



Cooperative
Research
Australia

2023-24 Pre-Budget Submission

January 2023

Cooperative Research Australia acknowledges the traditional custodians of the land on which we operate, the Ngunnawal people. We also acknowledge the traditional custodians of the various lands across Australia upon which our members operate.

We pay our respects to Elders past, present and emerging and celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to our lands and waters.

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Executive Summary

Cooperative Research Australia (CRA) welcomes the opportunity to provide recommendations for consideration in the Australian Government's 2023-24 Budget.

CRA is the voice of industry-research collaboration and advocates for the translation of research into commercial, economic, social, and environmental outcomes that benefit all Australians. Our members are the lynchpin in the Australian innovation system and are focused on creating new products, services, industries, and value in our economy. CRA represents Cooperative Research Centres (CRCs) and their spinoff/successor entities, CRC – Projects grant participants, 30 universities and research institutions, as well as other industry-research collaboration entities, associated businesses, alumni and professionals.

Our contribution focuses on the impacts that research and development bring to the Australian economy, with a particular interest in collaborative innovation, research translation and commercialisation. The highlights of CRA recommendations are:

1. Increase R&D investment as a percentage of GDP from 1.8 to 3 percent.
2. Enhance the return on public investment in R&D by coordinating programs across Government.
3. Incentivise innovation through industry-led research collaboration by establishing an up to 20% R&D tax collaboration premium.
4. Grow the Cooperative Research Centres Program to support the stimulation of growth of R&D investment from all sources.
5. Support an accelerated start and smooth transition/windup of CRCs and similar entities.
6. Replicate the successful CRC Program model in other Australian Government portfolios to achieve their policy objectives.
7. Evidence ROI from Industry PhDs with a detailed destination survey of alumni of industry focused programs.
8. Invest in commercialisation training.
9. Review PhD stipends to make them more competitive in the labour market and address attraction and completion rates.

Cooperative Research Australia is committed to working collaboratively with the Australian Government to build an innovation strategy that ensures a productive and prosperous nation for all Australians. We are open to facilitating a platform for further consultation and/or clarification with our members on any of the recommendations.

Achieve economic recovery through innovation and collaboration

The current socio-economic and political conditions in Australia provide an opportunity to position innovation at the forefront of policy to address national challenges.

Australian productivity, innovation and economic complexity have been declining. The ABS 2020-21 financial year Research and Experimental Development, Government and Private Non-Profit Organisations data confirms that, although slightly increasing, Australian industry R&D is weak by OECD standards.

Peer countries and competitors alike are tackling the global economic crisis by increasing their percentage of GDP spend on R&D. They are clear: the way forward is through innovation.

Collaboration between publicly funded research institutions and businesses have not yet reached their full potential. The 2017 OECD Science, Technology and Industry Scoreboard ranked Australia last out of the thirty-three countries surveyed in firms' collaboration with the higher education/public research institutions, with equal weighting between SMEs and large firms. The most updated version, drawn from the 2019 OECD survey of national innovation statistics and the eurostat's Community Innovation Survey, confirm Australia's lag once again.

The potential benefit of collaborative research and translation driving innovation in the Australian economy cannot be understated. For Australia to recover and prosper, stimulating and facilitating productive collaboration between research organisations and business must be a priority.

Recommendation 1:

Increase R&D investment as a percentage of GDP from 1.8 to 3 percent

Australia's competitors and peers are tackling the global economic crisis by increasing their R&D investment as a percentage of GDP, with bold but focused policy initiatives and national investments such as the US government's CHIPS Act. While fostering the adoption and use of innovation represents a significant opportunity to increase productivity, Australia can and must benefit from the high performance of its research institutions by identifying our competitive strengths and playing to them.

Our research performance – which has us placed at 11 in the current Nature Index of Country/Territory Research Output is the result of significant and sustained investment by Australian governments since World War II and has transformed the nation from a 'research taker,' dependant on imported knowledge, to a global contributor. Focused, long-term commitment and investment will enable Australia harness that research capacity through translation for commercial, economic, social and environmental benefit. Long-term

economic growth and security is supported by active participation in knowledge creation and the translation of research.

The October 2022 Budget maintained most of the current Science, Research and Innovation (SRI) programs and seeded the establishment of the National Reconstruction Fund (NRF). A significant further step would be to increase R&D investment as a percentage of GDP from 1.8 to 3 percent, in line with ALP's National Platform and -more recently- Minister for Industry and Science's speech at the UTS Vice-Chancellor's Innovation Showcase (3 November 2022). This would be a clear signal to the rest of the world that Australia is backing innovation in the context of an OECD average of 2.674 percent in 2020.

