



TelstraClear Limited

**Submission on the
*Draft Digital Strategy 2.0***

21 May 2008

Executive Summary

1. TelstraClear supports the vision of the Digital Strategy, and the proposed developments set out in the draft Digital Strategy 2.0 revision. Technology has the capability to make a significant contribution to the economic, social, environmental and cultural goals of New Zealand.
2. Emphasis has rightly been placed on the development and investment in broadband infrastructure. Significant changes to the regulatory environment have occurred with the passing of the Telecommunications Amendment Act 2006. As the ink is only now starting to dry on these changes, they must be allowed time to fully embed.
3. Ongoing focus must be placed on ensuring that New Zealanders have the capability, confidence and access to meaningful content to effectively leverage the broadband infrastructure.
4. One such application is in the health sector. Technology has the ability to significantly improve the management of New Zealanders' health, and reduce the costs of doing so. Ongoing collaboration between telecommunications providers and health providers will ensure that the societal benefits of technology in the health sector can be fully realised.
5. The draft Digital Strategy 2.0 lists sustainability as a key outcome of getting the digital strategy right. Comprehensive research commissioned by Telstra demonstrates the significant opportunities that telecommunications networks can play in a future carbon-constrained world.

Introduction

6. TelstraClear appreciates the opportunity to comment on the Draft Digital Strategy 2.0.
7. TelstraClear is strongly supportive of the vision of the Digital Strategy, to create a digital future such that “New Zealand will be a world leader in using information and technology to realise its economic, social, environmental, and cultural goals, to the benefit of all its people.”¹
8. The three key enablers of the Digital Strategy are:
 - a. **Content** - Information made available through digital networks;
 - b. **Confidence** - Developing the necessary skills at all ages, in all parts of society, to use and participate in ICT effectively; and
 - c. **Connection** - Affordable access to viable ICT infrastructure such as telecommunications networks, computers, mobile phones and other devices.
9. The draft Digital Strategy 2.0 adds a fourth dimension – **Collaboration**. Collaboration across sectors will facilitate New Zealand achieving its digital potential.
10. The draft Digital Strategy 2.0 also proposes three outcomes that will measure the success of getting the “C”s right. This includes **Productivity** – a creative, knowledge-based high-income economy, **Community** – enriched and valued New Zealand communities and cultures, and **Sustainability** – sustainable growth and development as a nation.
11. TelstraClear is supportive of the changes proposed in the revised strategy. While the document traverses a wide range of issues, our submission focuses on a number of issues that we consider will be central to New Zealand achieving its digital strategy goals.

¹ <http://www.digitalstrategy.govt.nz/About-the-Strategy/>

Connection

12. Efficient investment and effective competition will deliver improved consumer outcomes, and progress New Zealand's digital strategy.
13. To date, a significant focus of the Digital Strategy has been on Connection. In 2006, the Minister of Communications commissioned a stock take of the New Zealand telecommunications infrastructure. As a result of that review, the Minister announced a package of measures:²

“Communications Minister David Cunliffe says the package is a vital part of the Government's drive to transform the economy and push New Zealand's broadband performance into the top quarter of the OECD.

"Access to fast, competitively priced broadband Internet is vital for New Zealand to take full advantage of new technologies," Mr Cunliffe said.”

14. Significant changes were enacted in the Telecommunications Amendment (No. 2) Act 2006, including:
 - unbundling of the local loop and sub-loop;
 - removing constraints on the existing regulated unbundled bitstream service;
 - the operational separation of Telecom; and
 - accounting separation of Telecom's business operations and an enhanced Commerce Commission monitoring role.
15. The detail of those changes is only now being finalised. The final terms and conditions for access to unbundled local loops and unbundled bitstream access were finalised late last year, with access to sub-loops, and the operational separation of Telecom finalised this year.
16. In addition, the Government has undertaken initiatives including the Kiwi Advanced Research Network (“KAREN”), the Government Shared Network (“GSN”), and Broadband Challenge funding for open access fibre networks.

