



Technology and Industry Advisory Council (TIAC)

Supporting Access to Commonwealth Funding

Advisory Paper – July 2017

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Introduction

Australia depends on science, research and innovation to increase productivity and remain competitive with global markets. These three closely linked drivers are essential for sustainable economic growth, technical knowledge and expanded business capabilities. The outcome is greater industry diversity, new jobs and improved national well-being.

The Commonwealth makes considerable investment in science, research and innovation (\$10.1 billion in 2016-17), supported by an established set of science and research principles and practical research challenges aimed at increasing investment in areas of immediate and critical importance to Australia and its place in the world¹. In the 2016-17 budget the Commonwealth allocated funding of \$1,733.7 million to three competitive research grant programs – Cooperative Research Centre Program (CRC), Australian Research Council (ARC) and the National Health and Medical Research Council (NHMRC). By way of comparison WA’s GST allocation from the Grants Commission for 2016-17 is projected to be \$1,970 million.

Western Australia has a poor record in collaborating and attracting Commonwealth science, research and innovation funding. Whilst there has been some improvement, Western Australia is still lagging in attracting Commonwealth funding, compared to other state and territories.

As one example, over the 25-year lifetime of the Commonwealth’s CRC Program, there have been 216 CRCs funded. Of these only 12 (5.5%) have been headquartered in WA. (See diagram below). Western Australia’s resources industry accounted for 44% of the national business expenditure on R&D for the sector yet no resources CRCs are currently headquartered in this State.

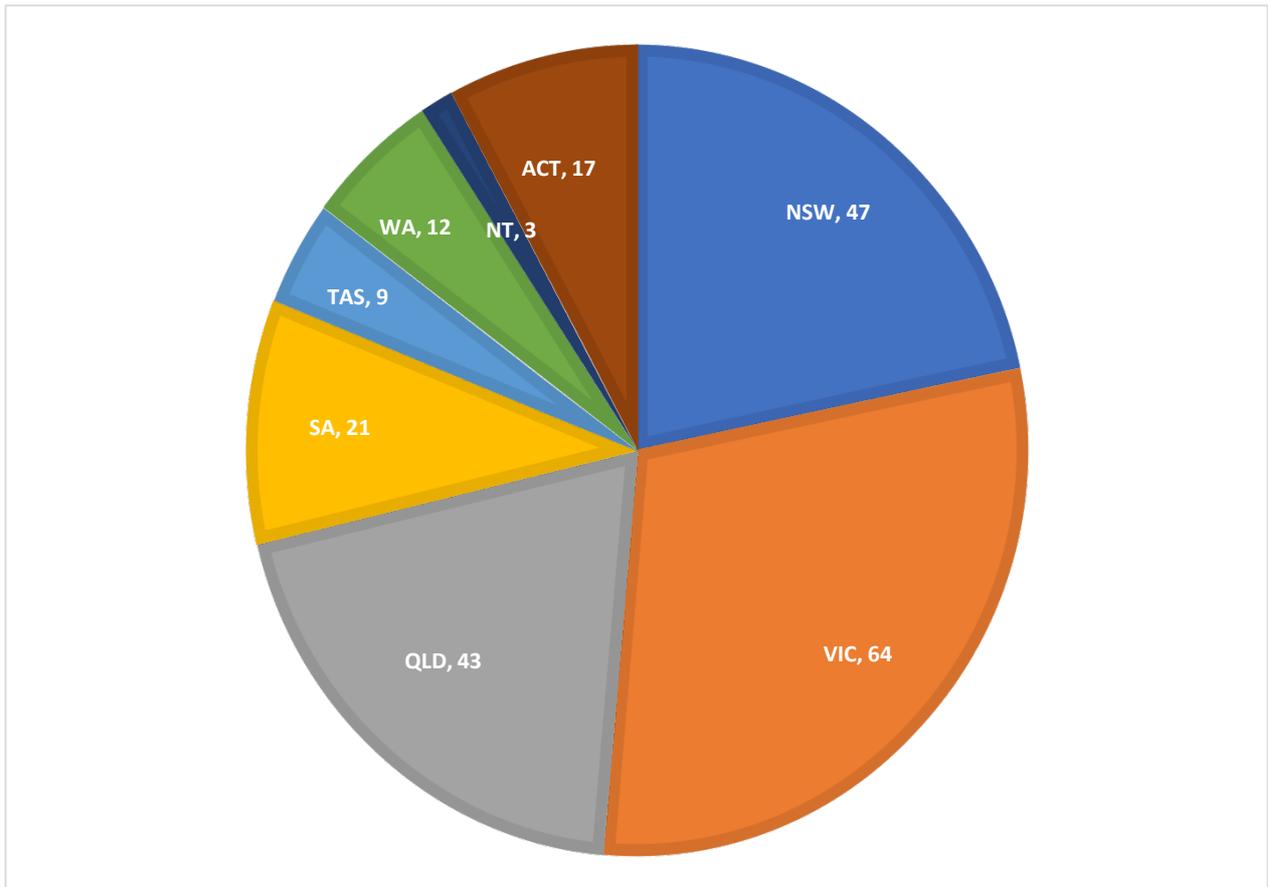
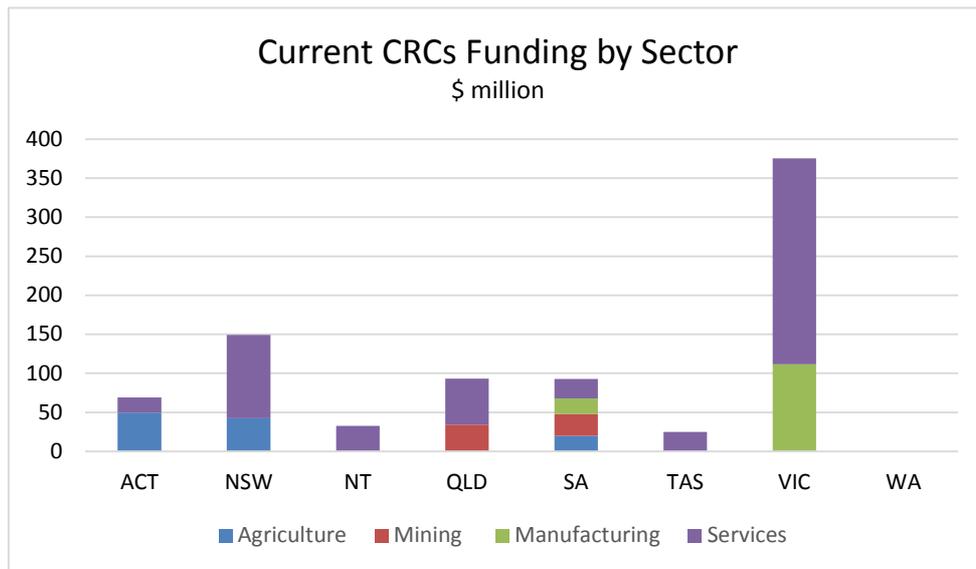


