



THE UNIVERSITY OF  
MELBOURNE



**The University of Melbourne**

## **Submission to the Policy Review of the National Competitive Grants Program**

*May 2024*

# Executive Summary

The University of Melbourne (the University) welcomes the opportunity to make a submission to the Australian Research Council (ARC) and Department of Education's Policy Review of the National Competitive Grants Program (NCGP).

Australia's Research and Development (R&D) ecosystem underscores much of our national productivity and wellbeing. Adopting Frascati's definitions of research, we consider basic and applied research to be the foundations of the *fundamental* research that underpins the *translational research* of new knowledge into tangible societal benefits via experimental development.<sup>1</sup> Likewise, societal demand for innovation can pose new challenges for fundamental research. Fundamental and translational research are therefore interdependent and support for both is crucial for a strong R&D ecosystem.

As one of Australia's leading comprehensive research-intensive institutions, with extensive academic engagement in NCGP schemes and membership on the ARC College of Experts, the University acknowledges the Australian Government's reform agenda for national research funding. The amendments to the *Australian Research Council Act 2001 (ARC Act)* passed by the Federal Parliament this year, the development of the Australian Universities Accord and innovations such as the introduction of two-stage processes in some NCGP schemes, speak to that commitment.

The NCGP is unique in its function as the leading Australian program that provides a steady platform for supporting fundamental research in the long-term interests of the nation. In driving the advancement of knowledge, the NCGP should continue to serve as the public guarantor of fundamental research funding, maintaining a core level of competitively selected, peer reviewed, high-quality fundamental research across all non-medical disciplines.

Australian Government funding of research is dispersed across fragmented agencies and programs. As noted in the Discussion Paper, the NCGP represents only seven per cent of the Australian Government's annual R&D investment. The University endorses the proposal that there be a broader cross-portfolio examination of the overall framework of research and development funding in Australia, particularly where there are overlaps of research translation and commercialisation programs.<sup>2</sup> In considering how the NCGP interfaces with programs and investments managed by other Australian research agencies or government departments, the University recommends that a greater share of overall R&D funding be directed to the NCGP.

The NCGP should be ambitious and, as appropriate, embrace a higher degree of risk. It should also emphasise a continued focus on building research capability in Australia, through a mixed array of fit-for-purpose grants and fellowships of varying format and duration; better recognition and salary support for grant participants including postdoctoral and early career researchers; consolidation and streamlining of funding processes within the NCGP, and (in time) outside of the ARC; and a re-weighting of research funding away from salaries for the senior and tenured echelon of the academy.

Within our institution, this policy review has also surfaced many practical suggestions from academics and our research offices about process improvements that the University would be happy to share with the ARC at an appropriate time.

We note this review is focused on the NCGP. However, there are broader issues that are fundamentally linked with the design and operation of national research funding schemes, including the gap between research

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<sup>1</sup> OECD (2015), *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development*, The Measurement of Scientific, Technological and Innovation Activities, OECD Publishing, Paris, <https://doi.org/10.1787/9789264239012-en>.

<sup>2</sup> Including and not limited to, the Medical Research Future Fund (MRFF); the National Health and Medical Research Council (NHMRC); Cooperative Research Centres (CRCs); National Collaborative Research Infrastructure Scheme (NCRIS); Australia's Economic Accelerator; Australia's Rural Research and Development Corporations; Grains Research and Development Cooperation; Trailblazer Universities Program.

funding and true costs of research, the quantum of university funding and the development of knowledge and capability through higher education in Australia.

**For more information** or to discuss this submission, please contact Professor Mark Cassidy, Deputy Vice-Chancellor (Research), on [dvc-research@unimelb.edu.au](mailto:dvc-research@unimelb.edu.au) or 03 8344 3238.

## Recommendations

1. The NCGP objectives should articulate the nationally critical and unique purpose of the program to enable and guarantee funding for fundamental research. The objectives should emphasise research excellence, capacity, and impact (including scholarly contributions along with other types of benefits) as the paramount aims for the NCGP.
2. The ARC Board should ensure that fundamental research is allocated an increased proportion of total ARC grant funding through the NCGP, with a reduced share of funding for translational research given these are supported by other national programs.
3. The University endorses the Australian Government commissioning a broader cross-portfolio strategic examination of R&D funding in Australia, with the ARC as a leading participant, to improve alignment of all programs and build an integrated national research funding strategy. Linked to this process of coordination and recalibration, the University recommends:
  - a. The NCGP should receive a greater share of national R&D funding to support fundamental research.
  - b. A light-touch umbrella governance forum of the publicly funded research agencies should be established to provide ongoing coordination and streamlining of programs.
4. There is significant opportunity for the ARC Board to enhance the effectiveness and transparency of the Linkage Special Research Initiatives (SRI) scheme. While there is utility in a targeted funding mechanism for emerging challenges, the SRI scheme would benefit from closer direction and advocacy by the ARC Board about deciding SRI focus areas, drawing on the Board's strategic engagement with other government departments, research agencies and the academy.
5. In a coordinated fashion with other non-ARC research funding programs, the renewed NCGP should remove existing barriers to international research collaboration and explore new approaches for incentivising and supporting international collaboration, such as through a Special Research Initiative, joint funding opportunities or greater accessibility to NCGP funds by international partners.
6. The ARC Board should consider allocating more of its internal budget to administration, including the recruitment of more Executive Directors to provide leadership, expand training for College of Experts members and detailed assessors, conduct evaluation and implement scheme innovations (including, potentially, renewed panels or interdisciplinary panel/s).
7. To enable impact assessment of the NCGP and other funding programs, the ARC Board should consider leading the establishment of an Australian Government auspiced comprehensive national metadata collection on researchers, grants, and research outcomes, drawing on existing data assets and inputs from the non-university sector.
8. The ARC Board should consolidate and streamline schemes within the NCGP where feasible for more efficient application processes, while still offering a mix of grants and fellowships formats/duration to accommodate different risk settings, objectives, disciplines and interdisciplinarity challenges.
9. The ARC Board should review scheme rules to ensure that NCGP funding expands current capabilities by recognising, remunerating, and advancing the capacity of researchers at all career levels (including through DECRA's, Future Fellowships, international investigators, and potentially a renewed and updated

form of the Australian Postdoctoral Fellowships scheme). This may mean reviewing whether tenured academics should be eligible to obtain fellowship salary, in favour of expanding the workforce.

