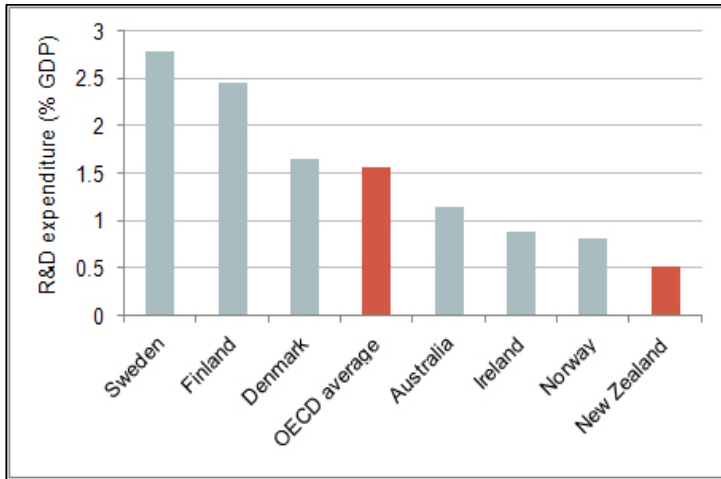




Commercialisation of publicly-funded research

The level of public investment in Research & Development (R&D) in New Zealand is relatively low by OECD standards. However, private sector investment is even more concerning — at only 0.51% of GDP, this is less than a third of the OECD average and places New Zealand around the bottom of the OECD rankings.



*Private sector R&D expenditure in selected OECD countries in 2006.
Plotted from data in Statistics New Zealand (2009). Research and Development in New Zealand: 2008. Wellington.
New Zealand data derived from 2008 reference year.*

There are some understandable underlying reasons — in other countries, the defence and pharmaceutical industries are big investors in, and users of, R&D, and those sectors are barely represented in New Zealand. Also, New Zealand has a high proportion of smaller companies which tend to spend less on R&D.

One may wonder why we should be overly concerned. After all, New Zealand scientists are productive — internationally speaking we have one of the highest rates of publications per research dollar spent. Our entrepreneurial spirit is also reflected in one of the highest rates of start-up companies in the world. Surely we cannot reasonably be expected to top every league table?

Nevertheless, the OECD recently commented on the “low rate of collaboration and ideas flowing from universities and research institutions to business” in New Zealand. The reality is that New Zealand’s economy has been declining over the past few decades. We used to surpass Australia in per capita income but we now trail them by 30%, and we languish in the bottom half of the OECD in various economic and social indicators.

The low level of R&D investment is of major concern because such expenditure is strongly linked to economic growth and productivity.

There is increasing recognition that the public and private R&D sectors are collectively essential to accelerating New Zealand's development, and to promoting a trajectory towards enhanced innovation and productivity growth. It is therefore important to consider how to improve the *transfer of knowledge* from the public research system (which primarily comprises the universities and the Crown Research Institutes) to the private sector.

Previous discussions have largely centred around business 'pull' — that is, how industry might draw research out of the public sector. Currently, New Zealand supports business uptake of research in two ways: through discretionary grants (targeted funds to perform research), and through our public sector research system which, relative to other countries, is particularly end-user focused. Some other countries also use non-discretionary systems such as tax concessions that allow research costs to be offset as a business expense. Clearly, the need for finding the optimal way of providing both discretionary and non-discretionary support merits reflection.

But business assistance alone will not address all aspects of the problem. For example there is also need to give attention to the other dimension, namely how to improve the 'push' from the public sector to the private. Are there appropriate incentives in place for organisations and staff that undertake public good research?

Other factors to be considered include the following:

- New Zealand has not had a strong history outside agriculture of research-based commercial development, and the investment horizons of New Zealand business tend to be short.
- The absolute volume of public sector research in New Zealand is low, and this may limit the capacity for 'ideas flow'.
- The cultures of science and business are inherently different. The timescales and linearity of their interests are different, and the motivations, performance measures and incentives for scientists in the public sector and those of business are very distinct. There is a need to develop and institutionalise ways of bridging these cultures.
- Technology transfer, that is the translation of science to business, is a particular skill which is in scarce supply in New Zealand. Other countries adopt several different approaches to deepen and integrate that skill.
- The relative lack of pre-seed, seed and venture capital, and the complexity of the systems for accessing it.
- Uncertainty over the role of open versus closed innovation in commercialisation and exploitation.

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Given the complexities and multi-faceted nature of the problem, the Chief Science Advisor has been tasked with taking an overarching view of the issues, and making recommendations on how to improve the linkages between the two sectors.

A workshop chaired by the Chief Science Advisor was held on 14 September 2009 in Wellington, where he sought the views of key representatives from various stakeholder communities, including the Crown, CRIs, Universities, businesses, and the business investment and technology transfer communities focused on finding practical solutions to an important problem. The outcomes and recommendations arising from the workshop will soon be reported to the Prime Minister.