

SUBMISSION

Submission to the Department of Industry, Science and Resources

Submission to the Strategic Examination of Research and Development Issues Papers

- Foundational research
- Government as an exemplar

10 October 2025

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

All levels of government could play a stronger role in supporting research and development at two high-risk stages: foundational research, and commercialisation of research outcomes via procurement. This submission responds to each of the final two Strategic Examination of Research and Development (SERD) Issues Papers (Foundational research and Government as an exemplar) and provides recommendations on the implementation of these measures to ensure they are as effective as possible in building Australia's R&D system. This submission should be read in conjunction with ATSE's [previous submission](#), which offers eight recommendations in response to the first four Issues Papers.

To support the implementation of the SERD, ATSE makes the following additional recommendations:

Recommendation 9: Support ambitious breakthrough research through major grant funding schemes.

Recommendation 10: Champion null result and replication research by ensuring dedicated government grant funding for these purposes.

Recommendation 10: Reform legislative objectives, budget processes and coordination of government procurement to enshrine a whole-of-government approach to procurement that invests in Australian innovation.

Recommendation 11: Develop a one-stop-shop cross-government grant application system, allowing grant applications to be centralised and sent to other relevant open rounds.

Recommendation 12: Adopt best practices from across government research funding bodies, including a routine approach to sharing 'near-miss' applications with other relevant funding bodies.

Foundational research

Foundational and curiosity-driven research leads to unforeseen breakthroughs and new questions and avenues of enquiry. It also forms the basis upon which future products and services are developed, often with a time horizon of many years, even decades. As noted in ATSE's [Boosting Australia's Innovation](#) report, foundational research is the bedrock for building a strong R&D ecosystem (ATSE 2025a). Issues Paper 1 (National coordination) outlines a proposed move to a 10-year mission-driven approach to research, while recognising the importance of maintaining foundational research (DISR 2025). This long-term vision would benefit foundational research, which is often beset by short grant cycles that interrupt promising avenues of research as funding sources dry up and researchers apply for new grant funding – which can take over a year to prepare each time (Victoria University n.d.).

Support for ambitious moonshot research allows the development of a fail-fast mentality that is necessary for effective innovation. Moonshot research is likely to more often result in negative findings but is more likely to make leap-frog discoveries that significantly advance knowledge and open opportunities for genuine innovation. Research programs that are more speculative (more likely to disprove proposed hypotheses) can bring high reward but are seen as high-risk and therefore less likely to receive funding under current grant programs that prioritise low-risk, incremental, advancement of knowledge. Globally, governments have always played a strong role in supporting and incentivising this kind of research. Australian government funding programs can do a better job of supporting and incentivising long-term moonshot research to promote high quality curiosity-driven research in addition to incremental 'safe bet' advances. Changes have already been proposed by the Australian Research Council (ARC) to its National Competitive Grants Program to better support moonshot research (Australian Research Council 2025), and ATSE encourages the SERD Panel to continue to collaborate with the ARC and National Health and Medical Research Council (NHMRC) on strengthening their support for moonshot research.

Similarly, improving support for replication research through grant funding would strengthen Australian R&D and contribute to an efficient innovation ecosystem. Replication research is often deprioritised under grants assessment criteria that prioritise research likely to produce novel findings. Replication research can corroborate previous research and prevent years of wasted research and research investment. Replication studies help to prevent aberrant or narrow-focus findings caused by statistical quirks from becoming the basis of future R&D that would inevitably lead to poor outcomes. Null results and replication studies build robustness of and confidence in research. Communicating null results and replication studies, through

greater prominence of these types of studies and open access¹ to research, can help to promote effective cutting-edge research through increased knowledge sharing with industry and government.

Recommendation 9: Support ambitious breakthrough research through major grant funding schemes.

Recommendation 10: Champion null result and replication research by ensuring dedicated government grant funding for these.

