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**Inquiry into the Higher Education Support Amendment
(Job-Ready Graduates and Supporting Regional
and Remote Students) Bill 2020**

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To the Education and Employment Legislation Committee

Thank you for your invitation to the Australian Council of Deans of Science (ACDS) to make a submission to the inquiry into the Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020.

The Australian Council of Deans of Science (ACDS), constituted in 1995, represents the executive leadership of Australia's university science faculties and schools. Its membership includes all but one of Australia's publicly funded universities.

The ACDS wishes to draw your attention to the highly damaging impacts that will flow from the passage of this Bill. These impacts will significantly undermine STEM education in Australia's universities. At the same time they will undermine the capacity of Australian university science to engage with industry, to maintain the research activity that underpins that engagement, and to play its part in building Australia's economic competitiveness and sovereign capability in manufacturing and industry.

The Bill proposes that both students and the Government should each contribute less to the cost of each Science and Engineering Commonwealth Supported Place (CSP). Thus the total income to STEM faculties for their undergraduate teaching will be reduced by around 16%.

The proponents of the Bill argue that this reduction will not impact STEM teaching in universities because only 84% or so of the current CSP funds are actually used for teaching. This is simply not the case.

One major flaw in the Deloitte study, *Cost of delivery of higher education*, on which this argument is based, is its refusal to account for the extensive research staff time and research infrastructure that science faculties actually rely on to provide STEM graduates with cutting edge know-how and skills. For a research intensive science faculty this can be as high as 16 to 20 full-time equivalent teaching staff. Research and scholarship are supported from CSP funds because no other source has been identified.

The Deloitte study regards this, and Government has accepted it, as a complexity that should be removed, since it complicates an understanding of how well public money is spent. But some things are complicated and such an argument is like saying that having several arteries into the heart rather than just one is a complexity that should be removed because it would make understanding the human body so much simpler. The analogy is apt to the damage that will be caused to STEM education by the 'simplification' proposed in this Bill.

The Deloitte study requested data from universities, framed under the assumption that research and teaching could be neatly separated. Apparently that framework was not challenged, and neither were faculties, STEM or otherwise, consulted. This adds to the litany of caveats and cautions made, even by the authors themselves, regarding the use of the Deloitte study for policy decisions.

The lion's share of our students need a STEM education that prepares them for work and careers outside of university. For most of this century science faculties and schools have been reforming their course structures and pedagogy to meet that obligation.

The [ACDS Teaching and Learning Centre](#) shows the seriousness with which science faculties and schools have taken this obligation, with national collaborations on ensuring the graduate attributes sought by industry, and to promote work integrated learning in science degrees, among many other things.

STEM areas connected with professions are able to achieve more by way of preparing graduates to get their first job. More of our role relates to ensuring that graduates have the skills and abilities to meet the challenges of the jobs of the future; not just the ability get such jobs, but to create them.

Research informed STEM graduates stand well prepared to translate research into new products and solutions. Consider, for example, the waste-water tests to detect community presence of COVID-19 DNA, and the new tests producing genetic signatures that greatly magnify the effectiveness of contact tracing. These tests involve techniques that did not exist only a few years ago except in high end research.

If there were no connection between research and teaching, then how rapidly would the STEM workforce be able to respond to challenges, such as the pandemic, by adopting such leading-edge ideas? Research-informed teaching and research skills training are provided by our researchers and research students, using our state-of-the-art research infrastructure. It is essential for producing graduates who will ensure that our public organisations and industries are at the forefront on innovation and are able to address national challenges.

Considerable significance has been attached to the fact that some of the funds lost to CSP will be returned for a National Priorities and Linkage Innovation Fund (NPLIF) that will deliver \$225m per year among 40 or so universities. The average of less than \$6m per university is a clear indication that, even under the distribution proposed, it will hardly make up for the research and research translation activity that will be lost to STEM. The NPLIF also seems to overlap with some of the drivers already enshrined in the new efficiency dividends. In short, there would appear to be little to be gained for the disruption caused.

If the Job-ready Graduates package were designed to promote better industry-university engagement, and job prospects for STEM graduates, then we would have expected the Department of Industry, Science, Energy and Resources to have a significant role in the shaping of the initiative. It has not done.

