

POLICY SUBMISSION

20 FEBRUARY 2026

SELECT SENATE INQUIRY INTO PRODUCTIVITY IN AUSTRALIA

Science & Technology Australia thanks the Senate Committee for the opportunity to contribute to its inquiry into productivity in Australia.

Science & Technology Australia is the peak body for the nation's science and technology sectors, representing nearly 150 member organisations and more than 235,000 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.

Key points

- STEM R&D must be a critical component of the national productivity conversation.
- Australia's R&D sector powers productivity by strengthening our economy, wellbeing and creating new jobs and industry.
- Australian research and innovation underpins all key areas of the Australian economy and is a strong investment with long-term, stable returns.
- Australian Government investment and support for R&D should be aligned with findings from recent national reviews of the sector, including the Strategic Examination of R&D and the National Health and Medical Research Strategy, to leverage key opportunities and boost business investment.
- Inadequate coordination and support for Australian R&D has led to significant loss of revenue, job creation and world-class research and talent leaving our shores.

Science & Technology Australia recommendations

1. To support Australia's innovation system and drive productivity through the generation of new ideas and knowledge, the Commonwealth Government:
 - a. must leverage the opportunities provided by the Strategic Examination of R&D and the new National Health and Medical Research Strategy processes to secure Australia's R&D system, and our innovation capability – through stable funding boosts and reformed governance that will improve cohesion and support through the entire R&D system
 - b. should adjust the R&D Tax Incentive to be a tax credit to better support R&D activities, and include premium rates for businesses collaborating with universities or for-purpose sectors
 - c. should establish a national program for prototyping and manufacturing facilities, with appropriate ISO accreditations, to de-risk proof-of-concept testing at critical technology readiness levels for industry
2. The Commonwealth Government should deliver policy and funding support to better nurture the ecosystem Australia needs to support development of early stage, but potentially transformative, med-tech and treatments to ensure these innovations remain in Australia. This could include deepening support for:

- a. early-stage med-tech industry development through grants, low- or no-interest loans and/or income-contingent loans for med-tech start-ups commercialising Australian innovations
 - b. collaborative translational ventures between universities, medical research institutes and industry partners
 - c. establishing essential research and early-stage translational infrastructure to support burgeoning med-tech innovations and industries – and keep them in Australia
3. The Commonwealth Government must incorporate environmental sustainability and preservation at the core of discussions of national productivity – and acknowledge that all other productivity stems from protecting a healthy environment and ecosystems.
 4. The Commonwealth Government should ensure sustainable funding for national research infrastructure that underpins direct and indirect economic benefits and productivity.
 5. To drive a proactive, Australian-centred innovation and productivity agenda, the Commonwealth Government should leverage SERD implementation measures to boost investment in Australia’s discovery research capability, as well as securing a strong and cohesive pipeline for research translation and commercialisation.

STEM R&D is critical to the productivity agenda

A productivity discussion without a deep focus on R&D — from discovery research through to industry translation — is like running a Michelin-star restaurant without trained and expert chefs. You can have the best location, front-of-house staff and aspirations, but without a skilled kitchen team, it is ultimately all hope and likely disappointment.

As noted in the Science & Technology Australia submission responding to the [Productivity Commission’s Five Pillars of Productivity interim reports in late 2025](#), deliberately placing R&D out of scope was a missed opportunity. The interim reports acknowledged that productivity growth will primarily come from new technologies, improvements in human capital (education and skills) and physical capital (investment). The report also noted that both human and physical capital and new ideas are ‘hugely important’ because of their ‘correlation with new ideas, which is the feedstock of growth’. R&D, conducted by a deeply skilled and talented sector, is what generates new ideas that further growth and productivity depend on.

Australia stands at a critical juncture. We can no longer continue to rely on our country’s mineral wealth and resources alone to maintain our economy and standard of living. Our economic complexity is declining, productivity is languishing, and our capacity to cope with economic shocks and increasing global uncertainty is diminishing. We must diversify and value add. Australia needs to transition to a knowledge and innovation-driven economy that will deliver the complexity and resilience needed to cope with the challenges of the coming decades.

