

National Committee for Mathematical Sciences

A committee of the Australian Academy of Science

Feedback on the ARC Centres of Excellence 2017 Consultation Paper

We thank the ARC for calling for feedback on the Centres of Excellence scheme through the CE17 Consultation paper. In providing our feedback, we have kept two issues in mind:

- Firstly, the difficulty for the Mathematical Sciences to work within the framework of Centres of Excellence, as opposed to more traditional ARC funding through the Discovery Program;
- Secondly, the question of what is presently missing from the Australian landscape in mathematical and statistical research that could be addressed by this scheme.

The mathematical sciences have had great and enduring impact on our modern world because fundamental questions were posed and solved many decades before their technological translations were realized. We suggest that the ARC's interpretation of impact as the translation of research into strategic outcomes over the timespan of a Centre of Excellence scheme may have had a detrimental effect on larger-scale fundamental mathematical research in Australia.

We would like to see Centres of Excellence being allowed to pursue fundamental questions of the highest intellectual impact in the discipline. In order for such a pursuit over a nation-wide scale to be supported in Australia, we suggest that interdisciplinary requirements not be regarded as essential for all Centres of Excellence in the mathematical sciences.

In shaping our comments, we were inspired by many internationally successful centres of excellence in mathematics research around the world, including those in Canada, a country with many similar characteristics to Australia. These examples include the Centre de Recherches Mathématiques, the Fields Institute and Pacific Institute for the Mathematical Sciences all in Canada and the Mathematical Sciences Research Institute in the USA. These centres host, germinate and encourage rotating programs of research in leading-edge areas, support early career researchers and educate postgraduate students. The impact of these programs has been immeasurable in mathematical sciences research in these countries.

Please find our detailed feedback to the questions posed in the consultation paper below.

1. *Are these objectives still appropriate for the ARC Centres of Excellence scheme?*

The NCMS believes they are still appropriate.

2. *What, if any changes would you suggest?*



No specific changes are suggested. However, we would like to convey the opinion of Australian mathematical scientists that research centres that strengthen objectives (b)-(e) are extraordinarily important for maintaining and growing mathematical and statistical expertise in Australia.

3. *Should some indication of planning for research impact be included in the objectives for the ARC Centres of Excellence scheme?*

We suggest that research impact should only be included if impact can be interpreted unequivocally as research quality.

4. *What aspects of the application and selection process worked well for CE14?*

The NCMS has a mixture of views on the two-stage application process. We have some reservations about a pre-selection process for Expressions of Interest (EOI) that is based on very limited information and on evaluation by non-experts, because it may lead to the rejection of potentially high-quality proposals. On the other hand, we approve of the fact that the EOI stage may put a bound on a large number of ill-developed proposals.

5. *What aspects of the application and selection process could be improved for CE17?*

Because of concerns expressed in 4 above, we suggest increasing the success rate at the EOI stage. In CE14, the ARC invited some EOIs to merge with others to form a full proposal. If mergers are to be suggested in CE17, we suggest that the turnaround time for submitting full proposals should be longer.

6. *Should the EOIs also be externally peer reviewed? If such assessments for EOIs are sought by the ARC, would you support a rejoinder process for this initial assessment phase?*

We agree that the EOIs should be externally peer-reviewed, but also suggest that the success rate should be higher (see item 4). If this is implemented, there should be a rejoinder process.

7. *If externally reviewed should EOIs be reviewed externally only by the ARC College of Experts or by assessors on the ARC assessor database?*

There is a mixture of opinion on this point in the NCMS. There is some support for reviews to be carried out by the ARC assessors in the database and some support for the view that these should be carried out by the College of Experts along with the SAC. If the College of Experts does not currently happen to have experts in a particular FoR code it may be advisable to ask advice from other assessors.

8. *For CE17 should the ARC change the EOI selection criteria from a subset of full Proposal selection criteria with different weightings for the EOI stage?*

The NCMS sees the two phases of the application process as inverted. On the one hand, the EOI phase has an 100% weighting on the research criteria (program plus investigators) and is assessed by non-experts, whereas the full proposal has a majority weighting (60%) on primarily non-research-related factors (institutional support, leadership, outcomes & linkages) and is assessed by experts. We suggest that at the EOI stage, more weighting may be given to investigators rather than the research program, possibly 70%-30%. We also suggest that the assessment of EOIs should rely more on the potential for success and on factors based primarily on the non-research-related factors supporting objectives (b)-(e).

9. *What are your views on the selection criteria and the weightings?*

The project and the investigators should be considered to be very important at some point in the process and feedback from experts should be sought at the time when those factors carry the greatest weighting. We suggest that research-related criteria are given a higher weighting at the full proposal stage.

10. *Should the ARC provide basic details of all shortlisted EOIs to other Administering Organisations leading shortlisted EOIs to allow opportunities to develop joint full proposals?*

We have no objections to this suggestion, as long as developing joint full proposals is voluntary.

11. *How much variation in personnel/research program between EOI and full Proposal is acceptable?*

It is not clear to us that a change in the number of investigators between EOI and full proposal stage is needed unless a short-listed EOI is joined with another.

12. *Should there be a minimum time commitment for CIs, and is the proposed 0.2FTE appropriate? If not, could you suggest an alternative proposal?*

We believe 0.2FTE is appropriate.

13. *The ARC is proposing that Associate Investigators (if known) may be listed in the full Proposal, but that there will be no regulation of their involvement by the ARC. What are your views on this?*

We have no strong views on this proposal. Wherever possible, it is appropriate that senior investigators should build a structure to mentor investigators who are earlier career researchers. The involvement of Associate Investigators may provide one way for such succession planning and mentoring to take place.

14. *Feedback at all stages in CE14 reflected the selection criteria. What is your view on the feedback process that was undertaken in CE14?*

We welcome comprehensive feedback wherever possible.

15. What is your view on the proposed feedback process for CE17?

See our response to item 14. We are happy with the proposal.

16. What other suggestions for feedback would you suggest the ARC could undertake?

In some cases, feedback can be limited by being necessarily predicated on pointing out weaknesses to justify a negative decision even in cases where proposals met all selection criteria. Such proposals may still miss out on funding because other successful proposals were judged to have better met the criteria. Understanding the strengths of other applications, as well as the weakness of your own, is an important part of feedback and should be included if possible. So meaningful feedback should be given in the context of a comparison with other proposals.

17. Generally feedback at the end of the selection process is focused on unsuccessful proposals. Would providing feedback on successful Proposals be helpful? If so, what form should this feedback take?

See our response to item 16. Valuable feedback encourages improvement. We believe feedback should focus more on the academic content and the ARC's assessment of potential for innovation and transformational research rather than focussing on administrative and eligibility requirements.

18. Would you support an increase in the maximum funding allocation per annum? Do you have any other feedback on matters relating to ARC Centres of Excellence budgets?

The number of CIs required to make a good CoE application and the other funding they have to forgo in order to participate means the average return per CI needs to keep up with average DP funding. On the other hand, if no increase in the total ARC budget is anticipated, an increase in the maximum funding allocation for CoEs per annum may be detrimental to the funding allocated to the DP, DECRA and other schemes. In the case of mathematics, which does not require large infrastructure, such a decrease would have a particularly negative impact on early career researchers, as well as the general level of research activity at many institutions.

19. What are your views on this proposed change to contribution commitments?

The NCMS supports any move to clarify contribution expectations in the event that centres are not fully funded by the ARC. However, we point out that the proposed change may lead to an overall decline in institutional support at the EOI stage, as institutions tend to be very conservative and are likely to implement gate-keeping exercises to minimize their outlay.