



Partnering in R&D to deliver innovation

Presentation to the
Metals NZ Industry
Conference

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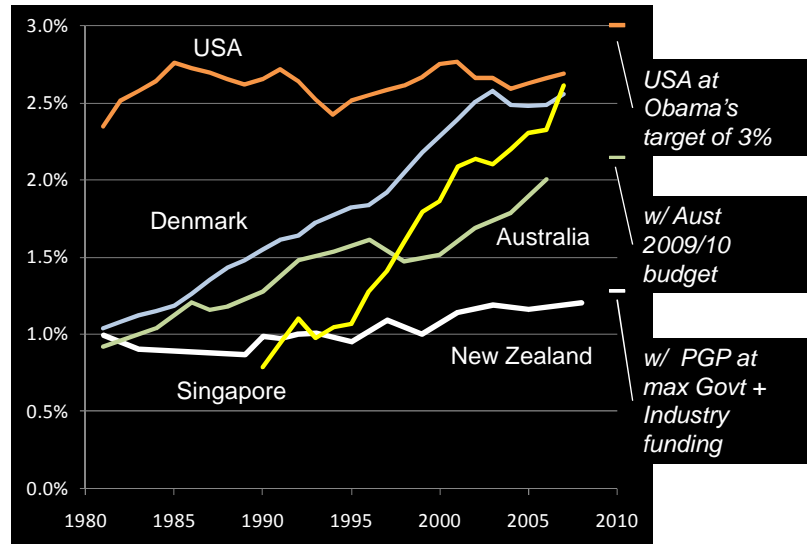
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Challenges for NZ Industry

- **Manufacturing's global competitiveness is now determined by:**
 - Customised and dispersed production through co-creation;
 - Its environmental footprint;
 - Effective management of local and global supply chains;
 - Shorter time to "best product" ('faster prototyping');
 - More efficient manufacturing operations; and
 - Development and management of related product services
- **NZ industry needs both R&D services and support to develop capability**

Countries increasing investment in R&D



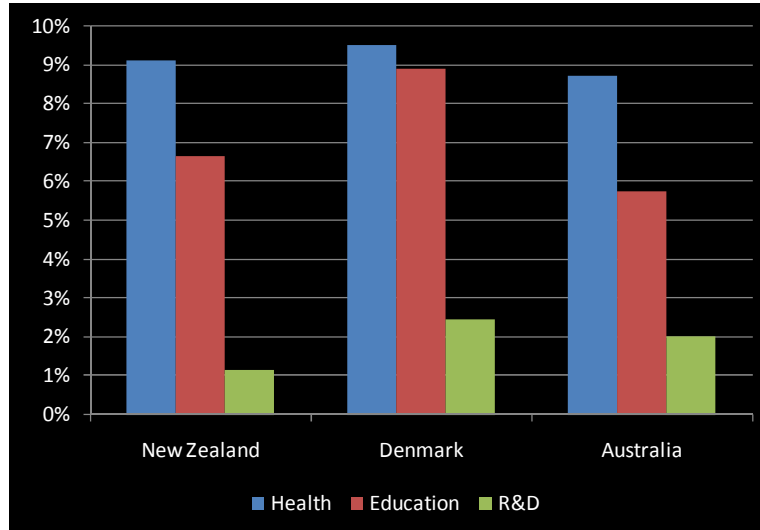
[Sources: gross expenditure on R&D and GDP data – OECD.Stat, except: Singapore data before 2000 – National Survey of R&D in Singapore (2004); NZ data for 2008 – Statistics New Zealand Research & Development Survey 2008]

