

28 November 2014

GROUP OF EIGHT SUBMISSION TO THE BOOSTING THE COMMERCIAL RETURNS FROM RESEARCH DISCUSSION PAPER

The Group of Eight (Go8) represents Australia's leading research-intensive universities. Together they account for over two thirds of Australian university research activity, including about 60% of industry-funded university research and over 80% of the licensing income received by Australian universities from research commercialisation. As such, the Go8 are well positioned to provide advice on strengthening commercialisation and engagement activities, while maintaining the strength and quality of Australia's research industry.

The Go8 commends the government on recognising the high quality of Australia's research outputs. As a key driver of our national success in international rankings such as the Academic Ranking of World Universities (ARWU), which help to attract international students to study in Australia, research directly contributes to the continued success of Australia's fourth largest export industry.¹

We also commend the government on recognising the broad remit of Australia's public research institutions, including the generation of "new ideas that have long-term implications"² through basic, blue-sky research. Idea-generation is the fuel that drives investigation and discovery, and is an essential part of any healthy innovation system. So much so that Craig Barrett, retired CEO of Intel, has noted that 90% of the revenues accrued by his company at the end of each fiscal year was derived from products that did not exist at the beginning of that year.³

The reputation of a country's higher education system, and hence its attractiveness to others, depends largely on the visibility of its performance in research.⁴ In Australia, public policy has progressed on the understanding that an excellent research capability strengthens Australia's role in the global community. If we are not competitive on the world stage, we will lose scientists and ideas to other countries, forgo the opportunity to work here with the best and brightest from elsewhere, and forgo the economic benefits that flow from R&D.⁵

Our top researchers in a range of fields have taken their place among the world leaders, and a number of our universities are consistently rated and ranked in the top league in aggregate and in specific disciplines. However, staying with the pace of the world leaders is becoming more and more challenging, especially for a relatively small country like Australia, given the significant changes underway in the world of research.

1

https://go8.edu.au/sites/default/files/docs/publications/international_students_in_higher_education_and_their_role_in_the_australian_economy.pdf

² *Boosting the Commercial Returns from Research* discussion paper, 2014, p. 3

³ American Academy of Arts & Sciences, *Restoring the Foundation* (Report Brief), p.12,

https://www.amacad.org/multimedia/pdfs/publications/researchpapersmonographs/AmericanAcad_RestoringtheFoundation_Brief.pdf

⁴ UK Higher Education International Unit (2008). *The UK's Competitive Advantage: The Market for International Research Students*. See also OECD (2004). *Internationalisation and Trade in Higher Education*. Paris.

⁵ Australian Academy of Science (2011). *Australian science in a changing world: innovation requires global engagement*. Canberra.

Australia already engages in a range of collaborative activities that have resulted in genuine and lasting impact on Australia's social and economic wellbeing. Examples are provided in the recent publication, *Go8 Research with Impact*.⁶

However, the Go8 also acknowledges the importance of maximising the results of research through better translation into economic, social or applied outcomes. We welcome this review as an opportunity to develop stronger ties with industry, while being mindful not to drive unwanted behaviours that could harm Australia's research industry and have unintended, damaging flow on effects to the Australian economy.

Creating Stronger Incentives for Research-Industry Collaboration

As noted above, quality research and research outputs are the basic building blocks of a knowledge society, positioning Australia to successfully compete in a 21st century, global economy. Blue-sky, basic research provides the breakthrough discoveries; applied research explores how to translate these discoveries into tangible social and economic benefits. Australia can only benefit from a strengthening of research translation activities, including building better collaborations between industry, other end users and researchers. However, it is important to also recognise that universities are not funded to duplicate research business is willing to pay for itself, or to provide competitive advantage to one particular firm against others. Instead, publicly funded research conducts the investigation and discovery that provides national economic and social wellbeing, but which is too risky or at too early a stage for private industry to justify investment.

The discussion paper raises the prospect of using research block grant arrangements to encourage greater industry and end-user engagement. Research block grants are provided to maintain excellence by providing the indirect costs of research activities that are not entirely met by the competitive grant programs and remedying deficiencies in research infrastructure. We do not therefore believe that leveraging block grants as an incentive to drive engagement activities will achieve a broader engagement agenda, and risks creating inadvertently damaging our performance on quality metrics, such as international ranking systems, which underlies the success of our \$15 billion education export industry.

The capacity of the University sector to drive economic prosperity through industry engagement is dependent on research excellence. When large industry partners seek collaborations they do so with the best researchers in the world, so the most effective way to encourage engagement is to leverage our public institutions to foster excellence.

