

SCIENCE & TECHNOLOGY AUSTRALIA

POLICY SUBMISSION

31 JANUARY 2025

2025–26 PRE-BUDGET SUBMISSION: A PROSPEROUS AUSTRALIA MADE FROM AUSTRALIAN IDEAS

Science & Technology Australia thanks the Treasury for the opportunity to offer input on priorities for the 2025–26 Budget.

Science & Technology Australia is the peak body for the nation’s science and technology sectors, representing 140 member organisations and more than 225,000 scientists and technologists. We connect science and technology with governments, business and the community to advance science’s role in solving some of humanity’s greatest challenges – and harness opportunities for Australia.

Securing Australia’s Future

It’s crunch time for our nation. Our competitor countries are ramping up investment in science and technology, setting themselves up for prosperity in a tech-driven future. We need to support all Australians to enjoy a strong and secure future in a modern Australian society. We can’t sit and watch, crossing our fingers, and assume that our mineral wealth will see us through. Equally, our environment can no longer afford for us to sit on our hands. We need urgent action and critically, investment, to protect our unique biodiversity and ensure we understand – and can mitigate and adapt to – the challenges our changing climate will bring in the coming decades.

As the Treasurer, [Dr Jim Chalmers noted in January last year](#), “We can’t be complacent about the conditions we confront now. Our job in Australia is to make this not a lost decade, but a defining decade, to modernise our economy and maximise our advantages.” And that was a year ago – it’s time for tangible action.

And just weeks ago, the Prime Minister recognised the importance and urgency of the situation, flagging a keen [ambition to build a strong future for the country](#): “if we get this decade right, we can set Australia up for the many decades ahead.”

The Government has laid the initial foundation with the National Reconstruction Fund (NRF) and the Future Made in Australia (FMiA) initiative. Both are underpinned by science and technology knowledge, ideas and ingenuity. The Government’s Strategic Examination of R&D Funding is underway, but waiting to act until this is completed would be a failure of leadership. We already know many of the solutions. Science and technology R&D must underpin Australia’s future – and the time to invest in it is now. There’s no more time to waste.

The key challenges facing Australia – energy production, environmental protection and restoration, caring for an aging population, the economic security and prosperity needed to combat cost-of-living challenges, building a strong and inclusive society – can all be met through a strong investment in STEM education and R&D and a commitment to put STEM at the heart of Australia’s future.

In preparation for the 2025 Federal Election, Science & Technology Australia released a [comprehensive suite of policy priorities](#). These span the three critical pillars of a STEM future – education, research and translation and commercialisation. They also include policy initiatives to act on one of the newly identified National Science and Research Priorities – *Elevating Aboriginal and Torres Strait Islander knowledge systems*.



This submission unpacks three of these key priorities in detail, demonstrating their integral role – and that of STEM – in building a strong, secure and resilient, culturally confident Australia. They focus on building sovereign capability, supporting research commercialisation and industrial transformation and building pathways and supporting First Nations Australians in STEM. Implementing these, alongside the rest of Science & Technology Australia’s 2025 Federal Election priorities, would deliver a prosperous Australia, made from Australian ideas.

Science & Technology Australia Recommendations

1. To secure Australia’s future and capacity to meet the challenges of the coming decades, the Australian Government should establish a \$2.5 billion Sovereign Capability Moonshot Program to deliver deep support for research, translation and industrial transformation in areas of critical national need, alongside a broad uplift in STEM education and skills development.
2. The Australian Government should boost Australia’s industrial transformation through a \$426 million network of connected facilities to support early-stage prototyping and scale up.
3. To realise the National Science and Research Priority to Elevate Aboriginal and Torres Strait Islander knowledge systems, and boost First Nations people engagement and success in STEM, the Australian Government should invest \$57 million in a 10-year commitment to establish an Office for Indigenous STEM, including delivering grants to support First Nations-owned and -led STEM organisations.

