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Advancing Australia's Science-Policy System

SIX OPPORTUNITIES FOR 2025 AND
BEYOND

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Executive summary

A strong national science-policy system is one in which policymakers have easy access to the best scientific knowledge and expertise, and the capacity and resources to effectively interpret that knowledge to enable evidence-informed decision-making in government. Ensuring that Australia's science-policy system is maintained and enhanced is crucial to Australia's prosperity in both the short and long term. Harnessing science for policy can help the Australian government understand and seize the potential of emerging technologies, deliver on international commitments (for example, environment or human rights), and respond to emergencies such as COVID-19. But, in a time of social, economic and environmental challenges, technological change, and global political uncertainty, are we building the science-policy system we need?

Here, we identify six opportunities for 2025 and beyond to advance Australia's science-policy system:

1. Office of Chief scientist to bolster its coordinating role
2. R&D systems and research evaluation to assign value to policy engagement
3. Universities to strategically develop policy engagement functions
4. The public service to enhance capacity for working with diverse forms of evidence
5. First Nations knowledge systems to be built into the science-policy system
6. Australia to maintain international and regional leadership for science and policy

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Cover image: a tall metal structure with a blue sky in the background, (Iridial/Unsplash.com)
Below image: Parliament House (ANU/Flickr)



Introduction

Whatever the area of societal concern, advancing Australia's science-policy system can help ensure that the world-class research conducted in Australia and across the globe delivers economic, societal, environmental and cultural benefits for all Australians in the years ahead.

Australia's science-policy system encompasses the breadth of the country's knowledge and policy institutions, from research organisations to government departments. It is the foundational system for delivering evidence-informed policy-making, which has been defined by the OECD as "a process whereby multiple sources of information, including statistics, data and the best available research evidence and evaluations, are consulted before making a decision to plan, implement, and (where relevant) alter public policies and programmes."¹

The second quarter of the 21st century is likely to bring both opportunities and challenges for Australia's science-policy system. Technological advances in the fields of Artificial Intelligence and quantum computing hold potential for an information revolution that could transform the way in which science and other forms of knowledge are accessed, processed and used within government and other parts of society. Research communities are also building increased capacity to grapple with wicked problems that require effective collaboration across disciplines and partnerships with industry to identify and deliver multi-faceted and meaningful solutions.

However, there remains inevitable political uncertainty about the future strategic directions for science and technology in Australia, the scope of the public service, and the way in which universities will navigate growing financial constraints while maintaining their roles as R&D powerhouses and contributors to economic growth.

Reflecting on the advancement of Australia's science-policy system in 2025 and beyond, this brief report sets out six opportunities that can be taken up by key actors within the system, from the Australian Public Service to universities, and the Chief Scientist to the learned academies. It is produced by members of the Australian National Centre for the Public Awareness of Science (CPAS) at the Australian National University.

CPAS is a world leading research centre that studies the relationship between science and society. Our academic research on science-policy systems is part of a broader interest in the cultural infrastructure for science in Australia and around the world, including the tacit meanings, expectations, knowledge practices, material resources and standards that shape how science and innovation contribute to grand challenge missions in different national and transnational settings.

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¹ OECD. 2020. Building Capacity for Evidence-Informed Policy-Making: Lessons from Country Experiences. Accessed: 3 March 2025. Available at: https://www.oecd.org/en/publications/building-capacity-for-evidence-informed-policy-making_86331250-en.html

1. Office of Chief scientist to bolster its coordinating role

Building on existing strengths, a bolstered Office of the Chief Scientist under the new leadership of Professor Tony Haymet could strengthen connectivity across existing government science advice mechanisms.

While a Chief Scientist brings personal expertise to the role, one of the core strengths of the office lies in its ability to act as a ‘front door’ to science advice for government, effectively coordinating and drawing on networks. Well-established mechanisms, such as the Prime Minister’s National Science and Technology Council, continue to have strong supporting infrastructure, such as secretariat functions, budgets for research, ministerial mandates, and appointments. However, more recently established mechanisms could be further empowered and resourced to deliver outcomes on cross-government science priorities.