Diagram 1: Headquartered CRC’s over the life of the program

¹ Science and Research Priorities www.science.gov.au

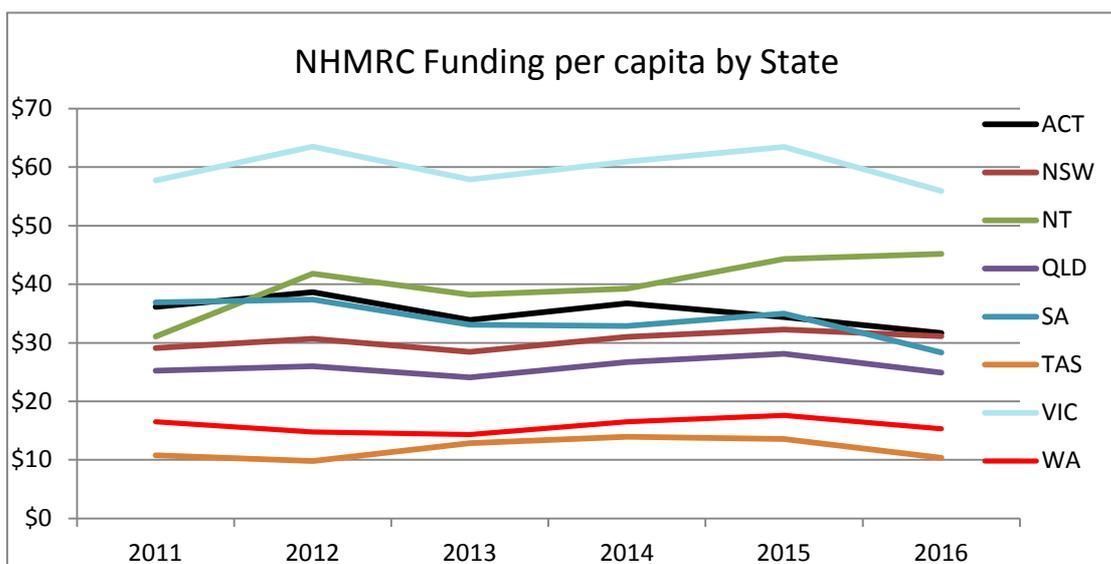
In the recent (March 2017) announcement of new CRCs, Western Australia secured its first headquartered CRC in some years, the CRC for Honey Bee Products. Funding received was \$7 million over five years with \$19.2 million cash and in-kind participant contributions. This is a modest CRC when compared with the other three awarded in the same round. These secured between \$39.4million-\$55million Federal funds over ten years leveraging between \$136.8 million-\$178.8 million in cash and in-kind participant contributions).

Analysis of the CRC Centres of Excellence funding by headquarters and industry sector focus shows poor performance by WA in areas of its competitive advantage. The 2017 announcements have not been included in Graph 1 as the contracts are yet to be concluded.



Graph 1: Current CRC Headquarter Funding by sector and state

Another major Commonwealth funding scheme the NHMRC on a per capita basis shows the poor performance by WA applicants with Graph 2 showing WA receiving the second lowest per capita funding.

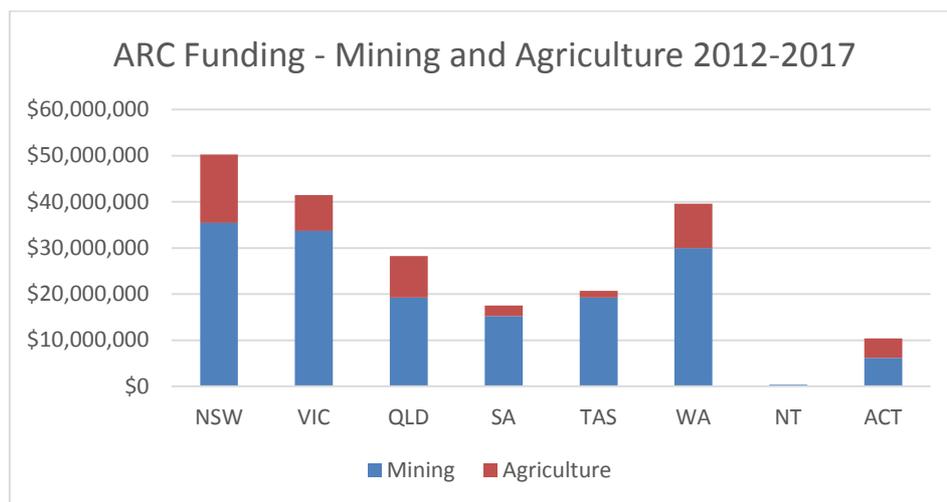


Graph 2: NHMRC funding per capita by State

To improve Western Australia’s access to Commonwealth funds, including research and development grants, some critical issues need to be addressed that include:

- Addressing the tyranny of distance;
- Perceptions created by WA being a resource rich state;
- Improve engagement with the Commonwealth including greater representation on committees, councils and boards;
- Improved State Government understanding of the support offered by other jurisdictions given the Commonwealth programs are often competitive grants where state alignment and prioritization are essential selection criteria;
- Unfocused State strategy, policy and budget support where an investment will provide strong returns to WA;
- Lack of frameworks to guide timely decision making for support to be offered;
- The lack of small agile support programs to help industry and researchers prepare applications that will be strongly competitive;
- Lack of clear priorities and contact points within Government; and
- The rapidly aging research community;

Western Australia has been more successful in the smaller ARC grants as can be seen in Graph 3, however the quantum of funding is considerably less than the CRC Centre of Excellence.



Graph 3: ARC Funding by sector and state

Background

Since December 2015 the Commonwealth has identified clear strategy and priorities for the Australian science, research and innovation system through the National Innovation and Science Agenda, the Industry Growth Centres, the Medical Research Future Fund, the Biomedical Translation Fund² and the draft 2016 National Collaborative Research Infrastructure Roadmap (NCRIS). All current Commonwealth investment is aligned with these key priorities and initiatives, including the recently announced Defence Industry Policy Statement and its Next Generation Technology Fund.

² Noting the Medical Research Future Fund and the Biomedical Translation Fund are outside the purview of this paper; they are complementary of the activities under the National Innovation and Science Agenda. Their priority areas include capacity and collaboration, such as industry exchange fellowships, and commercialisation via research incubator hubs and biomedical translation.

The national funding structures predominantly support industry-led research priorities seeking increased local commercialisation outcomes that align with agendas established by the Commonwealth science and research priorities, the Industry Growth Centres’ strategy and Industry Competitiveness Plans. When consolidated, the focus areas are:

- food and agribusiness,
- soil and water;
- transport;
- cybersecurity;
- oil, gas and energy;
- mineral resources technologies;
- advanced manufacturing;
- health, medical technology and pharmaceuticals; and
- environmental change.

