Green

Smart Green ICT

Green Party election priority

Cleaner Environment
Fairer Society
Smarter Economy

Green

Green Party of Aotearoa New Zealand

Introduction

Innovation lies at the heart of a smart, green economy. A smart economy is one which has well-paying jobs and allows the environment to thrive. A smart economy is jobs-rich, fair, and innovative. It produces less pollution, uses fewer resources, is mostly New Zealand owned, and is in good financial balance with the rest of the world.

The Information and Communication Technology (ICT) sector can make a significant contribution to a thriving, smarter New Zealand. The ICT sector can have an operating environment in which it can flourish. We can invest in talent, championing local industry and supporting ICT as a core part of the smart green economy.

The ICT sector is a high wage sector which has a light environmental footprint. Exporting ideas and bytes is a great way to overcome the constraint of isolation that New Zealand faces.

Investment in ICT also has paybacks in other sectors of the economy. For example, a United States study has found that well connected rural regions performed better economically.[1] By promoting a greater exchange of ideas and increasing the adoption of new farm technology, the internet will enhance New Zealand's agricultural competitive advantage. This paper focuses on the ICT sector, but the benefits will spill over to the whole economy.

The Green Party has a proven track record when it comes to ICT. We led the way calling for the much needed second undersea fibre optic cable, a chief technology officer, internet rights and freedoms as well as work on copyright and software patents.

Summary

The Green Party will help secure the long-term prosperity of New Zealand by supporting investment and innovation in the Information, Communications and Technology sector. We will nurture the innovation ecosystems that support successful translation of bright ideas into successful companies.

The Green Party will:

1. Help address the skills shortage by
   - working alongside industry to support internship programmes to grow New Zealand's pool of talent
   - providing more funding for PhD and Masters scholarships in disciplines that support ICT
2. Create a Game Development Fund to support New Zealand's game development industry to grow
3. Help provide an operating environment for business to thrive by
   - ensuring Government ICT procurement supports local businesses
   - increasing funding of R&D via tax credits
4. Create a Chief Technology Advisor to provide independent advice to government on technology issues

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Situation

A thriving ICT sector brings many benefits to the New Zealand economy – from more well paid jobs to increased overseas export earnings. New Zealand can benefit from this internationally high growth area.

The Government's sector report produced by the Ministry of Business, Innovation and Employment[2] identifies the ICT sector as contributing five percent of GDP and employing 73,392 New Zealanders. That's double the equivalent figure of GDP contribution and about ten times as many people employed as in mining.[3]

The number of people employed in Information Technology (IT) Services in New Zealand had an annual growth of 3.4 percent over the last ten years.[4] Looking at the companies categorised as Computer System Design, this increases to 5.2 percent,[5] and wages and salaries in Computer Systems Design are twice the New Zealand average and are growing more rapidly.

While there is a deficit of exports of computer and information services compared to imports, exports have grown faster than imports. Exports of IT services have grown at ten percent per annum since 2002.[6] While there are already many success stories there are still barriers to the sectors growth.

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*We can only see a short distance **ahead**, but we can see **plenty** there that needs to be done.*
    - Alan Turing, father of modern computer science

The skills shortage

The National Government's own reports identify the skills shortage in the ICT sector as one of the sector's main challenges.[7] This is also

backed by evidence from the sector,[8] and is reflected in the fact that ICT jobs are included on the long term skill shortage list.[9]

Businesses face difficulties recruiting staff. The Statistics New Zealand Business Operations Survey 2012[10] found half of Computer Systems Design companies found it difficult to recruit managers and skilled staff.

The cost and the lack of appropriate personnel and management resources were two of the main barriers to exporting cited by businesses.

While the digital economy contributes between $1 billion and $2 billion of exports to the New Zealand economy, we can do better by reducing the barriers, like the skills shortage, that many firms face. More exports means more jobs for New Zealanders.

Lack of Government Support

Two main areas where support is lacking are government procurement and government use of Open Standards. Current procurement policies are indifferent to the local ICT sector, resulting in the purchasing of proprietary software from foreign companies.

The Government's approximate $2 billion annual IT spend could play a key role in developing the local industry. Local IT companies are cost effective, with a 25-35 per cent cost advantage over Australian companies and larger cost advantages compared to the United States or United Kingdom.[11]

The opportunities of Open Standards and Open Source

Open Standards mean that data is stored and formatted in a way that is clearly defined and accessible, and preserves access to the data. In contrast, a proprietary format allows one company to control the data, reducing the ability of competitors to offer solutions. For example, the US's federal courts' online public access system has recently removed access to many case files due to a software upgrade, leaving some cases filed as recently as 2012 inaccessible via the web.[12]

The use of Open Standards facilitates breaking contracts into smaller components, reducing barriers to local companies competing for government contracts.