These include the Government Scientists Group (GSG), established by former Chief Scientist Dr Cathy Foley, that brings together over 30 Australian Government departments, agencies and regulators with science capabilities; and the Forum of Australian Chief Scientists (FACS), established by Dr Alan Finkel, which brings together the Chief Scientists of the states and territories.

In addition, the Chief Scientist could play a larger role in strengthening professional networks between government scientists and researchers. In the UK, for example, the Government’s Chief Science Adviser acts as the Head of the Science and Engineering Profession for the Civil Service, and helps to enable sharing of best-practice in science advice and evidence-informed policy generation between government agencies and departments. A similar function could be delivered in Australia.



2. R&D systems and research evaluation to assign value to policy engagement

The current strategic examination of research and development (R&D) in Australia recognises that a well-functioning R&D system can help to deliver “long-term prosperity, security and wellbeing” by increasing “the benefits of science, research and innovation for Australia”². The mandate of this strategic examination includes the need to consider how to enhance return on investment in research, build R&D investment by businesses, and to harness scientific advances to address national priorities and build new industries, with a special emphasis on economic growth and productivity³.

Alongside private-sector collaboration and commercialisation, there is important scope within this strategic examination to consider how to enhance, resource and incentivise policy engagement by researchers and universities within a well-functioning R&D system. Policy engagement is a key pathway for research to deliver economic, societal, environmental and cultural benefits to Australia⁴. A strong R&D

system is also likely to resource and incentivise evidence-uptake by governments to take advantage of the “research and consulting capacity and capability of Australia’s universities and publicly funded research agencies” noted in the recent Australian Universities Accord⁵.

Policy engagement is also relevant for the anticipated National Research Evaluation and Impact Framework (NREIF), recommended by the Australian Universities Accord⁶. While robust and appropriate approaches to evaluate the policy impact from research require further development⁷, future impact evaluation processes will benefit from having a holistic and plural understanding of impacts from research, including those delivered via science advice and engagement by academic researchers with policymaking processes. This could create a stronger recognition and reward system for universities to build capacity internally for policy engagement in the short and long term.

2 Commonwealth of Australia. 2025. Strategic Examination of R&D discussion paper. 12 February 2025. Department of Industry, Science and Resources. Accessed: 3 March 2025. Available at: <https://www.industry.gov.au/science-technology-and-innovation/strategic-examination-research-and-development>

3 Commonwealth of Australia. 2025. Strategic Examination of Research and Development Terms of Reference. Department of Industry, Science and Resources. Accessed: 3 March 2025. Available at: <https://www.industry.gov.au/science-technology-and-innovation/strategic-examination-research-and-development/strategic-examination-research-and-development-terms-reference>

4 Commonwealth of Australia. 2025. Research Impact Principles and Framework. Australian Research Council. Accessed: 3 March 2025. Available at: <https://www.arc.gov.au/about-arc/strategies/research-impact-principles-and-framework>

5 Commonwealth of Australia. 2025. Australian Universities Accord Final Report Document. Department of Education. Accessed: 3 March 2025. Available at: <https://www.education.gov.au/australian-universities-accord/resources/final-report>

6 Commonwealth of Australia. 2025. Australian Universities Accord Final Report Document. Department of Education. Accessed: 3 March 2025. Available at: <https://www.education.gov.au/australian-universities-accord/resources/final-report>

7 Gunn, A. and Mintrom, M. 2021. Where evidence-based policy meets research impact. *Australian Journal of Public Administration* 80: 544–553. <https://doi.org/10.1111/1467-8500.12499>

Penfield, T., Baker, M.J., Scoble, R. and Wykes, M.C. 2013. Assessment, Evaluations, and Definitions of Research Impact: A Review. *Research Evaluation* 23(1): 25–27. <https://doi.org/10.1093/reseval/rvt021>

Williams, K. and Lewis, J.M. 2021. Understanding, measuring, and encouraging public policy research impact. *Australian Journal of Public Administration* 80: 554–564. <https://doi.org/10.1111/1467-8500.12506>



Image: Aerial shot of ANU and Canberra (ANU)

3. Universities to strategically develop policy engagement functions

The potential for universities to take a more active role in supporting policy engagement is increasingly acknowledged⁸. Around the world, universities are experimenting with different models for university-wide policy engagement functions, which include functions such as providing a policy impact support office, working as knowledge brokers, synthesising research for policy audiences, and building relationships between policymakers and academics on demand⁹. University-wide policy engagement functions can provide a ‘front door’ for policymakers to approach universities around a particular issue, as well as offer a centralised resource base for academics seeking to enhance the impact of their research.