Financing R&D

Investment in R&D as % of GDP

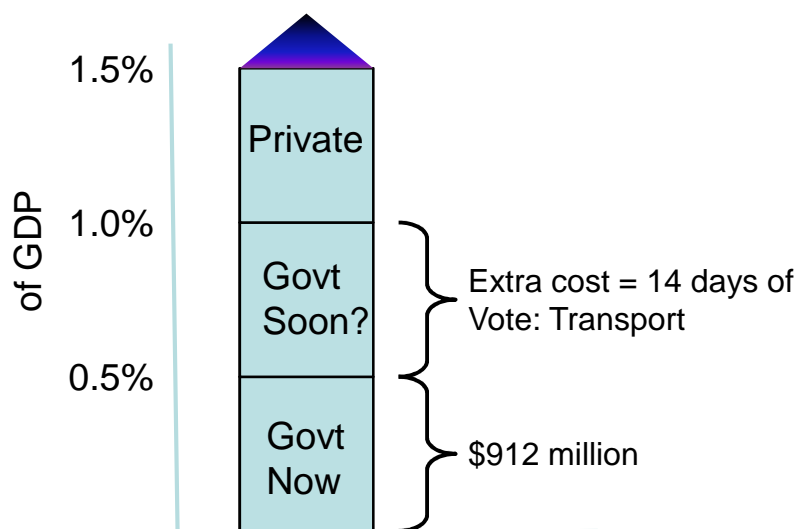
| | Total | Govt | Private |
|-----------|-------|------|---------|
| OECD | 2.3 | 0.65 | 1.5 |
| Denmark | 2.6 | 0.70 | 1.5 |
| Singapore | 2.6 | 0.91 | 1.6 |
| Australia | 2.0 | 0.77 | 1.1 |
| NZ | 1.2 | 0.51 | 0.5 |

... and it doesn't stack up



[Source: OECD.Stat – data are for 2005]

Increase Govt investment in R&D to 1% of GDP and lever private investment



Bachelor's degree level output in New Zealand – 2007

| Subject | EFTS | % of total |
|------------------------------|------------|--------------|
| Agriculture | 290 | 0.31% |
| Horticulture and Viticulture | 53 | 0.06% |
| Forestry Studies | 51 | 0.05% |
| Biological Sciences | 4834 | 5.17% |
| <u>Chemical Sciences</u> | <u>931</u> | <u>1.00%</u> |
| <u>Physics and Astronomy</u> | <u>757</u> | <u>0.81%</u> |
| Studies in Human Society | 5699 | 6.10% |
| Communication and Media | | |
| Studies | 2958 | 3.17% |
| Performing Arts | 1902 | 2.04% |

Crystallising the NZ “innovation problem”

- Insufficient innovation in the economy
 - Need more private firm involvement in innovation
 - Doing and/or funding R&D and/or product and process development
 - Need more firms “at scale”
 - Need to grow private sector capability to innovate
 - Technical and business skills
 - Need better infrastructure for innovation
 - It’s about established firms, not just start-ups
 - Need to leverage capabilities



The Countries: common themes

- A technologically well-educated and skilled industry sector (talent growth)
 - Strong emphasis on science and engineering in the education system
- A “national vision”
 - Clear articulation of the agenda
 - Comfort with the concept of “picking winners”, more correctly narrowing the focus
- Government as a key driver and direction setter
 - With strong industry, community and sectoral input
 - High level advisory mechanisms/councils



The International Institutes: common themes

- Fostering and integrating capability
 - Industry access
- Application research and development
 - *Targeted at exploiting an opportunity or solving a problem*
 - Not concerned with differentiating pure, basic or applied research, but selecting the appropriate research for the task
- Grow of individual firm capabilities
 - Flow of staff into industry
- High levels of discretionary/core funding devolved to Institutions



Opportunities for NZ

- Policy – need clear national aspirations/priorities
 - This can address the issue of multiple agencies
- Fewer organisations? – perhaps
 - BUT Mandate a “front-door” organisation to build a “no wrong door” culture and the consolidation will follow
 - Act as a single culture – “NZ as a single city”
- Increased interactions between CRIs and business
 - Incentivise industry to invest
 - Greater level of discretionary funds for IRL to LEVERAGE industry (co-investment mindset)



The IRL proposal

- NZ needs a lead agency to champion technological innovation, deliver industry development, and enhance technological capabilities of individual companies
- *The cost-achievable way to create the new enterprise is fast organic growth from the IRL platform into **an Advanced Technology Research Institute***
- ATRI should engage industry in all aspects of it's operation: the dominant mindset should be to work WITH industry



The purpose of ATRI

- ATRI is an advanced technology research enterprise undertaking application R&D, providing services to industry and assisting government in executing innovation and economic growth policies by fostering industrial technology capabilities



What are the strengths IRL can bring to the table?

- Understanding the business value of technology
- Aligning technology outcomes with business models
- Seeing the biggest vision for business
- Bringing together the business ecosystem around technology
- Aligning people and partners to the cause
- Getting our hands dirty if needed to make it happens
- Making it easier for industry to innovate
- Working with industry
- AND a knowledge that we – IRL – can do better

