

University of Canberra is pleased to provide a response to the *Boosting the commercial returns from research* consultation paper. While the premise of the paper is the need to increase the commercial returns from research, we urge the Departments, in the development of a sustained policy, to consider a wider approach to knowledge transfer. This is to ensure recognition of the breadth of benefits to industry, the economy and society achieved through the uptake of knowledge generated through university-based research from a wide variety of disciplines.

We also urge the Departments to consider responses received to the 2013 discussion paper, *Assessing the wider benefits arising from university-based research*. This earlier Paper made a number of assumptions that the current Paper seeks to overcome. For example, it assumed a division between the producer and user of new knowledge, when in actual fact much research generally – and most applied research specifically – is undertaken in collaboration with partners and end-users from the very onset. Notwithstanding such short fallings, insights already gained on themes of engagement, uptake of knowledge and impact of research will enable the development of a coherent policy.

Finally, we strongly support the development of a *sustained* policy and supporting programme that is genuinely committed to fostering innovation. Over a number of years, different short term programmes in areas of industry engagement and ‘real-world’ practical training have been released (and some closed down) of varying success. These include, as examples, competitive funding through new schemes such as the ARC’s *Industrial Transformation Program*, as well as block grant funding through schemes such as *Commercialisation Training Scheme* and *Joint Research Engagement Cadetships*. In order to secure university and industry buy in, a more holistic approach characterised by the following is strongly recommended: 1) an understanding and recognition of the specific nature of Australian industry, 2) long-term vision and 3) predictability of funding.

UC’s response to the Consultation Paper is structured around the key themes raised.

1. Collaboration and cooperation

The basis of any strong collaboration is the early identification of a mutual need and a willingness to nurture the relationship to ensure efficacious delivery of outcomes. Anecdotally, industry is drawn to “stories” or “case studies” through which universities are able to articulate their solutions to identified problems. To enable this, it is not unusual for universities to have a strong web and social media presence, as well as published Capability Statements that seek to demonstrate that universities can solve real world problems. The development of any mechanisms for university-industry engagement must recognise this basic premise that universities can be part of the solution, and “push-pull” type incentives must be provided that encourage industry to draw upon this knowledge base in the first instance.

The development of initiatives for researcher-industry engagement must also take into account the nature of Australia's industry sector, which is characterised by the prevalence of SMEs rather than large scale enterprises, is quite resource intensive, expects agility in the formation of partnerships, and is less likely to engage or integrate with universities. Schemes such as the now closed *Researchers in Business* had moderate success in placing university-based researchers in SMEs through the identification of a mutual need and recognition of resourcing needed to solve a problem as well as agility of funding. It is hoped that new initiatives such as those offered as part of the *Entrepreneurs' Infrastructure Programme* are able to configure themselves into programmes that place university researchers into the heart of solving problems and that are suitable for the scale of Australian industry. In addition, it is important that there is a balance between initiatives that are university-led and industry-led to address the "push-pull" nature of collaboration. While funding schemes such as *NHMRC Development Grants* and *ARC Linkage Projects* proffer good opportunities for university to leverage funds by engaging in industry collaboration, initiatives that encourage industry to do the same with university-based researchers should be supported.

Another important consideration is the need for suitable mechanisms and pathways for engagement. For example, knowledge networks can play an important role in enhancing collaborations and enabling knowledge transfer, particularly for disciplines that are less likely to generate high commercial outcomes.

A large prohibitor for engagement that is referred to in the Paper is the management of Intellectual Property. Contracts and multi-institutional agreements can often take many months to be signed, with IP arrangements being one of the barriers on agreement. While universities have traditionally been very guarded with their IP, a number of institutions are now moving towards more liberal arrangements, recognising the value of making IP accessible to other parties and providing university staff more generous sharing arrangements. This in itself holds the promise of researchers being more likely to "go commercial" with their knowledge generated. Incentives that further encourage such a culture are important. Finally, initiatives that can serve to "standardise" negotiations around IP are also likely to be beneficial in enhancing university-industry collaboration. The *IP Toolkit* is an example of a current development, although its success will ultimately depend upon how it is utilised.

2. Incentives

Researchers are generally driven by scholarly enquiry. However, additional motivators for the direction of their research activity (specifically their publishing behaviour) exist in the form of evaluation exercises (ERA) and pecuniary stimuli (RBGs). A current challenge is the Government's collection of data on a vast array of research and commercialisation activity through various exercises including HERDC, ERA, NSRC and the ABS R&D survey, but a failure to use these data in a meaningful manner to provide a comprehensive funding system for the higher education research sector. Better coordination of these data is needed, including an understanding of how they can be best used to evaluate university performance and inform funding mechanisms.

New incentives to direct university behaviour must be based on realistic and measurable indicators that provide clear evidence of strong industry collaboration. Performance in attracting Category 3 research income and commercialisation income are possible gages. Measures such as quantity of patents, on the other hand, provide a less compelling story of industry engagement or indeed

uptake of knowledge. In other words, care must be taken with measures that provide evidence of the *generation* of new knowledge as opposed to measures that demonstrate *uptake* of knowledge by industry and other end-users. While rewarding activity that provides evidence of industry collaboration as a means of incentivising researchers to further enhance their linkages and ensure uptake of the knowledge they have created is reasonable, attention to the serviceability of current data in being able to make meaningful assessments is a pressing issue.

Developing new incentives for enhanced industry collaboration and activity in areas of knowledge transfer also requires an understanding of current *disincentives* that abound. Of particular note is the absence of federal funding for experimental development and proof of concept research. In addition, in Australia the costs associated with commercialisation activity are extremely high. This is a particularly strong challenge for smaller universities that are less likely to have commercialisation units and supporting funds for knowledge transfer. Accordingly, the development of a new policy and programme of support must be mindful of this challenging playing field that does not encourage risk-taking venture.

Finally, incentives must exist for disciplines that are less likely to attract commercial outcomes. For example, collaboration with NGOs can be highly significant in enhancing activity and generating knowledge for real world application, yet such collaborations are unlikely to be characterised by commercial returns.

3. Targeted efforts

The notion of focus in the form of strategic research priorities is not new to Australia. While these have existed for some time and are required to be addressed in many federal funding schemes, there does not appear to be any central investment in these. In other words, with the exception of a very small number of funding schemes, priority funding is not necessarily being directed to strategic research priorities. In order to enhance Australia's targeted efforts, a smarter commitment to focus areas is urgently needed.

4. Research workforce

Over the past decade there have been various "light touch" attempts to reform the nature of research training, driven by recognition of the need for specific development and industry engagement. Examples include CTS and JRE engagement referred to earlier. While these have been commendable efforts in that they acknowledge the importance of the development of workforce skills and the importance of research students in bridging the university and industry sectors, their efficacy is uncertain owing to the challenges universities have encountered in their implementation and uptake. A sustained programme that makes PhD graduates attractive to industry is urgently required. Such a programme must take into account appropriate skill development, such as through a Work Integrated Learning type approach. At a time when Australia is producing a very large number of PhD graduates, workforce mobility must be the prime consideration in taking advantage of the availability of such highly skilled and specialised personnel who are likely to be instrumental in driving innovation. We urge the Departments to consider these issues in the context of the long-awaited review of the *Research Training Scheme*.