

**GROUP  
OF EIGHT  
AUSTRALIA**

# Essential decisions for national success

Supporting Australian research



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# Foreword

Australia's capacity for research matters because our understanding of the opportunities and the challenges in our world from the social and economic to the physical and environmental relies on research.

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Research underpins the creation of new products, new services, new industries and new high-value jobs for current and future generations; research drives skills development, productivity, economic growth and competitiveness; and research adds to the quality of our lives as individuals and communities.

Research will be key to the future of our nation's social and economic well-being, however our globally recognised publicly funded university research system is at risk.

A 2019 Harvard University study highlighted that, while Australia is a high-income country, it has relatively low economic complexity. In other words, our economy relies largely on material exports, mineral and agricultural, rather than the

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development of complex products which support higher returns and wages. The study predicts that unless Australia can increase its economic complexity – adapting to reflect changes in the global economy – it will rank in the bottom half of countries over the next decade.<sup>1</sup>

The current settings for government research funding distort rather than support a sustainable research funding model. Put simply this means that universities who are research providers for the nation have also increasingly become major research funders.

The COVID-19 pandemic has laid bare an uncomfortable truth about research funding in this country, exposing the significant cross-subsidisation of research by our universities.

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1 <https://atlas.cid.harvard.edu/countries/14/growth-opportunities>

## Foreword

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Meanwhile support for our research funding system is uneven and lacks a cohesive strategy to address future demands. Both are desperately needed if we are to deliver the support that is required to ensure long term sustainability of our world class education system; to deliver solutions to both existing and emerging global challenges; and to help build a more sovereign nation to boost our economic prosperity and enhance the living standards of all Australians.<sup>2</sup>

*The solutions are clear, however in a competitive domestic political environment, the adoption of sensible and necessary policy decisions that understand consistent medium and long-term investment is needed to produce outcomes.*

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The solutions are clear, however in a competitive domestic political environment, the adoption of sensible and necessary policy decisions that understand consistent medium and long-term investment is needed to produce outcomes. This is not a new phenomenon; however, the experience and hard lessons of recent years have demonstrated that sensible and strategic reform should not be put on the backburner.

Public research systems rely on key foundations. Without these the system finds itself constantly faced with very real and detrimental consequences.

- A public research system must have sustained funding for basic or fundamental through to experimental research.
- It must recognise the contribution made across fields of study and the excellence that is driven by a commitment to peer-review and competitiveness.

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<sup>2</sup> See the 2020 Go8 report *Enabling Australia's Economic Recovery Through Supporting Research Excellence* for more details on the importance of research to the nation: [https://go8.edu.au/wp-content/uploads/2020/09/Go8\\_Research-Excellence.pdf](https://go8.edu.au/wp-content/uploads/2020/09/Go8_Research-Excellence.pdf)

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- It must receive robust support for infrastructure, workforce and other research costs.

It would be a serious error of judgement to consider that currently Australia delivers on the above.

We are well behind our leading competitor nations.

It is an unacceptable fact that Australia's ability to manage challenges such as COVID-19; or to work as an equal in key alliances such as AUKUS, while at the same time addressing economic growth and key social issues, is increasingly at risk unless an incoming Government acts to redress the deterioration in research support.

The *OECD Science, Technology and Innovation Outlook 2021* noted that across OECD countries science and technology have offered the only exit strategy from COVID-19, have been central in informing governments' efforts to limit the virus spread and have underpinned the rapid development of effective vaccines in record time.

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However, it is also the case that the pandemic has stretched national research and innovation systems to their limits, revealing gaps that need filling to improve overall system preparedness for future crises.<sup>3</sup>

With this in mind, there are several attainable actions an incoming Government should take to ensure Australia's research capacity is robust enough to serve the nation and all Australians for the future as it should, and as we emerge from the pandemic.

Finally, the Group of Eight (Go8) universities will work with an incoming Government to address the problems faced by our national research system in order to make a strong contribution to a better future for our communities. This includes the issues highlighted in this paper as well as more detailed consideration of commercialisation – where the Go8 members are the major contributors – and measures to increase the security of employment for the research workforce.

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3 OECD Science, Technology and Innovation Outlook 2021 – Times of Crisis and Opportunity: <https://www.oecd.org/sti/oecd-science-technology-and-innovation-outlook-25186167.htm>

# Summary of recommendations

to support Australia's university research system

The Go8 undertakes **\$6.5 billion** of research annually with only **36 per cent** of that funded by the Commonwealth Government.