To date, a number of Australian universities have begun to establish policy engagement functions¹⁰. However, there is a lot more room for experimentation and greater emphasis on networking, capacity building and mediating between science and policy actors, as well as synthesising research for policy audiences.

Policy engagement by universities need not be limited to promoting research from single studies

or from within single institutions. There are lessons to be learnt from existing work elsewhere, including mechanisms such as the Australian Academy of Science’s roundtables (i.e. on RNA Science¹¹ and the Great Barrier Reef¹²). These roundtables brought together diverse experts on current policy topics with an explicit emphasis on fostering expert deliberation, including putting distinct areas of science in conversation, drawing out areas of disagreement and working towards insights that can serve the public interest.

In a similar vein, there is opportunity for progress in university-led policy engagement to be a sector-wide effort¹³. The establishment of professional teams and academic leadership within universities around policy engagement could form the foundation of nation-wide knowledge brokerage networks—such as the University Policy Engagement Network in the UK—that can enable the sharing of good practices and the development of a sector-wide strategic plan to enhance policy engagement across institutions.

8 Breckon, J., Hasenfuss, J., and Jowett, L. 2024. Growing a University policy engagement function: Towards better models, methods, and measures of success. <https://doi.org/10.25398/rd.northumbria.25776915.v1>

9 Durrant, H. and MacKillop, E. 2022. University policy engagement bodies in the UK and the variable meanings of and approaches to impact. *Research Evaluation* 31(3): 372–384. <https://doi.org/10.1093/reseval/rvac015>

10 For example at the University of Western Australia: <https://www.uwa.edu.au/institutes/public-policy/home>; the University of Queensland: <https://policy-futures.centre.uq.edu.au/resources/policy-engagement-program>; and the Australian National University: <https://policybrief.anu.edu.au/>

11 Australian Academy of Science. 2021. Proceedings — National RNA Science and Technology Roundtable. Accessed: 3 March 2025. Available at: <https://www.science.org.au/supporting-science/science-policy-and-analysis/projects/proceedings-national-rna-science-and-technology-roundtable>

12 Australian Academy of Science. 2023. Reef Futures Roundtables Final Report. Accessed: 3 March 2025. Available at: <https://www.science.org.au/supporting-science/science-policy-and-analysis/projects/reef-futures-roundtables>

13 Examples of such coordination can be seen in the consortium of Innovative Research Universities: <https://iru.edu.au/iru-strategy-2022-2027/>; and the James Martin Institute for Public Policy: <https://jmi.org.au/about/>

4. The public service to enhance capacity for working with diverse forms of evidence

Ensuring that the most useful and robust research is taken up and used in policy is not only dependent on a healthy supply of relevant knowledge, but also on the capacity within the Australian Public Service (APS) and their state and territory counterparts to access and use research evidence¹⁴.

As scholars have contended, national public services worldwide are typically “structurally unprepared for an engagement with diverse forms of evidence, including academic research in particular”. In Australia, while there are clear pockets of strength, this is thought to include both organisational and individual deficits in the utilisation of research¹⁵. The externalisation of public service capabilities -i.e. through the use of consultants and think tanks-can also limit the know-how within the APS to utilise research evidence in their work¹⁶.

Enhancing the use of evidence in policy is deemed a recent governmental priority¹⁷ and there is an important opportunity to further invest in the capacity within the APS and state counterparts, to source and use evidence from academic research.

This can be supported by bolstering the training available through the Australian Public Service Academy in the advanced skills that are necessary to robustly source, evaluate and synthesise research evidence, as well as communicate it to relevant decision-makers, stakeholders and the broader public.