10. Data collected about diversity and inclusion in the NCGP funding should be greatly expanded and regularly published to inform sectoral improvements. In schemes where there is evidence of systemic disadvantage, the ARC Board should consider intervening with special measures and/or assessment process adjustments to support more equitable and sustainable spread of awards across the research workforce.
11. Indigenous researchers and Indigenous research should be supported in various ways including through:
  - a. appointing more Indigenous College of Expert members.
  - b. earmarking a minimum proportion of round funding to research that builds the capacity of Indigenous researchers.
  - c. provision of higher Indigenous PhD stipends (set to the maximum Research Training Program rate).
  - d. availability of longer research grants and additional project costs for Indigenous research where appropriate.
  - e. incentives offered for cross-institutional Indigenous research/Indigenous knowledge projects where there is participation with regional and/or remote institutions.

## Responses to Discussion Paper

**Q1. What are the best guiding objectives for the NCGP to support excellent pure basic, strategic basic and applied research that will enable it to deliver economic, social, environmental, and cultural benefits for Australia?**

The objectives of the NCGP are important as they shape the structure of the program and its schemes and drive the behaviour of the academy. The four current NCGP objectives highlight high quality research, facilities and equipment, researcher training and partnerships (paraphrased). The Discussion Paper proposes six draft objectives for the NCGP with wide coverage and seemingly equal priority. They highlight commendable elements of research and are relevant to most, if not all, Australian research funding programs.

The draft NCGP objectives should be sharpened to capture the critical and unique purpose of the program and set out a strategic, enduring, and ambitious agenda for the long-term sustainability and quality of Australian blue sky, applied and collaborative research. The NCGP objectives should be considered with close reference to the aims of other Australian Government (non-ARC) R&D programs, to ensure strategic alignment, efficiency, and clarity of purpose.

The ARC should also clarify the relative prioritisation of specific elements within the NCGP objectives. In the University's view, the objectives of *Excellence*, *Capacity* and *Impact* are paramount and integral to fostering research excellence, strengthening the sector, and enabling its resilience and readiness to adapt to emerging directions. The draft objectives of *Collaboration*, *Translation* and *Alignment* are important underpinning or contributory objectives.

We note that the phrasing of this consultation question is predicated on four types of benefits (economic, social, environment and cultural) without explicit reference to scholarly contributions. Fundamental research does not typically deliver these benefits in short timeframes. We recommend that the ARC's deliberations on NCGP objectives should be conducted from a different starting proposition, in which the advancement of knowledge is a core benefit to be delivered by the program.

The University also highlights the importance of research culture, behaviours, and integrity. While not necessarily objectives of the NCGP, these can be substantially influenced by the ARC through scheme funding rules, selection criteria and processes set out in NCGP programs that incrementally shape the emergence of

research culture. Transparency and integrity are critical to ensuring a robust, creative, and dynamic national research environment that is respected and understood by government and holds a strong social licence with the public. The University recommends that, as appropriate and effective within NCGP scheme processes, there should be greater emphasis on the ARC's expectations about high integrity research behaviours and modern leadership attributes in the award of funding.

Consideration of research culture and integrity are also relevant to the objective of *Research Collaboration*, with pertinence to the conduct of Indigenous research. The NCGP should explicitly aim to fund research that is based on ethical and enduring (and not predominantly transactional) partnerships and collaboration.

Response to the draft objectives:

- *Research Excellence*: This objective should strongly articulate the role of the NCGP to enable and protect the funding of fundamental research, which is a precursor to translational research. It is vital that supporting fundamental research remains a paramount objective for the NCGP.
- *Research Capacity*: A core objective of the NCGP is to nurture researcher development through fellowship and other programs to maintain broad capability across different disciplines. In addition to supporting talent, academic pathways and diversity, the objective of research capacity should encompass collaboration with external users of research in Australia and overseas.

*Research Impact*: We recommend that Research Translation be incorporated into this objective as it is a type of impact.

A broader articulation of impact should be adopted, relative to the different disciplines of the academy and to stages of knowledge creation. For instance, research impact could focus on 'next-user benefits', which would allow for scholarly and academic impact as well as societal/economic impact and directly refers to the potential of the research to unlock future uses.

We further recommend that this strategic objective of the NCGP should be to *identify* research with potential for impact and *measure* how funded research drives knowledge and contributes benefits.

- *Research Translation*: A large portion of government spending on R&D is directed towards translation via programs outside of the NCGP. This objective should be merged into the *Research Impact* objective, as above.
- *Research Alignment*: Alignment with 'national priorities and other Commonwealth government R&D investments' is a key consideration in how public research programs are designed, delivered and quality assured, but this should not be a primary driving objective of the NCGP as it will limit research opportunities or exclude potentially excellent research that does not, at a certain point in time or political context, closely align with stated national priorities.

