

Boosting the Commercial Returns from Research

A response to the discussion paper with the above title published in 2014 by the Australian Government Departments of Education and Industry

26 November 2014

The foundations of this response

This response to the “Boosting the Commercial Returns from Research” discussion paper (hereinafter referred to as the Paper) comes from Robert Mitchell, a Principal at Capstone Partners Pty Ltd. I have 25 years experience in several facets of the technology transfer and commercialisation industry and have the current pleasure of working within an organisation whose objective could be described as “Boosting commercial returns from research” and whose Principal’s and Associates also have serious experience in those and related sectors. So, while the opinions expressed in this response are not based on specific research they do reflect the considered opinions of experienced practitioners in the field.

Further information, if slightly dated, regarding myself and the Capstone team can be found at www.capstonepartners.com.au.

Strong support for the discussion Paper

Overall I commend the departments on the thrust of the Paper. If the ideas expressed in it survive the rigours of debate I believe that their implementation alone would lead to real improvement in the various metrics and ultimately increased national wealth.

The difficulty of course is that stakeholders tend to have narrow interests and they would not be doing their constituencies a service if they did not push those narrow interests to their logical conclusion. I encourage the Departments to be strong and maintain a broad long term view of most benefit to the Nation.

Academics value intellectual freedom highly and will demonstrate (I would hope) that Research Excellence is closely linked to that freedom. As the Paper points out, the University Sector is very good at maximising outcomes and rapidly responding to changes in relation to funding models. In my experience, industry is no different, and stable rules are inevitably used to maximise value at the earliest opportunity.

Stability is critical, the Paper touches on this but I believe it is worth emphasising. If the rules are intended to generate behaviour in the national interest by manipulating individual and institutional self-interest, then the rules must be stable ... And must not be considered likely to change each time there is a change of Government – I encourage you to get strong bipartisan support for this.

I would expect the University sector to respond as rapidly and successfully to changes in the rules in relation to academic progression such as an increased emphasis on Linkage Grants and/or including

patents and implementation in the funding formula for Research Excellence, block, infrastructure, research or other grants (see below).

Focus is a great thing! It allows critical mass. It brings together interests from across silos. It enables investment in the best infrastructure. It permits big projects with audacious goals. And it attracts the best people from Australia and around the world.

Additional ideas

The Paper presents many excellent ideas that I support. In addition I would argue that the additional ideas outlined below should be investigated and included if they have not already been considered and discarded!

Research Excellence

The Paper hints at including patents as publications but provides little elaboration. Patents applied for could well be included in the definition of what constitutes a “publication” in relation to:

- (a) Academic progression
- (b) Research Excellence
- (c) Access to some proportion of block or other grants

A long term view may need to be taken to “adjust” for patents that are abandoned, or, in the other direction, patents that become a family of many international patents. Indeed a case could readily be made that an initial patent application may receive a “multiplier” that is reset to unity when the so called “national” patent phase is reached.

Citations too, could include patent citations (if they do not already).

It must be recognised that all successful research does not lend itself to patenting, however successful research will inevitably find “use” of one form or another beyond the strict confines of the academic originator (hence citations are important). If Research Excellence and academic progression metrics included “implementation” of research outcomes then it would be no surprise to see the sector placing more emphasis there. While I do not underestimate the difficulties associated with monitoring research outcomes and implementation it still deserves to be included in this discussion.

Targeted Research Effort

I believe that focus leads to success on most levels. And in this context why would Australia do other than focus its research (scarce \$) to support its future needs and current strengths in segments that are important to the nation and our culture/self image.

A list of focus areas chosen for the Industry Growth Centre’s initiative starts on page 17 of the Paper ... and I am reminded of the CSIRO’s flagships as potential focus areas. Given their origins both lean towards hard science and appear to be tangential (at best) to Australia’s large and growing services sector. Education, for example, is a strong export earner already. Australia’s standing as a provider of education might further improve if we were also seen to be the world’s best in understanding how to deliver education better. No doubt parallels exist in other service sectors.

Once an agreed set of focus areas is decided, and yes, there will be winners and losers, the industrial and research leaders relevant to each area might be “workshopped” to develop one or more “national projects” in that area around which researchers might choose to wield their academic freedom!

