau*) curriculums in secondary schools, the initial phase would be to establish a Community of Learning in Technology through consultation and collaboration based in an electronic environment. The community would include classroom teachers, pre-service and in-service educators (including teachers of *hangarau* in schools), tertiary technologists, technology researchers, technology experts in industry and the Crown Research Institutes.

The Futureintech programme is aimed at raising awareness of ICT as a rewarding career among students, teachers and parents. Students will be exposed to industry role models, and both career advisors and teachers will acquire an improved understanding of the employment potential in science, engineering and technology.

The GIF Sector Project Fund is established to help industry bodies carry out a range of practical projects, including enhancing sector networks and building capabilities such as management and leadership skills.

The ICT Global Executive Development Programme will address the shortage of skilled leaders and marketing/sales executives with the experience to take a company global. It provides mentoring for the chief executives of ICT companies with a NZ\$5–\$15 million valuation that wish to grow further.

The HiGrowth project (<http://www.higrowth.co.nz>) is a charitable trust established to lead the ICT industry's ten-year growth strategy. It is led by a 5-member board and a 30-strong advisory council comprising a cross-section of industry leaders. Its purpose is to drive the achievement of the growth target through practical initiatives such as building the sector's human resources, increasing the commercial knowledge base and supporting the sector's senior executives through improved mentoring and knowledge-sharing networks.

In spite of these initiatives, industry bodies are seeking to improve collaboration with the government on issues such as procurement. Although New Zealand is a market economy, a large proportion of ICT expenditure comes from government funds, and the private sector is keen to gain more control over these projects. Whether this will have positive outcomes remains to be seen.

Overall, the government is promoting three major strategies: first is to “build a stronger pipeline” of ICT companies with an export focus, another is to promote New Zealand as a centre for ICT services, and the last is to encourage greater domestic use of ICT in sectors such as agriculture.

If the above analysis suggests scepticism about the ability of the private sector alone to undertake development in the national interest, the recent decisions of the two main telecommunications operators to halt free peering for domestic traffic bring the reasons into sharp relief. Peering is a voluntary agreement among local Internet networks to exchange traffic with each other for no charge. This has

generally meant that ISPs have not charged for national traffic, only for international traffic. In May 2004, Xtra (the Internet services branch of Telecom New Zealand) abruptly stopped peering at the Wellington Internet Exchange, causing a major slowdown and an increase in traffic charges for the providers of some popular websites. Now TelstraClear, a subsidiary of the Australian telecommunications firm Telstra and New Zealand's second largest ISP, has announced that from 1 November 2004 it will stop peering completely. This will result in increased charges for sites or networks that want to make their content available to users on either of these main networks, particularly TelstraClear's. It may even result in certain content not being accessible. The burden will fall most heavily on independent organisations with limited financial resources.

Shifting philosophies of the government

A worrying announcement came from the government in 2004 that it had signed a deal with Microsoft to put its software into every school. While the government secured an excellent deal (e.g. schools will pay just NZ\$99 a year for Windows Server 2003, about 3 percent of the list price for businesses), the terms of the deal remain secret. There is a concern that the deal merely creates an ongoing market for the US company, when the resources could be better put into open source software and supporting local developers (Gifford, 2004).

New Zealand also distanced itself from many other countries in Asia Pacific by supporting the role of US-based ICANN in controlling the global Internet addressing system. Overall, the government failed to make a proactive contribution to the World Summit on the Information Society, limiting its goals to learning about other countries' policies and raising New Zealand's profile on the world stage. A stronger leadership position could have been expected from the government at this important event, particularly given New Zealand's potential role as a bridge between Asia Pacific and developed countries in the West.

Key national initiatives

Project PROBE (PROvincial Broadband Extension)

Project PROBE (<http://www.probe.govt.nz>), a government investment worth tens of millions of dollars, is set to make broadband Internet available to all New Zealand schools and provincial communities by the end of 2004. A joint initiative of the Ministry of Education and the Ministry of Economic Development, PROBE is a unique partnership between the central government, local governments, regional groups and the private sector. The government facilitates the request-for-proposal process among local suppliers and allocates funds to successful private sector infrastructure providers.

Preferred tenders for all 14 Project PROBE land-based regions were announced in 2003, and in 2004 local ISP ICONZ was selected as the preferred supplier for a satellite link for remote areas. The service will run from the IPSTAR satellite operated by Thai company Shin Satellite.

A delay has been encountered in some regions when Woosh Wireless, the selected supplier for four regions, admitted that it would not be able to achieve the ambitious timeline set by the government in three of the regions. The contracts have been passed to Telecom New Zealand (*National Business Review*, 2004).

