SUBMISSION

Submission to the Department of Industry, Science and Resources

Submission to the Strategic Examination of Research and Development Issues Papers

- National coordination
- Scaling the system
- RD&I incentives
- Investment and capital

30 September 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.

A strong research and development (R&D) sector benefits all Australians. ATSE welcomes the release of the Strategic Examination of Research and Development (SERD) Issues Papers and the proposed actions to strengthen Australia's R&D sector. Many of these proposals reflect recommendations in our initial submission to the SERD or from our *Boosting Australia's Innovation* report. ATSE thanks the review panel for their consideration of those proposals. We also welcome early actions by the Department of Industry, Science and Resources to boost Australian R&D investment by beginning discussions around Horizon Europe. This submission will examine each of the first four Issues Papers and provide recommendations on the implementation of these measures to ensure they are as effective as possible in building Australia's R&D system.

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

Recommendation 1: Ensure membership of the Commonwealth level governance board includes board members with broad experience across high performing international R&D sectors, industry, transdisciplinary R&D and cross-sector R&D.

Recommendation 2: Ensure focus areas set mission-driven objectives without limiting the research scope to allow support for convergent research projects directed towards meeting these objectives.

Recommendation 3: Develop a process for adding emerging priority areas to the list of identified priorities to ensure the governance board can react to rapid technological or societal changes.

Recommendation 4: Use government procurement policy and revenue contingent loan or grant schemes to help scale startups and small businesses conducting or based on Australian R&D.

Recommendation 5: Invest in research data infrastructure to support open access and open data while instituting open access and open data requirements for government-funded research.

Recommendation 6: Reform the R&DTI to better target additionality, national priorities and collaboration, while directing savings towards direct funding through income-contingent loans.

Recommendation 7: Base the proposed entrepreneurial and commercialisation mentorship program on ATSE's IMNIS program for research students and early career researchers.

Recommendation 8: Leverage superannuation funding to invest in Australian R&D through a small minimum Australian R&D investment mandate or investment options.

National coordination

ATSE supports the establishment of a strong coordination body that can coordinate government funding mechanisms to support identified research priorities, reduce duplication within governments and allow for researchers to more easily make proposals to multiple funding sources. ATSE also supports the ability of a coordination body to set long-term strategic direction for the R&D sector. Better coordination will allow R&D to be more efficient, address gaps between funding schemes funding schemes, and will help the development of a standard grant application system, where researchers no longer have to rewrite grants to apply across multiple government programs. The proposed model of a Commonwealth level governance board that oversees the development and implementation of 10-year R&D plans (DISR 2025a) is therefore welcomed and could make the sector much more efficient and effective. This body will be most effective when aligned with a range of sectoral R&D plans, including the National Health and Medical Research Strategy (currently under consultation) and the review of the National Competitive Grants Program (by the Australian Research Council), as well as state and territory-based plans (e.g., the Western Australian 10-Year Science and Technology Plan.

The success of this coordination body will depend heavily on its implementation. The Issues Paper proposes that "the governance board should include a balanced mix of experts across focus areas and cross-cutting RD&I-relevant fields, including those with deep experience in startup and VC ecosystems" (page 4). ATSE agrees this is essential. Transdisciplinary and cross-sector perspectives will be necessary to build a strong and integrated system. Australia's level of collaboration across research and academia is the lowest in the OECD (OECD 2024), so the governance board would benefit from experts with international experience (ideally in the most successful R&D ecosystems) to help level up Australia's industry-academia collaboration.

The priorities determined by this governance board will need to help Australia meet the biggest challenges of our time. ATSE considers that a foremost priority would be tackling climate change and advancing green energy technologies, especially given the comparative lack of investment in energy research that is vital to Australia's energy transition (ACOLA 2022).