Research excellence should be the paramount criteria for funding, with targeted funding streams, such as the Special Research Initiatives scheme, reoriented towards evidence-based mission-driven priorities that align with national interests.

- *Research Collaboration*: Research collaboration is not an end in itself but is a means for doing excellent research (with business or community partners, or across Australia or globally), and/or ensuring research has impact, and/or amplifying the capacity of researchers.
- *(Missing) Research Infrastructure*: The funding of research infrastructure is not mentioned in the draft objectives. Research infrastructure should be incorporated in the NCGP objectives.



## Q2. How can the NCGP further support and encourage:

a. high-calibre research that drives the advancement of knowledge?

b. the utilisation, translation or commercialisation of research to deliver benefits to Australia's society, economy, and community? Do you consider the current ARC governance model is adequate for the ARC to perform its functions?

### **Prioritise fundamental research to drive the advancement of knowledge**

The ARC holds a unique role in funding fundamental research, while numerous other agencies and industries fund the application and translation of research. As such, the NCGP is the leading Australian program that can provide a steady platform for fundamental research in the long-term interests of the nation. The NCGP should continue to serve as the public guarantor of fundamental research funding, ensuring a core level of competitively selected, peer reviewed, high-quality fundamental research across all non-medical disciplines. Investment in blue sky, curiosity driven research is the pre-condition for future applications and builds the foundational workforce capability without which innovation, commercialisation and research translation would not be possible.

The University would support a rebalancing of funding allocation to ensure fundamental research attracts an increased proportion of total ARC grant funding, with a reduced share for translational research funding due to availability of funding in other government schemes.

### **Integrated national research strategy and schemes**

The Australian research funding landscape comprises numerous programs managed by separate Ministerial portfolios or departments and implemented through dozens of distinct R&D schemes. For example, in 2017-18, R&D investment was provided through over 119 initiatives, across 14 government portfolios and six methods of funding allocation.<sup>3</sup> This means that the system is fragmented and disjointed, both administratively and strategically, and unbalanced across disciplines.

A piecemeal approach to renewal and uplift of research funding will not have systemic benefit. The University endorses the proposal of a broader review of the R&D funding ecosystem in Australia. The ARC Board should scrutinise how the NCGP aligns with other national funding programs and national research strategies, and advocate for a greater share of the overall R&D funding pool for the NCGP.

In support of forming an aligned R&D funding landscape, the University recommends the establishment of a light-touch umbrella governance forum of the publicly funded research agencies to contribute to the development of an integrated national research strategy. Such a forum would enable better coordination across the sector. The forum could work with peak bodies, universities, research professional associations, government, departments, and research institutes to contribute to the development of a more integrated, and effective approach to R&D funding with greater clarity about the unique roles and objectives of each agency or program. Better alignment across Australian funding streams will enable public research funding to support the full pathway from fundamental research to translation.

### **Full economic costs of research**

The government must lead and set the example of paying for the full cost of research as recommended in the Australian Universities Accord. There is a large and growing gap between the cost of research and the proportion of it that is funded through government funding schemes, many of which do not even cover the direct costs of the research project of Fellowship. Properly funding the full economic costs of research through flagship program such as the NCGP would support excellence and remove the need to cross-subsidise the research effort from other sources of university funding. It would enable universities to mobilise their resources differently to support improvements and growth across all areas of activity.

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<sup>3</sup> *Report on Australian Government Funding Arrangements for non-NHMRC Research*; Canberra: House of Representatives, Standing Committee on Employment, Education and Training, 2018, p.7.

## **ARC governance and administration**

The ARC holds significant influence in the Australian research sector with the positioning and authority to demonstrate best practice. Through its programs and funding models, it can shape sectoral standards, norms, and expectations. The University welcomed the changes to the ARC Act that have introduced an ARC Board to oversee the NCGP, lead the revision of schemes and assure the ARC's status as an investable proposition.

In the renewal of the NCGP, the University recommends an expansion of the executive branch of the ARC to provide greater depth of senior academic leadership. Executive Directors are critical for directing program innovation and delivery as well as uplifting and training of the College of Experts panels and assessors. A larger investment of ARC internal funding allocated to administration and leadership would support the development of more agile and adaptive scheme processes, robust review panels and higher evaluative capability within the organisation.

Executive Directors are critical for directing program innovation and delivery as well as uplifting and training of the College of Experts panels and assessors. To allow for more accurate discipline expertise for each panel, we propose an Executive Director be allocated to panels with reduced breadth of disciplines per panel.

We also recommend the ARC Board investigate the most effective method of assessing interdisciplinary proposals, whether through the addition of a new specialist interdisciplinary panel or another approach.

### **Deliver benefits by addressing research infrastructure gaps and complexity**

Research infrastructure is a key underpinning enabler of research and subsequent research utilisation, translation, and commercialisation in several disciplines. Currently, there are gaps in coverage within the NCGP relating to research infrastructure, and gaps between the NCGP's thresholds and other programs that fund infrastructure (such as NCRIS and the MRFF infrastructure scheme at the higher cost end).

Given that not all fields within the ARC's remit require significant expenditure on research infrastructure, the ARC should consider a distribution that responds to where high-cost or low-cost research infrastructure may be most beneficial. The Linkage Infrastructure Equipment and Facilities (LIEF) program is primarily intended to support technologies that are considered cutting-edge in their field and typically high value (commonly exceeding \$1,000,000). The strategic emphasis in the LIEF scheme on collaboration, while important and commendable, has the practical effect of placing upward pressure on the size and value of these proposals as each partner seeks to address their considerable equipment needs.