Aotearoa Maori Internet Organisation (AMIO)

A new Maori organisation, AMIO (<http://www.amio.maori.nz>) has been established to begin defining what the Internet is to Maori, how Maori are and will be affected, and how Maori culture and identity are impacted by the technology. The group also aims to foresee and predict the long-term impact on Maori society and identity. It is also taking an active role in issues relating to indigenous intellectual property and cybersquatting.

Local online content

Commercial content companies continued to drop in number in 2003, with ISPs such as Xtra becoming significant content aggregators. However, there are a few exceptions. One of them is <http://biggie.co.nz>, a new website for New Zealand's electronic dance music community. It contains one of the largest online forums and was recently voted winner of the Entertainment section in *New Zealand Netguide's* annual awards.

A new service [Irirangi.net.nz](http://www.irirangi.net.nz) provides online access to all Iwi radio stations (community radio stations serving certain Maori tribes). This is an extremely significant initiative given the rapid dispersal of tribal members away from their traditional locations to other places within and outside New Zealand. Another important indigenous initiative is Aotearoa Café (<http://www.aotearoa.maori.nz>), an online community launched in 2003 for discussing issues of interest to Maori.

Online services

E-government

The government is currently undertaking a review of ICT services across the different ministries to see if a case exists for shared arrangements. At present, each ministry and government agency makes its own decisions on ICT, though limited collaboration on voice and data networks has taken place through the social services ministries. A report was released in March 2004 and is available at <http://www.e-government.govt.nz>.

INCIS: A legacy with lasting effects

If there is a New Zealand story which highlights the high-risk nature of ICT development, it is the New Zealand Police computer mainframe INCIS (Integrated National Crime Information System). The origins of INCIS go back to 1985, and the request for information from suppliers was released in 1992. An Ernst and Young report noted that IBM had advised the police, prior to contracting, that it was impossible to achieve the technology specified. But the police ignored the advice and proceeded with the contract. The project was halted in 1999 with only 30 percent of it completed, and a budget that had overrun from NZ\$95 million to NZ\$135 million. In 2000, the INCIS mainframe was sold. IBM and the police settled out of court over who was to blame for the failure. The failure of the project not only hampered police activities but also adversely affected the willingness of the government to undertake ICT development.

The purpose of INCIS was to support operational policing by providing improved information, investigation and analysis capabilities. The ambitious functions for INCIS included management of criminal information, cases and investigations, crime trend analysis and intelligence analysis. The police viewed many overseas police IT systems but decided none were adequate, and they set about building a world-leading IT system with unproven technology.

The INCIS project underwent significant changes in focus over its lifetime ranging from police strategy to financial objectives, and then to a technology project. As the scope of the project developed, it was decided that business process reengineering would be required. This extended the time frame for INCIS' development significantly, during which time the technology landscape changed markedly.

Further hampering the project's development was the requirement from the police of a fixed-price contract, despite the scope of work not being entirely clear. This led to the police rejecting a proposal from Andersen Consulting that suggested a high-level integrated design project and proof of concept to clarify the scope of work before a price and specification could be settled. The police were also not prepared to compromise on the technology used for INCIS.

Eventually, conflict arose between the police and the contractor, IBM, over the scope of work and what was included in the initial contract. These disagreements were serious, but they were largely glossed over in status reports from the project director. A government commission of enquiry found that the issues were directly attributable to the police proceeding with the contract before they were ready organisationally and before the technical solution was determined.

In 2000, a commission of enquiry noted the lessons learnt from the INCIS failure and made recommendations. The lessons learnt from INCIS for the commissioning of large government IT projects include the following:

- The business case needs to adequately address technology and risks.
- Overambitious technology should be avoided.
- Technology needs to be firmly fixed at the time of contract.
- An adequate project charter, proof of concept, blueprint, independent quality assurance (IQA), and change control are necessary.
- Business process reengineering should be completed before development.
- Adequate resources in terms of skilled and experienced governance and management are imperative.
- Appropriate governance and management structures should be in place.
- Parties should be prepared for contract and the form of the contract needs to be appropriate.
- Sound quality and risk management processes must be in place.
- Human resource problems and relationships are important and need to be addressed.
- An undue degree of reliance on the contract should be avoided.
- An appropriate structure should be in place for effective approval or monitoring of the project by the government.

The report of the commission of enquiry should be required reading for anyone involved in the commissioning of large ICT infrastructure projects. While New Zealand may not want to boast about this particular instance of “unprecedented ICT development”, the report remains a very useful document to help others avoid making similar errors. The report is available from http://www.justice.govt.nz/pubs/reports/2000/incis_rpt/index.html

The government is exploring other lower-level shared solutions. The full-scale electronic procurement project GoProcure has been devolved into a number of smaller initiatives after failing to get all government departments interested in using the system. The State Services Commission is now focusing on the networked sharing of supplier information rather than a single point of purchasing for vendors working with all government agencies.

