

STRATEGIC EXAMINATION OF RESEARCH AND DEVELOPMENT DISCUSSION PAPER

SUBMISSION FROM THE AUSTRALIAN ACADEMY OF HEALTH AND MEDICAL SCIENCES

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Comprised of the most outstanding scientific leaders, the Australian Academy of Health and Medical Sciences is the independent and authoritative body working to solve the most complex and pressing health challenges facing our nation.

In providing expert advice, the Academy reduces health inequity by enabling high-quality, evidence-based healthcare driven by science and innovation.

From lecture hall to lab bench, and then patient bedside, our Fellows are at the forefront of translating ground-breaking research into real world outcomes that advance healthcare, inform policy, and save lives.

The Academy's unique composition and reach brings together an unparalleled network of Australia's leading health and medical experts across industry, academia and decision-making bodies to advance the health of our nation.



Health and Medical Research: A Foundation of Australia's R&D System

Australia's prosperity, resilience, and global competitiveness are built on the strength of its research and development (R&D) system. Health and medical research (HMR) has been a cornerstone of that strength, delivering breakthrough innovations, supporting our health system, and contributing significantly to the economy.

Yet despite its track record, Australia's R&D sector is under increasing pressure. Investment in R&D has declined in real terms, and fragmentation across programs, portfolios, and funding schemes has limited the sector's ability to respond to national challenges with the agility and impact required.

The Strategic Examination of Research and Development presents a once-in-a-generation opportunity to address these issues and build a more cohesive, integrated, and future-fit R&D system.

In this submission, the Australian Academy of Health and Medical Sciences outlines a series of recommendations to strengthen R&D coordination, boost impact through translation, and support the workforce needed to sustain innovation.

- Australia must adopt a whole-of-government approach to R&D that aligns fragmented programs, fosters interdisciplinary collaboration, and embeds strategic planning across departments and jurisdictions.
- The full research pipeline from discovery to translation and impact must be supported, with funding mechanisms that enable risk-taking, innovation, and long-term outcomes in areas such as health, climate, and technology.
- **Policy and funding settings must be recalibrated** to reduce administrative burden, align incentives with innovation outcomes, and support long-term investment from government, industry and philanthropy.
- The future of Australian R&D depends on a secure, mobile and diverse workforce, supported through better career pathways, cross-sector mobility, and inclusive policies that reflect the nation's full talent pool.

Australia must safeguard its R&D sector and ensure that Australian health and medical research remains globally competitive, agile, and responsive to future health challenges - by ensuring it is based on the strongest possible foundations. Australia must place HMR at the core of a cohesive, dynamic, and impactful R&D strategy that delivers for all the entire Australian community.



Whole-of-government coordination and a national approach

Australia's most pressing challenges, from climate change and chronic disease to antimicrobial resistance and emerging technologies like AI, require coordinated, multidisciplinary solutions. These issues do not sit neatly within single disciplines or portfolios; they demand collaboration across physical, life and social sciences, engineering, industry and policy. A cohesive national R&D strategy must be designed to break down silos, promote interdisciplinary collaboration, and leverage Australia's full research capacity to develop impactful, systems-based solutions. To that end, R&D efforts – which are currently fragmented across more than 150 programs administered by at least 14 departments and agencies must be better coordinated. Currently, there is no enduring mechanism to align investment with priorities and evaluation. This results in duplication, inefficiencies, and missed opportunities to scale transformative research.

A single, central coordinating body that sits outside current funding agencies and departments should be created, empowered to:

- Align and evaluate government investment across the R&D portfolio.
- Coordinate strategic priorities across sectors and jurisdictions.
- Enable a long-term vision for R&D that is apolitical and protected from short-term decision cycles.

This model must include HMR as a core pillar of Australia's broader R&D system, with cross-portfolio representation from health, science, industry, and the treasury.

Embedding HMR in a national strategy would improve the translation of evidence into healthcare, reduce low-value care, and ensure the sustainability of the health system in the face of growing expenditure and an ageing population. It would also accelerate commercialisation and innovation, fuelling growth in Australia's medical technology and biotechnology sectors.