The Department is responsible for CRC's, Industry Growth Centres, etc; myriad overlapping schemes that are to encourage innovation and industry-university engagement. If a case could be made for removing complexity it would lie in integrating this array of schemes rather than adding further complexity with another one. Without co-ordination between the NPLIF and the current industry innovation landscape the NPLIF could well be money wasted

As a part of separating research and teaching at a funding level, the Job-ready Graduates proposal establishes a Research Sustainability committee to investigate research funding. Its deliberations are not targeted at producing a new funding model any time soon. The gap between implementing the Job-ready Graduates proposals and adjusting the research funding landscape will have immediate impacts; the loss of highly trained science staff, and reduction in the outcomes and impact of funded research projects.

It makes no sense to tear down existing mechanisms for research funding before new ones are put in place. You don't demolish your home first and then consult an architect about building a new one, unless you have somewhere else to live. No alternative dwelling place for research funding has been provided.

At present research grants cover most of the direct costs of projects, however government support for the indirect costs covers only 30-50% of the actual costs, with the remainder being borne by Universities. These costs include critical infrastructure, equipment, power, IT services, libraries, business operations, student projects, and more.

With no other source of funding to cover these indirect costs of research, they are currently subsidized, by necessity, using a proportion of domestic and international student fee income. The return to students is access to world-class researchers and state of the art facilities that enrich their educational experience, empowering and inspiring them to make significant contributions to the community as STEM graduates.

The funding cuts to CSP for STEM proposed by Job-ready Graduates comes on top of the loss of income from international students. Our STEM research landscape will thus be doubly impacted, resulting in a crippling loss in STEM research capacity in Australian Universities.

It has been estimated that the gap in funding needed to maintain our current research will be multiple billions of dollars. This funding is essential for fully funding research and research training, and even a brief gap in such support will reverberate for decades as we lose talented staff and students from the sector and lose momentum.

As our Universities undertake more than 40% of applied research and most fundamental research, this circumstance places Australia at significant risk. It is testimony to the depth and agility of Australian university science that it is able to respond so rapidly to the pandemic, with at least three home developed Covid 19 vaccines underway, and a number of new drug leads and therapies under investigation.

How can this kind of capability be maintained without properly funded research? How can we better prepare for and manage bushfires, mediate the effects of climate change and protect our communities from emerging infectious diseases such as COVID-19. How can we build our sovereign capability in manufacturing and industrial processes if we undercut the generation of ideas and the training of people necessary to deliver it?

The Job-ready Graduates package claims that its measures will increase the flow of STEM trained people rather than undercut it. The claim is based on the idea that reducing the price of STEM subjects will attract more students to them.

In our experience it is universities who are sensitive to price rather than students. From 2009 when the lifting of caps on university enrolments was announced for 2012, STEM deans were strongly encouraged to over-enrol because the total CSP funds for each student were higher than for most other disciplines. Over-enrolling early meant that universities would be well supplied with well-funded students by the time the enrolment caps were fully lifted in 2012.

The total of CSP funds for STEM students will be much less than for many other disciplines under the Job-ready Graduates proposals. We therefore expect universities to maximise their income by enrolling more students in these better funded disciplines and less in STEM.

It may be that the proponents of Job-ready Graduates are right, and that lower costs to students will increase their demand for STEM. We see no risk management at play in this contest of hypotheses. We fear that STEM education in Australia is about to pay a high price for the experiment that tests them.

Our strong view is that the legislation under consideration is extremely damaging to STEM and should not be passed as is. We are entirely supportive of a reconsideration of university research funding arrangements. We strongly support measures that will significantly improve university-industry engagement, increase the number of STEM students and improve the career prospects of our graduates. We believe that the current Bill will cause the exact opposite.

Should it be necessary, for reasons beyond our comprehension, that the Bill should pass then there are amendments that will lessen the damage. In particular, we are aware of a proposal by the Innovative Research Universities, their scenario number 2, that maintains the level of CSP income to STEM faculties but also allows additional expansion of funded university places; often a critical response in recession. Our sister organisation, Science and Technology Australia, advises us of a similar position. We would strongly support such an amendment.

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