2014 – 2015 Pre-budget submission

January 2014

The Cooperative Research Centres Association represents all Australian Cooperative Research Centres (CRCs). In addition, the Association has universities, companies and research groups as Affiliate and Associate Members.

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Cooperative Research Centres Assocations 2014 – 2015 Pre-budget Sumission
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Executive Summary

The Cooperative Research Centres Program is an integral feature of the national innovation system that makes a major contribution to industry led research, facing up to major challenges requiring a mid to long term research program, and to training researchers with skills and interest in industry based research.

However, Commonwealth funding support for the CRC Program has declined significantly over the past six years, despite increasing industry support.

Amongst OECD countries, Australia is unusually reliant on university based researchers. Advanced economies generally have a much higher percentage of researchers based in their industries. Therefore, Australia needs very strong industry-academic collaboration.

Several drivers of industry-academic collaboration are failing Australia's interests and could be addressed by the new Australian Government through the 2014-2015 budget. These include the disincentive to collaborate with industry through lower returns to universities in the University Research Block Grants and the six-year run of reduced funding for the Cooperative Research Centres Program.

The two measures we suggest are: (1) to commit the Government to lifting the CRC Program budget over the course of the forward estimates by a total of $50 million, with $5 million committed in the coming budget, and (2) remove a significant barrier to industry-university collaboration by reclassifying the CRC Program from "category 4" to "category 1" under the University Research Block Grants scheme. The cost of this second measure would be zero.

Taken together, the two measures would provide a significant stimulus to academic researchers and Australian industry working together on major challenges facing the nation. The demonstrated benefits of the CRC Program would be further enhanced by these measures.

Background

The Cooperative Research Centres Program was instigated in 1990 and the first CRCs were awarded in 1991. In the subsequent 16 selection rounds, some 200 CRCs have enjoyed support from the $3.2 billion investment from the CRC Program. Results of the CRC Program have been outstanding, delivering at least $14.5 billion[1] in returns to Australia. The Program has been reviewed extensively (Attachment 1) and has proven time and again its value to the nation.

The CRC Program has enjoyed bipartisan political support during its 23 year history. During the Howard Government, the program was given a funding boost under the major *Backing Australia's Ability* policy. Unfortunately, although the funding boost was adopted as a permanent increase by the Cabinet at the time, the boost was temporary and funding has substantially declined over the past six years (see Figure 1), as has the number of CRCs receiving government support (Figure 2).

Outstanding innovation outcomes

Australia's economy, society and environment enjoy excellent value for money from the Commonwealth's investment in the CRC Program because, amongst other factors:

- Every Commonwealth dollar is at least matched by investment from the participants in each CRC;
- The Governance arrangements ensure productive lines of research are followed through to produce true innovation; and
- The timeframe and scale of investment is matched to the requirements for productive R&D.

CRCs set up effective sector-wide collaborative arrangements governed by a Board of Directors focussed on research outcomes. Commonwealth investment is assured for each CRC over a timeframe matched to producing outcomes in the sector (usually seven years) and at a scale where meaningful results can be achieved (an average annual Commonwealth investment of close to $4 million per CRC). Intellectual property arrangements and the nature of investments allow CRCs to follow the best "pathway to impact", which may mean directing funding at human capacity in some industries, commercialisation work in others or improving fundamental understanding. CRCs have the flexibility to invest (and disinvest) in a range of projects each contributing to an outcome. These are fundamentally important features which ensure effective use of Commonwealth funds.

It is not coincidence that when research impact is recognised publically, CRCs are often involved. Although the CRCs represent less than 2% of the Commonwealth's spending on innovation, when it comes to producing impact they almost always perform at a much higher level. By way of example, eight of the 14 winners of the Prime Minister's Prize for Science have had a strong CRC involvement; seven of the 20 case studies in the 2012 "Excellence in Innovation[2]" Report featured CRC work, and three of the 15 most recent Eureka Prizes for Science were from CRCs. In each case, CRCs surpass any reasonable expectation of their performance based on the Government's level of investment. We argue that this is because of the CRC Program design that provides the time, scale and culture to encourage and allow for outstanding performance.