Government as an exemplar

ATSE supports positioning governments as champions and major customers for Australian innovations. Placing governments in this position will involve a coordinated approach, ideally led by the national coordination governance board and involving every government department and agency at state, territory and federal level. Currently, a low risk-appetite and a lack of legislated responsibility for supporting Australian innovation within government departments leave government procurement practices generally ineffective in building new Australian industries built around local innovations. Alongside a legislated objective for supporting domestic innovation, another key reform could be orienting government procurement processes to long-term planning rather than single financial year planning.

Throughout the SERD process, the goal to increase cooperation and collaboration across industry, academia and government has been front and centre². The Australian Government can lead here by modelling greater internal cooperation and collaboration between government departments and agencies, and between the state/territory governments and the Australian Government. As mentioned in ATSE's submission to the SERD Discussion paper, there are more than 200 programs across over 13 portfolios at a federal level with their own application processes with many more at a state/territory level (ATSE 2025b). Developing a one-stop-shop research grant application system would be more efficient for both researchers and government. It could allow grant applications to be considered by all government grants schemes they are eligible for with a single application, or at the very least allow applicants to craft a single reusable applicant profile and choose the schemes to which individual applications should apply. Such a system could store information and link to other information sources (such as ORCID) to autofill certain parts of grant applications to make the application process even more efficient. The national governance board proposed in Issues Paper 1 would be the ideal entity to oversee the development of such a portal, in collaboration with all relevant parties.

A system like this could also allow for the best ideas from individual agencies to proliferate through government. For example, the ARC is currently rolling out two-stage grant application processes, allowing researchers to put in a much shorter application initially, with a longer application only required for those projects deemed to have a high chance of receiving a grant, saving countless hours of work for unsuccessful applicants, assessors and administrators. The NHMRC has systems in place that allow near-miss grant applications to be automatically submitted to philanthropic and not-for-profit organisations like Cancer Australia or Beyond Blue for consideration for their grants. Neither of these ideas have been widely adopted by government funders to date. This could be applied across the ecosystem, including near-miss referrals from federal to relevant state funding bodies, and referrals to a range of non-government research funders.

Recommendation 10: Reform legislative objectives, budget processes and coordination of government procurement to enshrine a whole-of-government approach to procurement that invests in Australian innovation.

Recommendation 11: Develop a one-stop-shop cross-government grant application system, allowing grant applications to be centralised and sent to other relevant open rounds.

Recommendation 12: Adopt best practices from across government research funding bodies, including a routine approach to sharing 'near-miss' applications with other relevant funding bodies.

ATSE thanks the Department of Industry, Science and Resources for the opportunity respond to the SERD Issues Papers. For further information, please contact academypolicyteam@atse.org.au.

¹ For more on open access, please see [ATSE's response to Issues Paper 2 \(Scaling the System\)](#).

² Including in ATSE's [initial submission to the SERD Panel](#).

References

ATSE (2025a) *Boosting Australia's innovation: Practical steps for boosting Australia's innovation ecosystem*, <https://atse.org.au/what-we-do/strategic-advice/boosting-australias-innovation/>.

ATSE (2025b) *Submission to the Strategic Examination of Research and Development discussion paper*, <https://atse.org.au/what-we-do/strategic-advice/submission-to-the-strategic-examination-of-research-and-development/>.

Australian Research Council (2025) *Policy Review of the National Competitive Grants Program*, <https://www.arc.gov.au/engage-us/consultations/policy-review-national-competitive-grants-program>, accessed 2 October 2025.

DISR (2025) *Strategic Examination of R&D National coordination for RD&I impact*, <https://consult.industry.gov.au/strategic-examination-rd-issues-papers>.

Victoria University (n.d.) *Writing a successful grant proposal*, <https://www.vu.edu.au/researchers/research-lifecycle/grants-funding/preparing-grant-applications/writing-a-successful-grant-proposal>, accessed 1 April 2025.