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Limiting the number of translational research priorities to five has the potential to provide clear focus and direction for Australia's R&D sector but also risks unduly limiting the research scope of the nation. To avoid this, outcome oriented and broad research priorities are required, supporting a range of methods and disciplines to adopt novel approaches to meet Australia's challenges. Having broad and outcome-oriented focus areas allows for convergent research to be supported. A process for adding emerging priorities as they arise will also allow the priorities to be responsive to changing circumstances. Different research groups tackling the same problem from different perspectives helps to advance science and technology and speeds up the development of solutions to major national issues, particularly when responding to urgent or emerging issues. The success of such an approach has been demonstrated during the COVID-19 pandemic, when researchers across the globe took multiple different pathways to creating vaccines, using a range of methods, leading to 32 vaccines with regulatory approval worldwide and helped to significantly accelerate vaccine research and availability (King 2024). This duplication spread the risk of vaccine development, by allowing individual vaccine development to fail or be delayed without harming the overall goal of developing a viable vaccine.

The pandemic also demonstrates the value in being responsive to rapid changes in national priorities. Flexible research priorities will allow the governance board to adapt to a major technological or societal shift like emerging pandemics quickly and effectively. A single review point of the priority areas every ten years will not be sufficient. Giving the governance board the ability to add new priorities as required will allow for quick reprioritisation in light of a rapidly changing landscape.

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Scaling the system

Scaling up Australia's R&D system necessitates a deliberate programmatic approach. It will require supporting funding systems that are currently working well to support collaboration (e.g., Centres of Excellence and Cooperative Research Centres), while also requiring changing large-scale systems (e.g., university processes and government procurement) to support a stronger R&D sector. For example, university promotion and appointment processes and metrics (which typically prioritise traditional academic outputs) could do a better job of encouraging collaboration between academia and industry. Allowing a certain amount of risk and acceptance of failure will also be foundational to an effective R&D system. Proposed changes to the Australian Research Council grants to support more moonshot research is a good start but will be more effective if risk-tolerance is embedded across the entire R&D system. Deliberate scaling will require support for industry development and knowledge transfer.

As mentioned in the Issues Paper, developing creation and growth pathways for startups and improving procurement opportunities are opportunities to help improve the number of businesses engaged in innovation (DISR 2025b). ATSE supports these measures in principle, having repeatedly called for greater use of government procurement and income contingent loans to support emerging business built around innovative ideas (ATSE 2025a, 2025b, 2025c). These changes will require a cultural shift within government procurement and grant processes to support greater risk taking and allow for experimentation within procurement to support emerging Australian companies and technologies. It will also require the ability to scale and manufacture domestically, and support for local manufacturing (such as through the National Reconstruction Fund) will be a necessary component of a well-developed local R&D ecosystem.

Greater access to knowledge and data across the sector will enable the R&D system to be scaled faster. As mentioned in ATSE's first submission to the Strategic Examination of Research and Development (ATSE 2025c), a lack of access to academic research outputs delays the ability of entrepreneurs and industry to find new applications for emerging technology (Office of the Chief Scientist 2024). Thousands of academic research outputs produced by Australian researchers each year are funded by governments (either directly or through government-funded agencies like the Australian Research Council or National Health and Medical Research Council; Baker 19 December 2024). Supporting the Chief Scientist's proposal (Office of the Chief Scientist 2024) for a public access model for academic research will help increase access to

knowledge, speeding up the ability to turn new ideas into new products. Findable, accessible, interoperable and reusable research data will also improve research impact, allow new research questions to be identified and help attract partnerships across industry and academia (ARDC 2025). Building these partnerships is particularly important as Australia has the lowest proportion of firms collaborating with either universities or the public sector in the OECD (OECD 2024). Open data requirements for government-funded research and greater support for research data infrastructure can help to make research data more widely available and create new collaboration opportunities.

Recommendation 4: Use government procurement policy and revenue contingent loan or grant schemes to help scale startups and small businesses conducting or based on Australian R&D.

Recommendation 5: Invest in research data infrastructure to support open access and open data while instituting open access and open data requirements for government-funded research.

