

SOUTHERN CROSS UNIVERSITY SUBMISSION TO THE DEPARTMENTS OF EDUCATION AND INDUSTRY JOINT Discussion Paper ‘Boosting the Commercial Returns from Research

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Southern Cross University (SCU) would like to thank the Departments of Education and Industry for the opportunity to provide feedback on the discussion paper ‘Boosting the Commercial Returns from Research’.

Regional Universities provide an important contribution to the viability of our regions and the nation. Industry engagement has been central to Southern Cross University’s ability to build research capacity that is relevant to our regional landscape. Over the last 20 years we have engaged with Industry partners through contract research, via partnerships with local government organisations, and as participants in Cooperative Research Centres and funding schemes which target Industry involvement e.g. ARC Linkage. We have strategically leveraged the relevance of our research to local and national industry partners in an attempt to grow our overall research profile and build a sustainable research program. Our staff have been encouraged to develop of new knowledge through balancing both fundamental and industry funded applied research.

We must protect the ability for Universities to continue as incubators of ideas and original concepts, with access to the technologies and infrastructure to research and develop new knowledge that may have utility in all fields of endeavour. Successful researchers are not necessarily motivated or driven by commercial imperatives or obligations placed on the provisioning of funding for research. The current Discovery program of the Australian Research Council addresses at least some of the needs for researchers to engage in fundamental (‘blue sky’) research that contributes to the sum of all human knowledge. Disrupting this or making significant changes to drivers of fundamental research may have unintended negative consequences. As a general comment, programs should be considered that supplement this essential research not redirect it.

The premise presented by the Government suggests that changing University behaviour by rewarding industry driven research and outcomes will be the panacea addressing the modest commercialisation activity derived from research – industry collaboration. While there will never be

a simple solution the paper does suggest a range of options that may make a difference if the correct proportional balance can be found.

If we are to increase the involvement of industry in research and improve the uptake of research outcomes then we must strive to understand the fundamental issues that have inhibited industry innovation. This may be a requirement or at least a contributor to changing the relatively low conversion rate of research outcomes to commercial success. How this is achieved is the challenge. Demanding that research institutions and researchers themselves also be entrepreneurs is a stretch and creating drivers whether they be punitive or rewarding towards this end may have limited success. Perhaps industry innovation and entrepreneurship needs to come from industry itself. Are there sufficient drivers for industry to take risks? Is it just easier to further develop our existing resources? Are our education systems helping to create entrepreneurs? This happens in early secondary school curriculum in the US for instance. What appears certain is the need for research – industry collaborations, however achieved.

Southern Cross University would also like to emphasise that we need to make sure that any changes do not further exclude or de-emphasise the importance of the research efforts in the social sciences and humanities. Quite often Industry collaborations are more apparent in the disciplines within Science, Technology, Engineering and Mathematics (STEM) and we need to ensure that the importance of the Humanities, Arts and Social Sciences (HASS) are not overlooked. Similarly, we must encourage Industry collaborations which benefit from the uptake of multi-disciplinary research involving both the STEM and HASS disciplines. In addition to the discussion above the following comments are offered against specific suggested initiatives presented in the paper.

National Priorities for Research

The case for selecting a set of national priorities needs to be carefully considered and we understand that further consultation will be undertaken to develop priorities. Southern Cross University would welcome the opportunity to be involved in this further consultation however; we request that the following be considered:

- The priorities need to encourage a balance of disciplines and multi-disciplinary research.
- Ensure that the priorities are in place for a reasonable length of time so that a potential return on investment can be achieved and then measured.
- The priorities must be specific, and relevant to mature or maturing industries, however still broad enough so as not to stifle new opportunities.
- Bi-partisan support across industry and political parties is essential. It is not clear this is currently the situation in Australia.

Creating Stronger Incentives for research-industry collaboration

Southern Cross University is not opposed to an adjustment in the research block grant funding however, the government must ensure that the strong incentives for research quality and excellence are not diluted. We already know that the block grant scheme struggles to cover the costs of research and if we are serious about increasing industry engagement then an appropriate level of investment should be available to demonstrably fund an increase in industry engaged research in order to maximise return.

