



Science & Technology AUSTRALIA

**Implementation of the National
Science and Research Priorities
under the National Competitive
Grants Program**

16 May 19

To the Australian Research Council,

Thank you for the opportunity to provide feedback on the Discussion Paper for the implementation of the National Science and Research Priorities under the National Competitive Grants Program.

Science & Technology Australia (STA) is the peak representative body for more than 70,000 scientists and technologists in Australia through our member organisations including associations and societies, research institutes, and research strategy bodies such as councils of deans.

STA supports the establishment and maintenance of national research priorities and 'national missions' to help direct Australia's research sector. However, we also restate our commitment to investment in foundational "undirected" blue sky research and the principle of funding all research via competitive, peer review processes free from political interference. It is important to have a strong foundational base for research, as well as a focus on targeted national priorities to ensure we continue to create true innovations while addressing the significant social, economic and environmental challenges of the future.

After close examination of the data presented in the discussion paper and the National Research Priority SNAPSHOT, it is clear that a greater focus on broad national research priorities is needed. While these may not align exactly with the remit of the Australian Research Council (ARC), STA considers it important that they help inform the broader sector, not just the funding agencies.

STA's feedback for the implementation of the National Science and Research priorities centres around three key principles:

1. The priorities need to be incentivised to be effective;
2. National priorities should be created in consultation with the research sector, with long-term goals in mind; and
3. It must be made clear to researchers how these priorities are applied to the funding application process.
4. A proportion of research investment must be assigned to fundamental research that may not immediately align with national priorities
5. Decisions on research investment allocations should take place via transparent peer-review competitive processes free from political interference.

Kind regards,



Professor Emma Johnston AO

President, STA



Kylie Walker

Chief Executive Officer, STA

Introduction

Science & Technology Australia (STA) supports the development and application of relevant, strategic national science and research priorities in Australia. It is important that Australia's research system is provided with a clear direction and focus so that our sector can most effectively contribute to addressing the health, social, economic and environmental challenges facing Australia.

At the same time, it is important that the research sector is able to continue to excel in its pursuit of discovery-based research that may have no immediately obvious strategic link with any national priorities. Such fundamental research has, time and time again, proven valuable to the nation's wealth, health and environment. Without a strong foundation of discovery led research, there is no opportunity to develop new fields of science that can lead to future innovation and solutions.

The most logical way to achieve this would be to allow flexibility for the funding of Discovery Grants, which would allow for fundamental research to flourish, while applying the priorities more meaningfully to applications for Linkage Grants.

It is also important, in order to prioritise the highest quality research and support transparent competitive mechanisms of peer review free from political interference.

STA has, historically, referenced Australia's research priorities for our own work, using them to inform our advocacy and to shape the way we facilitate engagement between scientists, technologists and decision makers. STA also believes that there needs to be whole-of-government plan for science and research. This plan should be based around a broad base of discovery research with the national science and research priorities acting as a guide for directed national strategies to create current and future solutions.

As part of this review, we are keen to emphasise the value of the research priorities as a mechanism to drive meaningful outcomes. There are, however, some concerns we wish to raise around their application, particularly in regard to the ARC grant process.

The implementation if the National Science and Research Priorities need to be focused around the following key principles:

1. The priorities need to be incentivised to be effective;
2. National priorities should be created in consultation with the research sector, with long-term goals in mind; and
3. It must be made clear to researchers how these priorities are applied to the funding application process.
4. A proportion of research investment must be assigned to fundamental research that may not immediately align with national priorities

5. Decisions on research investment allocations should take place via transparent peer-review competitive processes free from political interference.

Internationally, priorities for research have enhanced performance and provided better focus in countries such as Japan, South Korea, and the European Union¹. Most recently, the UK has introduced a single funding body for science and research (UK Research and Innovation) which also outlines a set of national priorities². Because the UK's priorities encompass the entire research sector, they are able to better utilise a multi-disciplinary approach – something that is a constant challenge for the more siloed Australian research system.

The research priorities outlined in the SNAPSHOT present a very different system to the UK³. With multiple funding and policy bodies, each with their own focus areas, there is a lack of cohesive national focus and vision for research priorities. While a single funding body may not be the solution for the Australian science and research sector, a broad, cohesive and well-balanced set of national priorities is a keystone requirement for a whole-of-government strategy.

Specific questions feedback

1. ARC targeting and allocation of funds to the National Science and Research Priorities

(a) Is the current approach appropriate in the context of the ARC's role in Australia's research system?

STA is concerned that the current application of national priorities in the grant allocation process is not transparent or adequately communicated. Based on the discussion paper provided, it appears that the national science and research priorities do receive some emphasis when deciding ARC funding. However, our consultation with the sector suggests those who apply for and receive such funding do not perceive this to be the case.

During the application process, particularly for Linkage Grants and other schemes funding research application, it is unclear how alignment with the national priorities affects success rate.

We suggest consideration be given to introducing a code system to identify alignment with priorities, rather than asking researchers to explicitly outline how their work reflects the research priorities. The Field of Research and Socio-Economic Objective codes are already successfully applied in this way, and a similar approach that allows applicants to assign a percentage to the relevance of

¹ ["International Science Policy Analysis"](#) Office of the Chief Scientist, 2013

² ["Themes and Programmes"](#) UK Research and Innovation, Accessed May 2019

³ ["SNAPSHOT: Research Priorities in Australia"](#) Australian Research Council, 2019

their work may more effectively measure the alignment of research to national priorities.

Another concern raised during consultation was the inconsistent levels of government investment in each of the priorities. For example, manufacturing was allocated \$521 million while Cybersecurity was allocated only \$41.5 million over 2015-2019⁴. While it is plausible that there are differences in requirements for each of the priorities, the overall balance between them could be better communicated.