² Media Release by Hon David Cunliffe, Minister of Communications, *Government moves fast to improve Broadband*, 3 May 2006

17. Other current reviews include the Telecommunications Service Obligation (“TSO”), associated issues of funding telecommunications infrastructure in rural areas, and the review of broadcasting regulation. Until these reviews are finalised, and the impact on private sector infrastructure investors including TelstraClear is clear, investor uncertainty will remain.
18. It is important for all participants in the telecommunications market to have reasonable certainty around the terms and conditions of access, prior to making significant investment decisions. Telecommunications infrastructure investment is characterised by significant irreversible costs. Therefore, in assessing the viability of such an investment, it is important to have reasonable certainty around not only the input costs, but also the potential revenue streams that will deliver a reasonable return on that investment.
19. As the ink is only now starting to dry on these changes, TelstraClear considers that the recent changes must be allowed the time to be fully embedded. Perpetual change will reduce incentives for further investment to occur, particularly if the rules are subject to frequent change.

Confidence and Content

20. While the framework is now in place for increased investment in broadband infrastructure, TelstraClear considers that the focus must now shift to **Confidence** – creating digitally capable and confident New Zealanders, and **Content** – developing world-class content creation, discovery and use.
21. Confidence and Content will require focus from all sectors, to fully realise the potential improvements in productivity and growth. This will require collaboration across all sectors to achieve the digital potential.
22. As an example, a clear opportunity for improved broadband infrastructure is in the health sector. Increasing the focus on Confidence and Content will ensure that the full benefits can be realised as infrastructure development and investment continues apace.

Application of Digital Technologies to Healthcare

23. Replicating medical facilities, equipment and expertise in every locality is not feasible and uneconomic. Add to that distance and the need for timeliness in healthcare, and the issue becomes even more problematic.
24. Telecommunications can assist by networking information, people and assets. This essentially means that telecommunications networks can be used to leverage scarce resources and share information, expertise and equipment. Patient records, medication management, professional development and health fund transactions all depend on information that is stored and transmitted via telecommunications networks.
25. Diagnosis often requires in-person consultations with access and quality determined by geographic proximity. Technologies such as high-resolution video conferencing allow remote diagnosis.
26. In tomorrow's world, telecommunications networks are likely to fundamentally change how patients are cared for. Using body area networks patients will be able to have their vital signs checked 24/7 within interactive biometric monitoring. Non-intrusive mechanisms will be able monitor elderly patients remotely.
27. Such technology has the ability to significantly improve the lives of New Zealanders, and reduce the costs of doing so. For example, a Scottish study in 2006 showed treating older people at home with alert and sensor assistive

technologies costs 100 times less than moving patients into residential care.³

28. Next generation networks also provide patients with access to substantial volumes of information freely, in their own time and without prejudice.
29. Using telecommunication networks can leverage health information, people and assets. This means less investment per facility, less redundant equipment and less duplication. It means reducing the amount of time, whether it be travel time, analytics time or diagnostics time.
30. What becomes clear from the opportunities available with the application of technology in Healthcare is collaboration between telecommunications carriers (with expertise in building networks) and the health sector (with expertise in the management of New Zealander's health).
31. Significant opportunities remain – not just getting the broadband infrastructure built, but ensuring that the societal benefits of the infrastructure can be maximised through collaboration.

Sustainability

32. The draft Digital Strategy 2.0 identified that an outcome of getting the three “C”s right is sustainable growth and development as a nation.
33. Telstra has undertaken significant work on telecommunication's based opportunities to reduce greenhouse gas emissions. In 2007, Telstra commissioned climate change experts, Climate Risk, to investigate how telecommunications networks and digital products can enable business enterprises, households and governments to reduce carbon emissions.⁴
34. As Telstra has explored digital strategies to reduce its own energy use, Telstra has recognised opportunities for Telstra and others in the ICT sector to help enterprises in other sectors of the economy to achieve greater carbon emission reductions. From transportation to space management including