The Go8 recommends that a more effective measure would be leveraging the R&D tax offsets to specifically encourage business university collaboration, for example by providing a higher tax offset for research expenditure by business in partnership with universities. This would provide the dual incentive of encouraging greater engagement while providing a strong enticement towards overcoming the cultural differences between the sectors which are often cited as creating a barrier to establishing collaborations.

Another alternative approach would be to extend already existing mechanisms that have established a track record of success in encouraging engagement, such as the ARC Linkage Program, the ARC ITRP scheme and NHMRC Partnership programs.

Other mechanisms might include facilitation of joint appointments across industry and universities, to help break down the cultural barriers and promote cross-sectoral exchange of ideas; and the development of an

⁶ This publication is available at: https://go8.edu.au/sites/default/files/docs/publications/research_with_impact_v2.pdf

industry research voucher scheme, to encourage universities to work with businesses to develop solutions to technical problems and promote innovation.

These could be particularly effective if designed around small scale projects targeted at SMEs, to identify short term projects that could result in efficiencies or innovations with immediate impact. For example the Engage Grant program, run by NSERC in Canada, funds short term projects aimed at addressing a specific, company-specific problem through a research collaboration.⁷ NSERC reports that 85% of Engage project companies stated their problem was either fully or partially solved by the conclusion of the project, providing a positive experience of how the sectors can work together to mutual benefit. This type of scheme could provide an effective model for addressing the gap between development of a research finding through publically funded research and the proof of concept stage where businesses become willing to invest. A recent high profile example involves the possible stalling of research on a high performance bionic eye, due to a lack of funds to help the researchers bridge this gap.⁸

Supporting Research Infrastructure

To perform worthwhile research at international standards, researchers must have access to the facilities required to produce outcomes that can make a useful contribution to the world's stock of knowledge. The quality of the environment for research is a key determinant of the quality of the Research environment and the capacity of institutions to attract and retain outstanding researchers and research students.

Australia has invested considerable resources into developing national research infrastructure through its NCRIS program. We are now in the fortunate position of having established a network of world-class facilities through which our research industry can continue to produce quality outputs with global impact.

However, it is vital that this facility network receives sufficient funding to remain viable and not fall into disrepair through the inability to capitalise on this investment. The Go8 applauds the government for recognising the need for NCRIS funding in the federal budget, and supports the need to develop ongoing capital and operational funding mechanisms.

Providing Better Access to Research

The Go8 supports the proposal to increase access to the outputs of research, and has recently developed a Statement on Open Access recognising:

- that contemporary research practice and the creation of new knowledge requires rapid, unfettered and global communication;
- the importance of the broadest possible access to knowledge and information created by publicly funded research;
- that open access contributes to a research culture that values transparency and research integrity;
- that researchers and research universities must maximise the impact of their research;

⁷ http://www.nserc-crsng.gc.ca/Professors-Professeurs/RPP-PP/Engage-Engagement_eng.asp

⁸ <http://www.canberratimes.com.au/technology/sci-tech/vision-for-highperformance-bionic-eye-jeopardised-by-lack-of-funds-20141122-11rjg.html>

- that the scholarly communication model must evolve to exploit the opportunities offered by the digital environment, to effectively communicate research outcomes; and
- the contribution of the publishing industry to the dissemination of quality research outcomes.

Increasing access to the findings of research is also consistent with the open access policies of the ARC, NHMRC, and other major funding bodies.

The Go8 supports the development of an IP toolkit and templates to simplify negotiations between researchers and industry. However, information flows between researchers and industry are also facilitated through a wide range of collaborative activities, including those proposed in our response to strengthening industry/university links, above.

Increasing Industry Relevant Research Training

A well-trained, research capable workforce employed across a range of industries is essential to a competitive knowledge economy.

The Go8 welcomes the review of research training arrangements which is announced in the *Boosting Commercialisation* paper. We agree with the emphasis given in the submission by the Go8 Deans of Graduate Studies that Australia's research training system must be internationally competitive, flexible and fit for purpose, and support their recommendation for a standalone review of research training that extends beyond narrow issues of commercialisation.

Measurement of Outcomes

Collaborations and engagement activities between researchers and industry can occur across a range of activities, including workshops, consultancies, contracts, work placements or student secondments, commissioned courses, training modules, publications, newsletters, integrated learning programs or positions on boards or advisory groups.

This means that effective measurement of the broad scope of engagement outcomes cannot be measured by a simple metric, nor can it be designed ahead of the development of the set of engagement strategies. Use of metrics that are not carefully designed will also incentivise universities to maximize income rather than encourage activities that will be of maximum benefit to the economy. The Go8 therefore looks forward to working with industry and the government on creating an appropriate metric suite.