To reduce the administrative burden and complexity associated with LIEF applications, and address the gap for equipment funding at the lower level of value, the ARC should consider building broader opportunities for infrastructure funding within the Discovery Program.

## **Q3. How can the outcomes, impact, and contribution of NCGP funded research be best identified and communicated?**

### **Identifying and measuring excellence and impact**

Research evaluation and demonstration of impact and return on investment are important and ongoing parts of ensuring university research is an investable proposition for research funders, including government, industry collaborators and the Australian public.

The ACIL Allen report referenced in the Discussion Paper noted the burdensome nature of previous assessment measures used to assess ARC research outputs and impacts. A light-touch approach should be used to monitor fundamental aspects of impact for the purpose of reporting and accountability. In terms of identifying impacts, this should consider some mix of near-term and long-term measures noting that translation and adoption of research can take years. In terms of value/benefits to Australia, this will also vary depending on the nature of the research.

The University notes the ARC's intent to transition from the former approaches (Excellence in Research Australia [ERA] and the Engagement and Impact Assessment [EI]) to a 'modern data driven approach'.

ERA enabled the systematic and comprehensive collection of data about national research. The ARC also has a wealth of other data, such as the reports on all completed grants, and annual reports from Centres of Excellence, that form part of the national understanding of research capability and outcomes. To properly inform policy makers on the strengths and gaps in sovereign research capability, it is essential to consider the research conducted outside the university sector – including Publicly Funded Research Agencies and Medical Research Institutes. There is an opportunity to replace ERA with a comprehensive national data asset, such as a National Research Capability Map, that consolidates both university and non-university data.

Rather than focusing assessments on individual institutional performance, a central asset such as this could be interrogated to inform an understanding of national strengths and international connections across disciplines. This could be linked to ongoing evaluation of the NCGP and ensure the development of longitudinal measures for evaluating research, impacts, benefits, and sector-wide returns on public investment.

### **Communicating impact and opportunities**

The University concurs that more could be done to showcase individual and collective research outcomes and build the social licence for public investment in research. The ARC is positioned to lead advocacy with government and the Australian public on the outcomes and ‘next opportunities’ of NCGP-funded research. Working with universities, peak associations and learned academies, the ARC could utilise datasets and communication channels for this purpose. Likewise, research institutions must continue removing barriers to knowledge transfer and build a wider public and private sector understanding of, and connection, to their research, innovation, teaching and learning activities.

It is stated in the Discussion Paper that, despite the high quality of Australia’s university R&D, the nation does not currently utilise its full potential as a source of innovation, nor as a source of inspiration for efforts to address national and strategic policy challenges. In the Australian Universities Accord Final Report, it states that ‘Australia’s governments and industries are not making enough use of university research capability and capacity, nor are they using it across as broad a range of disciplines as they should be.’ This suggests that it is not a failure of the programs as they stand, but one of engagement outside of the academy.

Several overseas science funding agencies have internal media capability working with subprograms to identify, reach out to, and support grant recipients to bring research impact stories into the public eye. Similarly, overseas agencies track media activities by their grant recipients in their annual reporting. Such ecosystem-level tracking could also encourage more researcher-initiated communication activities.

Research funding agencies could establish a central repository shared by all government research funding entities, that is accessible to the public and private sectors, and that communicates the research underway and shows potential opportunities for application/translation. This could also be utilised to build links between universities, small-medium enterprises, and industry.

### **Q4. What structure and design of the NCGP would:**

**a. best support the NCGP’s objectives?**

**b. reduce complexity and deliver grants more efficiently?**

**c. rebalance risk settings to encourage frontier basic research with potentially transformative outcomes?**

**d. set the right balance between different scheme types and duration?**

**e. use peer review in the most effective way?**

**f. leverage the opportunities and manage the risks of using artificial intelligence?**



### **a) Mixed model to support NCGP objectives**

Implementation of the NCGP's renewed objectives will require a mix of funding formats. The overarching Discovery and Linkage frameworks have largely been successful, albeit with some gaps and a gradual reduction in funding for fundamental research.

The University supports the NCGP continuing to provide a mix of fellowships, project-based funding, and entity level grants. Research funding through the ARC is currently weighted towards optimising research quality through large and prestigious research programs (e.g. Centres of Excellence and Laureate Fellowships) compared to smaller, discovery research activities (e.g. Discovery Projects, DECRA's).

The renewal of the NCGP is an opportunity to update and change this weighting towards a wider range of grant formats that support pure, applied, and collaborative research at both large and small scale. Many projects in HASS and also STEM fields, such as mathematics, do not require large grants. Smaller value projects in either HASS or STEM can yield significant impact and represent extremely good value for money. There is potential to develop streamlined, but high benefit, grant programs with significantly reduced application processes. These could sit alongside larger value grants such as fellowships and Centres of Excellence.

### **b) Streamline and consolidate to reduce complexity and improve efficiency**

Following the example set by the NHMRC in 2018, the ARC Board should seek to streamline the schemes offered within the NCGP, without reducing the spread, availability, and utility of research funding formats and options.

In time, it would be transformative to have the ARC, NHMRC and other application systems combined into a single, national research application platform, to the extent that doing so is consistent with the objectives of the various funding programs. A single national research funding application platform would create efficiencies for researchers and administrators in both pre- and post- award grant management.

Importantly, an NCGP that coordinates with the NHMRC schemes could provide support for medical applications that fall in the gap between funding agencies, particularly research performed by non-medical disciplines that benefit medicine. These are projects led by computer scientists or engineers who do not have a medical track record and are therefore not fundable by NHMRC, but their projects are ineligible for NCGP funding due to the medical component. The ARC and NHMRC should develop a joint method to assess and support such applications.