Embedding R&D across systems: discovery, translation and impact

Australia's R&D system must support the full research and innovation pipeline: from foundational discovery through to commercialisation and system-wide translation. This requires distinct but coordinated funding mechanisms that recognise and enable discovery across all phases of the pipeline, not just at its beginning. Discovery does not stop at the lab bench, it happens in clinical trials, health services research, data science, and commercial development.

Discovery sciences, while inherently unpredictable, lays the foundation for future innovations and underpins long-term national competitiveness. Schemes such as National Health and Medical Research Council (NHMRC) Investigator Grants and Australian Research Council (ARC) Discovery Projects must be preserved, fully funded, and allowed to take risks.

However, discovery alone is insufficient. For innovation to have impact, it must be translated into tangible outcomes. Australia currently lacks structural investment in translation. Despite individual success stories, we do not have enduring mechanisms to consistently embed research and innovation as core functions of healthcare delivery, manufacturing, or environmental management.



An integrated, dynamic, and impactful R&D system for Australia requires research and innovation to be embedded as core functions across sectors – from universities and industry to healthcare and government¹. This means breaking down silos so that discoveries flow seamlessly into practice, supported by cross-sector alliances and collaborative teams. The Academy has long advocated its vision for health, which embeds research in the healthcare system itself, recognising that research-rich environments deliver better patient outcomes, greater economic benefits, and systemic efficiency. Similar models could support energy, defence, agriculture, and more.¹

In addition to embedding research across systems, consideration must be given to translation. Australia should strengthen intermediary structures like translational research centres, innovation hubs, and incubators which can act as bridges connecting institutional research with translation and commercial opportunities. Australia's NHMRC-accredited Research Translation Centres in health, which bring together universities, hospitals, and industry partners to drive innovation into practice, are a good example that could be further leveraged as a model for other parts of the R&D system¹.

For Australia's R&D system to be sustainable, it must be underpinned by diverse, long-term funding that leverages industry, philanthropic, and international sources, with a national goal to raise overall R&D expenditure to 3% of GDP. Our current investment sits at ~1.7% - well below the OECD average of 2.7%.⁷ Achieving this will require stable policy support and incentives that encourage growth in business R&D expenditure and ensure research funding keeps pace with the cost of research and opportunities.

In addition, a truly dynamic system also hinges on a skilled and enabled workforce and supportive infrastructure. Australia needs a pipeline of talent, including world-class clinician-researchers and innovators who are supported by modern research facilities and data platforms.¹

The Academy's <u>report on research and innovation as core functions of the health system</u> calls for fragmentation to be addressed through forming a new alliance and building an enabled research workforce, alongside strengthening integrated cross-sector collaboration.¹ This coordinated approach would make the R&D ecosystem more agile in responding to emerging challenges such as pandemics, and opportunities such as new technologies, and better able to translate breakthroughs into societal impact.

Finally, an impactful R&D system actively involves consumers and communities, ensuring research priorities align with public needs and that the benefits of innovation reach the entire Australian community. By fostering public trust and engagement, and focusing on equitable access to expertise and outcomes (including in rural and under-served areas), we can create a future-fit R&D system that consistently delivers improved health, economic prosperity and national wellbeing.¹⁴

Policy settings that inhibit R&D and innovation

Several current government, university and industry policy settings inadvertently hinder Australia's R&D and innovation potential. On the government side, funding arrangements often emphasise short-term grants and siloed programs, creating uncertainty and fragmentation. For instance, competitive grants typically do not cover the full cost of research, forcing universities and research institutes to cross-subsidise projects (e.g. universities rely on international student fee surpluses, and medical research institutes (MRIs) must raise \$0.56 for every \$1 of grant funding to meet indirect costs).⁵ This undercuts sustainability and diverts funds from important scientific and research endeavours.



A historical lack of an overarching, whole-of-government innovation strategy has contributed to duplication and fragmentation across the research ecosystem, with federal and state programs often poorly aligned. Even within the Federal Government, there are dozens of uncoordinated innovation strategies across departments and agencies, many operating in isolation. The current parallel development of the SERD and the National Health and Medical Research Strategy is a prime example.

