Australian Government
Australian Research Council

Strategic Examination of Research and Development

ARC Submission

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Introduction

The Australian Research Council (ARC) welcomes the opportunity to provide a submission to the Australian Government Strategic Examination of Research and Development.

Structure of this submission

- Early-stage research is a vital foundation for Australia's R&D system
- The ARC's role in a connected R&D system
- ARC to provide strategic direction and leadership to the research sector

We look forward to working further with the Panel as it considers these issues.

Attachments to this submission:

- A – ACIL Allen Impact Assessment of the National Competitive Grants Program (2023)
- B - Discussion Paper: A New Plan for ARC-Funded Research

About the ARC

The ARC is a non-corporate Commonwealth entity established under the *Australian Research Council Act 2001* (amended 2024), located within the Australian Government's Education portfolio, and reporting to the Minister for Education.

The ARC is a vital component of Australia's innovation and research system. As identified in the Objects of the *ARC Act*, it has a primary role of supporting universities to produce excellent and impactful research for Australia's economic, social, environmental and cultural benefit through the delivery of the National Competitive Grants Program (NCGP). The NCGP funds "excellent pure basic research, strategic basic research and applied research in all disciplines under the National Competitive Grants Program, except experimental development", where "research" does not include medical research.

Under the amended legislation, the ARC's remit includes the provision of high-quality research policy advice to the Australian Government, supporting research integrity, evaluating the excellence, impact and depth of Australian research and expanding Indigenous Australian research. It also facilitates partnerships between university researchers and industry, government, community organisations and the international community.

Since 2001, the ARC has awarded over $16 billion in grant funding to more than 33,000 research projects through its NCGP. More than 44,000 researchers have participated in NCGP-funded grants. The NCGP constitutes an active grant portfolio of over $1 billion per annum.

Consistent with the Minister of Education's letter of expectations from August 2022, the ARC is currently finalising the Policy Review of the NCGP.

Recommendations

The ARC recommends that SERD develops a comprehensive approach creating effective networks that will:

1. Recognise the particular role that the ARC, and other research funders, contribute to Australia's R&D ecosystem;
2. Place a greater emphasis on research collaboration between the public and private research institutions, in Australia and internationally, and across the range of R&D programs (refer to the TRL model below);
3. Find more effective ways to reduce the administrative burden on research decisions while ensuring high levels of public accountability;
4. Enable early-career researchers to develop their research interests not only within academia but across industry, government and community sectors;
5. Provide strategic and collaborative research infrastructure support across all R&D, complementing contributions from the private sector; and
6. Support career development of Indigenous researchers, greater recognition of Indigenous knowledge and support for research that is relevant to Indigenous communities.

Early-stage research is a vital foundation for Australia's R&D system

Early-stage research is investigator-led, curiosity-driven research that creates, challenges or extends existing knowledge, introduces new methods and concepts or establishes new principles. It lays the groundwork upon which innovators develop new products and services; informs public, private and community policies; creates research capacity in universities and industry; and creates job opportunities. Early-stage research has the highest long-term economic benefit and is more impactful than most other investments (van Bochove 2012). For every dollar spent on ARC-funded research over the past 20 years, the return on investment for Australia has been at least $3.32 (see Attachment A – ACIL Allen Impact Assessment).

The impact of early-stage research, such as that supported by the ARC, extends beyond technological advancements and economic value. It supports Australia's security, resilience, and social, cultural, and environmental wellbeing, through better knowledge and understanding within Australia of the local and global factors shaping our context. Research in the humanities and social sciences contributes to Australian knowledge and self-understanding, enhancing reflection on our national identity, shared values and our place in the world. It is also crucial for evidence based public policy, contributing to the work of Australian parliaments and governments at the local, state and federal levels. A sustained commitment to disciplinary breadth in research is vital to Australia's long-term prosperity and resilience in an increasingly complex and interconnected world.

Research need not always have direct industrial application to be valuable. There is a specific need to fund a broad and diverse range of early-stage research that encourages a culture of curiosity, discovery and innovation. It equips Australians, whether their subsequent career is

working directly in research or in the wider economy, with the skills, insights and absorptive capacity needed to tackle emerging challenges. In the current global environment, it is vital that Australia supports sovereign research capability.