NCRIS is also recommending nine focus areas that complement the national science and research priorities and the Industry Growth Centres.

Recent Commonwealth funding announcements have been consistent with the key science and research priority areas, Industry Growth Centre research agendas and greater industry collaboration, making for a very clear landscape of what is required to attract Commonwealth investment.

Diagram 2: Alignment of National Science and Research Priorities, Innovation Agenda and NCRIS Focus Areas

NATIONAL RESEARCH INFRASTRUCTURE													GROWTH CENTERS
NATIONAL SCIENCE AND RESEARCH PRIORITIES	FOCUS AREAS	DIGITAL DATA & RESEARCH ePLATFORMS	PLATFORMS FOR HUMANITIES, ARTS & SOCIAL SCIENCES	CHARACTERISATIONS	ADVANCED FABRICATION & MANUFACTURING	ASTRONOMY & ADVANCED PHYSICS	ENVIRONMENTAL SCIENCE	BIOSECURITY	COMPLEX BIOLOGY	THERAPEUTIC DEVELOPMENT			
	FOOD	Y		Y			Y	Y	Y				FOOD & AGRIBUSINESS
	SOIL AND WATER	Y		Y			Y	Y	Y				ASTRONOMY & ADVANCED PHYSICS
	TRANSPORT	Y	Y										CYBER SECURITY
	CYBER SECURITY	Y				Y							OIL & GAS & ENERGY RESOURCES
	ENERGY	Y			Y	Y	Y						MINING EQUIPMENT TECHNOLOGY & SERVICES
	RESOURCES	Y		Y	Y	Y	Y						MEDICAL TECHNOLOGIES & PHARMACEUTICALS
	ADVANCED MANUFACTURING	Y	Y	Y	Y	Y	Y			Y			
	ENVIRONMENTAL CHANGE	Y	Y	Y		Y	Y	Y	Y	Y			
HEALTH	Y	Y	Y	Y	Y	Y	Y	Y	Y				
INNOVATION AGENDA													
BUSINESS ENVIRONMENT			LABOUR FORCE			INFRASTRUCTURE			INDUSTRY LOBBY				

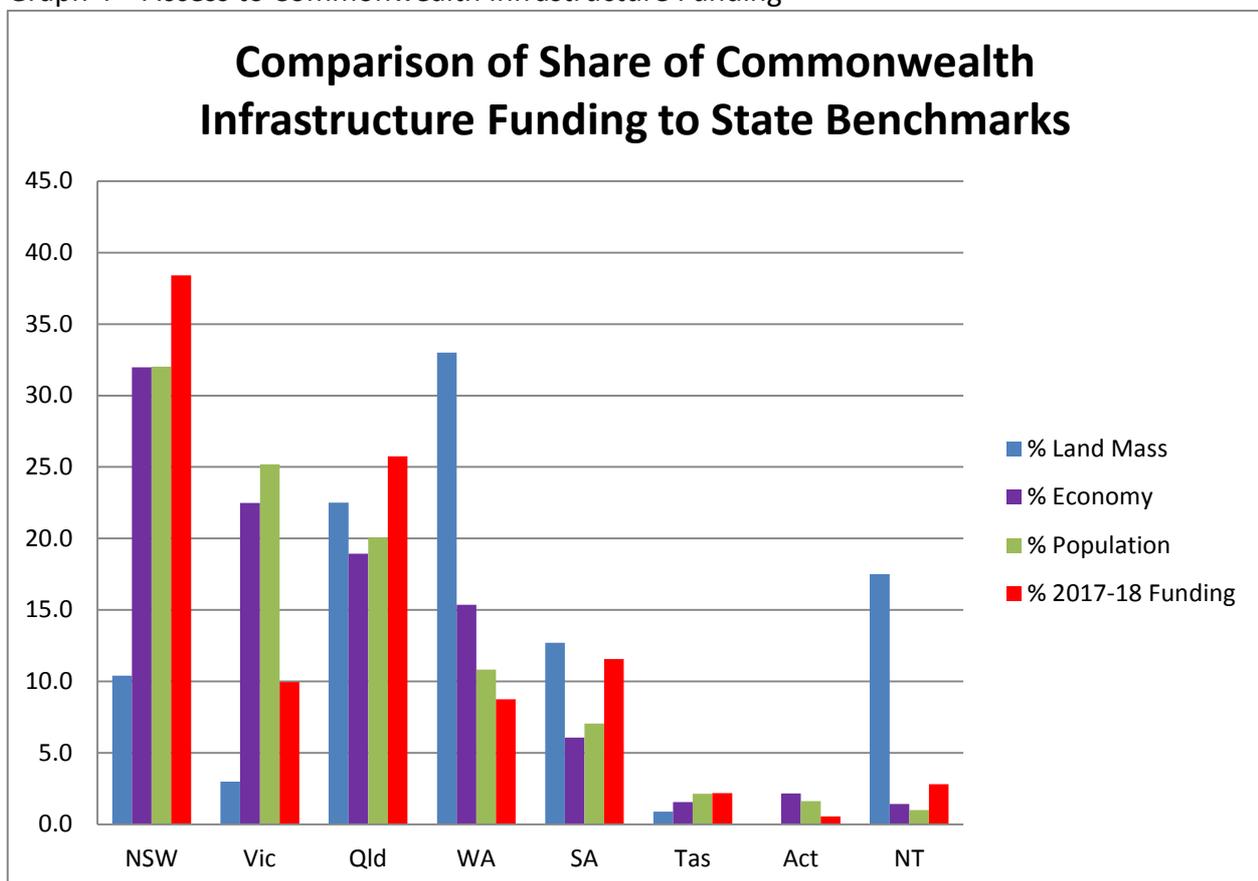
Infrastructure – a case study

While this paper is focused on increasing Western Australia’s success rate in securing key Commonwealth government research funds, this advice also applies all competitive Commonwealth funds.

Investment in large infrastructure (transport, health and education) is critical in supporting economic growth, creating jobs and building a more productive economy.

Like research funding, Western Australia performs poorly when accessing Commonwealth infrastructure funding. The Commonwealth invests over \$7 billion per annum via the states in this domain. Infrastructure need is not determined by population alone, but also economic capacity and land mass. The latter is a critical benchmark of need. A comparison of WA’s performance in accessing Commonwealth infrastructure funding versus other jurisdictions is provided in graph 4 below. Western Australia is the only state where funding levels are below all benchmarks and even South Australia outperforms WA despite having a smaller population and smaller total land mass.

Graph 4 – Access to Commonwealth Infrastructure Funding



Sources: Commonwealth Budget Papers May 2017; Australian Bureau of Statistics, Geoscience Australia.

