

**LA TROBE UNIVERSITY**

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The Committee Secretary  
Standing Committee on Science and Innovation  
House of Representatives  
Parliament House  
CANBERRA ACT 2600  
(Electronically to: [scin.reps@aph.gov.au](mailto:scin.reps@aph.gov.au))

Dear Dr Dacre,

In response to your letter of 23<sup>rd</sup> March 2005 seeking submissions to the Committee, I make the following comments:

**Overview**

In discussing "successful Australian technological innovations that demonstrate strategies to overcome potential Impediments and factors determining success" we must keep in mind that technology transfer and commercialisation in Australia is an immature sector. Whilst there are notable success such as Cochlear, Resmed, Relenza and Looksmart we must question whether these companies were successful because of particular strategies and policies or because of the sheer bloody-mindedness of the entrepreneurs.

Many of the successful overseas models for addressing the issues raised by the committee have had calamitous failures even after lengthy operational periods sometimes in excess of 30years (see 'strategies in other countries' below). In the USA Institutions that have been in this area for over 30 years only gained momentum after the passing of the Bayh-Dole Act in 1980 and many of these can only show major growth trends in the last 10 or 15 years. In the UK the Government introduced third-stream funding to support the "third mission of universities, that of excellence in the support of industry" (J.M. Sime "Commercialisation of Intellectual Property from Public Sector Research Establishments: a Discussion Paper" March 2004).

In Australia in 2001 the Federal Government introduced a University Pre-seed fund as part of the Backing Australia's Ability strategy announced in 2001. However, this

strategy does not allow Universities to manage their own commercialisation process as in other parts of the world nor does it fill the 'technology funding gap'. It would appear that only a small portion of these funds goes to very early stage start ups as the funds are managed by professional fund manager's who need to be conservative to honour their responsibility to shareholders.

Recently Richard Lambert urged Australia to look at third-stream funding for universities as a means of allowing Universities to transfer technology to industry (The Age, Business p17, April 13 2005). In the same article Lambert referred to the UK model where last year the "value of British University spin-offs floated on the stock exchange was greater than the total value of third stream funding allocated over the previous seven years". He spoke of Universities being in a position to assist companies with the outsourcing of innovation and place for industry to find collaborative partners. There is evidence of this trend in Australia and we need to be in a position to take advantage of it in a proactive not reactive manner.

### **Pathways to commercialisation**

Choosing the correct pathway to commercialisation will, by its nature cover the issues of, "skills and business knowledge, capital and risk investment" and will demonstrate the factors that determine success.

The problems that inhibit success innovation and in turn commercialisation include:

- Lack of physical resources;
- Lack of human capital;
- An inability to fund the 'technology gap'; and
- Lack of business skills, knowledge and networks.

In Australia we do not have the restrictions of US Universities pre-Bayh-Dole. However, with the exceptions of the larger well established institutions there are few resources spare to provide adequate technology transfer facilities and pre-seed funds to fund the 'technology gap' that is still in evidence even with the Federal Government University Pre-seed Funds.

The issues above lead to IP laying dormant, innovation being wasted and opportunities struggling as technology is spun-out of the institution too early in an effort to be seen as a 'real' commercial entity thus being more attractive to investors.

The Technology Gap is the area where innovation falls in to a chasm created when the funding of Family, Friends and Fools runs out and pre-seed funds kick in. Many entrepreneurs are used to hearing comments such as "Like the idea come back when you have proof of concept". In Universities there is a point where the initial research stops often before proof of concept is complete. Whilst it is appropriate for University Researchers to find an industry partner to support their patents, without proof of concept, all too often they hear the same comments as the entrepreneur.

What is needed?

The ideal situation is an aggressive approach to technology transfer and industry collaboration by Governments, Universities and Industry. Governments need to

consider making third stream funding available especially to smaller Universities. Universities need to be serious about including technology transfer and industry collaboration as an additional mission to that of teaching, research and community engagement. Industry needs to be educated about the advantages of University collaborations and to be encouraged to consider outsourcing R&D activities to the University campus.

Universities with a Technology, Science or Research and Development Park and/or business incubator already have the basic infrastructure in place to encourage the clustering of ideas and commercialisation. What is required is the additional funding to support these activities.

The ideal pathway is for a technology to remain in the research domain until it has passed proof of concept. Funding of this then becomes the issue. Some of these projects may be successful in obtaining industry support eg. Contract research. However, failure to attract proof of concept funding does not necessarily indicate the project is not worth funding and ultimately commercialising. The second stage would be to then spin out the project into an incubator environment for the commercialisation process.