[1] https://www.crc.gov.au/About-the-program/Documents/CRC%20Program%20impact%20study_FINAL.pdf
[2] http://www.go8.edu.au/__documents/go8-policy-analysis/2012/atn-go8-report-web-pdf.pdf

Program funding decline

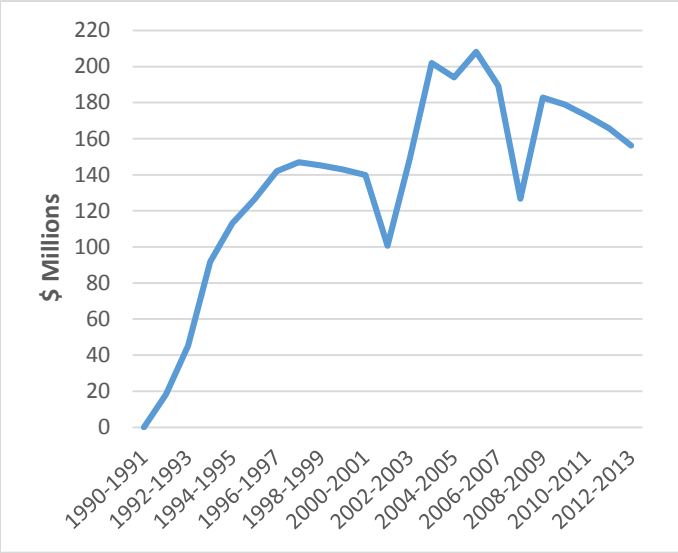

Figure 1 Commonwealth Investment since Program inception

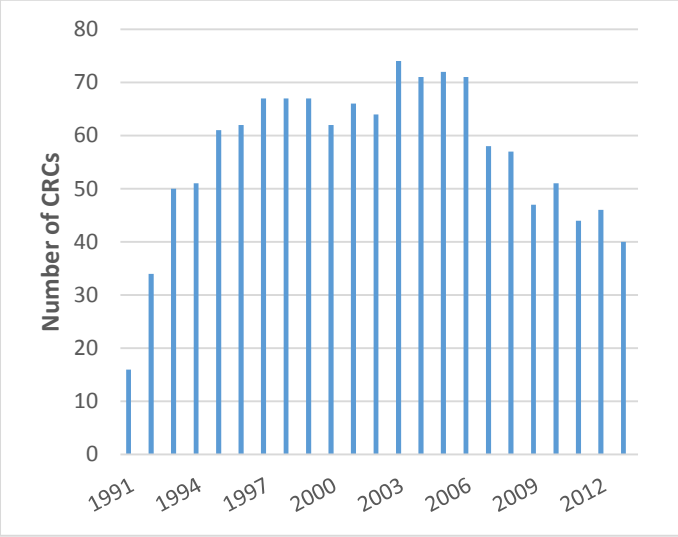

Figure 2. Over the past six years the number of CRCs has fallen dramatically.

As discussed earlier, the CRC Program has enjoyed bipartisan political support throughout its history. But in the past six years, financial support for the Program has declined each year, resulting in a loss of CRCs to the country. The loss of financial support from the Commonwealth obviously results in a loss of financial support from industry and research organisations. Perhaps more importantly, industry confidence to develop and participate in CRC bids has waned in the face of declining government support.

The CRC Association submits that the new Abbott Government should affirm its support for the CRC Program and at least partially restore its budget over time. The Association recognises that the Australian Government faces a very challenging budget process. However, the CRC Program has been shown time and again to make a positive contribution to the nation's GDP[3]. CRCs create wealth and support industry with highly trained professionals as well as assisting the nation face up to major environmental and societal issues.

Support for the CRC Program

The CRC Association congratulates the Abbott Government in its demonstrated commitment to the Cooperative Research Centres Program through its election commitment to a CRC for Developing Northern Australia[4]. The CRC Association supports government using the CRC Program to address major national challenges and research priorities. The government should think of the CRC Program as a mechanism for addressing longer-term research and development needs that cross sectors. The previous government had become aware of this excellent means of support and established three

[3] https://www.crc.gov.au/About-the-program/Documents/CRC%20Program%20impact%20study_FINAL.pdf
[4] http://www.liberal.org.au/latest-news/2013/06/21/tony-abbott-joint-press-release-building-strong-prosperous-northern-australia

"priority public good" CRCs in 2013 (being the Antarctic Ecosystems CRC, the Lowitja Institute and the CRC for Bushfire and Natural Hazards).

The CRC Association welcomes government priority setting. In doing so, the Association makes two points: (1) the development and establishment of new CRCs should remain under the direction of the CRC Committee to ensure good process and competition; and (2) further resources are needed for the CRC Program. It is not reasonable to expect industry to support the CRC Program in the face of both declining budget and quarantining of portions of that budget for specific government priorities.

Industry is very supportive of the CRC Program.