Innovation begins with research and development (R&D). Australia’s R&D economy-wide investment sits at just 1.68% of GDP, a two-decade decline since sitting at 2.25% in 2008. This is well below the OECD average of 2.7%, and far behind global leaders. Despite being ranked [9th out of 145 countries for our GDP per capita¹](#), Australia’s [economic complexity ranking sits at 74th](#) – immediately behind Moldova, Kyrgyzstan, and Uruguay. This metric measures the diversity and sophistication of a country’s productive capabilities – its ability to make complex products that few other countries can

¹ Out of comparison the rank of GDP per capital for Moldova, Kyrgyzstan, and Uruguay are 98, 150 and 52 respectively, out of nearly 200 countries. This juxtaposition should not be lost on policy makers and industry leaders.



produce. The decline signals a dangerous trajectory toward economic simplification and reduced resilience.

A key gap in Australia's R&D investment is the business expenditure on R&D (BERD), which has dropped from 1.38% of GDP to its lowest point in 20 years at 0.93% in 2023–24. This is strongly reflected in the experience of Australia's researchers, who are all too often forced to head overseas for funding and opportunities once their ideas are ready to leave the lab. Various disincentives, complexities and organisational and cultural settings suppress business appetite for R&D and drive promising Australian ideas offshore and foster the 'valley of death' between discovery and commercialisation. Even with the strength of our universities and medical research institutes, without a robust private-sector commitment national R&D cannot thrive.

Strategic investment in STEM R&D delivers exceptional returns across the economy. Investing in research can return up to \$7.50 for every dollar, creates jobs, and positions Australia to address critical challenges from climate change to technological sovereignty. The path forward requires transitioning from a resource-dependent economy to one driven by knowledge and innovation – in which Australian ideas power Australian productivity and prosperity.

R&D as an economic investment – with strong returns

The economic evidence for R&D investment is overwhelming and consistent across multiple independent analyses:

- CSIRO modelling demonstrates that every [\\$1 invested in R&D generates \\$3.50](#) for the economy, delivering a 10% annual return on investment.
- Deloitte research found that each [\\$1 invested in university research grew Australia's GDP by \\$5](#) over the past 30 years, with a projected \$2.4 billion annual GDP increase from just a 1% permanent increase in university research investment.
- The Australian Research Council's National Competitive Grants Program (2001–2021) [returned \\$3.32 for every dollar invested](#), generating \$184.3 billion in economic output, \$152.5 billion in real income increases, and 6,570 full-time equivalent jobs per year.
- The National Collaborative Research Infrastructure Strategy delivers a remarkable [\\$7.50 return for every dollar invested](#).
- International Monetary Fund research indicates that a [10% increase in a nation's discovery research base leads to a 0.3% boost](#) in productivity.
- In agriculture, estimates indicate that [every \\$1 invested in R&D returns up to \\$7.82](#) for farmers.

These figures represent more than abstract economic indicators—they translate to real jobs – not just for those 'wearing lab coats' – improved living standards, and enhanced national competitiveness. In an era where STEM jobs are projected to grow at 24% (almost double growth rate for all skilled professions at 13%), investment in R&D creates the foundation for sustainable, high-value employment across the economy.

The sector is currently awaiting the release of the final report from the Strategic Examination of R&D (SERD), as well as the outcomes of other major policy processes such as the new National Health and Medical Research Strategy and the 2026 National Research Infrastructure Roadmap. The SERD, in particular, is a once in a generation opportunity for the Government to revitalise and fix barriers and blockages in Australia's R&D sector and future proof our innovation system for the years to come. It is critical that this opportunity is fully maximised. The government must implement proactive, ambitious reform that sets Australia's R&D system – and the nation – on a pathway to success, and the economic and productivity benefits this will deliver.

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Sector-specific productivity gains through R&D

Healthcare and preventive medicine

For obvious reasons, best practice healthcare is vital for long-term productivity in Australia – healthy people are productive people. Further, long-term Treasury projections from the Government's Intergenerational Report suggest federal health spending will continue to grow as a share of GDP, increasing from around 4.2% of GDP in 2023 to about 6.2% by the early 2060s. Health and medical research can deliver solutions to ease this burden on Government spending.

Health systems research optimises patient care delivery and medical outcomes. The productivity gains are substantial: [every \\$1 invested in preventive health saves \\$14.30](#) by reducing healthcare system burden and improving patient outcomes. This represents not just cost savings, but freed capacity for healthcare systems to address other critical needs.

