

By Gerd Winter

Vision for a smart future

In most leading OECD nations science and industry are understood as partners fundamental to economic well-being and prosperity. For many in Australia, however, science and commercial enterprise still form an odd couple. Professor Peter Andrews, the current Chief Scientist of Queensland, has spent much of his professional life trying to change all that.

His involvement with industry started off in the mid 80s, when he took part in the development of Zanamivir - now licensed by GlaxoSmithKline as 'Relenza' - the first-in-class inhibitor for the treatment and prevention of influenza, and the first major success of the drug company Biota. CSIRO's Peter Coleman had identified a highly conserved active site on the otherwise highly variable viral surface-enzyme Neuraminidase. However, he failed to convince international pharma companies to invest in developing a universal influenza drug, widely regarded as impossible. The turning point was when Alan Woods, a Sydney angel investor, became interested and invested in the project - "in a very selfless way," as Andrews says. Woods, Coleman and Andrews, then Dean of Chemistry at the Victorian College of Pharmacy, committed to designing an inhibitor targeting the conserved Neuraminidase site, which was then carried out by Mark von Itzstein, who had come to the College as a postdoctoral fellow in 1986.

The commercialisation of research back then, however, "happened in the context of a community at large on either the research side or the business side that was far from entrepreneurial," says Andrews, adding: "That has very slowly changed."

Andrews has been at the forefront of this change, particularly in Queensland, where he moved, first to the private Bond University and then, after bankruptcy of its founding sponsors, to the University of Queensland. There he started the Centre for Drug Design and Development, with the vision to "bring together different scientific disciplines,... intersect with industry and create companies." He found strong backing by the entrepreneurially minded Vice Chancellor Brian Wilson but considerable opposition within the faculty. That is different now, he says, adding: "...there is a complete recognition now among academics and across the campus that commercialising their research or otherwise ensuring that their research reaches an outcome is not only what they should do but is what they want to do. And that is quite a dramatic change to Australia 15 years ago," he says.

But while researchers increasingly embrace entrepreneurship, industry may have not followed suit. "I don't think that industry is yet as ready for that interaction as it should be. Many sectors in industry have a limited understanding of what R&D could do for them, how it might help them to become more competitive."

In 2000, he and John Mattick started the Institute of Molecular Bioscience (IMB), a multidisciplinary research centre, which in partnership with its commercial arm, IMBcom, became an important driver in Queensland's effort to build a knowledge-intensive industry base, facilitating to date the creation of 11 biotechnology companies.

Andrews, appointed QLD chief scientist in 2003 and awarded an Officer in the Order of Australia in 2004, sees this as just the start of a long-term process: "We need to use our research institutions more

effectively to provide a starting point for new innovative industries and to generate more competitive outcomes in existing industries," he says. Australia has to focus on areas where it can make a difference. Initiatives like the Queensland Smart State Council have been effective in advising on, for example, obvious opportunities for Queensland to deliver products and services to an economically rapidly advancing tropical world. Australia has an extraordinary research base in those areas but has not yet established necessary linkages to industry.

"Where is the tropical Monsanto coming out of Queensland? The linkages are simply not there yet....," he says.

Pointing to a problematic low business investment in R&D, he says that Australia's wealth in resources has led to a climate in which private or public investors have tended to focus on extracting maximum value from natural resources. But he notes that the Queensland Government has developed a vision to invest in things that matter, such as building smart industries, reducing the number of people dying from preventable diseases, and reducing greenhouse gases. "If you put these long term goals in place and make the needed investments ...then I think we will follow down a path like Finland," he says, commenting that Finland was extraordinarily effective in transforming its economy, once reliant on the timber industry, by investing in education and R&D at much greater levels than other nations.

Better communication between research and industry can be facilitated by supporting researchers to work with companies and industry managers to teach in universities. IMBcom introduced boot camps for PhD students in their 2nd or 3rd year to talk about the potential to commercialise their research. "A lot of these PhD students came kicking and screaming, but after two days they often realised that this was their opportunity to make a difference."

He urges, however, the need to put in place the mechanisms to provide both the leverage for increased investment and, in parallel, mechanisms for much higher quantity and quality of science & engineering graduates, also crucial to attract foreign investment. Boeing Australia set up headquarters in the Brisbane area only after deals with government and universities that ensured people would be appropriately trained for the aviation industry. "There are five or six thousand additional jobs that have come to Queensland because of this," he says.

Other opportunities are arising as big pharmaceutical companies increasingly outsource their R&D, some of which is beginning to come to Australia. "I think we are on the move," he says.



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