

# Implementation of the National Science and Research Priorities – IRU Submission

## Overview

The task of this inquiry is to consider the appropriate relationship between the excellence-based National Competitive Grants Scheme (NCGS) and the strategically-oriented National Science and Research Priorities (the 'Priorities'). Both serve important, but distinct purposes.

The NCGS, as administered through the ARC's Discovery and Linkage programs, supports the highest quality research projects, for all purposes and across all non-medical fields. The long-term, basic research supported by the NCGS has been integral to the breakthrough research which has improved the quality of life of all Australians.

The Priorities seek to leverage Australia's research strengths to support areas of critical need and national importance. They apply to the whole of Australian government investment in research, through multiple agencies, most of which target specific needs of the responsible portfolio.

The challenge is to set a balance between the NCGS supporting the full extent of high quality research and ensuring it sufficiently aligns with the Government priorities. The current mechanism is indirect, but offers important signalling effects to NCGS applicants and assessors. With 70% of total funding under the NCGP aligned with the Priorities, including 94% of ARC Linkage funding, the mechanism works.

The inquiry invites feedback on areas of priority requiring focus from the ARC to ensure an appropriate balance across disciplines. In response, the Priorities could be strengthened by re-framing how they apply to humanities and social sciences (HASS) and other enabling scientific disciplines. The Priorities could reference potential long-term impact, rather than purely alignment, recognising the broad contribution of disinterested research to strategically important topics.

In sum the IRU:

- considers that the current mechanisms involving the national priorities in the selection of grants for NCGS works; and
- would support greater recognition of HASS in NCGS selection, including how such research supports the national priorities.

## IRU Response

The IRU response first considers the appropriateness of the current mechanism and Priority funding, including the risks associated with tighter alignment between NCGS funding and the Priorities. The later section considers potential refinements to the framing of the Priorities.

1. The current indirect mechanism for funding Priorities maintains focus on funding the highest quality projects across a breadth of fields.
2. Project alignment with Priority areas is unrelated to research quality. Therefore, the current share of NCGS funding for Priority research is appropriate for an excellence-based program.

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3. Tighter alignment between Priorities and NCGS risks the quality of funded projects and disadvantaging curiosity-driven research.
4. Assessing alignment with inter and cross-disciplinary Priorities is difficult and would risk the efficiency and transparency of the NCGS.
5. Refinements to the Priorities should focus on greater engagement with humanities and social sciences (HASS) and other enabling scientific disciplines.

## 1. The mechanism for funding Priorities should remain indirect

The discussion paper recognises that the purpose of the NCGS is to support research and innovation through funding the highest quality research. The current approach has no targets or specific portions of funding for Priority research and no selection criterion score for alignment with the Priorities. Any changes to how the NCGS operates, including closer alignment with the Priorities, must consider how these affect the two primary NCGS objectives of: 1) targeting funding towards the highest quality projects and researchers; and 2) being efficient and transparent its allocation of funds. Allocating a specific proportion of funding to the Priorities, or using a dedicated score for alignment with the Priorities, would risk both objectives.

### **Risk of quality**

There are no reasons to believe the quality of research is directly related to alignment with the Priorities. Research excellence can be achieved in any field of research, for any socioeconomic objective and purely for the advancement of science. Excellent research can also have unintended and positive impacts beyond its field. Disadvantaging research outside the Priority areas clearly contradicts the principle of funding the highest quality projects. Further, it would disincentivise future applications from non-Priority research areas, reducing the pool of potential projects to fund and undermining future capability as and when national priorities develop and change.

### **Risk to curiosity-driven research and HASS in particular**

For many researchers and disciplines, the NCGP is the only source of Australian Government funding supporting long-term, curiosity-driven, basic research. This is particularly for humanities and social sciences (HASS) researchers in fields which are typically not well aligned with the Priorities. HASS fields are already underrepresented in NCGP funding. As the Discussion Paper states, since 2013 HASS fields received approximately 20% of all funding under the NCGP compared to 80% for STEM. This is far below the relative share of full-time equivalent academic teaching staff in HASS (62%) versus STEM fields (38%). Introducing additional criterion for alignment with the Priorities would further weaken the position of HASS researchers in an already highly competitive research funding system. It would also undermine the ability of HASS researchers to contribute (directly or indirectly) to research in the Priorities, which are explicitly cross-disciplinary.