[Research across various healthcare systems](#) has found that 60% of care is conducted within guidelines, 30% of care is wasteful, duplicative or delivers little value, and 10% actually causes harm. In 2017–18, [avoidable patient harm in Australian public hospitals cost \\$4.1 billion](#).

There are significant health, and therefore productivity and economic gains to be made through improved health services. Even simple interventions such as [sending gentle feedback letters](#) to doctors ordering excessive scans in Australia reduced imaging requests by 11%, resulting in 47,000 fewer scans and substantial MBS savings.

Other [health services research](#) found every \$1 spent on optimal supportive care services for lung cancer patients led to a \$9 return in combined savings within a one-year period, which accumulated to \$11 after 5 years.

Other opportunities lie in improving Australia's capability to commercialise health and medical research discoveries. For example, the [University of Queensland's molecular clamp technology platform](#) gained wide recognition during the COVID-19 pandemic when it was fast-tracked for use in one of Australia's first vaccine candidates. It also facilitates quicker and more effective multi-pathogen vaccine development. Due to a lack of local opportunity, the technology was bought by UK based company Vicebio for further development. In July 2025, Vicebio was bought by Sanofi, a French pharmaceutical company for \$1.6 billion. Despite UQ receiving some financial return for its 12 years of R&D effort, had the technology had remained in Australia the benefits would have been even more substantial. There is also no guarantee Australia will reap the subsequent benefits from manufacture and industry development. If our research funding landscape was more supportive, our return on investment could have been much higher. Similarly, researchers at the University of Adelaide, in partnership with US colleagues, developed a cutting edge [pharmaceutical treatment](#) that could help [3.4 million Australians](#) living with chronic pain – a condition that [cost Australia \\$144 billion](#) in 2020 and is projected to reach [\\$215.6 billion by 2050](#). The treatment delivers localised relief to [sciatic nerve injuries, osteoarthritis and chemotherapy-induced neuropathy](#). This innovative treatment has successfully attracted funding for commercialisation – but in the US, where the



commercialisation ecosystem is more accessible and works faster to bring innovations to development. This is another example of Australian ingenuity being developed overseas– with Australia missing out on the full benefit of our world-leading R&D.

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Environmental sustainability

The ultimate bottom line for securing Australia’s future productivity is the sustainability of our natural ecosystems (including terrestrial, marine and coastal, and freshwater), preservation of our important and unique environments and greater understanding and valuing of our extraordinary biodiversity. Without healthy natural ecosystems, communities, economic prosperity, and wellbeing – all essential for strong productivity – are at risk.

Consistent data and evidence is essential to accurately compare and assess environmental impact versus economic investments. When that information is inconsistent, it leads to patchy and poor decision-making, [risking food security, energy security, air and water quality, and ultimately, productivity.](#)

In 2025, the Department of Climate Change, Energy, the Environment and Water published the first [National Ecosystem Account](#), identifying a total of \$85 billion in benefits delivered by Australia’s diverse ecosystem services in 2020–21, including:

- Carbon storage: \$43 billion (34.5 million kilotonnes)
- Grazing forage for livestock: \$40.4 billion (111.2 million tonnes)
- Water: \$1.4b (58.8 million megalitres)
- Mangrove systems: \$43 billion (protection for 4,006 coastal homes)
- Saltmarsh systems: \$8 million (protection for 566 coastal homes)
- Fisheries systems: \$39.2 million (56.3 million tonnes of fish caught by Commonwealth fisheries)

Both national wellbeing and economic security are intrinsically linked to environmental condition – and for the first time, this has been clearly quantified. This valuation enables informed decision making that balances productivity with environmental outcomes.

However, analysis remains limited – holistic ecosystem valuation requires concerted and ongoing research. We cannot afford to squander our diverse ecosystems and the ecosystem services they deliver. To do this, we must comprehensively understand them, the risks they face and the cumulative impacts of use. Rapidly standing up Environment Information Australia (EIA) as our national environmental data and information body within the Department of Climate Change, Energy, the Environment and Water to improve how environmental information is collected, shared, accessed and used to inform decision-making for government, industry and the community is essential.



The [State of the Environment Report 2021](#) shows we increasingly use costly conservation mechanisms to restore deteriorating environments. This is both environmentally and economically unsustainable.

The 2025 South Australia harmful algal bloom exemplifies this. It has devastated marine life, seafood industries (both finned fish and shellfish), and tourism with [no current solutions for remediation](#). The impact on local communities has been shattering. [Recovery will be slow with high risk of recurrence](#).