In January 2002, the government attempted to gain control of the newzealand.com domain under a legal challenge through WIPO. The challenge was unsuccessful, and the government was forced to pay NZ\$1 million to gain possession of the domain (ITworld.com, 2002).

LandOnline

The LandOnline project (<http://www.landonline.govt.nz>) provides comprehensive information on all land blocks surveyed in New Zealand. It is the first system in the world to combine electronic lodgement of survey data with the ability to access survey data and maps via the Internet. Designed for property professionals, it also makes certificates of title and other land records available to individuals seeking information on their properties.

Connecting Communities

The government sponsored a conference for community-based organisations to discuss strategies for the effective use of ICT and networks (<http://www.connectingcommunities.govt.nz>). The conference, held in November 2003, covered awareness raising, mapping and building of community strengths, digital storytelling, tools for community groups, technical support, community-based learning and virtual communities. The participants synthesized the experiences in their own communities and produced a road map for communities to use ICT for development.

Public Access to Legislation

The Public Access to Legislation (PAL) project, which will put all acts of parliament and government regulations online, was due at the end of 2002 but remains delayed and under independent technical review. While there are rumours of dispute between the government and the lead supplier, Unisys, both sides claim this is untrue and that the review was initiated as part of a government-wide strategy to commission reviews of all ICT projects that expose it to significant risk.

HealthIntelligence

HealthIntelligence (<http://www.healthintelligence.net.nz>) is a new model of regional ICT services sharing among the

District Health Boards in the Wellington and Taranaki regions. Capital and Coast District Health Board IT manager Andre Snoxall says the board's IT costs have risen in the past five years from around NZ\$5 million to NZ\$12 million per annum. More than half of that amount is spent on IT infrastructure. The plan is for the boards to share authentication, helpdesk, email, scheduling, networks, Internet access, health intranet access, office automation, as well as filing and printing services.

Library services

New Zealand's local libraries (<http://www.lianza.org.nz>) have joined forces to buy electronic information previously only larger public and university libraries could afford. The deal allows any member of a public or school library to access information from online databases Gale and EBSCO, including magazines, journals, reference books, historical documents, biographies, maps, photographs and graphics, as well as reference databases. The Ministry of Education funded secondary school libraries' participation. The deal is a great example of opportunities for the government to act on behalf of diverse groups to gain discounted access to international information sources.

Enabling policies and regulatory environment

Changes in the control of “.nz”

InternetNZ (<http://www.internetnz.net.nz>), previously the Internet Society of New Zealand, took over control of the “.nz” top-level domain from Waikato University in the late 1990s. It created a company known as Domainz to run the registry and sell new domain names. Because this function placed it in competition with other domain resellers, InternetNZ was forced to give over the “.nz” namespace to a professional commissioner, and in 2003 it sold Domainz to Australian registrar Melbourne IT for NZ\$2 million. InternetNZ is positioned as advocate for New Zealand's Internet development, but its functions are not yet clear.

Applications development and support facility

In March 2003, international computer services company EDS received NZ\$1.5 million to establish an applications development and support facility in New Zealand. The government grant recognises the highly skilled jobs that would be created by this initiative, and the grant is dependent on those jobs eventuating. The support is an attempt by the government to position New Zealand as a supply of talent cheaper than the USA and more “culturally compatible” than low-cost South and Southeast Asian countries. The move reflects the government's two-pronged approach to economic development: providing support to growing local companies

and giving incentives for foreign companies to base large-scale operations in the country.

Local loop unbundling

The Telecommunications Commission led by Douglas Webb was very active through 2003, making waves with its recommendation for local loop unbundling – making the “last mile” of the telecommunications network available for other companies to resell, forcing greater competition for the formerly state-owned Telecom. At the end of the year, Webb announced a retreat from that position in the commission’s final report (New Zealand Commerce Commission, 2003). Australian telecommunications analyst Paul Budde speculated that the decision may have had a political component, with the government perhaps worried about a takeover by Australian telecommunications company TelstraClear if Telecom’s position were weakened considerably (Brislen, 2003a).

The backtracking disappointed many firms who were expecting to install their own equipment in Telecom’s exchanges. Telecom, New Zealand’s largest telecommunications operator and biggest listed company, preempted the unbundling by offering to introduce its own unbundled data service to competitors, who will be allowed to sell a wider range of high-speed Internet (ADSL) services through Telecom’s exchanges, leading to lower broadband Internet prices. Unfortunately, there is little clarity on exactly how this will be achieved and what the costs to Telecom will be.