Purpose of this Advisory Paper

The purpose of this advisory paper is to inform the Western Australian Government and Ministers of the types of policy responses and investment offered by other states to secure Commonwealth funds in this highly competitive national environment.

The Commonwealth programs considered within this paper are the CRC Program, Australian Research Council (ARC) Centres of Excellence, ARC Linkage and ARC Infrastructure Grants and

National Health and Medical Research Council (NHMRC) Partnership Projects. While the focus of this paper is limited to these programs, the learnings apply widely across Commonwealth programs.

The paper also explores some current weaknesses in the Western Australia system and provides some recommendations on strategic responses that should be developed to increase Western Australia's competitiveness. The aim is to provide the State Government with options that will improve the State's performance at a time of fiscal constraint.

Policy Issues

What other States are Doing

Different states have adopted a variety of responses to secure Commonwealth funding. State strategies and program reflect desired outcomes such as investment attraction; developing capabilities, building critical mass, creating new industries; driving innovation and solving policy issues. **Attachment A** provides an outline of strategies by other states that are aimed at grant programs that either target the Commonwealth's CRC program, ARC and NHMRC programs or support research and industry collaborations so that the criteria of the Commonwealth programs are met to a high degree.

There are state grant programs that are offered to provide capability and application support. In some states agencies are actively encouraged to be partner with organisations. This provides a practical demonstration of state alignment with Commonwealth strategy and source of funding from existing budgets.

Building Capabilities

During the Beattie era (1996-2007) the Queensland state government, via their Smart State agenda had an active unit which promoted workshops for industry, universities, CSIRO, and research institutes encouraging linkages between industry and researchers. The Queensland Government also focused on securing CRCs into regional areas and that was underpinned by the understanding that it takes two-three years to build a consortium and put a successful proposal together. During this time Queensland secured 16 CRCs located in Cairns, Townsville, Gladstone, Rockhampton, Gold Coast, Toowoomba, with the balance in Brisbane. This focus developed strong capabilities in Queensland and although a change of government has seen the focus drift away from CRCs in more recent times, Queensland has the capabilities and reputation that continues to secure CRC funding. When a major research grant is secured through the CRC program it can lock in a 10 year funding stream.

Solving Policy Issues

VicHealth offers targeted grant programs for Victorian institutional applicants for ARC Linkage Grants, NHMRC Partnership grants and previously the 2010 CRC grant round. The proviso was that VicHealth was included as an industry partner or collaborator in the application. There were two vital considerations; focus of the projects was support for health promotion, public health research and a minimum of 50% of the research conducted in Victoria.

Economic Stimulus (Targeted Funding)

Both the New South Wales and Victorian Governments have set up CRC bid support programs which provide \$30,000 per CRC bid seeking to be headquartered in their respective states. These funds support the first steps in bringing together industry and research teams to scope the

research focus, convene stakeholder and partner meetings, develop research impact data linked to economic modelling, source legal, government, taxation and commercialisation advice and prepare for the Commonwealth interview.

Furthermore, both states provide funding support to attract NHMRC Partnership Project grants and ARC Linkage grants.

South Australia also has a targeted CRC Assistance program. The funding requires at least one South Australia Government agency participant and provides funding of up to three years of \$100,000 for a CRC node located in South Australia or \$200,000 for a headquartered CRC.

South Australia also has a Research Consortia program that funds significant collaborations between researchers, industry and government to tackle major challenges in areas of critical need or strategic importance that are in line with the State's ten economic priority areas.

Western Australia

Currently there are no grant support programs designed that target Commonwealth research, technology or innovation funding. WA has the Innovation Vouchers program to assist industry and researchers collaborate, but the program is not targeted at leveraging substantial Commonwealth funds. Royalties for Regions (RfR) funding has been used to leverage Commonwealth telecommunications funding, but TIAC is not aware of RfR funds being used strategically to access Commonwealth research funds.

Key Issues

There are a number of characteristics that underpin successful applications to Commonwealth grant programs. These are:

- strong coordinated system;
- communication of State priorities and strengths;
- facilitation framework for application development;
- incentives for partnerships with the State Government and industry; and
- clear points of contact for accessing State Government facilitation services and support.

These will be looked at in more detail from a Western Australian perspective later in this document. However, two themes across all parts of the Western Australia system are considered challenges to accessing Commonwealth investment – being perceived as a resource based state and the tyranny of distance.

Whilst the resource sector has once underpinned Western Australia a strong economy and lower unemployment, it is important to ensure the State is recognised for other areas of strength and capability such as agriculture and food, marine and fisheries, health and medical and radio astronomy.

There is a perceived view by other states and in Canberra that Western Australia is only focused on resources. This perception needs challenging and correcting. As indicated above the other broad economic strengths listed in the previous paragraph require illustration and advocacy to Canberra decision makers as well as potential east coast project partners. Likewise, communications should be the same from an internal position within the State to ensure that WA based decision makers and Ministers are aware of and able to 'speak in one voice' on a range of

the State strengths. It is important that these State leaders understand the economic importance and opportunity that attracting Commonwealth investment is as a driver that broadens the State's economy.

To counter this view, the resources sector in Western Australia is a global scale market that can be accessed to translate research to commercial opportunity, scale up production before diversifying into new market sectors. Automation technology and remote operational systems are recognized examples of these strengths.

There also appears to be some misconception about the financial capacity of resource based States. In spite of efforts by Queensland, in recent years all the major resource States have received substantially less Commonwealth research funding per capita than the South Eastern States. Tyranny of distance and preconceived ideas about resources appear to contribute to this outcome.

Table 1 – Total Commonwealth R&D Funding Allocation by State - \$ per capita – 2014/15

State	\$ per capita
Australian Capital Territory	2,520.49
South Australia	535.39
Victoria	512.35
Tasmania	505.82
New South Wales	420.75
Northern Territory	393.57
Western Australia	373.69
Queensland	362.71

Source: ABS Catalogues 8109; 8111 and 3101, TIAC analysis

The tyranny of distance will always be an issue. Any flight to Eastern Australia will take the better part of a day and normally require an overnight stay; versus counterparts on the east coast who can travel to other major cities, attend various meetings and be home before dinner.

Relationships and Trust are Vital to Successful Funds' Bids

Successful bids for Commonwealth funding require demonstrated collaboration between researchers, industry and the State Government as evidenced by active engagement and strategic financial investment. The development of this support base means that strong networks and relationships between potential partners are required. Commonwealth discussions that build relationships and clear understanding of Commonwealth policy drivers designed to promote research activity is increasing in importance.

Within the State government, universities, publicly funded research centres and institutes there has been a culture of 'no flying'. This stay-at-home default position is actively restricting the State's opportunities for success. It means that WA becomes more isolated from decision making networks making the state competitive advantages invisible to the east coast.

