Cooperative Research Australia

Response to the 5 Year Productivity Inquiry

2022

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 Cooperative Research Centres 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 on the 5 Year Productivity Inquiry (2022).

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 form a 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), CRC Projects (CRC-Ps), post-CRC entities, and universities as well as other industry-research collaborative entities, associated businesses, alumni and professionals.

CRA commends the Australian Government on its commitment to research, science and innovation and appreciates the Productivity Commission's effort to boosting Australia's productivity through reform in key areas such as digital innovation and workforce skills.

The consultation on productivity is an opportunity to give a voice to the experience and success of industry-led research experts that CRA represents.

There are seven recommendations that CRA makes based on analysis of our members' experience:

1. Encourage greater coordination and facilitation of collaboration across the Australian innovation system
2. Foster innovation ecosystems to enable greater impact for Australian investment and to support innovation diffusion
3. Signal the world that Australia is serious about science, research and innovation
4. Measure the impact on employment and entrepreneurship arising from industry-led publicly funded research programs
5. Review PhD stipends to make them more competitive in the labour market and address attraction and completion rates
6. Refine career pathways for HDRs (Higher Degree by Research) to address attraction and completion rates
7. Promote Australia as an attractive destination for high-performing talent

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

Recommendations

Greater coordination and facilitation of collaboration across the Australian innovation system

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 system of poorly connected programs across governments and states that overlap and compete with one another.

This is particularly evident in the healthcare sector. With a healthcare budget hitting over $200 billion and a rapidly ageing population with chronic diseases, demand is creating pressure in all care settings. Letting alone digital transformation, a connected system to improve innovation is languishing. Healthcare has strong science and clinical practice in Australia, but significant room to improve connectivity across the system. This is a handbrake on productivity improvement. In healthcare, where translation runways are long, the 10-year life limitation of Cooperative Research Centres has seen a decline in medical and health-focused CRCs – which over the history of the CRC program are the ones that have made some of the largest returns on investment for the nation.

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) 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.

Foster innovation ecosystems to enable greater impact for Australian investment and to support innovation diffusion

We will better harness existing investment and expertise by facilitating greater collaboration across programs and entities. This can be done by taking an ecosystem view, rather than seeing entities and programs in isolation.

We need to build ecosystems with the capacity to create scale at speed, offering opportunities for industry to grow locally. An ecosystem approach that draws together different institutions, schemes and participants to promote cross-fertilisation will ensure better return on investment.

A high-performing innovation system is characterised by ecosystems that comprehend and enable interaction between universities and research institutes, Australian Research Council and NHMRC programs, the National Collaborative Research Infrastructure Strategy facilities, Industry Growth Centres, Cooperative Research Centres, entities arising from the University Research Commercialisation Package, incubator hubs, entrepreneurs programs, different levels of Government, industry partners and startups. These are unified by their core goals to create innovative products and services to benefit Australia.

Successful clusters that bring together the innovative ecosystem in Australia would create real potential to transform existing industry, generate new jobs and new career pathways, also addressing the boundaries of localisation.

To begin, it is imperative that we understand how the current ecosystem is set up, what the interactions are and how each player contributes to an overall goal. Only then, it will be possible to design a strategy to maximise its contribution to Australia's productivity.

For example, the Innovative Manufacturing CRC (IMCRC) has created an education and awareness raising platform and business maturity diagnostic, which has been very successful in driving innovation practices in its area of expertise. While it is designed for manufacturers and those in industrial sectors, many outside that spectrum have also benefited from its approach.

Signal the world that Australia is serious about science, research and innovation

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[1]. 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[2] 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.

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[1] McKinsey & Company 2022, The CHIPS and Science Act: Here's what's in it, accessed 8 November 2022, <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/the-chips-and-science-act-heres-whats-in-it>

[2] Nature Index 2022, The 2022 tables are based on Nature Index data from 1 January 2021 to 31 December 2021, accessed 8 November 2022, <https://www.nature.com/nature-index/annual-tables/2022/country/all/all>

The recent budget has maintained most of the current Science, Research and Innovation (SRI) programs and points to the establishment of the National Reconstruction Fund (NRF). But 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 the Minister for Industry and Science's latest statements[3]. 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.

Measure the impact on employment and entrepreneurship arising from industry-led publicly funded research programs

The official release of the latest Impact Assessment of Cooperative Research Centres is expected to confirm the effectiveness of industry-led publicly funded research programs.

We know from data presented at our *Collaborate Innovate Conference* in April, that the present and anticipated economic benefits (to 2025) of the CRC Program over the period of 2012- 2020 are $31 billion. GDP is currently $12.2 billion higher because of the program and GDP increased by $5.61 for every dollar of Government funding, and 22,007 full time equivalent job years have been created because of the Program.

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.

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.

[3] On Thursday 3 November 2022, at the UTS Vice-Chancellor's Innovation Showcase, Industry and Science Minister Ed Husic called on the need to lift R&D towards 3 per cent of GDP rather than the present 1.79 per cent and for a national effort by government, industry and research on R&D

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.

Refine career pathways for HDRs (Higher Degree by Research) to address attraction and completion rates

Australia needs to create better career pathways that attract talented people to undertake the training needed for the high-skilled jobs that contribute to the Australian industrial transformation. Our disconnected innovation system acts as a disincentive at the moment and hampers mobility between research and industry. An ecosystem approach unlocks greater career potential and pathways for very highly skilled workers and offers greater non-academic opportunities for research-trained workers.

We also need to incentivise and encourage businesses to recognise the benefit of employing and investing in staff with HDR qualifications as prospective drivers of innovation and growth for their business through mechanisms such as the R&D Tax Incentive.

Promote Australia as an attractive destination for high-performing talent

Australia exists in a global talent market, where we face real and immediate challenges in attracting and retaining a very highly skilled workforce. The recent impacts of COVID-19 international border closures have exacerbated the challenge of attracting the most talented prospective HDR scholars and industry-focused researchers to Australia.

Speeding up and simplifying the process for HDR graduates to take up permanent residency, and further Australian citizenship, would make our country a more attractive destination, not only to study, but to build a lifelong career that sums to Australian productivity.