The UK is currently undergoing a process identifying challenges users of government services face and how Open Standards can help to break down barriers to solving these problems.[13] In the US the White House has just implemented a new US Digital Service which advocates open standards by default.[14]

Open Standards also enable easier opening up of data to enable more value to be derived from it. Innovation that adds value to existing government data sets also provides valuable information to New Zealanders. Whether it is GeoNet making available seismic data, or local councils making available public transport information including real time data – making it easier for people to catch a bus.

Open Standards are only part of the solution. Open Source solutions can enable local companies to benefit but can also result in cost savings. The French Government has issued guidance to all government administrations on how to identify situations where utilising free and Open Source software solutions can lead to significant cost savings.[15]

By structuring government contracts to enable local ICT companies to benefit, and facilitating access to government datasets, we can build a base for companies to grow more exports.

Connectivity

New Zealand is reliant on a single fibre optic cable system connecting us to the rest of the world. This vulnerability is an issue for the entire New Zealand economy, not just the ICT sector. Reliance on a single provider for our internet means higher prices,[16] data caps, and less innovation for services.[17] In time, international capacity will also become an issue. And a single cable system means that our link has less resilience. If the cable breaks or a technical fault occurs (as it did on November 9, 2012) then New Zealand may remain disconnected from the rest of the world until the connection is repaired.

Solution

1. Addressing the skills shortage

We need to enable more people to pursue a career in IT, and support education and retraining.

The Green Party will:

1. allocate $15 million over three years to support internship programmes in partnership with industry and the tertiary sector[18]

2. provide new funding for PhD scholarships in Computer Science and Information Technology

3. increase funding for industry-based and co-funded Masters and PhD programmes

4. create a special officer within Immigration New Zealand to advise and support entrepreneurs who want to move to New Zealand and include a new points category for immigrants who can attract local venture capital demonstrating a market value for their startup.[19]

Tech Internships

Working with ICT companies a Green Government would assist businesses by funding Tech Interns to assist in developing real world, business-ready skills to contribute to growth of the sector.

Internships will focus on providing work-ready graduates, making it easier for the sector to access talented developers. We will work to

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Summer of Tech

Founded in Wellington in 2006 the Summer of Tech programme provides students with real world skills and helps businesses source top talent from local tertiary institutions.

Two out of three students end up hired, and the programme has extended beyond software development to manufacturing businesses looking to incorporate technology into their products.

The programme involves a ten week internship between November and February as well as CV clinics, site visits and boot camps throughout the year. Students receive at least $20 an hour. Since 2006, Summer of Tech has created over 300 IT jobs.

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ensure the programme promotes diversity in the sector.

Entrepreneur Internships

The Green Party will establish a pilot internship programme supporting students to capitalise on their ideas and develop them. The scheme will partner with the tertiary sector and industry to provide opportunities for students to explore creative new ideas while gaining experience in the real world.

The pilot programme will focus on fostering new startups and give students the opportunity to take a semester out of formal training to gain experience. Students will receive a basic income equivalent to the student allowance, and be partnered with an industry mentor. Additional funding will be available to students meeting agreed project

milestones. In return for the state support, criteria for acceptance will include preference for projects with a public good.

Investing in Graduate Students

As previously announced in the Green Party's Smart Green Innovation plan, the Green Party will fund additional places at tertiary institutions for students of engineering, mathematics, computer science, and the physical sciences. The money will be made available to universities but we will respect the autonomy of universities' decision making as to whether they offer the places.

2. Game Development Fund

The Green Party will establish a Game Development Fund. The Fund will support New Zealand's game development industry to grow further. While the sector has done well to date, it is facing constraints. The Fund will ensure that New Zealand doesn't miss out on lucrative weightless exports and help provide an environment for the sector to thrive.

Like the Premiere Pathways and the previous Premiere Shorts programme support for building talent within the Film Industry, the Fund will ensure that more Game Developers make an effective transition to commercialising their products.

The Fund will initially be capped at $1 million, increasing to $5 million annually. Funding will be finalised in consultation with the sector. This fund will play a role in supporting a healthy ecosystem for innovation and will be in addition to the already announced $10 million to provide seed funding for social enterprises.

New Zealand's games developing success

New Zealand made games earned over $80 million in 2013. 200 new hi-tech jobs have been created in the last three years in the industry. 90 percent of earnings from export of games are exported via the internet.

Access to capital is a key growth constraint for new interactive game productions, as well access to skilled staff.

Source: New Zealand Game Developers Association

The Fund will support creative projects, including but not limited to interactive multimedia productions/games, development of mobile applications and other projects utilising interactive multimedia.