Every attempt must be made to ensure that no negative impact occurs with respect to the funding of fundamental ('blue sky') research as it is often the outcomes from these projects which then drive innovation and future industry engagement. If Australia is to compete globally and with the other OCED countries then we must facilitate the appropriate balance of fundamental and industry driven research programs.

The block grant scheme already has a component which recognises industry funded research income (Cat 3) and engagement (Joint Research Engagement). If the block grant scheme is to be adjusted in order to provide incentives for industry engaged research then the following need to be considered:

- If we are to move towards awarding block grants for Australian universities partially on the basis of research-industry collaboration, that any such move to incorporate such considerations in the distribution mechanism is carefully implemented over a set time period and with proper regard for getting a balance between this new item as a driver of block grants and the current drivers of block grants.
- Simply increasing the pool and hence the allocations back to universities for Cat 3 income may be effective, however it will not address the inadequacies of the block grant scheme to cover the costs of research. If Cat 3 and Cat 1 income are to receive equal weighting for the calculation of block grants then care needs to be taken to avoid the already highlighted dilution of research excellence and quality.
- Collaboration with industry whilst being no guarantee of commercialisation activity is the appropriate measure and driver for increased industry – researcher collaboration. Exactly how to measure this does require careful planning and consultation.
- Endeavouring to change the calculations and distribution to include commercialisation outcomes could be fraught and would need to include the following elements in some combination:
 - Licensing deals between the research organisation and an industry partner
 - Patent applications, however this then leads to further questions around the level, which jurisdiction and who i.e. the university and/or the partner.
 - Royalty streams, commercialisation income; the timeframes and complexity of this would make measurement almost impossible.
 - Reporting of the verified outputs from commercialisation and industry research through the Higher Education Data Return (or biennial Commercialisation Survey) to ensure that they can be captured in a similar manner to other research outputs.

Leveraging greater collaboration between publicly funded research agencies and industry

The Research and Development corporations are largely focused on agriculture perform a vital and effective role in generating industry directed R&D in collaboration with research institutions. The scheme could be expanded to better include other industry sectors.

Consolidating existing programs

The immediate thought on this suggests a consolidation of support with an implied reduction of the related expenditure. The current flagship program, Co-operative Research Centres (CRC) is currently being reviewed and the general consensus in the sector believes the program may be reduced, run down or stopped altogether. The CRC Program has had varied outcomes over a 20 year period but

in general it has shown to be a major success in not only establishing significant and persistent collaborations between research organisations and industry, but also commercial success.

The proposed introduction of Industry growth hubs clearly is intended to be a part of the consolidation. Much more detail on the intention and operation of this scheme and how other programs will be impacted needs to be presented. In general any overall reduction in spending and support is unlikely to achieve a boost in commercial returns from research.

As already highlighted, every attempt must be made to ensure that we do not compromise existing schemes or the overall quality of our research. We do not support the idea that our nationally competitive schemes run through agencies such as the ARC and NHMRC should be required to recognise industry experience as a complement to research excellence. If this is to be done, then it would have to be done very carefully via wide consultation and extra funding. If this is implemented poorly it may well adversely affect Australia's basic research outputs without providing any additional benefits. If adopted then it would be best via a separate additional funding scheme administered by the ARC/NHMRC or a new agency. The current funding pool for of ARC and NHMRC are widely considered not sufficient to drive the excellence in research that Australia could achieve and many high quality research projects applied for currently unable to be funded. To divide and diminish such pure and basic research funding further would be to the detriment of Australia's scientific, medical and technical knowledge and hence limit the innovation available for commercialisation by industry.

R&D Tax Scheme

Intuitively providing tax rebates (real cash back for R&D activity) rather than just deductions against revenue would seem to be a major benefit and incentive to SME start-ups to engage in R&D where cash flow and revenue generation may be minimal in early stage developments.

Further the R&D Tax scheme could strengthen the industry – research organisation collaboration by ensuring research organisation involvement is a mandatory part of the scheme.

