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## Draft Digital Strategy 2.0

Submission to the Ministry of Economic Development  
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## Background to IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) is the lead national professional body representing the engineering profession in New Zealand. It has approximately 10,000 Members, including a cross-section from engineering students to practicing engineers to senior Members in positions of responsibility in business. IPENZ is non-aligned and seeks to contribute to the community in matters of national interest giving a learned view on important issues, independent of any commercial interest.

## Submission

### On CONNECTION

#### Connection Actions

IPENZ agrees that the widespread availability of fast and affordable broadband is vitally important to support New Zealand's ongoing economic growth and social connectedness. It is key not only for New Zealand's internal needs, but also so that New Zealand can play its role as a global citizen and trading partner.

IPENZ supports the local loop unbundling and the functional separation of Telecom, but it needs to be recognised that these are important but short-term measures and in themselves are not the answer to New Zealand's digital future.

To date the major issues facing New Zealand have been penetration, speed and price. The future of broadband must have abundant bandwidth (100 Mbps), symmetric uplink and downstream speeds, be ubiquitous (always on), be open access, enable convergence of communication technologies, and be safe and secure. Some of these elements are difficult to achieve simultaneously – for example, there are potential conflicts between creating the most open possible environment and ensuring that networks are safe, secure and always available. However, that must be the goal.

The Connection Goal of “fast and affordable” does not capture all these elements, and there are insufficient actions in the Strategy to achieve these.

### Comment on Specific Actions

#### Accelerating broadband investment

It is noted that the Digital Strategy sets a target of 80 per cent of users able to access broadband connections of at least 20 Mbps, and 90 per cent with access to broadband connections of at least 10 Mbps by 2012. These Internet speeds are still well below existing international levels, such as in Japan (61 Mbps to 52 per cent of users), Finland (22 Mbps to 57 per cent of users), and Sweden and France (18 Mbps to 49 per cent of users).

Regarding penetration levels, the Digital Strategy also points out that New Zealand is 20th out of 30 in the OECD for broadband subscribers per 100 inhabitants (recently reassessed at 19th). Although there has been significant growth in broadband uptake in New Zealand these penetration levels are still poor. IPENZ is concerned that 20 per cent of users who will have less than 20Mbps broadband speed will be rural users, and will be non-commercial customers.

The Strategy states that the Government will “develop and implement mechanisms designed to accelerate investment in broadband infrastructure” and there is no budget identified, although the May Budget identified \$325 million for the Broadband Investment Fund. This Action and level of funding is insufficiently decisive to significantly raise New Zealand’s broadband performance.

In comparison, the National Party is proposing to invest up to \$1.5 billion over six years to accelerate the roll-out of fibre to homes. It is noted that the priority will be given to business premises, schools and health facilities. IPENZ believes that the Government should lead a national plan to invest in fibre-optic, satellite and wireless broadband open access networks, and this will involve significant investment of government funds.

IPENZ does not promote a particular infrastructure model to achieve this but it will require a partnership of private sector and public sector funding.

The regulatory regime for private sector investment should be based on the principles of open access, ensuring there is fair competition between providers, incentivising economically efficient investments, removing barriers to new entrants, and incentivising and encouraging innovation. In terms of a level playing field IPENZ is aware of some instances where infrastructure sharing at some hilltop sites is in the wider public interest and some utilities are either restricting access to others or charging excessive rents. Preventing the exploitation of monopoly sites will be an important element of the regulatory framework.

For public investment, funding criteria should include value for money, the ability to leverage complementary private sector funding, and the ability to achieve social objectives – particularly education and health and rural communities. This fund should not favour any particular technology – it should be outcome focused.

IPENZ is also acutely aware of the difficulty in estimating the costs of fibre installations. In urban areas there are many other underground services, and many local authorities have restrictions on overhead reticulation. Adequate reinstatement of road carriageways is expensive. In the early days of cable TV installations direction drilling was unsuccessfully attempted in parts of Wellington. There were experiences with disruption to existing services, poor reinstatement and there was considerable opposition to overhead reticulation. Therefore estimated costs of fibre network installations need to be prepared with care and need to include the costs of consents and designations for cabling, cabinets and other structures.

## On CONFIDENCE

### Capability Actions

IPENZ is very supportive of the Capability Actions. The ICT skills shortages in New Zealand are a major issue facing the sector and lack of the people resource is the major obstacle to implementing the Digital Strategy. The issue needs to be given more prominence in the Strategy and be adequately resourced.

The skill shortage is highlighted in the survey work undertaken by the Department of Labour. In its 2007 survey of employers the computing professions sub-group had a fill rate of 73 per cent. In the Department's Job Vacancy Monitoring Programme (JVM), the occupation of electronic telecommunications engineer had a 100 per cent growth in vacancies in the 12 months to December 2007. In December 2006 the Department undertook an Occupational Skill Shortage Assessment of the IT profession and this concluded that the growth in the supply of IT professionals has not been matched by the rapid growth since 2001 and accordingly is classified by the Department as a genuine skill shortage.

It is noted that for all the Actions (with the exception of "Implementing the Aotearoa NZ People's network"), all funding is base-line – in other words no further resources are being allocated to address the major skill shortage issue that will be required for the successful implementation of this strategy. IPENZ questions whether the Strategy has adequately recognised this need, or has just accepted the status quo as being acceptable. IPENZ believes that more funding is required.