A centralised application process across numerous research funding programs, such as the ARC, NHMRC, MRFF, NCRIS, could be linked to a central researcher profile (i.e. RMS) and divert applicants into the appropriate schemes based on their proposal and career stage. With fewer schemes and grant rounds, applications would be made via a unified call that enables researchers to nominate their application for different streams based on the nature of their proposal and the team requirement, i.e. industry-focused, interdisciplinary-focused, fundamental research, translational research, major infrastructure, postdoctoral researchers, or international fellowships, and so on.

In the present system, it is difficult for academics and research offices to manage overlaps where applicants are simultaneously leading multiple applications or bid developments. While the ARC staggers application rounds as far as possible, there is misalignment with research structure and the relative lead time necessary for particular schemes.

Efficiencies could be achieved in the NCGP in other ways:

- Running all fellowship rounds at the same time and utilising a single RMS application where the applicant simply elects whether they are applying for a Discovery or Industry Fellowship (and the level).
- Expanded budgets for Discovery Projects (to acknowledge the value of project-based funding) could be coupled with the new integrated ability to name a postdoctoral researcher (for their career building) and include a fellowship (such as an international professorial appointment).

- The ARC could design schemes that are differentiated by stage of knowledge creation such as:
  - small-scale, one-year grants based on excellence in creation of novel ideas with a clear case for ‘next-user impact’. This would support frontier research that might not yet be ready for multi-year project design.
  - mid-scale three-to-five-year grants based on advancing established knowledge to further development.

### **c) risk settings for potentially transformative basic research**

The University strongly encourages the ARC to support highly novel, big picture, potentially transformative research endeavours that might ordinarily be deemed ‘higher risk’ or have a greater level of uncertainty with regard to outcomes. The University endorses the possibility of developing a new NCGP scheme or fund for this purpose.

A ‘big ideas’ scheme of this sort could evaluate novel ideas without consideration of track record (or with reduction in its weighting), enabling a blind assessment to ensure that novel ideas are considered by Selection Advisory Committees. This may also overcome some aspects of risk aversion to frontier research and drive innovation. Potentially, Special Research Initiative funding could be utilised or intermittently repurposed to provide frontier-pushing research.

Alternatively, the ARC could introduce a new two-step or multistage scheme so projects can receive continued funding if milestones in discovery are met and the potential for impact becomes clear and compelling:

- Frontier basic research could be supported through a fail-fast short exploration grants scheme, balanced with a (slightly) more conservative scheme with longer funding and the ability to abort high-risk research that fails to deliver sufficient progress.
- For instance, there could be new Research Excellence Hubs (i.e. ‘mini’ Centres of Excellence) or ‘Centre Satellites’ that are funded initially for three to four years that might later become eligible for the seven-year Centres of Excellence scheme.
- Where seven-year grants are awarded, such as through the existing Centres of Excellence scheme, the midterm review of funded projects should be applied strictly to avoid ongoing dysfunction, with no assumption of funding continuity unless research of significance is demonstrably occurring.

These options would rely on careful and appropriate monitoring of progress. There are benefits to supporting higher risk research but clear boundaries, potentially through annual assessments, would be necessary to ensure good use of research funding.

### **d) balance of scheme types and duration**

The gap, in terms of grant size and duration, between (on average) three-year Discovery or Linkage Project funding and Centres of Excellence funding (over seven years) is significant. Although the ARC allows proposals for some schemes for up to five years, the uptake or award of longer-term proposals has been minimal. Three years is not sufficient to span a PhD candidature.

The NCGP should consider the recommendations from the Australian Universities Accord Final Report that include more funding for longer periods of time (i.e. five years) to enable more research training and ambitious research projects that will advance knowledge and lead to translation/commercialisation of outcomes. As discussed above, this should be coupled with rigorous interim assessments to assess whether milestones are reached.

As proposed above, ARC ‘Centre Satellites’ or ‘Mini Centres’ could be supported as an initial stage that might (given outcomes and/or performance) lead to full, seven-year Centres of Excellence (situated in either a Discovery or Linkage scheme). This could also reduce the need to have Centres of Excellence rounds every three years, which is an unproductively intermittent approach to big-picture, ambitious, collaborative thinking and is also highly competitive within universities as an internal process.

### **e) effective use of peer review**

It is crucial that the ARC maintains its panel system, i.e. the College of Experts and its systematic processes of moderation, to guard against the views of single reviewers determining grant outcomes. Peer review of the NCGP should, as far as possible, be conducted by experts in the field or subdiscipline who are accustomed to making rigorous and fair academic judgements.

Training and oversight for the College of Experts is a critical component of peer review. For the recent Discovery Projects Expression of Interest (EOI) round there were many examples of highly inconsistent scoring between different panel carriages. This undermines confidence amongst the research community. Expanded training for members of the College of Experts, supplemented by an adapted form comprehensive training for all new detailed assessors, will benefit the peer review process.

The ARC Board should consider incentivising greater involvement of international reviewers as detailed assessors, including how such an arrangement could be reciprocal or remunerated for the assessors (like already occurs in many other countries). This would foster connections with key international grant schemes and share knowledge and best practice on research funding approaches.

Indigenous community partners should also be provided with the opportunity to build capacity and take on leadership and decision-making roles throughout the funding and research process. This should be brought into the peer review process, and more Indigenous College of Experts members appointed.