Further environmental research is essential to develop solutions, prevent future blooms, and promote economic resilience and productivity.

Similarly, the increasing impacts of climate change and shifting weather patterns threaten environmental systems and productivity. The only way to mitigate the devastating impacts of bushfires, floods, droughts and other extreme weather events is through understanding our climate system and what drives change. We must ensure we have research and modelling expertise to enable robust weather and climate predictions. This is also essential for a successful transition to renewable energy – we need to understand wind patterns and predicting times of low (and high) winds for optimal wind farm operation, and the opportunity for other forms of renewable energy including wave energy and floating solar systems for the remote parts of Australia, currently reliant on fossil fuels for electricity. The energy transition must be just and equitable for all Australians, requiring investment in novel systems and the research and development required for optimisation.

Having the capability to predict future climate and weather – using Australia's [ACCESS](#) modelling framework, underpinned by wider environmental data collection infrastructure capabilities that includes the [Australian Ocean Data Network](#) and the [Integrated Marine Observing System](#) – is a core function that requires long-term stable funding.

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3. The Commonwealth Government must incorporate environmental sustainability and preservation at the core of discussions of national productivity – and acknowledge that all other productivity stems from protecting a healthy environment and ecosystems.
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The diffusion fallacy

Some argue that Australia can rely primarily on 'diffusion' – adopting and adapting innovations developed elsewhere – rather than investing in frontier research. This approach is fundamentally flawed.

Australia's unique challenges demand Australian solutions. Our geography, climate, biodiversity, First Nations knowledge systems, and regional position mean that Australia faces challenges that simply won't be solved by research conducted elsewhere. From managing unique ecosystems to developing climate adaptation strategies for the world's driest inhabited continent, we cannot outsource these challenges.

Further, meaningful technology adoption and adaptation requires deep research capability. The capacity to effectively adopt and integrate new technologies depends on having researchers who understand the underlying science. Without this absorptive capacity, even diffusion fails.

Reliance on diffusion would consign Australia to permanent technological lag and economic subordination. Wealth creation, job generation, and strategic advantage flow to innovation leaders, not followers. This 'trickle-down innovation' strategy would leave Australia poorer economically and strategically vulnerable.



Science & Technology Australia Recommendation:

5. To drive a proactive, Australian-centred innovation and productivity agenda, the Commonwealth Government should leverage SERD implementation measures to boost investment in Australia's discovery research capability, as well as securing a strong and cohesive pipeline for research translation and commercialisation.

The cost of inaction

Failing to systematically support and invest adequately in Australian R&D carries profound consequences. Without sovereign capability in critical areas like artificial intelligence, quantum and high-performance computing, and biotechnologies, Australian businesses, governments, and researchers will become dependent on overseas solutions and vulnerable to supply chain disruptions, geopolitical tensions, and foreign control of essential technologies. Australia will forgo the wealth creation, job opportunities, and industrial capabilities that flow from innovation. We risk becoming a technological backwater, unable to participate in high-value global markets.

Additionally, Australia will be ill-equipped to cope with challenges of the coming decade. Climate change, pandemic preparedness, and environmental challenges require uniquely Australian solutions developed with understanding of our specific geography, ecology, and needs. Imported solutions cannot address these context-specific challenges.

We also stand to suffer a debilitating loss of human capital. Inadequate research funding drives talented Australian scientists and researchers overseas, fuelling the brain drain that further erodes our innovative capacity. The cycle of precarious employment and insufficient support makes it increasingly difficult to attract and retain top talent.

The evidence is clear and compelling: R&D investment is not discretionary spending but an essential investment in national capability and prosperity, and must be considered in this way by policy makers. Every dollar invested returns multiple dollars in economic growth, in the short and long term, while addressing critical challenges and building sovereign capability. Australia's declining R&D investment and falling economic complexity signal urgent need for transformative policy action.

In an increasingly volatile world, strong and deep R&D capability is not merely desirable—it is essential to underpin Australia's sovereign capability, build economic resilience, and ensure national security and wellbeing. STEM R&D deserves a seat at the productivity table – and the nation needs it to be there.

Please do not hesitate to be in contact if the Committee requires any further information, or wish Science & Technology Australia to appear at a public hearing on behalf of the sector.

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