### Comment on Specific Actions

#### *Sourcing talent for New Zealand's ICT sector*

We are aware that the Free Trade Agreement with China includes provision for up to 100 Chinese in the occupations of computer application engineer, senior test analyst and electronics technician. Further work is required with industry to identify the needed skill set, and promotion by the Department of Labour to relevant employers. This is so that the ICT sector is able to make the most of this opportunity.

Sourcing talent is dependant on being able to match New Zealand's skill gap with the skills of migrants – which in turn is dependent upon having a well developed competency and certification framework. This is discussed further below.

#### *Developing well qualified ICT professionals*

IPENZ is commencing the development of a national technical skills plan and has formed a taskforce to initiate this plan. The plan will ensure the adoption of internationally benchmarked graduate profiles and programmes, and ensure the distribution of technologists across disciplines to meet the demands of industry sectors. This plan will include ICT professionals and its development should be recognised in the Digital Strategy. This plan is being co-ordinated by IPENZ and the taskforce includes representatives of the relevant government departments, industry and tertiary institutions. The plan is targeted for release late in 2008.

In addition IPENZ is associated with, and supportive of, the New Zealand Computer Society's (NZCS) proposals to research and implement an ICT competency framework.

The framework and subsequent certification programme will be closely aligned with international practices and will leverage off the United Kingdom Skills Framework for the Information Age (SFIA). This provides a method to map an individual's skill level against a set of internationally relevant standard levels. It defines both the technical competence of an individual, and the competency standards required for a particular job specification.

### ***Reforming tertiary education***

IPENZ believes that it is critical to align tertiary education with the needs of ICT employers. A best practice example is the Canterbury ICT cluster. This involved assisting enterprises to identify their current and ongoing skill requirements, articulating these to Tertiary education organisations and providing ongoing mechanisms to enable greater alignment between education providers and industry requirements. It is suggested that this regional approach should be replicated in other major regions.

It is also important to recognise that, while the ICT industry requirements are dynamic in nature, there can be very significant changes in five years, and the tertiary education system needs to ensure students have the basic skills in ICT principles. This will ensure that the core competencies remain current and are transferable to the changing environment.

### ***Implementing the digital technologies framework***

IPENZ is actively involved in providing technology related resources. IPENZ runs the Futureintech programme (on behalf of the Ministry of Education) which was set up to increase participation of students in science, engineering and technology education. The programme involves working directly with schools, industries and universities to help ensure that technology, maths and science teachers have the right resources to inform school students and promote study to the tertiary level. IPENZ also has a contract with the Ministry of Education (Techlink) which involves preparing curriculum support material for technology teachers.

It is imperative that these programmes continue to be supported.

### ***Delivering the New Zealand curriculum technology learning area***

IPENZ supports the learning areas approach for technological literacy, and believes that it is important that specialisation by students too early is avoided, as it can restrict choices and career paths. By the time students reach Years 12 and 13 we believe that the three technology subject areas of "ICT and electronics", "manufacturing and construction" and "processing" should be available. IPENZ has made a submission to the Ministry of Education on Schools Plus to this effect.

## **On CONTENT**

### **Content**

One of the keys to incentivising private sector investment in fibre-optic, satellite and wireless broadband is to address the content issue to provide a reasonable return on investment. The challenge is to open up and expand the content market in New Zealand, so that content which New Zealanders are willing to pay for can be delivered over any medium, into homes and businesses.

This means moving away from the current highly broadcast nature of content, with relatively little interaction, into a world where users access content on demand, when they want it and where they want it, with a high degree of user interactivity. The Digital Strategy has insufficient initiatives to achieve this goal.

IPENZ also encourages the Government to think carefully about new ways in which New Zealanders could access the most popular types of content – sport and movies. Currently distribution rights are tied up in the hands of three or four players. Furthermore, most of this content is in a form which is not easily made highly interactive, and because most of these players use a broadcast media for distribution, they want to hold onto the content in this highly restrictive format. This is not the format which is most suited to distribution over a broadband access medium, and while the content is tied up in this manner, highly functional broadband will have a limited take up in New Zealand.

## **On COLLABORATION**

### **The overarching sector forum**

As a membership-based organisation IPENZ has a culture of collaboration and works with many industries, professions, collaboration societies, and technical and special interest groups.

IPENZ supports the overarching Sector Forum and looks forward to leading and co-ordinating the contribution of the engineering profession. In the experience of IPENZ the best form of sector leadership is a strong business association working in parallel with a strong technical body acting as the standards setter. The model for this in the engineering profession is the Association of Consulting Engineers New Zealand (the business association) and IPENZ (the standards setter).

IPENZ has yet to consider what might be the most beneficial way to contribute to the activities of this Sector Forum. However, in the interim IPENZ is supporting the NZCS's proposals to research and implement an ICT competency framework and subsequent certification programme.

IPENZ also works with other related organisations in the ICT field – the Electrical Engineers Association, and the New Zealand Chapters of the Institute of Electrical and Electronics Engineers and the Institute of Engineering and Technology.

## **Conclusion**

IPENZ would like to thank the Ministry of Economic Development for the opportunity to make this submission and look forward to working with the Ministry on its implementation.