### **f) AI and peer review**

The utility of artificial intelligence (AI) in applications review is unclear at this stage, noting that privacy concerns are not resolved. The University does not recommend that AI be utilised to replace human assessors or deployed in a way that could influence the outcome for individual applications in the peer review and the grant selection process.

However, future opportunities for AI use in the NCGP could include:

- Assessment of research impact outcomes across multiple data sources.
- Identification of common research themes, challenges and trajectories across schemes and programs for the purpose of scheme evaluation and strategic design.
- By skimming through applications, identification of common or overlapping research infrastructure requests with the potential to reduce waste and duplication on infrastructure spending.

**Q5. How can the NCGP best support collaboration between disciplines (between and across HASS and STEM) among researchers (both national and international), across sectors and funding programs.**

### **Collaboration between disciplines – interdisciplinary and multidisciplinary research**

Interdisciplinary research as an approach is complex and distinct from other forms of collaboration, such as multi-disciplinary and transdisciplinary research, as each requires different skillsets. Multidisciplinary research between and across STEM and HASS fields also requires a combination of different approaches, including provision for both low and high-cost research projects.

Interdisciplinary collaboration is not encouraged by current NCGP processes as the peer review process is very discipline specific. In the most recent EOI round of the Discovery Projects, we observed that many of the 'disparate score' EOIs with more than two letter grades between carriages were on interdisciplinary projects. This suggests a strong argument for building dedicated greater interdisciplinary capability into the NCGP assessment processes, particularly in the Discovery Projects scheme.

The ARC Board should further investigate approaches to encouraging interdisciplinary research, and removing barriers in current schemes structure and assessment processes. The investigation could look at how other domestic or global funding schemes encourage interdisciplinarity; the utility and benefit of having

a separate scheme or panel with a specific focus on interdisciplinary or multi-disciplinary research; and/or tweaking current schemes to enable different funded 'roles' to allow for modest support for interdisciplinary and/or multi-disciplinary activities.

### **International collaboration**

The ARC could play a key role in fostering research in our global neighbourhood and expand programs to foster collaboration with Asia-Pacific neighbours and their research councils, potentially through the Special Research Initiative funding. This is addressed further in Question 9.

As part of developing its international engagement approach, the ARC should remove existing impediments to international research collaboration. While US funding sources are largely open to Australian researchers and some grants from the UK Research Councils are open (up to 30% of project budgets in some areas), Australian research funds largely do not accommodate active and funded international participants).

Nationally and beyond the ARC's sole remit, there is a lack of schemes that aim to facilitate international research collaboration. The NCGP should explore approaches to funding allocation that actively supports and encourages international collaboration, including joint funding opportunities. This could follow in the model of co-funding options such as EU-NHMRC Collaborative Research Grants or CSIRO-National Science Foundation (US) joint schemes, or through enabling greater accessibility of funds through existing ARC schemes. Direct arrangements with international funding agencies are important to Australian research as they enable communication, relationships building and mutual awareness, and are best managed with coordinated single point peer review.

**Q6. How can the NCGP promote a strong and diverse research sector, including through supporting research training and opportunities for early career researchers, women researchers, and other under-represented groups?**

### **Direct NCGP funding towards equity and capability gaps**

A diverse and inclusive research sector will enhance research creativity and innovation in Australia, but a number of existing barriers need to be addressed:

- All researchers who contribute to research projects should receive appropriate recognition. As discussed below, one way of achieving this would be the provision of salary support for early- and mid-career investigators in grants or providing additional fellowship opportunities for later mid-career researchers.
- Funding the full cost of research proposals would build confidence and assist early career researchers, as well as those returning to academia following periods of personal disruption, who often bear the brunt of funded activity recalibration when funded project budgets are cut but anticipated project outputs remain the same.
- The ARC should also re-consider the level of funding it provides to tenured senior or professorial (or equivalent) researchers, such as through the Australian Laureate Fellowships scheme. While Laureate Fellows are intended to 'attract and retain outstanding researchers and research leaders of international reputation...' they are rarely external to research organisations, and the Laureate Fellowship salary is arguably not needed for tenured domestic applicants. The University would support redirecting these salary funds to achieve some of the diversity and inclusion outcomes discussed elsewhere in this response.
- The ARC should consider raising the level of funding provided for PhD stipends within its grants. The ARC currently provides stipends at the RTP minimum rate only, (\$32,192 in 2024, [Research Training Program – Department of Education, Australian Government](#)), which is insufficient to attract domestic candidates, particularly in urban centres. It is recommended that the stipends are provided at the University's respective RTP stipend rate.

### **Support for Early Career Researchers**

It is vital to shift NCGP settings to provide greater opportunities for ECRs to be supported through the program. Incorporating named Research Fellows in all schemes, and fully funding their salaries as CIs, would help build track records and bolster the academic trajectories of early to mid-career researchers in the tenuous career academic environment.

The ARC should consider bringing back Australian Postdoctoral Fellowships (or similar) on grants so ECRs can be named on grants. As part of streamlining and consolidated application processes, the ARC could also roll DECRA and Future Fellowships into the Discovery Projects scheme, while still allowing fellows to apply as sole applicant or as part of a team.

### **Diversity and inclusion in research teams**

The scoring of multi-investigator grants minimally considers the diversity of the research team. The research sector could be encouraged to actively consider the equity and diversity of their teams by being asked to address this in a diversity and inclusion statement in grant applications that directly addresses how the proposal will further sustainable and equitable research and research training.