The ARC's role in a connected R&D system

The traditional notion of research and development flowing linearly from discovery to application is outdated. The current concept of R&D is that it occurs in interconnected feedback loops, where early-stage research underpins technological and other breakthroughs, practical needs can drive new research directions, and new devices (e.g. space telescopes, quantum sensors) can enable further early-stage research.

To this end, the ARC's NCGP Policy Review is proposing to remove the perceived divide between basic research and applied research in its funding structures. Recent data shows that approximately 73% of ARC-funded projects traverse both basic and applied research. The ARC is proposing that instead of a Discovery-Linkage split (widely misperceived as a split between basic and applied), all of its schemes will explicitly support all forms of early-stage (non-medical research), with a strong focus on quality, flexibility and collaboration, regardless of whether that research it is theoretical, methodological or aimed at addressing recognised problems. The NCGP proposes greater emphasis on funding the new, ambitious research needed to underpin a transformed economy and to address the criticism that past ARC schemes have rewarded incrementalism over innovation.

Across the broader R&D system, there is a need to improve co-ordination between government agencies. The ARC has a distinctive role, managing approximately 7% of the government's total R&D spend to support early-stage research. Those funds have become spread too thinly across too many schemes and objectives. Greater connection across the system is essential for the ARC to make better use of its allocation, and for its impacts for Australians to be maximised. This can be achieved through improved funding structures, incentives, information services and initiatives that connect Australia's early-stage research capacity to translation, commercialisation and development opportunities across the system.

Improved coordination and alignment of research and innovation planning, and provision of information about opportunities, across sectors and jurisdictions is needed, and there is appetite from at least some state governments to work more closely with the Commonwealth, including the ARC. However, no amount of supply side (government and university) "push" can drive increased collaboration without corresponding engagement and capacity "pull through" on the demand side (industry and other end-users). The regulatory environment and global positioning of Australian industry and trade warrants attention to fully realise the economic and social benefits of ARC-funded and other early-stage research.

To grow and enhance Australian research-industry partnerships, there must be a continuum of funding opportunities that cater to organisations of varying sizes and sectors, and designated support for those organisations to navigate that continuum. Existing initiatives – from CRC-Projects grants and the ARC Linkage Projects Scheme to the Australia's Economic Accelerator, Co-operative Research Centres, the ARC Industrial Transformation Research Program and the ARC Centres of Excellence – between them provide scalable support for research partnerships.

The ARC's NCGP Policy Review proposes to preserve the ARC's support for collaborations between university researchers with domestic and international industry and other end-user partners in its schemes, while reducing duplication where similar programs are supported by other government agencies. The Policy Review is also examining how to reduce friction in the system that inhibits universities bringing business, especially small and medium enterprise (SME), partners into their projects.