Finally, if these priorities are to be given an emphasis, there must be safeguards to ensure government funding is invested in projects that are meaningfully aligned against them. It's important that the process is able to clearly identify projects which only tangentially touch on the priorities. The code system mentioned above may assist this identification.

(b) Are there other methods of funding research in the National Science and Research Priorities that the ARC should consider?

While the priorities should provide guidance and strategic direction for government investment in Australian research, it is vital that they also allow for the continued flexibility required to nurture the kind of strong curiosity-driven research that will advance knowledge and ultimately build Australia's future capacity.

STA recommends that ARC Linkage funding maintains a strong focus on the national research priorities, while Discovery Grants are allowed more flexibility to support discovery led research. This is not to say Discovery Grants should not be recorded as aligning with the National Science and Research Priorities where relevant, but it should be clearly stated in the application process of Discovery Grants that this association with the national priorities is being used as a tracking tool only.

Peer-review must be at the core of assessing proposals and informing decisions regarding what research is funded. Two possible approaches are: to add extra points to applications that specifically target research priority areas, or; to dedicate a proportion of research funding or number of projects funded to those applications that strongly align with the national priorities. For example, the ARC (through the Linkage Special Research Initiatives) already has the capacity to direct funds to strategically important areas, but we note that this is currently not directly aligned with the National Science and Research Priorities⁵.

⁴ ["SNAPSHOT: ARC Statistics - National Science and Research Priorities"](#) Australian Research Council 2019

⁵ ["Special Research Initiatives"](#) Australian Research Council, Accessed June 2019

2. Current funding levels of the National Science and Research Priorities under the ARC research grants

(a) Is the current level of alignment of ARC funding with the National Science and Research Priorities appropriate, and in line with the Government's objective of increasing Australia's capacity for research in these areas?

Based on the data provided in the discussion paper, STA considers proportion of funding that goes to projects that directly support the National Science and Research Priorities to be appropriate. In particular we support the allocation of a greater proportion of ARC Linkage grants to the priorities, and a lower proportion of Discovery grants.

As outlined above however, comparative weighting across priorities is a concern. Some priorities have received a greater proportion of funding relative to others. This is of particular concern for priorities that cross-over into the remit of other funding bodies, such as the National Health and Medical Research Council (NHMRC).

Health as a priority area received approximately \$256 million in funding from ARC sources, but this does not take into account the amount of government investment in health research through other funding agencies. The SNAPSHOT of Australian Research Priorities presents a wide range of other research priorities which similarly attract support from sources other than the ARC⁶. As such, public funding data from across all sources must be collated in order to fully understand how funding is spread across all priorities.

(b) What would the potential benefits and costs for the Australian R&D system be if allocation of ARC funding against the National Science and Research Priorities was aligned differently?

Recent discussions within the higher education, research and political sectors around research, impact, engagement and national priorities have highlighted concerns around the application of national priorities and the potential for politicisation. This is especially the case because of the sensitivity of researchers to funding signals sent by impact measures and national priorities and is the greatest potential cost to aligning ARC funding more strongly with the National Science and Research Priorities. If specific funding targets or incentives to undertake research in priority areas were to be introduced, then safeguards must be introduced to mitigate the genuine risk of political interference.

As outlined above, there are potential benefits to outlining the allocation of ARC funding against the National Science and Research Priorities. The most significant benefit to this realignment would be to give the R&D sector a clear focus. Greater alignment to the priorities can also be used to reflect the

⁶ ["SNAPSHOT: Research Priorities in Australia"](#) Australian Research Council, 2019

importance of these priorities to the rest of sector and can give direction for a whole-of-government approach to science and research in Australia.

3. Other potential challenges and areas of priority for focus in ARC funding

Rather than advocating to include specific national research priorities, STA recommends a consultative system which regularly examines and addresses the national research priorities. National priorities should be stable, but able to be adapted to include new and emerging opportunities while maintaining a long-term vision for the sector.

The SNAPSHOT has identified a wide variety of priorities within the research sector, limiting the capacity for Australia to work towards effective and consistent priorities. Shaping the priorities in consultation with those whose work will in turn be shaped by them maximises the potential for the priorities to generate cohesive and collective work towards them.

STA will be advocating for any decision around new research priorities be informed by formal consultation with the sector.

4. Implementation of the National Science and Research Priorities under the NCGP

Consultations with STA members have clearly demonstrated the sector's uncertainty regarding how the national research priorities relate to the National Commonwealth Grants Program under the ARC. STA would support incentives to encourage alignment with the national research priorities, as long as these priorities are developed through consultative processes within the context of a long-term vision for the research sector.

When applying for funding through the ARC, it is not clear how aligning a research proposal with the national priorities impacts assessment by the ARC. The role of the priorities must be better communicated to the sector to ensure that they are being applied in the most effective way.

5. Implementation of the National Science and Research Priorities in relation to Australia's broader research system

STA is a strong advocate for national priorities to guide a whole-of-government plan for science and research in Australia. This is supported by many in the sector, such as Innovation and Science Australia, which recently set out the need for national research missions as a way of directing research⁷.

While the Australian research and science sector is supported by multiple sources, each of which sets its own priorities, the National Science and Research Priorities and the Australian Research Council have the broadest remit and deepest influence. Therefore, the National Science and Research Priorities and

⁷ ["Australia 2030: Prosperity through Innovation"](#) Innovation and Science Australia, 2018

their application to ARC grants are the most appropriate mechanisms to set expectations and big-picture goals for the Australian science and research sector.

In lieu of a formal whole-of-government plan for Australian science and research, these National Science and Research Priorities should serve as a waypoint for our sector. The priorities must be developed in a consultative manner with a long-term focus, so that it exists beyond political terms, and puts Australian STEM in good stead for the future.