

## Lifting innovation ecosystem performance

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New Zealand's economic performance needs a step change improvement. Although economic prosperity, as measured by real GDP per capita has grown, on average, by around 2% per annum since 1990, New Zealanders earn around 20% less than the OECD average and we are not catching up.

The prosperity of advanced economies is driven by innovation performance, which is why there are several reviews of New Zealand's R&D industry in progress. Actions resulting from these reviews will improve economic outcomes most effectively if they address the four important obstacles to success discussed below.

Innovation contributes to improvement in productivity per hour worked and to the formation of new businesses that can improve New Zealand's export performance and wealth. New Zealand's innovation ecosystem is already contributing. The Technology Investment Network's TIN100 to be released in two weeks estimates that the top 100 technology companies produced overall revenues of \$6.6 billion in 2008/2009, with \$5.1 billion exported. These companies contributed over 23,000 jobs with average revenue per job of \$280,000. They are growing.

Research conducted by the New Zealand Institute shows that the innovation ecosystem could contribute much more. New Zealand's R&D spending per capita is well below average for the OECD. Despite an increase in effort over the last decade, New Zealand has a relatively poorly performing innovation ecosystem and is not yet making as much effort as other small countries that are seeking advantage from innovation.

Science provides the foundation of an innovation ecosystem. Skilled graduates, research contracts, technology licenses and launch of new businesses all flow from an effective science infrastructure.

A successful innovation ecosystem has two important parts: the research facilities that produce the scientific output, and the business organisations that develop products and services for launch in international markets. The performance of the whole is only as good as the performance of the weaker part. Increasing output from the research units will only be sufficient to deliver a large economic performance lift if commercialisation performance is world class.

In recent years, many institutions that support the commercialisation part of the innovation ecosystem have been established in New Zealand: for example research commercialisation units, incubators, angel networks, and venture funds. We now have an innovation ecosystem with all the required participants and at best, the commercialisation of our innovation ecosystem is working well. However, the average performance is not reliably at the standard required due to four obstacles.

First, the larger and longer established commercialisation units perform relatively well but smaller ones need to be aggregated to achieve the critical mass required to field the wide range of skills

necessary. Further, performance measures and incentives do not provide sufficient encouragement to form businesses so New Zealand is not creating as many firms with potential to become substantial exporters as it could.

Second, go-global businesses, those targeting international markets from inception, require skilled and experienced leaders, international marketers and boards. But there has not been time yet to accumulate the required talent in sufficient quantities and not enough effort to address the shortfall. The opportunity is to accelerate talent growth so the talent is looking for research with commercial potential as it does in successful innovation ecosystems, not the other way around as frequently happens in New Zealand.

Third, voice-of-market needs to be louder. The markets for our innovations are physically distant from New Zealand and therefore expensive and time-consuming to visit. Research organisations and start-up businesses usually have limited funds and plenty to do so there is an understandable temptation to get on with completing the research and developing the offer so revenues can be secured sooner, and before funds run out.

Investors report seeing hundreds of proposals where a scientist or entrepreneur has developed a product but has done no research to confirm whether or not there is a market for that product. The result is that when we approach customers the offer is often not what they need so another round of development is required. The solution is simple; we need to hear the voice-of-market much earlier and more strongly in the development process.

Fourth, more domestic expansion capital is needed. When our companies have gained a toe-hold in international markets they usually need capital for expansion. It is almost taken for granted that the source of capital to grow go-global firms will be international capital markets.

In some cases international equity sale is necessary to secure channels to market or high quality business guidance. However, these inputs would more often be available without equity sale if our local innovation ecosystem was larger, more skilled, better connected and better capitalised.

One important reason why businesses are sold is that there are insufficient sources of later stage capital available within New Zealand. There is nothing inherently wrong with overseas ownership of these firms but, all other things being equal, it is better for the ownership of a successful international business to remain in New Zealand hands. Policy adjustments are required to encourage investment in productive assets, especially those that can help improve the current account, and to reduce the risks that limit the flow of equity and debt capital to expanding go-global ventures.

Ensuring that commercialisation units are at minimum sufficient scale, ensuring sufficient talent is available, listening more to voice-of-market and increasing the availability of domestic expansion capital will improve New Zealand's innovation ecosystem. The innovation ecosystem will then contribute more to higher productivity, a stronger current account and economic prosperity.