### **Assessing alignment with inter and cross-disciplinary Priorities is difficult**

The nine Priorities are of immediate and critical importance to Australia, requiring solutions that draw on expertise from different disciplines. The problem is that it is difficult to assess the alignment of research to multiple fields via traditional peer review systems. The ARC in its Discovery, Linkage and ERA exercises categorise research at a Field of Research level and primarily draw upon experts from within these fields to assess quality. This helps ensure valid and reliable assessments of quality because the assessors understand the research topic and are more likely to have common

perceptions of high quality projects. However, disciplinary-based experts are not well placed to assess the alignment of projects to interdisciplinary Priorities. This would require the ARC to draw upon experts from multiple disciplines to assess this (single) criterion. The administrative costs of this would likely outweigh the benefits of selecting projects better aligned with the Priorities.

## 2. The share of NCGS funding for Priority research is appropriate

The ARC is responsible for funding the highest quality research. The Priority areas have no direct impact on assessments of quality. Therefore, the current level of alignment of NCGP funding to Priority areas is appropriate. The 70% alignment between the NCGP and Priority areas (despite a lack of direct mechanism) is reflective of the responsiveness and contribution our universities make towards areas of critical need and national importance. It also reflects the important signalling effects of Priorities in a very competitive system, where many high quality projects are not funded and alignment may be perceived as a key differentiator, even if it is not a formal criterion, for applicants or assessors. This indirect and guiding approach remains appropriate.

## 3. The Priorities should be more inclusive of HASS and enabling disciplines

The National Science and Research Priorities were developed by the Department of Industry, Innovation and Science and have a clear science focus. The stated objective of the Priorities was to increase Australia's capacity for research in these areas through increased alignment with NCGP funding. It is acknowledged that this requires effort from all research disciplines – all nine Priorities are inter and cross-disciplinary – but limited reference is made to how HASS and other enabling scientific disciplines can contribute.

The effectiveness of the Priorities could be strengthened by consideration and explicit reference to potential impact, rather than focusing on alignment between a project and an objective. This would help involve and recognise HASS and other researchers pursuing disinterested research unaligned with the Priorities, but whose contributions have potential impact on the Priorities. For example, the 2018 Engagement and Impact exercise generated 243 'high impact' published case studies, of which 64 were from HASS disciplines. These 64 HASS case studies had strong and credible impact across 127 different socioeconomic objective (SEO) codes, including health, energy, transport, mineral resources, defence and ICT.

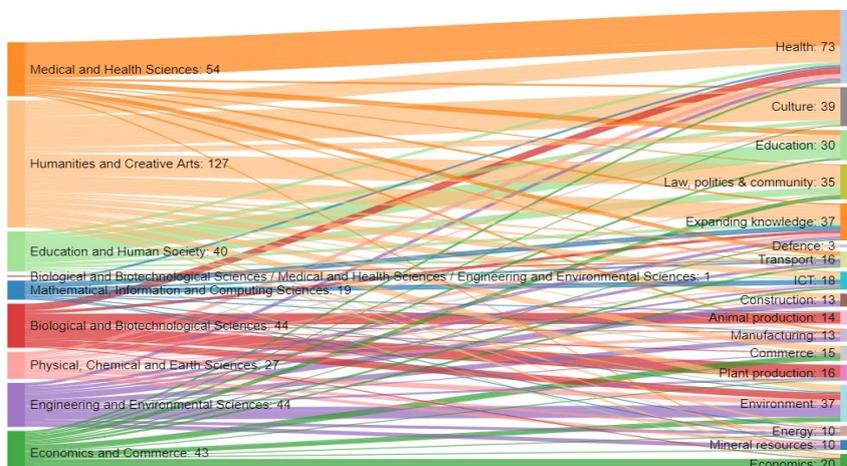


Figure 1. EI 2018 High Impact Cases by Primary Field of Research (LHS) and Socioeconomic Objective (RHS)

## Conclusion

The IRU:

- considers that the current mechanisms involving the national priorities in the selection of grants for NCGS works; and
- would support greater recognition of HASS in NCGS selection, including how such research supports the national priorities.

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