However, Technology Transfer is more than that listed above. From the moment a Researcher registers notification of invention, or similar documentation is registered, a case manager from the technology transfer office or similar department needs to be allocated to work with the Researcher. The case manager (or tech transfer officer) should ensure the correct IP protection is put in place, appropriate industry links are made and to assist in the formulation of a business case. Finally, and most importantly, there needs to be adequate funds available to support the researcher and/or team to ensure that proof of concept outcomes stand up to scrutiny this can only occur if the process is adequately funded. Too long has Australia had a fixation on the 'skin in the game' phenomena, Entrepreneurs and Researchers still need to eat and keep a roof over their family's heads. Keeping the Researcher and the project within the University system (thus allowing those involved to continue to draw salaries) helps at least one part of the human equation. Unfortunately Entrepreneurs under our present system will continue to have to fund their own project without any income until they are at a point where not only do they have proof of concept but also a range of paying customer and possibly little need for any further financial assistance!

In considering funding of technology transfer offices in research institutions we also need to consider the often quoted issue for lack of successful commercialisation in Australia – that of a lack of commercialisation skills. I would argue that this is an issue that is used as the 'too hard basket' for discussions in this area. Too often we try to make a science out of the commercialisation process when it is in fact a process of common sense. Traditionally we go wrong, in trying to find a person with all the desired skills and experience instead of looking at the tech transfer/commercialisation activity as a process. Ideally these offices will have a director and staff skilled in the appropriate skill areas eg legal matters for Patents and IP issues and the business incubation skills or experience working with start up companies. Both groups need to have some appreciation for commerce and it is important for them to work together as a team.

For the smaller Universities in Australia where resources are scarce there is the option of outsourcing some or all of this process but again funding the process becomes an issue. In a recent presentation in Melbourne Mark Crowell, President of the Association of University Technology Managers said that many US Universities started out this way and it is an appropriate option where issues of critical mass need to be considered. However, Mark also indicated that each of these Universities has, over the years brought this activity back into the institution. This is a lesson we can learn from the US experience

### **Strategies in other countries**

The following overseas models are suitable case studies for successful technology transfer and commercialisation practices:

**ICON Imperial College Consultants** <http://www.imperial.ac.uk>

**Cambridge University** <http://www.enterprise.cam.ac.uk/>

**Edinburgh Science Triangle** <http://www.scottish-enterprise.com/edinburghsciencetriangle>

**University of Glasgow** <http://www.gla.ac.uk/R-E/>

**Carnegie Mellon** <http://www.cmu.edu/corporate/>

**North Carolina Research Triangle** <http://www.rtp.org/>

The Universities listed above each have formal technology transfer offices and the Edinburgh Science Triangle is an example of how government funding can assist the commercialisation process.

Whilst many Universities do not have the critical mass at present to support formal technology transfer offices we need to consider hybrid models modelled on what has proven to be successful in other countries (not take the overseas model and transplant it here as happened in the past). Universities with Technology Parks and/or incubators and some form of technology transfer process would benefit greatly from the type of funding provided in the above examples.

### **Research and market linkages**

An area where our current research grant programs could be improved in an effort to encourage increased industry collaborations is in the creation of a suitable environment that would allow micro businesses to take part. Eligibility needs to be flexible to allow micro businesses to take part in collaborative research grants with an in-kind contribution rather than a cash contribution. These small enterprises are often the ones that can ill afford to put aside resources to support innovation and R&D (instead the focus is often on survival) and yet by their very nature they are often the most innovative of our community (necessity being the mother of invention!)

University Technology Parks are the ideal venue for bringing Research, Industry and of course the market together. With an aggressive approach to technology transfer universities would be seen as a one stop shop for industry.

Discussions have already been held at La Trobe University with companies in regards to basing their R&D function on campus. This type of arrangement provides applied

research opportunities, collaborative grant and funding options and can save smaller companies vast amounts of money in R&D infrastructure and overheads.

## **Conclusion**

There are a number of successful overseas models for commercialisation and they should be considered when researching pathways to technological innovation. However, we must not forget the good work being done in Australia in this area.

The factors to success in this area are:

- A supportive environment for ideas, research projects and fledgling companies;
- Adequate funding for the proof-of-concept phase;
- Appropriate mentoring of entrepreneurs throughout the commercialisation process; and
- Policies at government and institutional level that allow Universities not only to manage their IP but also to successfully commercialise it.

Reasons for lack of success in this area often given are:

- Lack of funding and
- Lack of suitably qualified commercialisation people to manage the process.

Funding at the very early stage is an ongoing problem that needs to be addressed as a matter of urgency and it is my belief that Universities need to have direct management of some commercialisation funds for this process. They also need to be funded not only for teaching and research but for the commercialisation process.

There is a habit of looking overseas for skilled commercialisation managers as they are seen to have some kind of magic formula. However, we need to approach the commercialisation process in a much more pragmatic manner. We need to recognise that there are different skill sets required in the process and to look at a team approach that covers both process and people issues.

Whilst there are many successful case studies in Australia the number of successful outcomes could be improved dramatically with the correct approach to funding and University missions.

As requested, a copy of this document has been forwarded electronically.

I look forward to further information of the outcomes of the submission in due course.

Yours Sincerely,

**Professor Brian Stoddart**  
**Deputy Vice-Chancellor (Research)**