In one publicly funded institute, clinicians and researchers are required to self-fund and use annual leave to attend professional conferences. A public servant working for the Department of Health who was invited to participate on a Commonwealth Committee was required to take annual leave to attend committee meetings. Structural disincentives like these do not serve the State well.

The State Government step actively into the field and invite key decision makers on familiarisation visits of 2-3 days in length or bid for meetings of peak research bodies to be held in Perth. These visitors could meet the relevant Minister, undertake tours to related research facilities and have opportunities to meet with relevant industry sector leaders. This socialisation to build relationships is a proven and potent way of securing greater investment into the state.

Given the vital importance of building national relationships, all institutions and State authorities should demonstrate their commitment to successful WA research bids by investing in strategic investments in sending appropriate staff east to engage with national networks to establish long term relationships.

The State government could lead by example with clear guidelines and KPI's so that Commonwealth engagement is supported by Director's General.

Western Australia Government Co-ordination

In the immediate past industry, science and innovation responsibilities within the State government have been split across difference agencies reducing opportunities for strategic engagement, aligned State decision making and messaging which has led to external confusion and complexity within the state and for outsiders. This, to some degree has hampered strong communication with local grant applicants and the Commonwealth. It has delayed interaction with grant proponents resulting in reactionary activity rather than planned value-adding strategy.

Following the March 2017 State election there is a unique opportunity, that appears likely to be seized, to build critical mass using existing resources to create an 'industry, science and innovation team' that will strategically align the interests in a number of beneficial ways, not least of all in strengthening the State's success rate for Commonwealth research funds.

Core business for this team will be a detailed understanding of the Commonwealth funding priorities, established and maintained regular communications with key Commonwealth officials and a focus on Western Australian effort to successfully access Commonwealth programs. This team will require a detailed understanding of Commonwealth funding timelines, policy drivers, potential visits to the State; as well as communicating state based activities and outcomes. This team will also fashion a strong state narrative for use by Ministers, senior staff and industry leaders.

The team also needs to be able to support and continue to have strong relationships with Western Australian industry, universities and research institutes working on a whole-of-government basis. This network will strengthened when there is shared information, assistance in advice and bid reviews and strong and active linkages between universities, research institutes and industry so that common interests and collaborative efforts in evidence. With the introduction of the Commonwealth's new CRC-P program (supports short term, industry-led collaborative research), there is an opportunity for the industry, science and innovation team to take a lead role within the Western Australia system to support industry and researchers successfully secure funds. Competing strongly for small projects like CRC-P will help develop capability and in time develop larger collaborations.

Advisory Box 1 - TIAC Advice on Coordination and Communication

To improve funding success the State's structure for supporting industry, science, research and innovation narrative needs to strongly align with the Commonwealth's. This is likely to occur in the post-election machinery-of- government changes. Greater communication with the Commonwealth and across state based stakeholders with dedicated and expert focus is the first step in this important process.

TIAC recommends the WA Government Consider:

1. The industry, science and innovation team set up regular meetings with the AusIndustry State Office and the Centre for Defence Industry Capability to keep up to date with Commonwealth activities and provide introductions to key Canberra based officials and events;
2. Establishing strong State based cross-government interactions focused on attracting Commonwealth funding to assist in knowledge sharing, increased collaboration and linking stakeholders. For example: An Economic Development Director General's group with KPIs aligned to securing Commonwealth funding and a senior officers group to implement the funding engagement strategy;
3. Establishment of a small but dedicated team (located in the industry, science and innovation agency) to act as a liaison and coordinator with potential applicants, university business development officers, industry, researchers and State agencies to encourage improved links, coordination of activities and to guide the flow of applications. To achieve success, it is vital that partners are identified and applicants work with this team early in the development process. The team's focus is to be outcomes based, where efforts are tracked and quantified for investment success and economic impact;
4. Introduce a sounding board/pre-application process that includes a one page document for applicants to obtain feedback before they begin the expensive application. This pre-application should primer should include industry needs-analysis and must demonstrate how the proposal aligns with Commonwealth and State priorities. Consider trialling this process for the CRC-P program managed by either the industry, science and innovation team or TIAC.

State Government Agility & Funding

As identified earlier in this paper the New South Wales, Victoria, Queensland and South Australia governments provide State funding that incentivates collaboration and strong application writing that secures Commonwealth investment. This is in response to the Commonwealth adding collaboration and co-investment in its science and research priorities and infrastructure principles.

The Western Australia State Government does not currently provides no funding or programs to support any of these important steps. In the last CRC round, the State Government provided three letters of support for CRC applications to be headquartered in Western Australia, subject to their success under the program and subject to the State's funding being approved in its next Budget process. Support of this type was not competitive in the national processes. The State needs the ability, strategy and resources to commit funds/provide letters of support for applications that meet WA investment priorities in a workable time-frame.

The investment by other State Governments demonstrate that successful support programs do not necessarily require large funding commitments. Some funds can also be provided, in a coordinated fashion, directly out of agency operational funds where the proposed research is

essential to the business of the agency. The objective is to invest smartly.

Advisory Box 2 - TIAC Advice Funding Frameworks:

The State develop a Commonwealth Funding Access strategy and a decision making framework that will significantly improve the success rate of securing Commonwealth funds that can be applied transparently and flexibly.

Consideration be given to targeting specific Commonwealth programs while having agile frameworks supporting a wider range of Commonwealth programs. State support should not work in isolation. Systems will need to be put in place that ensure any proposed application for State support is discussed and reviewed with the industry, science and innovation team prior to submission. Options could include:

1. Existing budget allocations, as appropriate, are used to leverage Commonwealth funding substantially increasing resources available for priority activities. This may include using a small amount of Royalty for Regions, infrastructure or research funding allocation for the purpose of specifically leveraging Commonwealth contributions;
2. Small fund aimed at supporting CRC and CRC-P application development;
3. Modest funds provided flexibly to support applications under a range of Commonwealth programs that will deliver significant benefits to Western Australia;
4. State departments, as industry partners, use existing budget allocations where a small redirection of funding could leverage Commonwealth grants.
5. New State Government programs that target Commonwealth policy drivers be used instead of lump sum research contributions. Policy focused funding can be smaller in quantum but offer great impact – for example funding toward a full time or part time business development manager to commercialize opportunities in Western Australia would have greater economic impact, when compared to the same funding for additional research.
6. That election funding commitments be used to great effect to expand their impact by accessing Commonwealth funds – for example proposed innovation hubs could leverage Commonwealth Technology Precincts funding.

Any funding model that aims to attract Commonwealth investment requires flexibility to respond to priorities and opportunities in line with Commonwealth policy changes. Funding needs to be treated more as a partnership rather than a tendering process.

There are useful case studies in how some State jurisdictions have targeted Commonwealth funding and demonstrated that they can be agile and move quickly in-line with Commonwealth policy changes.