Inconsistent or narrow R&D tax incentive settings have also been cited as a barrier. For example, the Business Council of Australia notes that caps on the R&D Tax Incentive can deter large-scale private R&D projects, effectively *"holding back investment that could transform local industries"*.² Regulatory complexities and lengthy approval processes (e.g. for grants, ethics and IP) further slow innovation, suggesting that administrative burdens need streamlining.⁴

Within universities, institutional incentives and metrics may inadvertently inhibit innovation. Performance frameworks still largely reward academic outputs (publications, citations) over industry engagement or interdisciplinary collaboration, which can discourage researchers from pursuing translational work or entrepreneurship. Limited career pathways and heavy teaching or clinical loads (for clinician-researchers) make it difficult for researchers to dedicate time to innovation.¹ This is reflected in the high rate of short-term contracts for research staff, undermining job security and willingness to take on ambitious, long-range projects.

Business culture and policy can also dampen R&D, with many Australian firms remaining risk-averse and focused on short-term returns, partly because policy settings don't strongly incentivise R&D investment.

In Australia, business expenditure on R&D (BERD) has declined as a share of GDP in the past decade⁶, and Australia lacks strong "demand-pull" levers to entice industry into research partnerships or commercialisation of local ideas.^{2,6} Business leaders need to see that investing in R&D will create value. This is where demonstrating success stories and ROI could become an incentive in itself. Studies show that R&D delivers high returns, in the order of \$3,50 in economy-wide benefits for every \$1 invested.⁶ Sharing data on the payoff of innovation (such as new products, productivity gains, and expanded markets resulting from R&D) can help make the business case.

Further, if Australia formally adopts a national R&D intensity target (such as 3% of GDP by 2035, it sets an expectation that business will be a partner in reaching that goal, effectively challenging industry to boost their contribution alongside government.

Tax and procurement policies could do more to reward innovation. Government procurement policy is an example of one underutilised lever. By favouring innovative solutions (the US and EU often use procurement to drive R&D), Australia can motivate companies to invest in R&D to meet future government needs in areas like defence, health, or environmental management.

The Academy stands ready to work with Government and decision makers to identify evidence-based mechanisms (such as collaboration premiums, co-investment funds, or patent boxes) for translation and commercialisation of health and medical research. Such mechanisms could encourage local manufacturing, lift both government expenditure on R&D (GERD) and BERD, increase our domestic sovereign capability, and bolster Australia's national resilience.²



Building a national culture of innovation and public engagement

Fostering a national culture of innovation excellence requires visible leadership, public engagement and recognition of success. Strengthening Australia's capacity for research breakthroughs and their translation into real-world impact should remain the primary focus, with national pride in our achievements a natural and powerful byproduct. The COVID-19 pandemic demonstrated the public's willingness to rally behind science when its value has such direct and tangible impacts. By consistently highlighting how Australian research delivers improved health outcomes, economic returns, and global competitiveness, we can reinforce public confidence in the sector and build sustained support for long-term investment in R&D. Communicating these tangible benefits helps shift public perception of R&D from a niche activity to a key national priority, maintaining support for sustained investment.

A culture of innovation also thrives on trust and openness. To engage the public, the research community must be transparent about its work and inclusive of public input. This can involve co-designing research agendas with consumers, community representatives and First Nations peoples, thereby ensuring that research is meaningfully co-designed and collaborative.

The Academy emphasises stronger consumer and community involvement as a pillar of a future-fit R&D system. When people see their priorities and perspectives reflected in research, they are more likely to champion it.

Building trust in health and medical research is particularly crucial to the overall R&D effort, and maintaining high standards of research integrity, ethics, and communication helps ensure the public remains confident that innovation is delivering genuine benefits to society. National leadership that consistently communicates the importance of R&D, coupled with a forward-looking national R&D strategy that is backed by bipartisan support, can signal that innovation is a long-term priority beyond electoral cycles.