3. Championing local business

A Green Government will be a champion of local business. The Green Party will:

1. require government agencies to report on how much of their current IT spend is going to local companies
2. ensure government ICT contracts consider the wider benefits to New Zealand of supporting local businesses
3. require all projects to use vendor neutral, royalty-free Open Standards, and encourage the use of Open Source where appropriate

We propose that government agencies be required to consider the wider economic benefits to New Zealand of supporting the local ICT industry when making purchasing decisions.[20]

As a first step towards developing awareness, government agencies will have to measure how much of their current ICT spend is going to local companies and report on it. Government agencies will be required to use Open Standards for new projects and use Open Source software, where possible. Open Standards support interoperability and cloud computing.[21] Open Source software can be cheaper and more secure, and empowers smaller New Zealand providers to bid for the work.

4. Chief Technology Advisor

The Green Party will create the new role of a Chief Technology Advisor. This will mirror the Chief Science Advisor role and will be a champion for technology and the Internet economy. The Officer will research future challenges, opportunities and risks facing New Zealand's digital future; recommend strategies for bridging the digital divide; promote sustainable ICT products and services; increase access for disadvantaged groups and recommend best practice guidelines for the ICT industry.

5. Research and Development

As previously announced in our Smart Green Innovation plan, the Green Party will invest a further $1 billion into Research and Development. This investment will both benefit companies in the ICT sector directly and companies that play a role providing infrastructure and capacity for other New Zealand businesses who harness this funding for innovation.

Along with the investment in Research and Development, the Smart Green Innovation plan includes a package of measures to support startups.

6. Second Undersea Fibre Optic Cable

It's important that New Zealand is not constrained by the lack of a second fibre optic cable. If the private sector is not able to ensure New Zealand is able to complete a second cable the Green Party will explore how the Government could support the construction of one.

Costs

Revenue impact ($M)	2014/15	2015/16	2016/17	2017/18
Internships		4	5	6
Chief Technology Advisor		1	1	1
Game Development Fund		1	3	5
Government Procurement Support		1	1	1
Total		7	10	13

Table 1: Costs for previously announced components of this package can be found in the Green Party's fiscals plan.

Sources

[1] P Stenberg, et al. (2009). Broadband Internet's Value for Rural America

[2] Page 10, The New Zealand Sectors Report 2013. Featured Sector. Information and Communications Technology
http://www.mbie.govt.nz/pdf-library/what-we-do/business-growth-agenda/sectors-reports-series/sector-report-information-communication-technology.pdf

[3] Page 10 http://www.mbie.govt.nz/pdf-library/what-we-do/business-growth-agenda/sectors-reports-series/Petroleum%20and%20Minerals%20Sector%20Report%202013.pdf

[4] Page 29, Page 41 New Zealand Sectors Report 2013: Information and Communications Technology

[5] New Zealand Sectors Report 2013: Information and Communications Technology

[6] Page 63, New Zealand Sectors Report 2013: Information and Communications Technology

[7] Page 5, http://www.mbie.govt.nz/pdf-library/what-we-do/business-growth-agenda/sectors-reports-series/sector-report-information-communication-technology.pdf,

[8] Page 3, http://www.candle.co.nz/GetWhiteLabelFile.aspx?whiteLabelFileID=24481

[9] Page 14, http://www.immigration.govt.nz/NR/rdonlyres/063ECB35-F5D5-44D8-8325-7041A727A9D5/0/INZ1093.pdf

[10] Last time this package of questions was included in the survey.

[11] Page 1, http://nzrise.org.nz/assets/Uploads/Catalyst-2.0.pdf

[12] http://www.voiceofoc.org/county/article_e8545e4a-2cd0-11e4-91e6-0019bb2963f4.html

[13] http://standards.data.gov.uk/

[14] http://e-pluribusunum.com/2014/08/11/white-house-formally-launches-u-s-digital-service-publishes-open-source-playbook-on-github/

[15] http://opensource.com/government/12/11/france-latest-fully-embrace-open-source

[16] New Zealand Herald, 06 Nov 2012, D20, Markets now just a click away

[17] Sarah Putt, Editor, Computer World NZ, RadioNZ, August 2, 2012.
Retrieved from: http://www.radionz.co.nz/national/programmes/ninetonoon/audio/2526937/new-technology-with-sarah-putt.asx

[18] We estimate that this funding could support at least 100 fully funded internships at a level of the student allowance, including the ability for milestone completion payments to raise the effective wage to $20 an hour and 200 internships in partnership with industry at $20 an hour.

[19] In 2013, Canada launched a new immigration programme offering residency for high-tech entrepreneurs who have secured C$75,000 of local angel investment in their start-up company.

[20] Economics New Zealand Ltd (2011), The Benefits of Local IT Procurement.
Retrieved from: http://nzrise.org.nz/assets/Uploads/Catalyst-2.0.pdf
local-IT-procurement.pdf

[21] The UK has taken the lead on open standards. Refer to http://www.cabinetoffice.gov.uk/news/government-bodies-must-comply-open-standards-principles