In its submission to the Commission of Audit, the Australian Industry Group said:

> *Ai Group believes public investment plays a crucial role in promoting collaboration in Australia and should be maintained despite the current budget outlook. The Commonwealth has already invested in two programs that Ai Group believes act as crucial bridges linking business and industry:*
>
> *Cooperative Research Centres Program[5] (CRC)*
> *Innovation and research and development are often prohibitively expensive for many businesses, particularly small and medium enterprises. SME's often lack familiarity with the research community. By aggregating the financial and in-kind contributions of participants, and by giving individual businesses privileged access to Australia's finest researchers and institutions, CRC's reduce the costs to industry of participating in R&D projects and ensure that businesses are directed to the research organization best suited to their needs. The broader benefits of an effective CRC are felt in an accelerated pace of innovation amongst individual companies and the diffusion of new knowledge to the wider sector*

The National Farmer's Federation has called for a restoration of the CRC Program budget for a number of years. In their 2013 election statement, the NFF specifically sought "A re-investment in the CRC Program, to establish three new agriculture-based CRCs by 2015"[6].

Australia's scientific community came together in 2013 in a research alliance that called on government to concentrate on six actions to improve Australia's research performance[7]. The CRC Program is highly aligned to these actions:

- Investing strategically and sustainably
- Building our research workforce – getting and keeping the best
- Building a productive system and getting the most out of it
- Being among and working with the world's best
- Bringing industry and academia together
- Expanding industry research

[5] Disclaimer, Ai Group is an essential participant in the Manufacturing Industry Innovation Cooperative Research Centre currently being considered by the Commonwealth for funding starting 1st July 2014
[6] http://www.nff.org.au/read/3893/vote-agriculture.html
[7] http://www.science.org.au/policy/researchalliance.html

Enhanced support for the CRC Program is also consistent with the "breakthrough actions for innovation"[8] recommended to government by Australia's Chief Scientist, Professor Ian Chubb AC.

There is widespread support for the CRC Program across industry, government and the research community. Virtually every analysis of innovation in Australia arrives at the conclusion that the country needs to bring industry and academia together under long-term collaborative arrangements that concentrate on building national skills to deliver innovation.

A disincentive to collaborate with industry

Despite the almost universal calls for Australian governments to encourage better industry-university collaboration, one of the major drivers of university behaviour, the University Research Block Grants, contain a major disincentive to do so. The CRC Association believes it is time for this disincentive to be addressed, and doing so will not cost the government any money.

Australia is more reliant on university-based researchers than almost any other advanced economy. It is critical to Australia's innovation performance to encourage very strong collaboration and interaction between industry and academia. But we are heading in the wrong direction: universities are driven by their reputations, which are in turn increasingly influenced by the three major world ranking systems (the ARWU or Shanghai Ranking; the QS World Universities Ranking and the Times Higher Education World Rankings). Each of these three indices are based primarily on research citation data (with a little more influence from teaching in the Times ranking). Universities reward academics that contribute positively to these measures – but "high impact" in these cases refers to the rankings of journals in which the academics publish, not the impact on the lives, wealth and environment of Australians.

The reputational driver is pushed harder because the University Research Block Grants fail to reward universities for industry collaboration through CRCs. CRCs are classified under the scheme in "category 4" which provides a much lower return to the university than schemes in "category 1". Because funding received under the University Research Block Grants is largely discretionary for university management, it is very highly sought and has a disproportionate impact on management's direction to researchers. University management actively seeks to have researchers preference category 1 schemes ahead of category 4 schemes because of these reputational and financial incentives. But this behaviour is not in the interest of Australia, which needs top researchers to be working with industry.

Paradoxically, university researchers often resent the management direction to preference category 1 funding over category 4. To them, there is generally no practical difference in financial returns. Many discount the supposed reputational benefits because they feel their work is more likely to come to fruition, or make a substantial difference to society, by working with industry.

It is within the power of government to remove this anomaly in the funding system. Doing so will remove the disincentive to working with industry, freeing up researchers who are currently discouraged from doing so. The total cost to government and the total returns to the nation's

[8] http://www.chiefscientist.gov.au/2013/02/breakthrough-actions-for-innovation-released/

universities would both be unaffected. Those universities better servicing industry through CRCs would be the "winners" from any change.

Budget submission

The CRC Association wishes to submit two proposals to government in this submission. The first is a modest increase in the CRC Program funding to partially address the decline of the past six years. The second is a small change to distribution of the University Research Block Grants to remove the current disincentive to industry collaboration with universities. The first measure would cost government $50 million over the course of the forward estimates and the second would not be at a cost to the budget at all, but a better use of existing funds.

The CRC Association has written to the Education and Industry Minsters to support this initiative though placement of the CRC Program on the Australian Competitive Grant Register. Although strictly not a budget measure, this policy initiative will positively impact industry research.

Partial restoration of the CRC Program budget

The CRC Association submits that the Government should restore support for the CRC Program over the course of the forward estimates. The cost to the budget is shown in the table below.