Sovereign Capability Moonshot Program

Australia must secure its sovereign capabilities across critical areas of science and technology. The pandemic demonstrated the risk and vulnerability of being reliant on global supply chains; there is even greater risk in being reliant on other countries for knowledge, ideas and expertise. As other nations invest deeply in emerging technologies, including AI, renewable energy technology and advanced manufacturing, we cannot afford to sit on the sidelines and hope that the solutions needed to navigate the challenges of the coming decade will simply eventually land on our shores. Indeed, some of those solutions – adapting to and mitigating the impact of the changing climate on our agricultural systems, protecting Australia’s unique biodiversity – are uniquely Australian and no one else will do that work for us. Equally, we cannot afford to lose our talented scientists and thinkers to jobs overseas – our talented researchers are a valuable sovereign resource in themselves.

A Sovereign Capability Moonshot Program would identify transformative emerging areas of critical technology or national need and go hard with significant investments – a minimum \$500 million per moonshot over 10 years. This deep investment would build Australia’s capacity across research, the STEM-skilled workforce and the industries of the future to address specific opportunities.

Moonshots would support the Future Made in Australia umbrella, and align to the [National Science and Research Priorities](#) – ensuring whole-of-government relevance and buy-in. The Priorities were identified through extensive consultation across the Australian community, including the research and industry sectors and the broader population. They are the crystallisation of the key issues Australians care about. Each Priority covers a broad range of critical research areas, so each moonshot would have an expert advisory group – comprised of research, industry and investment leaders – that would consult with the sector to determine the appropriate moonshot focus.

Critically, moonshots would progress sovereign capability across the entire TRL pipeline: the underpinning discovery research, enabling research infrastructure capability, and the translational capabilities required to progress research through to impact. Moonshots would underpin new start-ups, manufacturing development and industrial job creation, as well as policy translation and



implementation. As such, moonshots would be a pivotal driver of productivity and deepen Australia’s economic complexity. Moonshots would also drive national ambition for critical STEM areas – promoting skills development, demonstrating the value of STEM to the general public and inspiring students to study STEM and pursue STEM careers.

Investments must be made over the long term – a minimum of 10 years. Piecemeal dribs and drabs have not and will not deliver the true sovereign capability the nation needs. Some challenges will also require international collaboration – working with trusted partners to develop global solutions to global challenges.

Guided by the expert advisory group to determine the appropriate approach to support research through to industrial transformation and job creation, each moonshot would include a balance of:

TRL 1–4: Discovery research	TRL 4–6: Early-stage translation	TRL 7–9: Translation and commercialisation
<ul style="list-style-type: none"> grants to drive underpinning discovery research, e.g. ARC Centre of Excellence style investments Scale of investment: up to \$40m		
<ul style="list-style-type: none"> support for enabling research infrastructure capabilities, e.g. uplift in support for existing NCRIS facilities, and/or specific new test-bed or prototyping facilities or capabilities, enhanced data capabilities or manufacturing facilities Scale of investment: up to \$100m*		
		<ul style="list-style-type: none"> collaborative translational ventures e.g. translational science hubs, place/precinct-based initiatives Scale of investment: up to \$300m*
		<ul style="list-style-type: none"> support for start-ups and industrial job creation e.g. shared equity and/or low/zero interest loans Scale of investment: up to \$200m*

* With potential to leverage international collaborations and co investment from state/territory and industry

STA has conducted some preliminary analysis into the types of investments that could be made under potential moonshots and can work with Treasury to provide further detail upon request.

Science & Technology Australia Recommendation:

To secure Australia’s future and capacity to meet the challenges of the coming decades, the Australian Government should establish a \$2.5 billion Sovereign Capability Moonshot Program to deliver deep support for research, translation and industrial transformation in areas of critical national need, alongside a broad uplift in STEM education and skills development.