The development of departmental science strategies, which mainstream the use of evidence within departments by identifying and developing pathways for the sourcing and use of credible research is another possible course of action. Similarly, the professionalisation of science, engineering and social science networks within public services could also enhance evidence-informed policy capacity. However, the challenges facing Australia are complex. In the cases of fire and water management, for example, there is a clear need for public servants to have cross-disciplinary capabilities that means that they can access, interpret and synthesise evidence from multiple sources, including qualitative data and Aboriginal and Torres Strait Islanders knowledge systems.

14 Cherney, A., Head, B., Povey, J., Ferguson, M., and Boreham, P. 2015. Use of academic social research by public officials: Exploring preferences and constraints that impact on research use. *Evidence and Policy* 11(2): 169-188. <https://doi.org/10.1332/174426514X14138926450067>

15 Newman, J., Cherney, A., and Head, B.W. 2016. Policy capacity and evidence-based policy in the public service. *Public Management Review* 19(2): 157-174. <https://doi.org/10.1080/14719037.2016.1148191>

16 Podger, A. and Halligan, J. 2023. Australian Public Service capability. In: A. Podger, H. S. Chan, T.-T. Su and J. Wanna. (Eds.) *Dilemmas in Public Management in Greater China and Australia: Rising tensions but common challenges*. Canberra, ANU Press: 375-400.

17 Commonwealth of Australia. 2023. *Australian Government Guide to Policy Impact Analysis*. Department of the Prime Minister and Cabinet. Accessed: 3 March 2025. Available at: <https://oia.pmc.gov.au/resources/guidance-impact-analysis/australian-government-guide-policy-impact-analysis>

Image: Controlled burn at a Bushfire Research Centre of Excellence field day, Spring Valley farm, the Australian National University (Jamie Kidston/ANU).





5. First Nations knowledge systems to be built into the science-policy system

The 2024 National Science and Research Priorities identify the need to elevate Aboriginal and Torres Strait Islanders knowledge systems in science and other research collaborations¹⁸. The need for First Nations leadership and self-determination in the higher education sector is also mirrored in the Australian Universities Accord¹⁹.

The knowledge and expertise of Australia's First Nations communities stems from tens of thousands of years of enduring connections to Country. In the context of Australia's science-policy system, there is scope for deeper thinking and investment into the way that First Nations knowledge systems can be brought in²⁰. The 'no' result of the referendum on creating an Indigenous Voice to Parliament in 2024 leaves open a window to explore alternative arrangements to work with Indigenous communities as Australia's first scientists with the longest continuous culture on Earth as an invaluable foundation for Australia's decision-making capabilities.

As the national government body for scientific research in Australia, CSIRO has developed some early work in its Indigenous Science and Engagement Program that works in partnership with Indigenous Australia to develop solutions to national challenges²¹. Working with individuals and communities across Australia, CSIRO has co-developed resources for land and sea management that include Indigenous-led approaches to strengthening and sharing knowledge as part of the Our Knowledge Our Way in caring for Country guidelines²². This type of work requires a commitment to Indigenous self-determination and leadership²³, and points towards the breadth of opportunities for actors across the science-policy system, such as the learned academies, universities and government science advice mechanisms, to explore their own approaches to meet this need²⁴.

18 Commonwealth of Australia. 2024. Australia's National Science and Research Priorities. Department of Industry, Science and Resources. Accessed: 3 March 2025. Available at: <https://www.industry.gov.au/publications/national-science-and-research-priorities-2024>

19 Commonwealth of Australia. 2025. Australian Universities Accord Final Report Document. Department of Education. Accessed: 3 March 2025. Available at: <https://www.education.gov.au/australian-universities-accord/resources/final-report>

20 Kennedy, T. and Miles, M. (2024) Indigenous science can help solve some of the great problems of our time. Here's how. The Conversation. 14 August 2024. <https://theconversation.com/indigenous-science-can-help-solve-some-of-the-great-problems-of-our-time-heres-how-236597>

21 CSIRO. 2025. Indigenous Science & Engagement Program. Accessed: 3 March 2025. Available at: <https://www.csiro.au/en/about/Indigenous-Science-and-Engagement-Program>

