

Submission by Richard ROWE

to the House of Representatives Standing Committee on Science and Innovation

on the matter of 'pathways to technological innovation and commercialisation'.

I thank the Committee for the opportunity to make a submission on 'pathways to technological innovation and commercialisation' in an Australian context.

Innovation and commercialisation are, like motherhood, presumed to be good. However, the reality is more complex. 'Innovation' means different things to different people. To some 'innovation' involves the generation of globally novel ideas, processes or products. To others 'innovation' means the exploitation in Australia of concepts or products well-known elsewhere. To yet others 'innovation' includes the application of methods or products which may have long been known but the impacts of which had been under-appreciated or perhaps unrecognised. Any investigation into 'innovation' must recognise these different concepts, and perhaps others, associated with the term.

Similarly 'commercialisation' is popularly associated with a dedicated drive for adoption of a process or product by persons with a strong financial commitment to see widespread use of the product or method. This is seen as good. But a good commercial decision may involve a strong player with an established product (whether good or service) acquiring (at profit to the innovator) a novel 'competitor', and then sitting on the property, not developing it and using patent or other IP laws to prevent others from competing with their (inferior) established line.

Some ideas are innovative, of considerable commercial value to the community, but by their nature uncommercialisable. Some years ago we had a PhD student, Andrew Ward, funded by the sugar industry to determine why a commercial insecticide product was no longer controlling a significant pest. The insecticide was of course commercial, manufactured and sold to farmers on an annual basis. The student and I had a stand-up fight at his introductory seminar because the patterns of damage shown in his aerial photographs screamed biological processes to me, and he was sticking to his sponsor's line. The man was not a fool. In the course of his PhD studies he established that during their short flight season female beetles made for the tallest cane and laid their eggs there. Instead of solving why the insecticide no longer worked he instead showed that a minor cultural practice, ensuring the cane which was the tallest at the time of the oviposition flights was that at the end of its production cycle, to be harvested and the roots then dug up for replanting/crop rotation, obviated the need for insecticide application (Ward, 2003). This practice has now been implemented for many years, and works (Horsfeld et al 2002, Hunt et al 2002). By its nature such a finding is innovative but not commercialisable. It is of significant financial benefit to the local farming community and thence to Australia.

A second example in similar vein was announced at our graduation ceremony this year. A PhD student working on a problem in spoil management at Mt Isa had developed a new practice which was already enabling the company involved to save over \$1 million per year. It is expected that other areas of the mining industry will adopt the method with consequent savings through Australia and later across the World. However, it is doubtful the discovery, while commercially valuable, can be commercialised.

It might be argued that modified intellectual property laws could allow commercialisation of such findings. The United States has to some extent gone down that route, and the recent FTA associates

us with some US patent law and copyright practices. *Waltzing Matilda* is copyrighted to a US organisation ... we may not wish to tread that path. Recent liberal awarding of patents by the US Patent Office has generated a new industry. Law firms which run 'think tanks' and attempt to find patentable practices which can then be written up in the broadest possible terms. The firm then sits on its IP portfolio waiting for someone to (almost certainly independently) derive and develop a commercial product which overlaps the claims. It then pounces, effectively demanding protection money for not litigating. This practice was documented last year on the website *Groklaw*, with links to company documents from an entrepreneur associated with financial arrangements behind maintaining SCO corporation upright in their billion dollar suit against IBM. Such procedures are likely to be a negative for Australia. Our enterprises are large enough to be pursued for 'licenses', but too small to be able to afford to litigate as a matter of principle. Microsoft, IBM or General Motors can make such extortion unprofitable. Australian companies are more likely to hand over the million dollar 'fees' as a cheaper option to litigation. Modifying IP law to improve 'commercialisation' may have significant negative effects on implementation and adoption of innovations.

IP law can block innovation in other ways. In the 1980s at Canterbury University, New Zealand, bioprospecting produced a very effective treatment for fungal infections in humans. The source plant was known to Maori medicine and the active ingredient when extracted and characterised worked, and worked by a different mechanism than commercial drugs. The project halted when it was discovered that the active compound had been synthesised and patented decades earlier by a German company as part of a general exploration of that area of organic chemistry. This patent had long lapsed, but as a consequence there was no 'protection' for the production of the chemical. The costs of full clinical trials were judged to be greater than any prospective return and the project died. To the best of my knowledge the patenters of the chemical synthesis received nothing for their efforts either.

Australia is in a difficult position in establishing commercialised technological innovation. We are an advanced, but small, economy. There is not a history of privately funded innovation. Partly this is a consequence of culture. Until very recently applied research was the prerogative of government-funded research institutions at both State and Federal level. More recently amalgamations, take-overs and the movement of head offices of major enterprises offshore has removed the decision-makers from the Australian community. There is also a structural component. All major Australian industries are diversified, even fragmented. Agricultural and pastoral industries are based on family farms or on rural corporations, each with its own priorities and problems. Mining has been more centralised, but the various players have in the past been smaller on world terms and often inclined to be followers (with of course some notable exceptions, but Mount Isa Mines innovated but lost out commercially). The beneficiaries are small and weak.

Decisions on steps to enhance technological innovation and commercialisation need to be made very carefully. There are many good intentions, many prospects, but also many fishhooks. Innovation and adoption may be more important to Australia than concentrating on a naïve 'commercialisation' model for the dissemination of the rewards of our applied research endeavour.

Horsfield A, Logan DP & Kettle CG. 2002. Trap crops for the management of greyback canegrub in the Burdekin. *Proceedings of the Australian Society of Sugar Cane Technologists* 24, 213–218.

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Ward, Andrew L. 2003. Effect of agronomic factors on the spatial distribution of greyback canegrub, *Dermolepida albobirtum* (Waterhouse) (Coleoptera: Scarabaeidae), in sugarcane in the Burdekin River Irrigation Area. *Australian Journal of Entomology* 42: 22 – 28.