### **Women researchers**

The under-representation of women researchers in the NCGP, particularly at senior levels and in the proportion of funded Chief Investigators outlined in the Discussion Paper, is an ongoing and serious concern. While these trends may mirror the overall research sector and applicant pool, it is in the direct remit of the ARC to set standards for the sector and lead reforms to improve the equity of outcomes. The ARC should consider how equivalent organisations have sought to manage this problem. Where there is well documented and repeated gender inequity within a scheme, it may be justifiable to change the distribution of funding and ensure that gender equity is actively considered by assessors throughout the process, not just as a reflective exercise at the end of ranking.

In schemes where the disproportionality is entrenched, and particularly in pipeline research schemes, the ARC should consider adapting the effective special measures introduced by the NHMRC in 2022 to address systemic disadvantage faced by women researchers and non-binary applicants in the Investigator Grants scheme. In senior levels of the Investigator Grants scheme (L1, L2, L3, where the setting of equity targets had failed to reduce the gender disparity) the NHMRC made several interventions including requiring the funding of an equal number of Leadership grants for women and men.

### **Data on diversity and inclusion**

The NCRP should establish, report, and regularly publish metrics on the diversity of its funded research by discipline area. The proposed NCGP *Research Capacity* objective to promote a 'sustainable and diverse research sector' is commendable, but the ARC does not currently provide sufficient data to understand the effectiveness of current support mechanisms for doing so.

The proportion of successful grants that do not involve an ECR should be reported on, along with the success rate by career stage (which is currently only reported for fellowships). The success rate of women Chief Investigators (both as lead and non-lead) should also be published for general understanding of their level of success.

**Q7. Are there aspects of the NCGP that could be strengthened or redeveloped to advance support for:**

- a. Indigenous Australian research, incorporating Indigenous knowledge and knowledge systems (where appropriate)?**
- b. Indigenous researchers, irrespective of their areas of research**

### **Support for Indigenous research and Indigenous knowledge**

Indigenous research undertaken by, and in collaboration with, Indigenous academics and communities is key to closing the gap in social and economic outcomes for Aboriginal and Torres Strait Islander people.



Indigenous-led research and collaborative research supports Indigenous self-determination by improving data related to Indigenous people while protecting Indigenous data sovereignty. It is vital to improving health, education, and economic outcomes in remote Indigenous settings. However, the current funding system does not sufficiently incentivise Indigenous research.

The NCGP plays an important role in enabling collaboration between Indigenous communities and researchers resulting in social, cultural, and economic benefits. Co-created research stemming from equal partnerships leads to greater efficiency and effectiveness, resulting in the best possible knowledge base for targeted decision-making and meaningful outcomes.

Given the history of mistrust, exploitation and unethical research practices with Indigenous populations, collaborative research partnerships must be grounded in high trust relationships which requires prioritising time, effort, and flexibility. The timespans of ARC grants are not aligned with the time it takes to develop relationships, engage in co-production, and deliver meaningful outcomes to communities.

The University recommends:

- *Budget allocation:* As a boost towards building the Indigenous research pipeline, the ARC should follow the NHMRC in requiring a minimum portion of round funding be awarded to proposals that support Indigenous research/ers.
- *Targeted grants for Indigenous research structured around a seven-to-ten year timeframe:* The NCGP should earmark funds focused on Indigenous research and knowledge in appropriate schemes with timeframes that extend from minimum five years funding (with the first two years specifically set aside for relationship and partnership building) and renew for a second five years based on successful milestone reports. Criteria would need to ensure strong evidence of a co-design process and evidence of existing relationships and consent at the point of application.

Such a scheme would reflect the fact that Indigenous researchers and non-Indigenous researchers working with Indigenous communities dedicate months to establishing relationships built on mutual understanding and respect, recognition of cultural lore and traditions, reciprocity, two-way learning and capacity building.

- *Additional project funds and incentives for remote Indigenous research:* Cost is a major barrier to carrying out research in remote Indigenous communities. The ARC, along with other funding agencies, should recognise and award the true cost of research in remote geographic locations (where visitor infrastructure is non-existent) and work with the Australian Taxation Office to provide different forms of assistance and recompense for researchers who partially self-fund remote field work. This would encourage regional-remote research with some of Australia's most disadvantaged Indigenous communities.

### **Support for Indigenous researchers (in any discipline)**

The Discussion Paper reinforces that Indigenous academics are under-represented and Australia must grow the pipeline of Indigenous researchers. The 'Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People Report' noted that building a research pipeline of Indigenous Higher Degree Research students and Indigenous ECRs is paramount to growing the Indigenous academy.<sup>4</sup> Twelve years later, this challenge persists. Contributory factors include a lack of cultural safety, unequal workloads, invisibility, and isolation in the research environment. As a result, Australian research is failing to benefit from new knowledges, approaches and methodologies that enrich and strengthen the academy.<sup>5</sup>

As noted in a recent Universities Australia/Australian Council of Graduate Researchers workshop on the topic, many leading Indigenous academics are due to retire in the next few years and there are grave concerns over

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<sup>4</sup> *Review of higher education access and outcomes for Aboriginal and Torres Strait Islander people: Final Report* Behrendt, Larissa (Chair) et al. Department of Industry, Innovation, Science, Research and Tertiary Education. 2012.

<sup>5</sup> Locke, Trudgett and Page (2022) Building and strengthening Indigenous early career researcher trajectories, *Higher Education Research & Development*, 42:1, pp 156-170.

who will replace them. Finance is a key barrier to building the Indigenous researcher pipeline, highlighting the importance of attractive doctoral and postdoctoral scholarships. The University recommends:

- Higher PhD scholarships and stipends that reflect the life stages and financial realities of Indigenous PhD candidates. Indigenous PhD students are often older and have financial responsibilities associated with family and community.
- Increased investment in postdoctoral fellowships for Indigenous researchers should be considered a vital investment in Australia's research future.