## Sustainable funding for university research

On average, the Go8 conservatively estimates that its members **make a 45 per cent loss conducting public research commissioned through Government funding bodies such as the National Health and Medical Research Council (NHMRC), the Medical Research Future Fund (MRFF) and the Australian Research Council (ARC).**

As not-for-profit bodies conducting research in the national interest, we make up this loss by cross-subsidising from non-Government sources of income – mainly international student fees.

There is a need to fund research on a full cost basis to ensure our sovereign research capacity is not subject to the variabilities of the international student market, as we have experienced as a result of COVID-19 and associated border closures.

- **Recommendation 1:** An incoming Government should ensure that research funding is linked to the **full costs** of the required research. It should be determined using a full economic cost model that precisely and transparently determines the funding required to undertake the research.
- **Recommendation 2:** An incoming Government should reduce its stated, or implied, expectation that universities can afford to co-invest in research projects part-funded by Commonwealth grants.

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## A strong basic research sector

Highly innovative economies are powered by a strong basic research effort. For instance, Israel – at 0.49 per cent, the US – 0.52 per cent, and Korea – 0.70 per cent, all invest significantly in basic research as a percentage of GDP. In Australia, where the majority of fundamental research is undertaken in the Higher Education sector, there are concerning signs that the Australian basic research effort is under long-term pressure both in terms of its funding and its administration.

- **Recommendation 3:** An incoming Government should commit to continued recognition of, and support for, fundamental or basic research as an essential component of research quality and focus. This would improve and advance the Australian economy, our nation's sovereign capacity and our community's living standards.

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- **Recommendation 4:** An incoming government should:

- a. Boost Australian Research Council (ARC) funding (which covers the majority of Commonwealth supported non-health and medical research).
- b. Launch a root and branch, independent review of the ARC aimed at strengthening and modernising the ARC's governance, its preparedness for challenging and unforeseen issues, and the independence of recommendations made to Government.

- **Recommendation 5:** An incoming Government should place a focus on nurturing and retaining researchers within the higher education sector, recognising their importance in industry engagement and the translation and commercialisation pathways that are essential to building a more sovereign nation.

*...there are concerning signs that the Australian basic research effort is under long-term pressure both in terms of its funding and its administration.*

# Summary of recommendations to support Australia's university research system

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## An integrated approach to the translation and commercialisation of research

Australia benefits when its world class basic research is translated so it directly contributes to the nation's economic, societal and environmental triple bottom line. In direct business terms the nation also benefits from the commercialisation of research into new products that can enhance existing industries and create new industries at home and globally.

A crucial part of this integrated approach is the development of a large and expert workforce of translation and commercialisation professionals who can work across both the higher education and business sectors.

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- **Recommendation 6:** An incoming Government should commit to reversing the current trend of declining national investment in R&D by business and government as shares of GDP. At minimum, investment in R&D by Government should increase to reach average OECD standards.
  - **Recommendation 7:** An incoming Government should work with universities and business in training an increased expert workforce of research translation and commercialisation professionals.
  - **Recommendation 8:** An incoming Government should develop a dedicated national health and medical research strategy that can support future R&D from fundamental and lab-based research through to implementation and commercialisation.

*Australia benefits when its world class basic research is translated so it directly contributes to the nation's economic, societal and environmental triple bottom line.*



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## Support for Humanities, Arts and Social Sciences (HASS) research

Humanities, Arts and Social Sciences (HASS) disciplines drive our national well-being by underpinning how we understand ourselves and operate as a cohesive society, how we adapt to and adopt and design new technologies and products for the economy and educate a superior national workforce.

However, recent Government programs such as the Job Ready Graduates package and the University Research Commercialisation Action Plan have undercut this value of HASS disciplines – to the detriment of the nation.

- **Recommendation 9:** An incoming Government should recognise and fund HASS research as adding major value to the Australian economy and wellbeing.

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## Safeguarding access to international research

In geopolitically uncertain times, not only does Australia need to safeguard its research through closely monitoring international research partnerships; we also need to maintain the secure and ongoing access of Australian universities to necessary international research engagement with trusted partners. This includes through programs such as *Horizon Europe* and the development of specific research programs that can underpin strategic alliances such as AUKUS.