A national prototyping capability for industry development and scale-up

Australia has a world-class research capacity, and there are several Government initiatives working to support the nation’s advanced manufacturing capability, particularly under the FMiA agenda and the NRF. However, a key national challenge is the missing middle – establishing and building businesses to a stage of readiness for investment through mechanisms such as the NRF. Australia’s industry sector



needs more support at the level of converting knowledge and ingenuity into products, and supporting the early-stage product and business development needed to create the companies and industries that would deliver more jobs for Australians. While there are some schemes in place, too many of our best and brightest ideas, and entrepreneurs, are forced offshore to realise their full potential.

Part of the challenge is developing early-stage prototype devices and technologies prior to scale-up. Early-stage business ventures and researchers looking to translate and commercialise work in Australia need access to a national-scale capability to test product viability, trial designs and optimise manufacturing procedures. This would be delivered through a collaborative network of prototyping facilities across the country that would support pre-market development, testing and scale-up.

This translational prototyping facility would ideally take the form of a strategic nationally coordinated network – with up to 8 nodes, one in each state/territory. This would ensure geographical accessibility and allow for some hubs to target specific industry/discipline areas or technical capabilities. To build partnerships and leverage shared workforce, where appropriate, nodes could be co-located with NCRIS-funded research infrastructure nodes, e.g. ANFF or TIA, which support work at TRL 1–4.

Spanning the ‘valley of death’ stages of TRLs 4–7, the network would deliver crucial government support essential to de-risking the proof-of-concept and early scale-up stage of product development. This would enable development of products in which industry can invest with greater confidence.

To facilitate a smooth transition to scale-up, facilities would need to have ISO accreditation. They could become advanced manufacturing hubs that serve both Australia and the broader Indo–Pacific region, positioning Australia as a key leader and partner in value-added manufacturing technologies.

This initiative requires a long-term investment – a minimum of 15 years. This delivers the security and certainty needed to ensure success and build industry confidence. This would include a 2-year period for comprehensive scoping and planning to ensure facilities are fit-for-purpose, are accessible to all research and industry partners and effectively meet their needs.

Beyond this 2-year scoping period, the primary costs will be establishing the infrastructure and equipment, and funding the ongoing operations. This includes maintaining a specialised workforce to ensure facilities are run efficiently with maximum benefit.

To effectively support early-stage business development, access to these facilities should be at no or low cost to users, or could be facilitated through a voucher scheme that enables free access for a limited time or up to a set threshold. This means an adequate funding model must be developed to ensure their sustainability and accessibility.

		Funding	Total 15-year investment
Initial establishment – planning and scoping		\$10m	\$10m
Capital infrastructure and equipment for 8 nodes		\$80m	\$80m
Ongoing operational funding	Workforce	\$1.5m/yr/node	\$180m
	Equipment maintenance/upgrades	\$3m/2yrs/node	\$156m
			\$426m

Science & Technology Australia Recommendation:

The Australian Government should boost Australia’s industrial transformation through a \$426 million network of connected facilities to support early-stage prototyping and scale up.



Office for Indigenous STEM/Indigenous Knowledge

Australia's refreshed National Science and Research Priorities include a priority of *elevating Aboriginal and Torres Strait Islander knowledge systems*. This signals the Government's commitment to promote and leverage Indigenous Knowledge across the STEM community and society more broadly.

However, there is currently no plan for how this should and can be done. It will require a multi-faceted and complementary approach of truth telling, reconciliation and culturally responsive learning and education approaches – to both support First Nations people's future in STEM and elevate Indigenous knowledge.

In education, we have seen a predominance of policies and programs – and significant funding – with a heavy focus on attendance (i.e. 'get children into school and they will learn'), and engagement through sport. This is not enough. Current NAPLAN scores clearly demonstrate Indigenous students are falling further behind and non-Indigenous students – one-dimensional programs fixated on attendance are not doing enough to close the gap. We need a new approach. Building on the work of [NATSIEC](#) and [ATSIMA](#) and the findings of the [Aurora Foundation RISE](#) project, we must develop culturally responsive education policies, practices and curricula to better support First Nations students.

