



Speech on Science and Innovation at the 2010 Bayer Innovators Awards, in association with the National Business Review

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I want to thank Bayer and the *National Business Review* for inviting me to speak tonight.

If one looks around the world at other small countries that claim to be part of the developed world, many of them have done remarkably well through recent economic times. Further, all have, in marked contradistinction to New Zealand, been characterised by significant growth in productivity, GDP and in many cases overt changes in national ambition and mood and the development of a deep understanding of what an innovation ecosystem requires. Think of countries like Denmark, the other Nordics, Israel, Singapore and South Korea. And while I want to focus on innovation that directly drives economic growth through the development and application of knowledge, let me be the first to emphasise that innovation is essential in many other domains, in our social system, in the creative arts, in the way we run business and so forth.

And what has distinguished these countries from New Zealand has been their sustained, two decade long, increase in both public and private investment in their research, science and innovation ecosystem. Each of these countries has a two-to-three fold greater investment in research and development than we do, yet all were investing no differently to us in 1980 and Denmark, for example, had very similar productivity figures to us at that time.

Economic researchers are pretty unanimous in showing that in the 21st century, investment in R&D is the necessary precursor to sustained economic development and all its associated social and environmental benefits. But the evidence must, by definition, always be correlative and that leaves room for the doubters. The problem is that, for obvious reasons, there can be no controlled experiment to measure the effect of investment in science and innovation, but New Zealand comes as close to being the control as there can be. Those other countries have succeeded in growing, but we have not. Even in the global down-turn, countries with no natural resources other than clever people and a well-developed innovation ecosystem thrived. Look at Israel, at Singapore. The small countries I have listed, as well as many of the much bigger ones, have doubled, tripled or in the case of some, quadrupled, both public and private investment in the innovation space over the past couple of decades and they have thrived.

The reality is that, until now, we have not really shifted the level of our investment in the sector in two decades. Any apparent increase in investment until the last year has basically been inflationary adjustment. We spend little more than 0.5% of GDP on RS&T from the public purse – a simple comparison suggests countries need to spend at least 0.8% from the public purse. The private sector comparison is even more dismal. There have been arguments about chicken and egg – that one needs private sector investment to justify more public sector spend and vice versa – but I think the analysis suggests the key role of the government in taking the lead. It is like building a hydro dam – unless there is water flow, building a dam and a transmission system can have no value. That there is coalescence around the level of state investment at about 0.8% GDP in comparator countries suggests that there is an inflection point whereby the value of the state investment primes the pump enough for the private sector to take off.

But what should governments do? What is their contribution to the innovation chain and ecosystem? They must ensure a well-trained workforce, equipped to live in an innovative society. They should identify and encourage those individuals with the particular set of talents that drive innovation. They must ensure an appropriate public science system capable of generating a flow of exploitable ideas from universities and research institutes. They must ensure that the public research sector becomes better linked to the private sector in the transfer of knowledge skills and ideas. They must ensure that the incentives are in place to allow the private sector to take research to scale, and by that I mean export-based scale that will return real returns to New Zealand.

What we have seen over the past two years are some steps in that direction – absolutely critical first steps. We have seen the setting of new priorities in research outcomes and capability development. We have seen initiatives to connect the Crown Research Institutes more firmly with their sectors of the economy. We have seen new investment in business research and development and in technology transfer. The right questions are being asked, the right dialogues are occurring. Structural barriers are being confronted. But some would argue that New Zealand is different – we are too small, we are too far from markets, we do not have the capital, and we cannot compete in the knowledge world. A few would even argue that research led innovation does not drive wealth, rather it follows wealth. I would disagree, rather aggressively, with each of those statements. We may have to be clever in how we address these challenges but Israel, Denmark, Singapore all have rather equivalent challenges and have met them.

Perhaps our biggest challenge is mindset – in the knowledge world, being a member of the first world means being a net generator of knowledge and being a member of the second world means being a net consumer of knowledge. We have no choice in that challenge. Secondly, we have to be smart about how we go to scale; this may mean developing radical new models. Do we really think that lots of small start-ups working in isolation will create 20 new Fisher and Paykel Healthcares or do we need to aggregate expertise in areas where special knowledge is needed, such as in the biotech space?

We may need to think about our exploitation path differently. We are good at novel idea generation, and that is a skill we are celebrating tonight. Perhaps we should also be looking at much earlier stage partnerships with other countries to exploit our knowledge, learning from them, accessing their networks, while retaining substantive value here. This may be much more effective.

Underneath all of this is the role of culture change – moving from national mythologies about ‘living off the sheep’s back’ and ‘number 8 fencing wire’ and ‘punching above our weight’ to the recognition that we simply must foster and support intellectual and entrepreneurial talent. We need to get beyond the parochialisms and jealousies that result in the tall poppy syndrome in RS&T space. Such is the importance of tonight. We are here to celebrate people and companies that are thinking outside the square. Such people and companies will key to sustaining our future. That Bayer and the *National Business Review* recognise the importance of this sector to our future is critical. The Prime Minister and Cabinet have already demonstrated that they see a central role for science and innovation in shifting this country ahead. However, it will be a difficult challenge in a world where balancing strategic versus tactical decision-making is always an electoral tension for the politician. And it is even more difficult because building an innovation ecosystem will take a decade, the returns will not be obvious until then, and cannot be hostage to political fortunes.

But national consensus is emerging. We can be a clever, innovative and much richer and much more ambitious country. It will require government, academia and business to make the most of the raw talent we have here, to fill in the gaps and thicken our innovation ecosystem. I suspect quite different and innovative approaches are needed given our size and position in the world and the long investment gap we have to make up.

But opportunities abound; those we celebrate tonight are evidence of that.

Thank you very much.