- **Recommendation 10:** An incoming Government should commit to strongly supporting Australian researcher access to the world's largest R&D funding program – the *Horizon Europe* program. This can happen via third country association or through dedicated funding that would enable participation in *Horizon Europe* schemes and projects.

# 1 Sustainable funding for university research

In 2021 the Australian Government delivered a one-off boost of \$1 billion funding into university research for 2021 and 2022. It was a much needed and welcome injection countering the political trend to decreasing Commonwealth research support as a proportion of total research funding.

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Contrary to the myth that suggests university income from teaching has the capacity to subsidise university research, Go8 data shows that in 2019 **over 98 per cent of Commonwealth Supported Places (CSP) funding to educate domestic students was spent on teaching.**

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The introduction of the Job Ready Graduates (JRG) package in 2021 effectively separated funding for higher education teaching and research. It is estimated that the introduction of the JRG reduced base CSP funding per student in 2021 by a further 6 per cent on average, placing pressure on the ability of CSP funding to cover the ongoing costs of teaching domestic students.<sup>4</sup>

*Thirty-six per cent of this was funded directly from the Commonwealth Government and 48 per cent from General University Funds – the latter largely from international student fees.*

In 2018 (latest available figures) the Go8 spent a total of \$6.5 billion on research. Thirty-six per cent of this was funded directly from the Commonwealth Government and 48 per cent from General University Funds – the latter largely from international student fees.

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<sup>4</sup> Go8 submission to the Senate Education and Employment Legislation Committee inquiry into the Higher Education Support Amendment (Job-Ready Graduates and Supporting Regional and Remote Students) Bill 2020.

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Specifically, for critical public research commissioned by the Government through the NHMRC, the MRFF and the ARC the Go8 estimates that on average this **research is undertaken at a 45 per cent loss to universities.**<sup>5</sup>

Go8 universities fund this significant and structural funding deficit largely through discretionary revenue sources, including international student fees.

COVID-19 has demonstrated that having our vital structural national research effort subject to the variabilities of the international student market is simply not sustainable.

With the introduction of the JRG, essentially the only remaining Government source of funding to address this substantial funding gap is Research Block Grants. Yet the value of this funding compared to the externally funded research it is intended to support has more than halved in the past two decades.

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The support needed for completing government research projects from energy costs and building maintenance to technicians, librarians and other professional support is now only 18 cents in each dollar of external research funding earned by Australian universities. The current Government review of Research Block Grant funding suggests further dilution of funding of the costs of research and risks spreading support across too many objectives to the detriment of all.<sup>6</sup>

*Yet the value of this funding compared to the externally funded research it is intended to support has more than halved in the past two decades.*

