Policy Review of the National Competitive Grants Program

Response by the Australian Mathematical Sciences Institute

April 2025

AMSI welcomes the opportunity to respond to the Australian Research Council's Policy Review of the National Competitive Grants Program. AMSI is a peak body representing the mathematical sciences (which includes mathematics, statistics and data science) in Australia, across the pipeline from school education, university, research, and the workforce. As such, we are well placed to provide comment relating to the fundamental settings of Australia's flagship competitive research grants program.

1. *Does the proposed model provide a strong and clear basis for the NCGP over the next 20 years?*

   The Australian Mathematics Sciences Institute (AMSI) welcomes the opportunity to contribute to this review of the ARC National Competitive Grants Program (NCGP). As the peak body for the mathematical sciences in Australia, AMSI is well positioned to provide insights and recommendations on mathematical sciences research and its applications. This submission draws on input from AMSI's diverse membership representing the mathematical sciences research and education sectors.

   We support the simplified grant structure and the emphasis on reduced administrative burden. These changes have the potential to improve efficiency and ensure the program remains responsive to Australia's evolving research needs. However, the program's long-term success depends on ensuring that core ARC funding continues to prioritise fundamental research as the foundation for national capability and innovation across all sectors.

2. *Does the proposed model adequately address your concerns or those expressed in the initial consultations?*

See response to question 3.

3. *Do you foresee any unintended consequences or significant risks which have not been accounted for in the proposed model?*

Between 2012 and 2024, 129 DECRA awards have been granted in the mathematical sciences FOR codes. These three-year awards have been a crucial pathway to academic careers for Early Career Researchers (ECRs) in our discipline, enabling them to advance their research and often secure continuing academic positions.

The new *Initiate* awards, limited to two years, assume applicants already hold academic positions. This change disadvantages ECRs without academic positions, making it harder for recent PhD graduates to gain the experience needed for academic appointments. As a result, more PhD graduates may seek postdoctoral opportunities overseas rather than continuing their research training in Australia, and the current design of the scheme appears unsuitable for attracting talent from overseas. This risks undermining the development of a strong domestic research workforce in key disciplines such as the mathematical sciences. Addressing this is essential to ensure that the NCGP continues to develop and support Australia's research capability.

Additionally, there is concern that the *Initiate* scheme, which focuses on novel and untested research ideas, may favour established academics with extensive experience and outstanding track records over ECRs, and others with non-traditional career pathways. This could lead to substantial proportions of *Initiate* funding being allocated to senior academics, thereby inhibiting the growth and development of the next generations of researchers and undermining the intention to support career development and system renewal. It is crucial for the ARC to consider how this risk can be mitigated.

4. *What issues would need to be addressed in the transition from the current NCGP schemes to the new model?*

The mathematical sciences have high success rates for Discovery grants but low participation in the Linkage scheme. The proposed *Breakthrough* and *Collaborate* schemes allow industry end-users to participate at lower costs. However, the weighting of industry contributions in selection criteria and the likely future success rates of Discovery-type and Linkage-type grants remains unclear.

Given the review's goal of strengthening collaboration between the research sector and industry while ensuring visible returns on public investment, we recommend that the selection criteria for *Breakthrough* and *Collaborate* schemes be carefully considered. It is important to ensure that applications with few or no industry end-users are not disadvantaged, maintaining opportunities for fundamental research that underpins innovation across sectors.

Many research outcomes deliver intangible or long-term benefits beyond those that are measurable or immediately commercialisable products. It is therefore essential that the ARC continues to support fundamental research that enables long-term impact.

5. *Are there any features that you would add to, or remove from, the model?*

The *Initiate* grant's two-year duration is too short for ECRs working toward fundamental research and academic careers. Extending this to 2-4 years would better align with the timeframes needed to provide sustained support for ECRs and support the long-term development of Australia's research capacity.

The *Prioritise* scheme, aligned with other government research priorities, overlaps significantly with the Cooperative Research Centre grant scheme. We recommend reducing or removing *Prioritise* and redirecting the funding into *Breakthrough* to strengthen support for basic and applied research and ECRs.

Most researchers have substantial familiarity and knowledge of undertaking research projects via existing Discovery and Linkage grant schemes. Many of these researchers will apply via *Breakthrough* scheme, to fund their future research. We believe that the funding between *Breakthrough* (300+ projects) and *Initiate* (900+) may need adjustment, to ensure that sufficient funding is available for *Breakthrough* projects.

6. Do you have any feedback on the proposed grant schemes and their likely effectiveness?

While the proposed grant schemes may be effective in strengthening Australia's research capacity and fostering collaboration between the research sector, industry, and other end-users, it is important to recognise the role of ARC funding within the broader research landscape. Given that the ARC funds only 7 percent of research and development in Australia, its funding should be reserved for building fundamental and applied research capability, rather than translation or commercialisation activities that are better supported by other mechanisms. This is essential to sustain the foundational knowledge base that drives innovation across all sectors.

The short-term embedded nature of proposed research fellowships will require universities to hire additional staff to meet teaching needs. This will add administrative burden and disrupt teaching continuity and likely lead to a diminished learning experience for students.