22 CSIRO. 2023. Our Knowledge, Our Way guidelines. Accessed: 3 March 2025. Available at: <https://www.csiro.au/en/research/indigenous-science/indigenous-knowledge/our-knowledge-our-way>

23 AIATSIS. 2025. Research ethics framework. Accessed: 3 March 2025. Available at: <https://aiatsis.gov.au/research/ethical-research/research-ethics-framework>

24 Australian Council of Learned Academies. 2021. Acknowledging the past. Moving forward together. Accessed: 3 March 2025. Available at: <https://acola.org/acola-response-ururu-statement-from-the-heart/>

Image: Scarred tree near the ANU Chancelry (ANU/Flickr)

6. Australia to maintain international and regional leadership for science and policy

Addressing persistent environmental and social challenges—from plastic pollution to pandemic preparedness—requires international collaboration, both in the acquisition and sharing of knowledge, and in the development of coordinated and complementary courses of action. Australia has a long history of international collaboration for science and policy, and in a time of global political instability there is an opportunity for Australia to maintain a position of leadership.

Important regional leadership was demonstrated, for example, in the support given by the Australian Academy of Sciences as the government-funded International Science Council Regional Focal Point for Asia and the Pacific to the establishment of the Pacific Academy of Sciences. Launched in October 2024, the new Academy aims to “promote the study and application of the natural and social sciences, the humanities, Indigenous Knowledge and technology for the benefit of the Pacific Islands region and beyond”²⁵.

Australian researchers also continue to be well-represented amongst the author groups of the Intergovernmental Panel on Climate Change (IPCC)²⁶, and this can be maintained across other global expert groups such as the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) and the International Resource Panel (IRP). Supporting researchers to engage with these organisations can help build their capacity in international science collaborations and the synthesis of research insights for policy audiences.

Beyond 2025, Australia can also continue to play a role in international organisations directed towards strengthening science-policy systems around the world, such as the International Network for Government Science Advice (INGSA) established in 2014 as a platform for sharing and learning about good practices in science-policy systems.

²⁵ Australian Academy of Science. 2024. Creating history for the new Pacific Academy of Sciences. 31 October 2024. Accessed: 3 March 2025. Available at: <https://www.science.org.au/news-and-events/news-and-media-releases/creating-history-for-the-new-pacific-academy-of-sciences>

²⁶ Commonwealth of Australia. 2025. Intergovernmental Panel on Climate Change. Department of Climate Change, Energy, the Environment and Water. Accessed: 3 March 2025. Available at: https://www.dcceew.gov.au/climate-change/international-climate-action/intergovernmental-panel#toc_2

Australian National Centre for the Public Awareness of Science, Australian National University

The Australian National Centre for the Public Awareness of Science (CPAS) is a world leading research centre that studies the relationship between science and society. We add the social dimension that science and technology need to address global challenges, and for innovations that can shape a just, sustainable and ethical future. Our research studies the way science and technology are made public through their communication and governance, and how society views and interacts with research and innovation.



Dr Jasper Montana

Senior Lecturer, CPAS

Dr. Montana's research explores science-policy relations, transdisciplinarity and knowledge co-production with a particular focus on nature-related concerns, including biodiversity conservation, nature-based solutions, and nature as part of human culture. He has a strong focus on institutions of governance, the use of technology, and equity and inclusion in relation to environmental issues.



Associate Professor Will Grant

Associate Professor, CPAS

Associate Professor Grant's research focuses on the interaction between science, technology and politics. His work has explored the communication of science on social media, the interaction of science and policy-making audiences, and the challenges of communicating climate science and other environmental concerns.



Dr Liz Killen

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Dr. Killen was previously Assistant Manager in the science policy team of the Office of Australia's Chief Scientist and has worked in the UK Government Office for Science.



Professor Sujatha Raman

Professor, CPAS and UNESCO Chair in Science Communication for Public Good, Chair Holder

Professor Raman's expertise focuses on how science, innovation, society and matters of public interest intersect. Her work explores scientific knowledge production, technological systems and the science/policy interface as well as community perspectives, everyday practices and questions of justice.

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