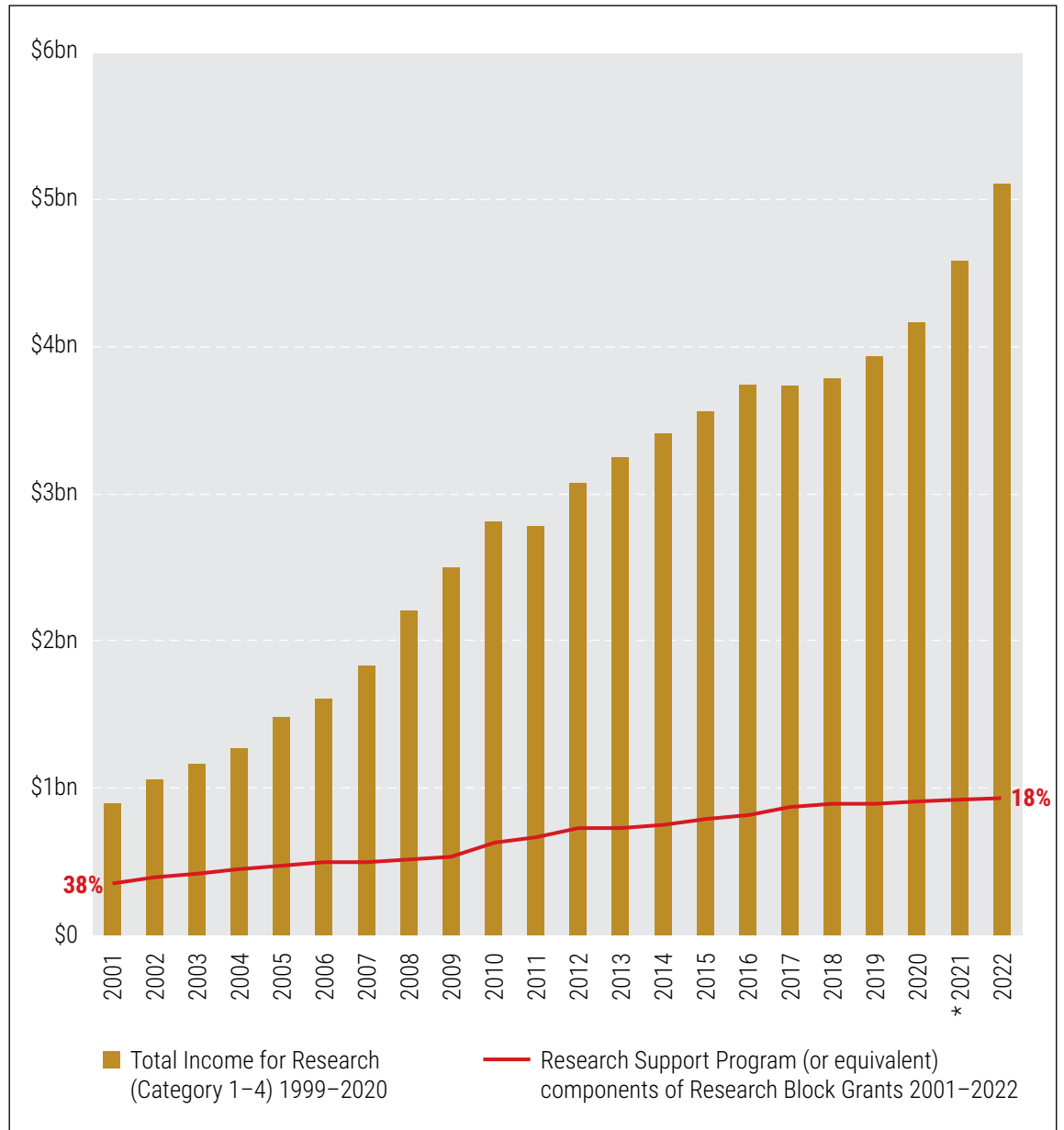
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<sup>5</sup> The Go8 conservatively estimates that every \$1 in research income requires \$1.20 in indirect cost funding to support it with only approximately 20c currently earned through Research Block Grants for this purpose.

<sup>6</sup> <https://www.dese.gov.au/research-block-grants/announcements/consultation-research-block-grant-reform-boost-incentives-greater-university-and-industry>

# Sustainable funding for university research

**Figure 1: Total Research Income vs RSP**



Source: Professor Alan Pettigrew

\* Note: The Research Support Program (RSP) figure for 2021 does not include the additional one-off investment Government of \$1 billion in the RSP. RSP figures represent the base amounts and for pre-2017 figures, funding from historical Research Block Grants equivalent to the RSP are used.

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The solution to address this structural funding shortfall in research is to adopt international best practice in the form of an evidence-based *Full Economic Cost (FEC)* approach. Under an FEC approach, all costs of research are determined and included in research applications to Government funding programs.

In the United Kingdom, UK Research and Innovation (UKRI) has implemented a detailed FEC approach and committed UK research funding councils to fund 80 per cent of the FEC.<sup>7</sup>

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In addition to the full costs not being provided for Government research, there is also an increasing trend – either formally or implied – for universities to co-contribute or (partially) match Government funding in research applications. This ignores the key point that as not-for-profit institutions Go8 universities are **research providers and not research funders.**

**Recommendation 1:**

**An incoming Government should ensure that research funding is linked to the *full costs* of the required research. It should be determined using a full economic cost model that precisely and transparently determines the funding required to undertake the research.**

**Recommendation 2:**

**An incoming Government should reduce its stated, or implied, expectation that universities can afford to co-invest in research projects part-funded by Commonwealth grants.**

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<sup>7</sup> <https://www.ukri.org/councils/epsrc/guidance-for-applicants/costs-you-can-apply-for/principles-of-full-economic-costing-fec/>

# 2 A strong basic research sector

Highly innovative economies are powered by a strong basic research effort including a resilient research workforce. For instance, Israel – at 0.49 per cent, the US – 0.52 per cent, and Korea – 0.70 per cent, all invest significantly in basic research as a percentage of GDP.<sup>8</sup>

In Australia where the majority of basic research is undertaken in the Higher Education sector there are concerning signs that the Australian basic research effort is under long-term pressure both in terms of its funding and its administration.