³ Study of non-descript cohort of 65+ year old in West Lothian (Scotland) found it cost £25,000/year to service one person in residential care and £253.24/year to service one person at home with telecare solutions. £1 could either help take care of 40 people in residential care or 4000 at home. The study also found the length of stay in nursing homes in West Lothian dropped from approximately 3 years in 1999 to 18 months by the end of 2002; the number of hospital bed days saved was 3,400 (full year equivalents); bed nights lost per 1,000 for people over 65 in West Lothian is 60 compared to 544 for Edinburgh, 247 for Scotland. In 2005, West Lothian had the lowest “length of stay” in Scotland at 9 days, compared to average of 57 days. “The Caring Home for Support and Care Services”, Suzie Jones, Telecare Policy Support Manager at Tunstall Group Ltd, 7 February 2006.

⁴ This report is available at: www.telstra.com.au/abouttelstra/csr/climate_change.cfm

everything from air conditioning to the “office concierge” and a “hot-desk” for the telecommuter – the opportunities for energy conservation are huge.

35. The report titled *Towards a High-Bandwidth, Low-Carbon Future: Telecommunications-based Opportunities to Reduce Greenhouse Gas Emissions* establishes that telecommunications networks can play a nationally significant role in helping to equip Australia to survive and prosper in a future carbon-constrained world.
36. While this report details the specific impact that telecommunications networks can play in Australia, there are nonetheless significant learnings that are equally applicable to New Zealand.

Seven energy-conserving opportunities

37. The report identifies seven major opportunities for Australia to reduce or avoid the release of carbon emissions into the atmosphere by almost five per cent or around 27 million carbon tonnes per year by 2015. These opportunities, if achieved, could reduce Australia’s greenhouse gas emissions by an amount and pace that meets the Kyoto Protocol target. These opportunities could also generate up to \$6.6b in annual financial savings for Australian households and businesses. This amount is also in keeping with the findings of the Intergovernmental Panel on Climate Change (IPCC) and the Stern Review.
38. The seven opportunities are:
 - Network demand-side management to increase renewable energy use;
 - Integrated personalised public transport;
 - “In-person” high-definition videoconferencing to improve business productivity;
 - Presence-detecting services that turn off devices that are “on” but not being used;
 - Real-time freight allocation systems to fill empty freight vehicles;
 - Remote power management for appliances not in use or on “stand-by”;
 - and
 - Teleworking.

Demand-side management to increase renewable energy use

39. Demand-side energy management helps increase the feasibility of renewable energy due to the inherent supply variability. When demand is matched with supply, efficiency goes up and less waste is created. Because renewable electricity is difficult to store, matching demand and supply on a timely basis creates important economic and environmental benefits.
40. Many household and business appliances, such as hot water systems, only require intermittent power. If the energy use of such appliances was managed using a telecommunications network then peaks in demand could be better managed on a national scale without amenity loss.

Personalised Public Transport

41. Fast, flexible personalised public transport using wireless broadband could help to reduce commuter traffic. For example, text messaging for a mini-bus to take people to a connecting train.

High Definition video-conferencing

42. Business productivity can be enhanced with high-definition video-conferencing. Face-to-face meetings are essential as the nuances of communications rely on body language and facial expressions as much as the spoken word. Until recently, there was no alternative to another business trip to achieve the face-to-face result. “In person” high definition video conferencing can provide the same result as sitting together.

Presence-based power

43. Using presence sensors to turn off “orphaned” devices that are “on” but not being used. As a person moves out of a room, wireless-based presence sensors can turn off lights, air conditioners and computers.

Real-time freight-management

44. Filling freight vehicles with real-time allocation systems. Wireless broadband can be used to monitor vehicles in real-time so the data can be used to better assign cargo.

