

# SUBMISSION TO THE REVIEW OF AUSTRALIA'S SCIENCE AND RESEARCH PRIORITIES

May 2019

Universities Australia welcomes the opportunity to make a submission to the Review of Australia's science and research priorities, as they apply to the Australian Research Council's (ARC) National Competitive Grants Program (NCGP). We are mindful of the targeted nature of the review, with its focus on the implementation of the priorities and associated Practical Research Challenges.

## BACKGROUND

There are currently nine cross-disciplinary National Science and Research Priorities:

1. Food
2. Soil and water
3. Transport
4. Cybersecurity
5. Energy
6. Resources
7. Advanced manufacturing
8. Environmental change
9. Health

There are thirty Practical Research Challenges associated with these priorities.

UA notes the interdisciplinary and multidisciplinary nature of the priorities, and understands that this review is not discussing the priorities themselves.

## PRINCIPLES FOR RESEARCH FUNDING

UA takes this opportunity to outline a set of principles that we believe should be at the heart of research funding mechanisms. These are:

- the importance of long-term planning and investment;
- the centrality of investigator-driven research to future innovation;
- the need for funding mechanisms to promote excellence and integrity;
- the role of flexible funding mechanisms in the stewardship of research capability;
- funding mechanisms and processes that support transparency, accountability and efficiency, and
- embracing the increasingly global nature of the research enterprise.

## DISCUSSION

UA recognises the ARC's place in Australia's research landscape. It is charged with administering the National Competitive Grants Program and it supports basic and applied research and research training across a broad range of disciplines.

The discussion paper states that the National Competitive Grant Program allocates approximately 8 per cent of the Government's direct investment in research. It also notes that the NCGP is one of the few sources of Government support for basic as well as applied research. It is also important to note ARC's role as a key supporter of research not eligible for funding through NHMRC and the Medical Research Future Fund.

Given this broad remit, changing the way in which allocations are made whilst retaining current levels of funding (both in absolute dollar terms and relative to all research funding) may have a disproportionate effect on particular disciplines and types of research. The science and research priorities do not cover all of Australia's research strengths, and it would be unhelpful for the funding levels for these disciplines to be reduced as a consequence of increased restrictions on the existing funding.

However, should the quantum of funds available for distribution through the ARC increase, then it might lead to the opportunity to direct some funding towards research challenges and increase outcomes for those priorities.

Given the ARC's central role in supporting basic research, UA would be concerned if the priorities were used to shift the balance further from basic research.

ABS figures<sup>1</sup> show a change in the balance of the type of research in higher education between 1992 and 2016. In 1992, 40% of research expenditure was categorised as 'pure basic research'. All basic (ie 'pure basic research' plus 'strategic basic research') together accounted for 64% of expenditure. By 2016 'pure basic research' had fallen to 23%, and all basic research accounted for 41% of expenditure. In contrast, 'applied research' had increased from 30% of expenditure in 1992 to 49% in 2016.

Given this shift, it is important that fundamental research be supported based on the quality of the applications, without being constrained by the priorities. Asking applicants to predict which elements of basic or fundamental research might eventually be applied to an individual priority could result in good ideas never being put forward. The Discovery program has a responsibility to fund excellence without being bound to predictions about where the payoff might be.

It is appropriate that the Linkage program shows a higher engagement with the priorities, given the more applied nature of this program. Equally, it is appropriate that the Discovery program is not linked too tightly to the priorities.

UA would also be concerned if the priorities or other mechanisms were used to distribute increasing proportions or amounts of funds outside peer-reviewed programs. As outlined in the principles, investigator-driven research is central to research and innovation. The application of expert peer review is the cornerstone of research and remains the best mechanism to assure the community that the government invests in the best possible research.

Peer review also promotes integrity within academic discourse, and similarly it promotes integrity within the funding of research. Expert scrutiny of proposals is a tested method of quickly excluding unfeasible or under-developed research ideas. By encouraging the best developed proposals and ideas, the community can be assured that they are investing in the best research.

Excluding grant applications that do not address the priorities may impact the humanities and social sciences far more than the science, technology, engineering and mathematics disciplines. This would be detrimental to Australia's research effort. Research in HASS disciplines is important for the social and cultural well-being of our society. HASS is also important for STEM outcomes. UA notes the figures provided in the discussion paper that, since 2013, 80 per cent of the funding across all schemes has been received by STEM disciplines, while 20 per cent has been received by HASS

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<sup>1</sup> ABS cat no 8111.0

disciplines. Given these proportions, UA would be concerned if the priorities were applied in such a way as to reduce further the proportion of funds received by HASS disciplines.

**Recommendation 1:**

Funding should not be directed by the priorities unless there is a considerable lift in the level of funding available for research through the ARC.

**Recommendation 2:**

The balance between basic and applied research should be carefully considered in the design of grant programs.

**Recommendation 3:**

Expert peer review should remain and be reaffirmed as the core determinant of excellence for funding the most outstanding and deserving ideas.

**Recommendation 4:**

The balance between STEM-based and HASS-based research should also be carefully considered in the design and function of grant programs.