Supporting Research Infrastructure

In terms of individual capability in Research organisations, including Southern Cross University there is no doubt that the NCRIS scheme and ARC LIEF scheme have provided this university with the underlying infrastructure and resources to develop research capability and conduct industry relevant research. Without the schemes there would be very little this university and the research sector as a whole could offer. The NCRIS scheme to date has included funding for staff resources as a part of the provisioning of the infrastructure. This is a vital element of the scheme.

Despite the presence of these schemes and their contribution to ensuring researchers have adequate access to infrastructure some improvements could be made. It is timely that consideration is given to longer-term planning if Australia is going to commit to driving innovative research which is attractive and relevant to industry. We need to overcome the misconception that high-end infrastructure can become self-sustaining and accessible via user pay approaches. A centrally driven approach to planning which address the access and long term requirements must be a priority.

Providing Better Access to Research

Southern Cross University would support any initiatives that provide better access to outcomes and Intellectual Property from publically funded research. The current ANDs and RDSI initiative to capture and list nationally significant research data and outcomes is one example of a good initiative.

Intellectual Property (IP) policy within the University sector as a whole varies considerably. A pragmatic approach with significant sector support provides access to research organisation generated IP to researchers themselves and industry if they make a case for commercialisation of such IP. Where industry are already involved in funding research activity the SCU approach is to provide industry the commercialisation rights as a part of the contract research arrangement. This does not exclude any potential returns to the university as a part of the negotiation. An important aspect of this arrangement is that commercialisation agreements are only established if and when they are needed. This removes the often long and wasted negotiation associated with commercialisation agreements when no commercialisation eventuates.

Industry Relevant Research Training

The Research Connections program is a very useful and practical way to embed research capability within business. It strengthens the collaboration and has multiple benefits for both the business and the researcher. The researcher has the opportunity to be directly involved in a business and take on business and entrepreneurship skills and it may also provide an industry focused career path for a researcher. A post-graduate researcher embedded in a business may find and develop further opportunities for that business. SCU has had a number of Researcher in Business awards and strongly supports the continuation of the program through the Research Connections program.

We support the idea that we need to ensure that we aim to increase skills offered through PhD programs by offering training in IP awareness, business management and entrepreneurship. We agree that this would assist in enhancing the uptake of PhD graduates by Industry. To achieve this the PhD program needs to be revised in order to ensure that we not simply training academics. This no doubt includes the broadening of professional doctorates to include more applied areas such as: product and process innovation, professional development, and product management and development. There are examples of these doctorate degrees already of course, but their development and broad acceptance needs considerable support from all stakeholders to encourage industry and candidate participation in the development and implementation of such professional PhDs. Indeed, changing such perceptions of the value of a PhD in academia, industry and critically within candidates themselves will need a broad co-ordinated approach from all stakeholders to ensure that such changes to PhD programs contain additional and broadly recognised value for all concerned.

In light of the potential changes to the block grant funding scheme it might be timely to review the Joint Research Engagement (JRE) Cadetship program. While there is general support for this scheme, it could be beneficial to broaden the scope and provide a larger pool of funds to support HDR students. One possibility would be a larger scheme that allowed leverage of industry funds by Commonwealth funds to create Industry PhD Scholarships. Such scholarships could be funded to universities on the basis of their past collaborative research performance with industry. Funding would be dependent on the basis that industry provides 50% of the HDR Industry scholarship and project costs (including at least 25% cash) and the Commonwealth, through the universities, the

remaining 50%. Such a scheme would be far more effective than the current JRE cadetships alone in ensuring the engagement of PhDs with industry.

Measurement of outcomes

This has to be transparent, not onerous and avoid duplication by linking to existing data collections. The metrics need to be carefully considered and meaningful. For example, the measurements of knowledge transfer to be more than just the number of licensing deals and patent applications. A count of applications/licenses rarely indicates a true picture of industry collaboration and commercialisation success.

Any new metrics adopted must also reflect all aspects of industry engagement and include measures for PhD uptake, Category 3 income, income generated through the partnership and income from uptake and commercialisation. We also need to highlight any issues associated with increased reporting and the difficulty in measuring the outcomes. Southern Cross University would welcome involvement in further discussion on the identification of appropriate measures.

Kind Regards

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