Thereafter some proportion of the national expenditure on research might be directed to projects that relate directly (or indirectly) to those “national projects”.

Further, some proportion of block or infrastructure funding could be tied to having a minimum percentage of PhD students active in those target areas.

Cooperation between Researchers and Industry

The Paper identifies this as the area with the most significant shortfall and thus a need to incentivise both sides to work together more than they do currently.

Linkage Grants

Given a fixed pot of ARC/NHMRC funding putting more through Linkage style grants and less through direct grants would clearly increase co-operation between industry and academia. Academics are quick to learn where it is easiest to obtain funding!

If some of the grant funds were channelled through Industry (with some level of matching) that would further incentivise industry and might increase the total quantum of research funds.

Further encouragement would be possible by including the proportion of linkage grants obtained (in addition to the current set of determinates) when allocating block and infrastructure funding.

Researchers

Train all university post-graduate students in commercial realities and entrepreneurship: consider the two following quite different implementations; there are, no doubt, many other alternatives:

- (a) <http://www.swinburne.edu.au/science-engineering-technology/biodevices>
- (b) Sydney University Faculty of Science recently created two courses, *Preparing for a Career in Research and Innovation*, and *Commercialisation of Research*. Both courses offer students crucial guidance, knowledge and best practices to help them thrive as they conduct cutting-edge research or choose the road to commercialise their discoveries.

Preferably lecturers for any courses such as the above would be largely sourced from industry.

Industry

In general I think industry finds the task of identifying the right, or even close-to-right, researcher to be a daunting task. It could be simple! Ideally Australia’s research capabilities would be kept in a database that was searchable by any interested party. Establishing such a database and populating it with reliable data is a big task; creating the framework for it a somewhat smaller task. Consider the following:

- (a) The Government specifies, designs and builds a suitably scalable framework
- (b) Researchers are “encouraged” to enter their own details. For instance grant funding at any level might be dependent on your entry being considered up to date by the granting body; indeed, the framework may even be structured to assist with the whole grant process (perhaps that exists already?).

- (c) Perhaps, the “cost” for those requesting access to the database might be an opportunity to vote up the reputation of the people they have interacted with (See for example how StackOverflow uses reputation).

Such a system would have the added benefit of making our research capabilities more visible to the world at large.

Encourage more of the subject matter for PhD study to originate from the commercial sector. Some funding for PhD study could be routed through industry in such a way as to enable industry problems to be solved and relationships to be built. In addition Block and Infrastructure funding could be tied, in part, to having a certain proportion of PhD students funded through industry. This could be done in a way that:

- (a) increases the pot of money supporting PhD's
- (b) builds the research/industry relationships
- (c) delivers cost effective (for all parties) industrial research

Entrepreneurship

I believe that there are two huge things that could be done in this sector in addition to the proposals in the Paper:

- (a) Treat **market research** as “**research**” for the purposes of the R&D tax credit for qualifying companies (very young, independent, small, research not to be sold on etc) this might be extended beyond tax such that any grants that are targeted at industrial research could include market research in that definition (same limitations as above).
- (b) Use Government purchasing policies to give Start-up Companies some advantage (to overcome the obvious disadvantages of being small and new) and include a willingness to be first user of new technologies.

There are two final items:

- (a) The so called “Valley of death” is real, but it is too easy to simply blame it on a shortage of capital available for that segment; If those seeking capital to pass through the “valley of death” were fully prepared for the journey then I would expect them to find the funding to be more available and the journey once the funding was in place to be smoother. I suggest that the very low acceptance rate of proposals by the VC sector provides some evidence of this un-preparedness. Enterprise Workshop in NSW is one activity aimed to address this gap ... such programs need to be put on steroids! Finding a way increase participation in such programs and/or to fund relatively penniless organisations to use professional services to assist their preparation would seem likely to yield great benefit.
- (b) We need to find a way to maximise the number of demonstrably successful entrepreneurs involved in mentoring enthusiastic newbie entrepreneurs. Many already do participate in mentoring programs; many seem to find their way into the financial sector. We have some great people out there; we need to harness their intellect and experience better than we currently do. More community thought on this subject may yield big dividends.

BUT

While experimentation is good, even in policy, focus and stability are critical to success!