For example: Following the Commonwealth announcement of its Industry Growth Centres initiative in 2016, the New South Wales government immediately established its 2017 ARC Industrial Transformation Research Hubs and Training Centres Program (ITRP) to increase the likelihood of success under the Commonwealth's ITRP scheme. Whilst the funding was not 'new' funding rather a reallocation of funding from within its overall Research Attraction & Acceleration Program, the name change and refocus demonstrated the New South Wales government's ability to adapt and adjust its policy to keep in line with the Commonwealth and keep ahead of competing jurisdictions in targeting highly sought after funding.

Node versus Headquartered Research Centres

A number of key Commonwealth Programs are not awarded to a single organization, rather involve cross jurisdictional collaboration which encompass a headquarters with nodes of operation. The involvement of Landgate as a successful node of the CRC for Spatial Information is one example. Whilst the attraction of funding into the state for headquartered CRCs, ARC Centres of Excellence or NCRIS investment can bring in significant capability and investment to WA. The State should also have a strategy to secure nodes of these major collaborative projects where Western Australia is less likely to be competitive in securing a headquarters. There is strong economic and strategic benefit in this approach.

Another example is UWA's \$40 million Centre for Microscopy, Characterisation and Analysis which is a node of the NCRIS funded Australian Microscopy & Microanalysis Research Facility (AMMRF). An Allen's Group economic analysis of the infrastructure investment of the AMMRF identified a \$5:1 return on investment of this state-based facility. Whilst the facility is based at UWA, agreements have meant that researchers from ECU and Murdoch³ are also undertaking publicly funded research using the infrastructure on the same basis as their UWA colleagues.

Researchers at the Telethon Kids Institute that leads the Western Australian node of the CRC for Autism headquartered in Queensland stated they were provided an extraordinary level of support from the University of Queensland providing professional linkages and connections enabling wider discussions, in addition to critical administrative support.

The success in securing NCRIS funding for a node of the Australian Genomic Research Facility (AGRF) has created a common-user-facility for both researchers and industry to access a well-resourced capability with substantial genome sequencing capacity. If specialised capability beyond that available in WA is required, AGRF has direct access to the partner facilities and an established logistics chain to call upon the skills from across Australia.

Advisory Box 3 - TIAC Advice on Securing both Headquarters and Nodes:

Whilst wanting to increase Western Australian headquartered applications for CRCs, and other collaborative funding programs, focus on securing nodes will also secure research funding into Western Australia.

Options could include:

1. Western Australia developing applications for nodes under Commonwealth research programs, should have clear priority projects to progress that will benefit Western Australia. State support should be linked to those specific projects proceeding.
2. Stepped level of support for a node relative to a headquartered centre that reflects the proportion of grant funds allocated to the node;
3. Financial support for a node provided a certain percentage (ie: 20%) of total research expenditure and activity occurring in WA; and
4. Develop a strategy to re-engage and secure nodes for all Commonwealth Industry Growth Centres including board representation.

Representation on Commonwealth Committees and Councils

The Commonwealth's Innovation and Science Australia (ISA) Board provides strategic whole-of-

³ Curtin is in the process of organising its agreement which has been held up with issues related to industry ownership of research IP

government advice on all science, research and innovation matters and is responsible for administration and oversight of the Commonwealth's innovation and science programs. It has a membership of fifteen appointed by the Commonwealth. Currently there is no Western Australian member on the Board. WA does have representation on three of its five sub-committees. There is a Western Australian entrepreneur represented on each of the R&D Incentives and Entrepreneurs Programme Committees and a researcher on the CRC Advisory Committee. In the critical WA representation stakes, Western Australia is hitting well below the national average.

The Commonwealth Government has established the Industry Growth Centre initiative with one of the goals to articulate industry priorities to influence Commonwealth Government research focus areas and grant allocation, potentially influencing the allocation of approximately \$3.5 billion of annual R&D grants. The Medical Technology and Pharmaceutical industry Growth Centre was tasked with reviewing all 2016 NHMRC grant applications for alignment with the industry needs and commercialisation goals identified by the growth centre. Failure to be involved at the board level and to have a WA node impacts the state's ability to access NHMRC grants.

Additionally, a small number of Western Australian's researchers are appointed to evaluation or assessment committees of Commonwealth funded research grant programs such as ARC and NHMRC grants. These committees are a good avenue into understanding the policy drivers, direction and priorities of the Commonwealth and gaining intelligence on the priorities in the science and innovation environment across Australia. The State Government should be seeking out these representatives, talking to them and increasing its understanding of how these decision forums work and nuances around final outcomes.

There is however a sensitivity about this. These representatives are normally time poor, it would likely require some sort of incentive for them to see value in sharing this information. ARC and NHMRC committees, where grant funding is extremely competitive, intelligence gained by individuals on these committees may not readily be shared, as it gives away an advantage that the individual member has over their peers. What incentive would work is yet to be established.

It is also valuable to have WA representatives on Commonwealth policy committees and council so that knowledge of Commonwealth policy drivers that will influence decision making is understood. Further, such policy committees will often be alerted to a new program or funding round prior to the launch date.

Advisory Box 4 - TIAC Advice on Committee and Board Representation:

The development of a system to encourage the flow of information from Commonwealth committees or assessment panels to key Western Australian Government Ministers, officials and representatives.

Options could include:

1. Given the average cost of travel to the East Coast is \$1,000 – \$1,500 have a program to provide 50% of cost for members to encourage greater organisational support;
2. Committee members participate in a coordination meeting with the Western Australian Chief Scientist, who could then disseminate relevant information to officials;
3. Committee members invited to talk at a TIAC meeting with the information then provided to appropriate Minister's and copied to relevant Departments as an outcome of the TIAC meeting;
4. Meeting or roundtable discussion with a nominated Minister, Chief Scientist and a small number of key officials; and

5. Encourage WA government, industry and academics become representatives on identified priority boards, committees or councils with assistance from a central fund to support a low level of support for travel and engagement. Attendees accessing this fund would be required to report back to one of the forums listed above or a Director's General group on insights, findings and Western Australian competitiveness.

Universities/Researchers

Our main research universities (UWA, Curtin, Murdoch and ECU) have each gone through significant internal change in recent years. One result is a more focused approach to attracting funding. Some universities now have strong 'business development' teams dedicated to quality of applications, driving collaborations and linkages with industry. University leadership can strengthen their internal systems by working closely with government where it can add value in setting clear State priorities, increase application quality and have agreed stop/go processes in place to reduce the waste of applicant resources.

Changes to the structure of ARC Linkage Grants has led to the reduction of applications. Previously funding of this program was on a round basis, with set dates. The ARC now has rolling funding, allowing applications to be submitted at any time. This has seen a reduction in the number of applications as there is no deadline incentive to motivate the researcher to submit. University grant application processes concentrate on funding schedules, the change to the ARC process was to accommodate industry driven proposals that are developed when a need arises.