In addition to the creation of the National Reconstruction Fund (NRF), further investment in programs that are demonstrated to stimulate private sector investment in R&D, such as CRC Program, will assist in growing national investment in R&D.

Recommendation 2:

Enhance the return on public investment in R&D by coordinating programs across Government

Taken as a whole, Australia's investment in the translation of research to commercial, economic, social and environmental benefit is substantial. However, as a result of multiple attempts to unleash the potential of industry-led research, we see the unintended creation of a disconnected system of programs across governments and states that overlap and compete with one another.

Greater cross-departmental coordination and a set of shared principals could be instituted by the Commonwealth, drawing upon existing initiatives such as the Waratah Research Network and its cross-government coordination in NSW.

This endeavour should also include the creation of pathways for high-performing industry-research collaborative entities of national importance, such as Cooperative Research Centres (CRC), National Collaborative Research Infrastructure Strategy (NCRIS), Trailblazers and Industry Growth Centres, to be extended through appropriate channels, including through a relevant portfolio agency if the work they are undertaking is of ongoing national importance and cannot be continued in the absence of some continuing investment.

A way to do this would be to potentially reviewing and enhancing the role of Industry Innovation and Science Australia (IISA) to better cover innovation programs across government and provide advice to government.

In addition, it would be a great opportunity to ensure that the NRF links well to other grants schemes. The formalisation of an office to support the commercialisation phase of research could complement the work of Australia's Economic Accelerator to ensure that the entire translation of research to commercialisation is covered.

Recommendation 3:

Incentivise innovation through industry-led research collaboration by establishing an up to 20% R&D tax collaboration premium

According to the 2016 Research and Development Tax Incentive Programme Review, approximately 30% of Australia's spend on R&D is through the indirect measure of the R&D Tax Incentive (R&DTI). Although there is an element of the programme that targets collaboration, its impact is not significant. The Review acknowledges that there is potential to increase collaboration within the R&D TI programme with greater offset rates for collaborative projects.

As of 2021, six OCED countries (Belgium, France, Iceland, Italy, Japan and Hungary) provide an R&DTI for collaboration.

We believe incentivising collaboration through the introduction of up to a 20% collaboration premium consistent with Recommendation 2 of the *Review of the R&D Tax Incentive*, would be an effective mechanism generating new collaboration between industry and research institutes and foster a culture of innovation.

We also support the subsequent point in Recommendation 2 of the review to apply the collaboration premium to the cost of employing new STEM PhD or equivalent graduates in their first three years of employment.

Build on a proven successful program for collaborative research

The Cooperative Research Centres Program (CRC Program) was established 30 years ago to increase Australia's global competitiveness and de-risk companies investing in research. It is an Australian success story and is looked to internationally as an exemplar to foster medium to longer-term collaborative research between industry, the research sector, and end-users, and forms one of the key pillars in the Australian innovation system.

The CRC Program provides a well-established and well-understood model for industry-led research, and the development of productive collaboration between research institutions and business.

The 2021 Acil Allen Cooperative Research Centres Program Impact Evaluation, released in January 2023, concluded that the CRC Program continues to meet its objectives with demonstrable positive impacts for the nation, including a significant positive contribution to GDP growth and the creation of new jobs throughout the economy.

CRA endorses the report's recommendations with particular focus on further investment in the program and support for CRCs at early stages and in their windup processes.

Recommendation 4:

Grow the Cooperative Research Centres Program to further induce new private R&D

The 2021 Acil Allen Cooperative Research Centres Program Impact Evaluation, prepared for the Department of Industry, Science and Resources, confirmed that the program was fit for purpose and delivers significant benefit back to the Australian economy, having induced around \$200 million per year of new private R&D over the life of the program, and grew GDP by \$32.5 billion.

Recommendation 1 of this evaluation states that with the program achieving excellent outcomes, “future efforts to drive industry growth and innovation should leverage the Program’s success and consider further investment in both CRCs and CRC-Ps, as proven ways to drive industry-research collaboration”.

CRA recommends the Australian Government adopt the recommendations of the Acil Allen Report and grow the program both through both by restoring annual investment in the program to 2008 levels, and where there is a critical and urgent need for the nation, make use of the CRC program to deliver economic growth and enhance sovereign capability through funded, ad hoc-special purpose rounds of the CRC program.

Recommendation 5:

Invest in an accelerated start and smooth transition for CRCs

Recommendations 6 and 7 of the 2021 Acil Allen’s CRC impact evaluation refer to the opportunity to maximise CRCs productivity by helping them navigate the starting and wind-up/transition periods. Currently, according to the evaluation, start-up and wrap-up can reduce the available time for research by as much as 30 per cent.