Research, development & innovation incentives

The largest single industry research incentive is the R&D Tax Incentive (R&DTI). This scheme has faced longstanding criticism for being overly broad and failing to encourage additional R&D activities, instead simply funding R&D that would have happened anyway (Ferris et al. 2016). It has also not resulted in increased R&D expenditure by businesses, with R&D expenditure by large businesses falling 24% in the last decade (Mandala 2025). As noted in the Issues Paper, many businesses that do access the scheme find it complex and rely on consultants, which reduces the uptake, efficiency and impact of the incentive (DISR 2025c). The R&DTI is also undirected, with the government having little control over the goals of the R&D conducted, making it difficult for a coordination body to set a national strategic direction. The low level of direct funding for business R&D in Australia compared to other nations (DISR 2025c), further suggests a weakness in coordination in business R&D. The R&DTI could be more effectively focused to ensure additionality and alignment with priorities, while greater investment in direct funding programs would help to provide upfront capital. As mentioned in ATSE's previous submission, a mix of income-contingent loans, supportive government procurement and direct grants may be more effective at supporting new R&D in priority areas through the valley of death and ensuring additionality in R&D. A balance between these measures and the R&DTI (without allowing double-dipping across schemes) will provide flexible options for businesses at various stages of development. Maintaining R&DTI funding as it currently is until an improved model is established will ensure there is no break in R&D support as changes are implemented.

Incentives only work when there is a skilled workforce to take advance of the incentives and build emerging businesses and industries. ATSE therefore supports measures to strengthen the STEM-skilled R&D workforce, including the proposal to provide high-quality entrepreneurial and commercialisation mentorship for staff and research students. ATSE has a strong history of providing industry mentoring to research students through our IMNIS program. For over a decade, IMNIS has paired more than 2300 Australian research students and early career researchers with industry mentors to help develop industry knowledge and skills, create connections and provide alternative career advice. Participants also gain access to workshops and networking events. Through this program knowledge on industry R&D doubled amongst participants, with nearly 80% of participants finding the program made them more likely to work in industry (ATSE 2024). The IMNIS program could therefore be an important model for a future mentoring program for research students and academic staff. ATSE would welcome the opportunity to work with the SERD panel or Department of Industry, Science and Resources on developing such a program.

Recommendation 6: Reform the R&DTI to better target additionality, national priorities and collaboration, while directing savings towards direct funding through income-contingent loans.

Recommendation 7: Base the proposed entrepreneurial and commercialisation mentorship program on ATSE's IMNIS program for research students and early career researchers.

Investment and capital

The Issues Paper highlights the value that Australian superannuation funds could bring to Australian R&D. There is currently more than $4 trillion under management in Australian superannuation funds, greater than the Sovereign Wealth Fund of Norway, the world's single largest investment fund (Super Members Council 2025). Recent increases in minimum contributions and strong investment yields means Australia's superannuation system will soon be the second largest retirement savings system worldwide (Super Members Council 2025). This makes superannuation an obvious target for increasing investment in Australian R&D, allowing Australians to both fund their retirements and build future prosperity (on which future superannuation growth could be based).

The measures proposed in the Issues Paper are a good start to enabling increased superannuation investment in R&D, in particular the development of pooled investment vehicles to make it simpler and less risky to invest in a range of startups and projects. A more ambitious approach could see a pilot requirement for super funds (starting with public sector funds) to invest a tiny percentage of their balance in Australian R&D. A mandate of just 0.1%, for example, could unlock an additional $4 billion in R&D investment. For the median superannuation fund this would equate to a total of just $6.61 for men and $5.21 for women[1], but would deliver more than four times the annual value of the Australian Research Council's National Competitive Grants Program in R&D investment (Australian Research Council 2023). Host plus[2] is already leading the way by investing more than $3 billion in innovation and technology, demonstrating this kind of investment is both practical and profitable (Hostplus 2025). Alternatively, a requirement for superannuation funds to allow superannuants to opt-in to supporting Australian R&D, through the proposed pooled investment vehicles, could unlock large amounts of otherwise unavailable capital. Crucially this will make almost all Australians investors in R&D and could help build an investment culture that is far more comfortable investing in Australian R&D, helping to generate further investments as investor confidence grows.

Recommendation 8: Leverage superannuation funding to invest in Australian R&D through a small minimum Australian R&D investment mandate or investment options.

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] Based on a median superannuation balance of $66,159 for men and $52,075, excluding superannuation accounts with a balance of $0 (The Association of Superannuation Funds of Australia 2024).
[2] Australia's top performing super fund by 10-year returns, through to 30 June 2025 (Super Guide 2025).

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