The University of Queensland however, has maintained its rate of applications. This university has set up an internal process where submissions are only forwarded to the ARC four times a year creating the timing incentive required. UWA is looking to implement a similar process.

One emerging risk to attracting Commonwealth funding is the ageing population of Western Australia's senior researchers, with fewer mid-career researchers with a strong track record to fill the gap.

Advisory Box 5 - TIAC Advice on Attracting Younger Researchers:

It is important that our universities and research institutes continue to build capabilities. Some consideration should be given to the development or attraction of mid-career researchers and to the development of early career researchers.

Options that could be considered or further investigated by TIAC:

Mid-career researchers:

1. Our universities have high quality research facilities, programs should be developed to leverage these to attract mid-career researchers.
2. The WA Government have catalytic funding to encourage junior Chief Investigators to be specifically included in research projects proposed in CRC, ARC and NHMRC applications.

Early career researchers:

1. Encourage universities to provide sabbaticals for younger researchers. These could be 1-2 months providing them the opportunity to develop connections which can lead to future collaborations;
2. Develop an Early Career Post-Doctoral Scholarship to incentivise PhDs to 'go-away', develop a track record and an international network. Provide funding contribution for

up to two years they are away. This would then be extended for further two years upon return to Western Australia to continue research in collaboration with industry. If the recipient chooses not to come back to Western Australia within a specified time frame they will lose access to the extended research funding. It is likely in the long term the researcher will return and the offer of funding, even if not accepted, will leave a positive impression.

3. Work with industry to identify and promote career paths for researchers including the development of a part time 'attachments' within industry for these highly skilled individuals to assist transition from research to industry. This will also require their university to support and recognise the value of this industry experience.
4. Develop a support program to assist SMEs to access PhD resources through the iPrep program.

Technology and Industry Advisory Council;

TIAC can play an important role supporting the Western Australian Government attraction of Commonwealth funding to the State. A reinvigorated TIAC with broad industry, academic and technologically informed membership can assist in ensuring the sharing of ideas or issues, develop connections across sectors, identify opportunities and promote areas of strength.

Advisory Box 6 - TIAC Advice on its Role to Help Access Commonwealth Funds

Consideration be given to the right mix of expertise of TIAC members and the role TIAC can have in facilitating investment attraction and advice to government.

Options could include:

1. TIAC membership should include a mix of representatives from industry, science and innovation;
2. TIAC has a role in a pre-application process, providing feedback to applicants, the industry, science and innovation team and other areas of government as appropriate;
3. TIAC to maintain a focus and provide policy advice on attracting Commonwealth funding;
4. TIAC should be considered as a mechanism for supporting Commonwealth committee, council and board membership where TIAC can also serve as a vehicle to disseminate important policy directions from; and
5. TIAC form a specific sub-committee that can draw on expertise as required to assist the Government with this task.

STATE BY STATE GRANT PROGRAMS SUPPORTING ACCESS TO COMMONWEALTH FUNDING OR RESEARCH AND INDUSTRY COLLABORATION

State	Program	Program objectives	Funding	Application process
South Australia (Department of State Development)	Cooperative Research Centre Assistance Program	<ul style="list-style-type: none"> • Provide State Government agencies with opportunities to participate in CRCs; providing additional capacity to the agency and improved access to knowledge transfer, which can deliver direct economic, social and environmental benefits to the State • Influence CRC research objectives, activities and projects to address issues relevant to South Australia • Provide funding to contribute to the employment of researchers and technologists in South Australia • Promote regional development through the creation of new jobs and the seeding of future industry development opportunities • Assist to develop networks between researchers, industry participants and regulators both nationally and internationally 	<p>Applications are required to have at least one SA Government agency participant in the CRC as the funding arrangement is between the Department of State Development and the agency, not directly with the CRC.</p> <p>Funding available are up to three years of funding at the following rates:</p> <ul style="list-style-type: none"> a) \$100,000 for a CRC node located in SA b) \$200,000 for a CRC to be headquartered in SA 	<p>Applications are assessed competitively against the following:</p> <ul style="list-style-type: none"> • Purpose of the CRC and the proposed benefits to South Australia • Development of research themes and sustainability of research leaders • Expected outcomes of the CRC assistance program funding support • Alignment with one or more of South Australia's priority areas • Potential for the CRC to foster and build critical mass and key R & D capabilities in South Australia <p>There is an application template which requests applicants to address the following:</p> <ul style="list-style-type: none"> • A focussed description of the CRC – key objectives, research themes, partner organisations etc. • A description of expected outcomes resulting from Government funding support and KPIs • A description of Governance arrangements of the CRC • Summary of funding commitments <p>Each CRC bidder is given a 45-minute time allocation to present their proposal to the panel.</p>
South Australia (Department of State Development)	Premier's Research and Industry Fund – Research Consortia Program	<ul style="list-style-type: none"> • Strategically address large scale research challenges in areas of critical need and/or strategic importance to South Australia which align with the State's Ten Economic Priority areas. • Develop and support local, national and international networks and collaborations that bring together academic, industry, private and public organisations to address these research challenges. • Support research that pursues innovative solutions that are high impact and capable of being effectively utilised by end-users, particularly South Australian companies, where possible. • Link existing research strengths and build critical mass and capacity for interdisciplinary approaches to address research challenges. • Attract and retain from within Australia and abroad, world- leading researchers. • Develop and support promising early to mid-career researchers and postgraduate research students. 	<p>Provides funding for significant research collaborations between universities, other research organisations, government and industry to tackle major challenges in areas of critical need and/or strategic importance to South Australia within the State's Ten Economic Priority areas.</p> <p>Funding will be awarded up to a maximum of \$4 million for a term of four years (nominally \$1 million per annum).</p>	<ul style="list-style-type: none"> • Stage 1: A call for Expression of Interest (EOI) applications will be made in the first instance. The Expressions of Interest will be assessed and then shortlisted by a Selection Panel. • Stage 2: Applications will be invited from this shortlist and will be assessed by a Selection Committee and external experts. Applicants will subsequently be invited to participate in interviews with the Selection Committee.

Grants identified are focused predominantly on research grants or research and industry collaboration grants that are targeted towards Commonwealth funding programs such as the CRC Program, ARC grants and NHMRC grants. The study did not include industry specific research grants such as renewable energy/ARENA.