CRA recommends investment in regularly updated onboarding and offboarding programs that draw upon best practice to de-risk the start-up period, minimise expenditure of Commonwealth funds on duplicated activities, and accelerate the full operation of CRCs.

Recommendation 6:

Replicate the successful CRC Program model in other Australian Government portfolios to achieve their policy objectives

The 2015 Miles’ review of the CRC Program, *Growth through Innovation and Collaboration*, proposed that the “CRC Programme model should be used and funded by other Australian Government portfolios to achieve their policy objectives.”

Key success elements of programs such as Cooperative Research Centres that have generated demonstrated successful outcomes should be identified and applied to other

programs. Elements of the influence of the model can already be seen in the eight Drought Resilience Adoption and Innovation Hubs established by the Department of Agriculture, Water and the Environment which are funded to \$86 million; the Trailblazer Universities Program through the URC package funded to \$243 million; and the Department of Defence's Trusted Autonomous Systems CRC and the Defence Materials Technology Centre (DMTC).

An unintended consequence of the introduction of the maximum 10-year time limit for CRCs has been the absence of a pipeline of health-related CRCs, consequent gap in industry-led health research and thus ongoing cost to the nation of resolvable health challenges. The translation runway for health-related research tends to be longer, but the outcomes of health-related CRCs has been substantial, from the Hearing CRC's role in the creation of cochlear implants to the Cancer Therapeutics CRC (now Canthera Discovery) cancer target discoveries that have resulted in a licence agreement with Pfizer that includes potential milestone payments of \$648 million plus royalties.

In line with this, and following Recommendation 4 of the 2021 Acil Allen Impact Assessment, CRA proposes that a CRC stream for health and medical research be created jointly under the Health Portfolio with a 15-year funding life, to allow for the longer runway needed for industry-led health and medical research translation and commercialisation.

Invest in an industry-ready, innovative workforce

The human resources needed to drive the transformation associated with digitalisation and emerging technologies will emerge from those invested in the innovation ecosystem – the collaborative cohort that includes government, industry and academia.

Australia needs to develop a local highly skilled workforce while also attracting and retaining international talent. On the one hand, there is an opportunity to create better career pathways that appeal talented people to undertake the training needed for the high-skilled jobs that contribute to the Australian industrial transformation. On the other hand, Australia needs ways to attract, keep and retain highly skilled workers from the global talent market.

Furthermore, capturing the impacts of the innovation workforce developed in Australia over the past 30 years would open career paths, allow academic-industry permeability, abolish barriers to movement between industry and academia, and increase industrial innovation through collaboration.

Recommendation 7:

Evidence ROI from Industry PhDs with a detailed destination survey of alumni of industry focused programs

According to the Acil Allen report, CRCs are a net job creator. From 2012 to 2020, the CRCs are estimated to have created 22,007 FTE-years, or an average of 2,445 jobs in each year. However, a knowledge gap remains on the employment pathways and entrepreneurship by graduates of industry-led research programs such as those 4,000+ PhD graduates of CRC programs.

Better understanding of the cohort would contribute to establishing the settings for developing and retaining of a highly skilled workforce and would challenge prevailing notions of the value of research in industry, the value of a research qualification, and the value of a research capable workforce.

For this purpose, CRA recommends evidencing the return on investment from industry PhDs and embed the lessons learned in new workforce schemes through funding of \$1.0m in 2023/24 into a detailed destination survey of alumni of industry focused programs such as CRCs.

Recommendation 8:

Invest in commercialisation training

Commercialising research outcomes is essential for Australia to capitalise its research strengths and research investment returns.

Drawing from international examples, such as the UK's Higher Education Innovation Fund or New Zealand's Commercialisation Partner Networks and PreSeed Accelerator Fund, we recommend progressing via a dedicated funding stream for a high-quality recognised training program.

This would not only address an improvement on the current framework for translation and commercialisation of research, but it would also upskill a cohort of professionals. It would target skill gaps by boosting capacity and capability to create a highly-skilled workforce and create a new platform of jobs that supports Australian innovation.

Recommendation 9:

Review PhD stipends to make them more competitive in the labour market and address attraction and completion rates

We see scholars abandoning research training at a greater rate as they contend with the cost of living and a hot labour market. This will have a long-term impact on Australia's very high-skilled workforce and leave us lagging on productivity even further in the years to come. Anecdotal reports from our members confirm a growing challenge in attracting high-performing scholars, as the global market for talent becomes more competitive and the cost of living becomes a disincentive.

PhD stipends under the Research Training Program and incentives to undertake industry-focused programs are low and a barrier to mid-career talent embarking on further development.

A review of incentives in the form of increased PhD stipends, in combination with cost-of-living support, would make a highly skilled industry-research career more attractive and prepare the skilled workforce needed to increase productivity.