This should be complemented by deeper investment in Indigenous-led organisations with a STEM focus that also connect with First Nations' people's culture, e.g. Deadly Science and Deadly Coders. This will lead to better educational outcomes for Indigenous learners as well as developing a strong pipeline of Indigenous STEM professionals who understand how their culture connects with STEM.

In the research sector, we need deep and honest two-way conversations on the intersections of Indigenous and non-Indigenous knowledge in science and innovation, from research to researchers. The IPCC has called for nations to draw on Indigenous knowledges to help combat the global challenge of climate change. Genuine engagement with First Nations people and communities can help develop effective approaches to climate adaptation and mitigation. The existing First Nations Clean Energy Climate Change Advisory Committee (FNCECCAC) established by Department for Climate Change, Energy, the Environment and Water (DCCEEW) provides a framework for engaging First Nations people, researchers and communities in climate change adaptation and resilience measures.

Further, a coordinated funding approach is needed for First Nations-owned and -led STEM organisations, including the National Indigenous STEM Professionals Network (NISTEMPN), to build capability and capacity in the education community, from schools through to research bodies.

A federally funded Office for Indigenous STEM would support these goals, driven by the overarching National Science and Research Priority of *Elevating Aboriginal and Torres Strait Islander knowledge systems*. The Office, which could be housed within a larger Commonwealth agency such as AIATSIS, DISR or NIAA, would:

1. deliver a national plan to elevate Aboriginal and Torres Strait Islander knowledge systems, co-led by the Australian Chief Scientist and AIATSIS
2. deliver a national plan to improve First Nations people's participation in STEM, from school to research
3. identify strategies to improve culturally responsive learning across Australian schools to better support First Nations students
4. administer grants for:
 - new and existing initiatives to elevate Indigenous Knowledge in school curricula, higher education and research
 - First Nations-owned and -led organisations that work to build STEM engagement and support



5. work closely with DCCEEW's FNCECCAC to engage First Nations researchers in climate change adaptation and resilience discussions, planning and measures

The proposed Office would be led by a senior public servant (SES Band 1) with sufficient and culturally capable staff to deliver the proposed strategic and operational activities.

	Annual	Total 10-year investment
5–10 grants of up to \$2 million (400,000/yr for 5-year duration) for Indigenous-owned and -run STEM organisations	\$2m	\$20m
Support for NISTEMP	\$0.1m	\$1m
Up to 5 grants of up to \$4 million (\$1.25 million/yr for 4-year duration) for school curricula programs, e.g. STEM camps	\$6.25m	\$25m
An Executive and up to 18 staff to deliver on the complex and broad mix of strategic and operational activities, with an appropriate mix of EL2, EL1 and APS staff.	\$2.6m (incl. super and oncosts. Based on AIATSIS pay scales)	\$10.4m
Expert advice – funds to support travel and sitting fees for First Nations Knowledge holders and advisers to advise on the national plan, policy options and implementation	Up to \$0.1m	\$0.6m
		\$57m

Science & Technology Australia Recommendation:

To realise the National Science and Research Priority to Elevate Aboriginal and Torres Strait Islander knowledge systems, and boost First Nations people engagement and success in STEM, the Australian Government should invest \$57 million in a 10-year commitment to establish an Office for Indigenous STEM, including delivering grants to support First Nations-owned and -led STEM organisations.

Professor Sharath Sriram
President
Science & Technology Australia

Ryan Winn
Chief Executive Officer
Science & Technology Australia

SCIENCE & TECHNOLOGY AUSTRALIA / PO Box 259 CANBERRA ACT 2601 / 02 6257 2891 /
info@sta.org.au / www.scienceandtechnologyaustralia.org.au / ABN 71 626 822 845

©2025 Science & Technology Australia

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from Science & Technology Australia. Requests and enquiries concerning reproduction and rights should be made using any of the contact details above.