	2014/15 $M	2015/16 $M	2016/17 $M	2017/18 $M
Current CRC Program commitment[9]	150,799	166,454	173,353	180,287
Suggested CRC Program commitment	155,799	181,454	188,353	195,287
Additional funding required in the forward estimates	5	15	15	15

The total cost over the forward estimates is $50 million, with the cost in 2014-2015 being $5 million. The partial restoration of the CRC Program, combined with the other policy measure suggested in this submission, would be sufficient to stimulate renewed interest for major industry-university collaborations.

Removing the disincentive to collaborate

Despite the widespread consensus that Australian government policy must favour industry-academic collaboration, the largest single budget within the government's innovation portfolio currently contains a major disincentive to do so.

The CRC Association submits that the government should remove the current "Category 4" of the University Research Block Grants and reclassify the schemes within it (currently only the CRC Program)

[9] Source: http://www.innovation.gov.au/AboutUs/Budget/Documents/PortfolioBudgetStatementsDIICCSRTE2013-14.pdf (2017/18 based on 2016/17 plus 4.0%).

to “Category 1”. Our understanding is that this measure can be achieved simply by agreement of the relevant Minister(s) via the Australia Competitive Grants Register.

Payoff for Australia

The partial restoration of the CRC Program budget to levels closer to those supported during the Howard Government will encourage industry and research confidence to continuing their strong support for the Program.

In an economy so reliant on university researchers, Australia cannot afford to turn those researchers away from solving industry issues. But that is what we are doing in an environment of increasing emphasis on academic research based ranking systems and the dual disincentive of classifying industry research as lower order than fundamental research in the University Research Block Grants and reducing funds available through the CRC Program.

Summary

The Cooperative Research Centres Association submits that the Government should improve industry-academic research outcomes in Australia by two measures:

1. Enhancing the budget of the CRC Program by $50 million over the course of the forward estimates; and
2. Including the CRC Program on the Australian Competitive Grant Register, to remove a major disincentive to industry-academic collaboration.

Together, this two measures will improve Australia’s innovation performance at minimal cost to government. The measures are consistent with policy statements and calls by both industry and the scientific community in the recent election campaign and will allow the government more room to prioritise major research initiatives through the CRC Program.

Attachment 1: Program Review

Review/Study	Year	Main finding(s)
Myers et al	1995	"Changing Research Culture" concluded that the 'CRC Program is very well conceived and that the prospects of the Government's broad objectives for the scheme being achieved are excellent". It should become a permanent part of the innovation system.
Mortimer	1997	"Going for Growth" recommended combining 11 R&D Programs into a single R&D scheme, including the CRC Programme. It was largely disregarded.
Mercer & Stocker	1998	"All advanced economies are seeking to develop bridging mechanisms to link public sector research and user. There is no evidence that other international approaches are likely to be more effective in Australia than is the CRC Programme" "Proposals for valuable new centres will remain substantially dependent on Commonwealth funding".
Batterham	2000	"The Chance to Change". Expand the CRC Program and encourage greater SME access... Remove barriers to accessing pre-seed funds and other initiatives.
Howard Partners	2003	Found that three types of CRC had emerged: (1) those delivering national benefits, generally through repair and replenishment of Australia's natural capital; (2) those delivering collective industry benefits and (3) delivery of commercial benefits through new businesses.
Allen Consulting	2005	Modelling over the 1992 to 2010 period the Australian economy's overall performance has been considerably enhanced when compared to the performance that when compared to the performance that would otherwise have occurred in the absence of the Commonwealth Government investment in the round one to seven CRCs that was provided between 1992 and 2005.
Insight Economics	2006	For each dollar invested in the CRC Programme {rather than left with taxpayers): • Australian Gross Domestic Product is cumulatively $1.16 higher than it would otherwise have been. • Total Australian Consumption is $1.24 higher than it would otherwise have been (Private Consumption is $0.10 higher and Public Consumption is $1.14 higher). • Total investment is $0.19 higher than it would otherwise have been.
Productivity Commission	2007	Suggested two improvements and great flexibility. "Translation of research outputs into economic, social and environmental benefits will produce great community benefits than commercialisation of industrial research". Align the share of public funding to the social benefits
O'Kane	2008	Re-focussed to pre-competitive ventures tackling a major challenge. Lifespan of any CRC limited to 15 years. CRCs in the Humanities and Social Sciences allowed and encouraged.
Allen Consulting Group	2012	Almost $14.5 billion of direct economic impacts are estimated to have accrued from CRC produced technologies, products and processes. This includes $8.6 billion of impacts already materialised from 1991 to 2012 and a further $5.9 billion of imminent impacts estimated to occur over the next five years. It was estimated that the program generated a net benefit to the economy of $7.5 billion over this period, or around 0.03 percentage points of additional GDP growth Relative to the funds committed to the CRC program by the Australian Government, the CRC program has generated a net economic benefit to the community, which has exceeded its costs by a factor of 3.1.