Attracting, developing and retaining a future-ready R&D workforce

Building the R&D workforce Australia needs for the future will require concerted action to attract new talent, develop skills, and retain expertise at all career stages. First and foremost is improving the career prospects and job security for researchers. Currently, a majority of Australia's researchers face insecure employment, with over half of university-based researchers and nearly three-quarters of those in MRIs being on short-term contracts, making a long-term research career less appealing.⁵

To address this, the Academy and others have called for embedding job security and progression opportunities in our research funding systems¹. We need more fellowships and permanent positions for early and mid-career researchers (EMCRs), coupled with targeted schemes to retain top talent during the postdoctoral and mid-career "crunch" years.³

The goal is clear: an early career researcher in Australia should see a viable pathway to a stable, rewarding career, rather than a string of uncertain short contracts. This could involve creating tenure-track style fellowships, increasing funding for salary support in grants, and ensuring that the national R&D system explicitly plans to attract and retain talent at critical career transition points.

Mentoring, training, and development need to be included in a workforce pillar of any R&D strategy. Australia should invest in programs that continuously build the skills of our researchers, not only in



scientific techniques but also in leadership, collaboration and commercialisation. Expanding mentorship initiatives (such as AAHMS's own *Mentorship* and *Life as a Clinician Scientist* programs) helps guide early-career researchers and clinicians through career hurdles and provides them with relatable and inspiring role models¹.

Australia needs to nurture researchers with multidisciplinary skills—such as data science, digital literacy, entrepreneurship, and policy acumen—through targeted PhD programs and ongoing professional development. As the boundaries between disciplines continue to blur, tomorrow's research workforce must be equipped not only to generate knowledge but also to translate it into real-world outcomes. Building these capabilities will ensure our researchers are better able to collaborate across sectors, drive innovation, and respond to national priorities such as emerging technologies, healthcare delivery, and economic diversification.

Science is both a global and international endeavour, and the mobility of researchers and innovators is essential to its progress. Attracting talent requires not only nurturing home-grown researchers from diverse backgrounds, but also welcoming international expertise. Australia must remain open and connected to the world, recognising that strong global collaborations enhance our competitiveness in the international research landscape.

A research workforce that reflects Australia's diversity will be more creative and adept at solving a range of societal challenges, including in health. This means supporting underrepresented groups (e.g. researchers who are women, Aboriginal or Torres Strait Islanders, or culturally and linguistically diverse) through targeted grants and fellowships, and an inclusive culture. For example, measures to support Aboriginal and Torres Strait Islander researchers (e.g. dedicated fellowships and leadership programs) are under way, and there are similar programs to close gender gaps in grant funding and advancement, but these can often only cater to small, niche subsects of the R&D sector to the exclude parts of other parts of the ecosystem.

Retention of talent also depends on creating attractive working conditions and recognition for researchers. We should enable more flexible career pathways, such as allowing researchers to move between academia, industry, and government with ease – building a "boundary-crossing" workforce that brings experience from multiple sectors. Embedding research roles within healthcare (for clinician-researchers) with protected research time is another way to retain critical talent at the interface of research and practice.

References

- 1. Australian Academy of Health and Medical Sciences. *Research and Innovation as Core Functions in Transforming the Health System: A Vision for the Future of Health in Australia.* https://aahms.org/wp-content/uploads/2022/10/AAHMS-Vision-Report.pdf (2022).
- 2. Business Council of Australia (BCA). *Submission to the Review of the R&D Tax Incentive*. (2023).
- 3. Australian Government, Department of Education. *Australian Government Universities Accord Discussion Paper*. (2023).
- 4. Australian Academy of Health and Medical Sciences. *Submission to the HMRO Survey on the National Health and Medical Research Strategy*. (2025).
- 5. AAMRI. Australia's Missing Link: A National Health and Medical Research Strategy. (2021).
- 6. Group of 8. Australia's R&D Intensity: A Decadal Roadmap to 3% of GDP. (2024).
- 7. Gross domestic spending on R&D, Organisation for Economic Co-operation and Development. (2025) <u>https://www.oecd.org/en/data/indicators/gross-domestic-spending-on-r-d.html</u>

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