As a complementary action with expanding supports through national funding schemes, the Australian university sector (peak bodies) and Indigenous-led research networks could jointly explore the potential in Australia of international exemplar researcher development programs, such as New Zealand's [Pike Aki](#) whole-of-university sector program for Maori PhD and Masters students, and the [Te Kei Māori](#) Academic Staff Development program.

- A targeted round of funding allocations to co-institutional teams who are seeking to build cohorts of Indigenous PhD candidates. To boost regional-remote area research and research capability, eligibility could be tied to cross institutional partnerships that must include a research-intensive institution and a regional partner institution.

### Indigenous peer review

- Indigenous knowledge and knowledge systems should be incorporated into peer assessment processes and the number of Indigenous College of Expert members should be increased.
- To build the capacity of Indigenous research across the career lifespan, the ARC should also consider reviewing funding assessment processes to better recognise the diversity of skills needed for research success, and distinct life trajectories, through measures such as narrative CVs.

## Q8. In the context of other government funding for R&D:

a. How should the NCGP promote an appropriate balance of basic and applied research?

b. How can the NCGP improve its connectedness to the research ecosystem to help progress the research it funds further along the pipeline towards translation and impact?

### a) appropriate balance of fundamental and translational research

As discussed above, the NCGP should be weighted towards funding fundamental research (which includes basic and applied research, but not translational efforts for the development part of R&D) and distribute research funds equitably across disciplines, underscored by objectives that give explicit support for the essential role of fundamental research within the research ecosystem. This is an essential function of the NCGP and will secure a pipeline of translatable discoveries and new scholarship.

Approximately 60 percent of the ARC's research funding is currently distributed through the Discovery Program, with some fundamental research also partially supported in projects funded through the Linkage program (e.g. Centres of Excellence). While the increase in Linkage expenditure (and overall ARC expenditure) through Industry Fellowships was welcome, the drive towards applied research with industry partners (which often merges into translational research and development efforts) was accompanied by a gradual decrease in funding for schemes squarely focused on fundamental research in Australia since 1992 (Australian Academy of Science, drawing on Australian Bureau of Statistics data).<sup>6</sup>

NCGP funding should be allocated across all non-medical disciplines in a way that maintains broad research capability. This would have the additional and crucial effect of protecting the long-term viability and quality of research in HASS fields, as well as technical and scientific fields including engineering, physics, maths, and

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<sup>6</sup> *Science in Australia: policy feature Australian Academy of Science* (available at <https://www.science.org.au/curious/policy-features/scienceaustralia>).

computing, for whom the ARC is the only public funding body. As such, the ARC Board should regularly review the criteria provided to discipline panels about for funding allocation to ensure appropriate distribution that promotes the sustainability and workforce capability development of all eligible disciplines.

The University supports the Linkage Program in encouraging cooperative approaches to research and promoting research partnerships but recommends that this objective be carefully scoped in the context of other government schemes. Through the strategic examination of national R&D, the ARC should ensure Linkage schemes align with how industry functions. It is the 'return on investment' that drives industry and through it, the ability to convert fundamental research information into economic impact.

#### **b) ecosystem connectedness to improve translation and impact**

It is challenging to establish commercial or other tangible economic offshoots from fundamental research anywhere in the world. In Australia there are even further challenges due to our small population size, a research translation culture that is in the early stages of maturation, and relatively limited infrastructure. Nevertheless, the response to Covid-19 in Australia highlighted our ability to rapidly switch in research directions in pursuit of a shared mission. There are numerous current challenges facing Australia that need to be addressed through similar research ecosystem connectedness.

As discussed above, a light-touch umbrella governance forum of national funding agencies could be tasked with catalysing this connectedness. For example, projects funded through the NCGP could be linked to successful projects or programs (e.g. those that achieved their proposed outcomes) with other agencies to support further developments, such as proof of concept funding, without additional funding applications being required. This would reduce the burden on researchers to submit applications for additional funding and reward those whose projects were achieving their anticipated goals.

Setting up a funding system that has a whole-of-government approach would enable genuine pathways for successful or promising research programs and could minimise application burden for researchers and encourage a focus on outcomes designed to actively promote economic and social benefit to Australia.

### **Q9. How should the NCGP be structured to best support and deliver on national research priorities, as they evolve over time?**

The NCGP should deliver on national research priorities at a scheme level, not at the level of individual research proposals. National research priorities can change rapidly, depending on internal or external influences. While the relevance of a research proposal to national research priorities should be addressed in applications, including through the National Interest Test statement, assessment panels should not exclude ambitious research that may be focused on opportunities that the national research priorities have not yet considered. For most NCGP schemes it should remain that alignment with Australian Government policy or priority area is not an eligibility requirement or a leading selection criterion. The overall scheme targets for meeting national priorities outlined in the Discussion Paper remain appropriate.

#### **Overhaul of Strategic Research Initiatives**

The Strategic Research Initiatives (SRI) scheme in the Linkage program presents an opportunity to reset the way in which research collaboration is mobilised to respond to strategically important mission-driven challenges and opportunities. Typically, SRIs are identified by the government for the allocation of mission-driven new funding, with administration by the ARC, but there is greater opportunity offered by this mechanism, and more transparency required.

The ARC Board is best placed to lead and advocate across portfolios, departments, and funding agencies about the identification of potential SRI topic areas. For transparency and clarity of process, the University encourages the development of a rationale and process for how the SRI focus areas are determined, and how a more proactive approach could be managed by the ARC Board to source new SRI opportunities across the R&D ecosystem.