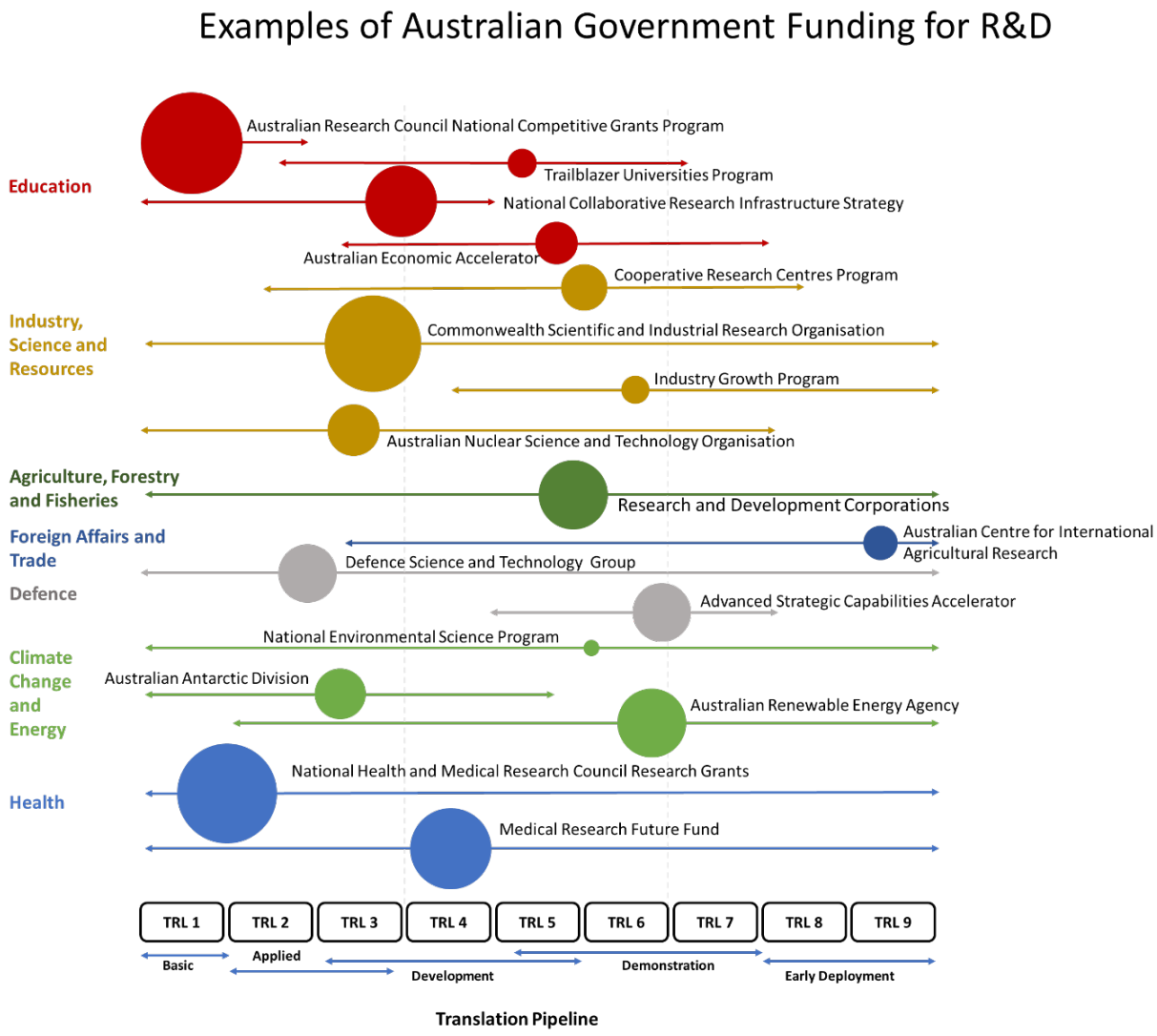

***Figure 1**: Examples of Australian Government funding for research, mapped to Technology Readiness Level (TRL). Note: Size of circles are approximate and represent relative funding amount. Position of circle approximates where majority of funded projects are likely to be located on TRL scale. Many programs span multiple TRLs.*

The ARC has responsibility for evaluating the excellence, impact and depth of Australian research. National evaluation activities are an important tool for demystifying and analysing the role of research funding in the broader R&D system. Understanding and analysis of university and industry research and research translation can be transformed through wide scale adoption and usage of persistent identifiers (PIDs) to make research and its inputs and outputs more findable, accessible, interoperable and reusable. This will inform our understanding of national investments across all sectors and to link those investments to

projects, to organisations and to outputs: data, publications, patents, policy documents, products and to link outputs to impact.

ARC to provide strategic direction and leadership to the research sector

As noted in the ARC's NCGP Policy Review Discussion Paper (Attachment B), the ARC is proposing that future NCGP investment will be underpinned by a 10-year Strategy set by the ARC Board. The Strategy would provide an analysis of the broader Australian research landscape, including major international and domestic developments affecting university research; areas of growth and strength; opportunities and targets for collaboration with external partners such as industry; and matters requiring strategic attention. It would enhance the ARC's capacity to anticipate, identify and respond to emerging issues and different plausible future scenarios over a long-term horizon, and deliver a more active role for the ARC in stewarding Australia's academic research capability and maximising the value of its investment in Australian early-stage research.

With growing interest in the capacity to respond to national challenges and build sovereign capabilities, the ARC will also need to ensure that the NCGP remains responsive to Australia's national priorities. We note that this is not a new direction; as it stands, the bulk of current NCGP funded research already lies within areas of identified Australian Government priorities. This alignment is driven by researchers' understandings of pressing research needs, rather than through adherence to program requirements.

Through the NCGP Policy Review, the ARC is proposing that a portion of ARC funding could be allocated to a dedicated scheme closely targeted at priority areas, balanced with a strong focus on investigator-led research. The new NCGP will build on its existing strong base to ensure that large-scale national and internationally-linked research projects can be shaped by government to build the research capability that underpins our future success as a nation.

The ARC looks forward to working with the SERD Panel on exploring opportunities for better connectedness of the ARC and ARC-funded research into the R&D system.