Pricing continues to be a key issue with broadband access. All ADSL services currently run on Telecom’s exchanges, allowing it to effectively have a monopoly on pricing. Keith Humm (2003) calculates that Telecom’s data caps mean that even a plan with a high monthly fee gives only 30 hours of full-speed use before resulting in significant data charges.

Telecommunications Service Obligation (Kiwi Share)

Telecom’s Kiwi Share has been renamed the Telecommunications Service Obligation (TSO) to reflect a requirement that it provides a mandated minimum level of telephone and Internet services nationwide. The loss it incurs from these services is approximately NZ\$65.6 million per year, which in 2004 was split among the major telecom-munications providers based on their share of the market.

The TSO model is currently highly unpopular among telecommunications firms as a way to provide service to commercially non-viable customers (CNVCs). “It is an absurdity that carriers other than Telecom have to fork out a share of Telecom’s costs, even though they could in many circumstances provide a similar or better service themselves without a need for a community subsidy. They should be allowed to compete to do so,” Australian telecommunications analyst Paul Budde weighed in on the matter, saying a total

rethink of TSO is needed. “I don’t mind a high TSO if it was to be allocated to build new infrastructure in New Zealand; this should be combined with the Probe initiative. Such a TSO should be totally controlled by the government not by Telecom.” Budde suggests operating a separate fund, paid for by the TSO levy, to build and maintain the CNVC network (Brislen, 2003b).

The government is currently adding a telecommunications relay service as a TSO to facilitate wider participation by the hearing and speech impaired. The Telecommunications Commission is also investigating number portability across different networks.

Open source movement

In 2003, the Government Information Services Managers’ Forum (<http://www.govis.org.nz>) organised a conference on open source solutions for government. The conference included speakers from IBM, Microsoft, research agencies and government units, who discussed the benefits and challenges of developing open source software for government agencies. The conference is a marker of increased awareness about open source software in New Zealand, which has been assisted by the official endorsement of the Linux operating system by large multinational enterprises such as IBM.

Research and development

The Foundation for Research, Science and Technology (<http://www.frst.govt.nz>) is contracting with two academic/industry groups to form ICT research consortia. It is looking at subsidising two such consortia. One of them, the Medici, will explore new graphical ways of presenting business information and facilitating collaborative working. The other consortium will deal with health IT. The consortia bring together a number of private companies and public sector research organisations. The private companies will contribute at least NZ\$1 million in total to each consortium.

References

- Bartos, O.J. (1996). Postmodernism, Postindustrialism, and the Future. *Sociological Quarterly*, Vol. 37, No. 2, 307–26.
- Brislen, P. (2003a). Analyst Claims Telstra Wants Telecom. *Computerworld*, 2 September. <http://www.computerworld.co.nz>.
- Brislen, P. (2003b). TSO Figure Upsets All. *Computerworld*, 19 December. <http://www.computerworld.co.nz>.
- Brislen, P. (2004). Textual Intercourse Surges over Holiday Period. *Computerworld*, 16 January. <http://www.computerworld.co.nz>.
- Gifford, A. (2004). Software Secrecy Equals Bad Government. *New Zealand Herald*, 27 April. <http://www.nzherald.co.nz/storydisplay.cfm?storyID=3562796&thesection=technology>.
- Griffin, P. (2004). Knowledge Wave Eases to a Ripple. *New Zealand Herald*, 4 May. <http://www.nzherald.co.nz/storydisplay.cfm?storyID=3564271&thesection=technology>.

- Humm, K. (2003). Catering for the Market: Comparing DSL to Dial-up. 23 September. <http://spronkey.orcon.net.nz/dotcom/articles/telecom-article.htm>.
- ITworld.com (2002). New Zealand Accused of “Reverse Domain-Name Hijacking”. 23 December. <http://www.itworld.com/Tech/2987/021223newzealand>.
- National Business Review* (2004). Woosh Contracts Unplugged: Too Slow for Probe. 4 June. http://www.nbr.co.nz/home/column_article.asp?id=9270&cid=3&cname=Technology.
- New Zealand Commerce Commission (2003). *Telecommunications Act 2001 – Section 64 Review and Schedule 3 Investigation into Unbundling the Local Loop Network and the Fixed Public Data Network*. Wellington.
- New Zealand Information and Communications Technology Taskforce (2003). *Breaking through the Barriers: ICT Taskforce Report*. Wellington.
- Statistics New Zealand (2004). Information Technology Survey (2003 financial year). <http://www2.stats.govt.nz/domino/external/pasfull/pasfull.nsf/web/Hot+Off+The+Press+Information+Technology+Survey+2003+financial+year?open>
- Swain, P. (2003). Speech 4th Annual Telecommunications and ICT Summit. <http://www.scoop.co.nz/mason/stories/PA0306/S00506.htm>.