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## Boosting the commercial returns from research consultation paper – research training issues

The Deans of Graduate Studies in the Group of Eight Universities welcome the opportunity to comment on the consultation paper and we wish to provide specific feedback and comment on those elements making particular reference to research training arrangements and the development of particular skills in research graduates.

Australia has a research training system that continues to receive international recognition for its quality and effectiveness. However, this system requires constant adjustment as the needs of society, business and government change, and as the needs of the national and international education sector also change.

If universities are to respond effectively to the changing demands placed on research training, they will need the funding and support which gives them the flexibility to develop new and enhanced programs; programs which respond to the different needs of increasingly diverse student cohorts and increasingly diverse sets of demands from potential employers of research graduates.

Recognising that many research students will be employed outside the education sector, Australian universities have been enhancing the training available to them as part of, or alongside, their higher degree programs. In addition to individual institution's training and experience programs, earlier government-funded programs such as the CTS and the JRE cadetship programs were aimed at developing industry-relevant skills and building engagement between industry and universities. While these were worthy objectives there were design features of those schemes which limited their effectiveness. There is now considerable experience within the sector on what works well and what



does not and we will welcome an opportunity to discuss with government the design of programs to further this agenda. The key elements must be first, adequate funding and second, flexibility in the application of funding. As is already acknowledged, current RTS funding does not cover the cost of training Australia's future research workforce. Proposals for change in the research training arrangements that may require additional resources (including time to complete longer training), need to acknowledge the difficulty of attracting funding or in-kind support from business (even for initiatives that aim to benefit business directly). The bulk of funding for this important task must continue to come from government.

The major national challenges we face include shifts in demand for research capabilities between the different sectors, the need to maintain the global credibility of the education sector and the need to maintain the viability of what is in itself an important export industry. (International education generates nearly \$15 billion in exports annually and supports around 127 000 jobs, 88 000 of which are outside the education sector.<sup>1</sup>) Global rankings have a major influence on the choice of university made by international coursework students and these rankings are to a large extent driven by research reputation as defined by conventional research outputs. Research training is a key element of research and contributes significantly to these outputs; any enhancement of commercialisation/industry links should not be made at the expense of the research and research training excellence that underpins the international reputation of Australian universities and a significant export industry for Australia.

Australia's research training system is diverse and already encompasses research students working on business-related projects directly, through CRCs or with CSIRO, in ARC Industrial Transformation Training Centres, etc., as well as students whose research programs are conducted within universities. It is also important to recognise that significant numbers of research students are working on the PhD on a part-time basis because they are already in full time employment, many in the business and industry sectors.

A limiting factor on further development is the relatively constrained demand for PhD trained graduates in the business sector. Many Australian businesses prefer to source research outputs from universities (via consultancies and contracts) rather than developing in-house expertise through the hiring of trained researchers. As much as drivers in the university sector might be adjusted to improve the supply of business- and industry-ready research graduates, close attention to developing demand for research graduates in the wider private and public sectors is also required. This should

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<sup>1</sup> Figures taken from *An agenda for Australian higher education 2013-16*, Universities Australia 2013



involve a dialogue between industry and universities so that industry better understands the value that research can bring to their business, and should be part of an objective to shift the proportion of PhD-trained staff in the private sector to the higher levels seen in most successful economies. Such an objective is long-term but would be far more beneficial to the Australian economy than a short-term fix that reduces research training to 'problem solving' for industry.

Universities recognise the need for change and the need to operate in ways that maximise the return on the investment the government makes in research training. In light of this, universities are already reviewing and developing their PhD programs—seeking to provide opportunities for researchers-in-training to specialise along different pathways; emphasising business research, commercialisation and IP management, entrepreneurship and knowledge transfer, public policy development, academic and other potential employment opportunities. These developments very often include the introduction of coursework, skills development, and internships.

Different universities are developing their research training curricula in different ways, which helps to create a more diverse market, increasing competition, variety of student choice and affords business the ability to support those approaches it finds best meet its needs. We contend that for Australia's research training system to be maintained as a world-class research training system it must:

- produce graduates who are in demand globally because of the excellence of their training and the resulting knowledge, expertise and personal attributes acquired through this training;
- meet national workforce demands (across all sectors) for people with research training, recognising that the employment market for researchers is global and the market for people with research qualifications extends beyond the employment of researchers; and further recognising that within Australia, universities are the major employer of research graduates;
- build into research training an understanding of the different research management processes and cultures that exist in different sectors and in particular the contrasts between basic and applied research, and between academic and business related research cultures;
- provide opportunities for students to interact with the potential users of their research and to take work placements related to their research;
- ensure all students are working in an environment that is producing world class research and have the opportunity to interact on a day to day basis with researchers with demonstrated high international standing;
- acknowledge that research is a collaborative and social as well as a technical process and that students need the opportunity to interact at a professional level with other researchers in their own and in different disciplines (including those in other countries and across different sectors) to explore ideas, methodologies and conclusions.

We also emphasise the need to recognise the national value from training an advanced research workforce and the importance of continued strong support from government for this activity. The form and level of that support must emerge from consultation between government, industry and universities and must reflect an evidence base and best-practice expertise in enhancing the skill development of our top-level research students. This will require investment of resources and a well-designed focus on the efficient application of those resources.

## Recommendations

- The Go8 Deans of Graduate Studies strongly recommend a thorough (and widely consultative) review of the Commonwealth's research training arrangements, as proposed in the consultation paper.
- Reform of the research training arrangements must ensure a continuing emphasis on generating research graduates capable of discovering and creating new knowledge at the highest international levels: ultimately, research quality underpins all pathways to impact, including those that operate through the business sector.
- The government should give serious consideration to developing drivers that encourage demand for research graduates in the wider private and public sectors. An increase in the size and diversity of Australia's research workforce across the education, business, industry and government sectors is in the country's very best interests.