Remote appliance power management

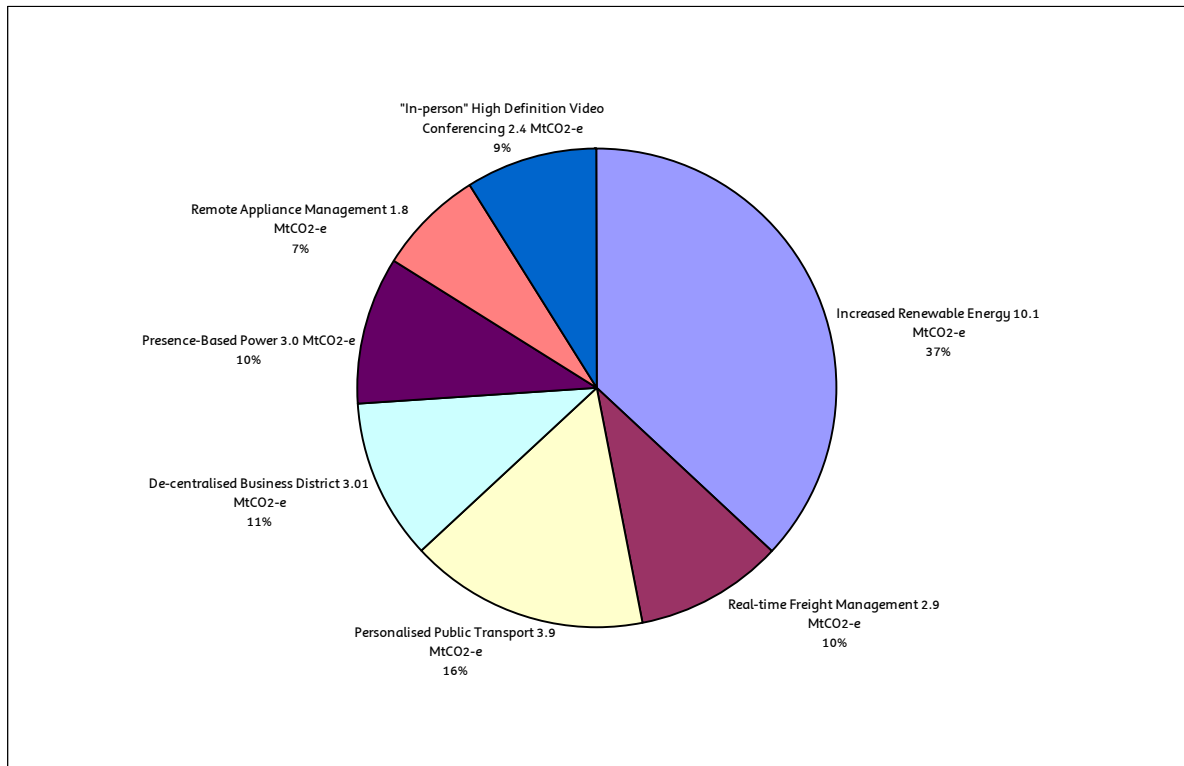
45. Remote appliance power management allows power to be cut for appliances not in use or on “stand-by” Broadband-enabled network sensors can detect when home appliances such as TVs are on stand-by or mobile phones have finished charging. Sensors can then automatically turn off power to the appliances.

De-centralised business district

46. Teleworking can reduce auto pollution by moving work to people not just people to work by enabling people to work from home and centres in regional areas.

47. The Telstra commissioned study concluded that the estimated annual avoided emissions for these seven opportunities represents 4.9% of Australia's national emissions.

Figure 1: Value of the carbon emissions abatement from the seven energy conserving opportunities identified.⁵



⁵ Source: Climate Risk Report, *Towards a High-Bandwidth, Low-Carbon Future, Telecommunications-based Opportunities to Reduce Greenhouse Gas Emissions*, 2007.

Conclusion

48. TelstraClear supports the proposed amendments to the Digital Strategy. Technology will continue to develop rapidly, and these benefits must be harnessed to improve New Zealand's productivity.
49. As changes to the regulatory environment become embedded, increasing focus must be placed on ensuring that New Zealanders have the capability, confidence and access to meaningful content to effectively leverage the broadband infrastructure.
50. TelstraClear looks forward to continuing to actively contribute towards the Digital Strategy's goals.