State	Program	Program objectives	Funding	Application process
New South Wales (Department of Industry)	NSW CRC Bid Support Program	<p>Provided for the preparation of Commonwealth program applications and bid materials including:</p> <ul style="list-style-type: none"> • Analysis of research impacts • Economic modelling and preparation of Economic Impact Projection Template • Sourcing of legal, governance, taxation and commercialisation advice • Convening stakeholder and partner meetings and forums held in NSW • Assist NSW research consortia in preparing for Commonwealth interviews 	<p>A one of grant of up to \$30,000 may be awarded per CRC if they are to be headquartered in NSW. Applicants who have previously received Bid Support Grants are not eligible for reapplication, unless the funding request relates to an application which is materially different to the one previously received.</p>	<p>Applications are ranked against the following:</p> <ul style="list-style-type: none"> • The extent to which the establishment of the CRC will benefit the NSW economy, society and/or environment • The extent to which the CRC addresses NSW Government goals, including those in the NSW 2021 plan • The level of participation of NSW organisations in the CRC • The extent to which the application addresses and contributes to CRC priority areas • Source of the services or advice required for the production of the application are external to the proposed CRC participating organisations • Services or advice being funded are an appropriate and cost effective use of funds • Level of the CRC presence in NSW
New South Wales (Department Chief Scientist and Engineer)	<p>Research Attraction & Acceleration Program (RAAP)</p> <p>ARC Industrial Transformation Research Hubs and Training Centres 2017</p>	<ul style="list-style-type: none"> • To encourage and support high-quality, high-impact research, and increase innovation in the state's R&D system. • Support science engagement and outreach activities in NSW. <ul style="list-style-type: none"> • Support NSW applicants funded under the Commonwealths Industrial Transformation Research Program (ITRP) • Enhance the capacity and capability of the new operations of Hub or Centre • Grow the capacity of Hubs and Centres and increase the likelihood of success under the Commonwealth ITRP scheme • Research priorities for this ARC ITRP are in line with the Commonwealths Industry Growth Centres: <ul style="list-style-type: none"> * Advanced Manufacturing * Food and Agribusiness * Oil, Gas and Energy Resources * Mining Equipment, Technology and Services * Medical Technologies and Pharmaceuticals 	<p>RAAP funding is primarily allocated through competitive grants rounds using a rigorous selection process – and used to leverage funds from national and international bodies. Has a number of programs under the banner</p> <ul style="list-style-type: none"> • NSW Premier's Prizes for Science & Engineering • National Science Week • Science & Research Breakfast Seminar Series • Engineering Week Australia • National Youth Science Forum • Australian Science Media Centre (AusSMC) • Inspiring Australia's Regional Science Hubs Program <p>The ARC Program provides funding through two schemes: Industrial Transformation Research Hubs (ITRH) and Industrial Transformation Training Centres (ITTC). Provides conditional co-investment support for NSW-headquartered ITRH and ITTC, as well as those with more than 40% of total research expenditure and activity occurring in NSW. Total funding pool available to support successful ITRH and ITTC is \$500,000.</p>	<p>Applicants suitability for funding will be based on the proposed research to be undertaken, the benefits to NSW, and proportion of expenditure/activities to occur in NSW.</p>

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State	Program	Program objectives	Funding	Application process
Victoria (Business Victoria)	Victorian CRC Bid Support Program	Assists with financial support against expenditures associated with applying to the Commonwealth Government's Cooperative Research Centres (CRC) Program. Application Development Grants are available to partially offset any third party costs associated with preparing a CRC Program application to the Commonwealth Government CRC Program.	Grants up to \$30,000 are available to be used for outside services such as bid management, Legal advice and economic analysis. Some travel expenses may also be claimed to a maximum of 25 per cent of the grant awarded.	
Victoria (VicHealth)	NHMRC Partnership Project Grant ARC Linkage Projects Grant	<ul style="list-style-type: none"> encourage and develop strategic research partnerships between higher education institutions and practitioners and policy makers to advance knowledge in health promotion and public health support small cross-disciplinary teams working on practical problems that have the potential to generate large health gains for Victorian population groups generate applied research outcomes that can be used to make a difference to the health of Victorians generate research and knowledge that is immediately useful for health promotion practice increase the communication and translation of research in innovative ways develop partnerships between policy makers, influencers, and practitioners. 	Provides between \$25,000 and \$50,000 cash plus \$12,500 in-kind support per annum for up to three years. VicHealth to be an industry partner and project must address one of the five VicHealth strategic imperatives.	<p>Stage 1: Expression of Interest Applicants can apply online by completing a short EOI which will cover:</p> <ul style="list-style-type: none"> Administering organisation details Project Contact/Chief Investigator Project title and timelines Research team VicHealth strategic imperative and research priority addressed Project summary Potential or confirmed partner organisations <p>Stage 2: VicHealth Full Application Shortlisted applicants will be required to complete a VicHealth Full Application, expanding on research objectives, outcomes and methodology.</p>
Queensland (Advance Qld)	Innovation Partnerships	<ul style="list-style-type: none"> Increase the level of collaboration between industry, SMEs and research Boost productivity growth and the competitiveness of existing industries Accelerate the development of emerging industries and technologies where Qld could have comparative advantage in global markets Increase the speed and scale of translation of our science and research into new products, services and business models that can help to drive economic and jobs growth in Qld. 	Grants of up to \$1,500,000 are available for projects with a duration of up to three years	Applications are assessed in a competitive, merit-based process against the program's assessment criteria. The following criteria underpins this process: <ul style="list-style-type: none"> Demonstrated planning of research project Quality of collaboration Clear outcomes and relevance for Queensland Track record (demonstrated research and translation record)

Grants identified are focused predominantly on research grants or research and industry collaboration grants that are targeted towards Commonwealth funding programs such as the CRC Program, ARC grants and NHMRC grants. The study did not include industry specific research grants such as renewable energy/ARENA.

State	Program	Program objectives	Funding	Application process
Western Australia (Department of Commerce) # not currently operating	Innovation Investment Facilitation Program	Funding was provided to support state, national and international research and development funding applications to successfully leverage significant Commonwealth, international or industry R&D funding into WA.	<p>The level of funding support available under the program was between \$20,000 and \$100,000 per successful application over one year.</p> <p>The funding was available for the development of the external R&D funding bid, including early stage proposal assistance, proposal development, proposal review and interview preparation assistance.</p> <p>Eligible expenditure included:</p> <ul style="list-style-type: none"> • Temporary expert assistance (e.g. facilitator, consultant or contractor) associated with development of the external bid • National and/or international travel and accommodation costs (economy) directly related to the development of the bid • Staff costs for personnel developing the bid 	<p>The process was a one stage process with a full application.</p> <p>Eligible applications were evaluated and ranked against the following criteria:</p> <ul style="list-style-type: none"> • Alignment with the Program Objectives • Need/Gap/Market Failure • Level of Impact/Change • Capability and Capacity • Excellence • Complementation/Collaboration • Comparative Advantage • Financial Viability
TAS, ACT & NT	N/A	No programs targeting industry and research collaboration, however they each have one or two small vouchers or grant programs to support innovation in SMEs.		

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