ABS Higher Education Research and Development figures released in May 2022 indicate that, for the first time since 2014, universities have reduced their spending on basic research and the overall research workforce has reduced for the first time since at least 1992.<sup>9</sup>

### **Recommendation 3:**

**An incoming Government should commit to continued recognition of, and support for, fundamental or basic research as an essential component of research quality and focus. This would improve and advance the Australian economy, our nation's sovereign capacity and our community's living standards.**

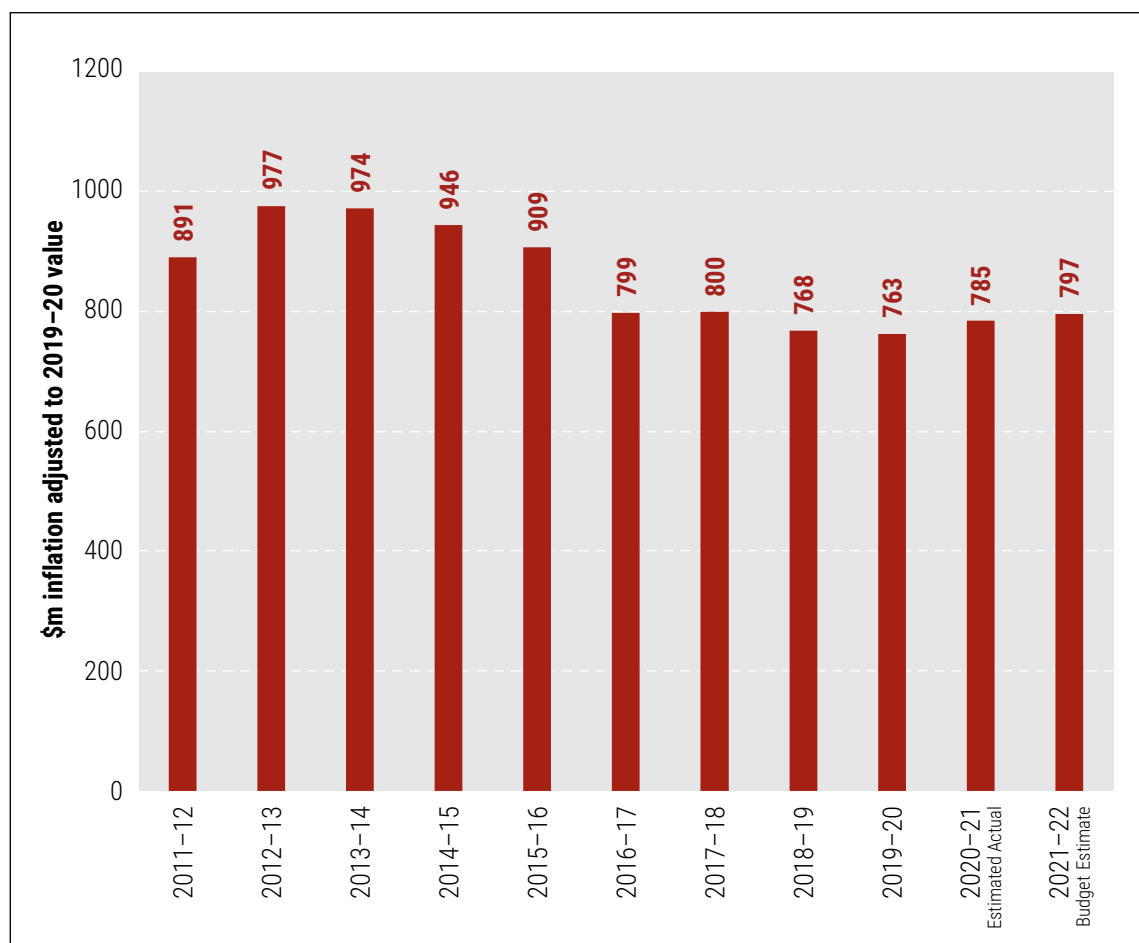
<sup>8</sup> OECD Main Science and Technology Indicators, Basic research expenditure as a percentage of GDP. Australia does not report data to the OECD for this indicator.

<sup>9</sup> <https://www.abs.gov.au/statistics/industry/technology-and-innovation/research-and-experimental-development-higher-education-organisations-australia/latest-release>

The main source of Government funding for non-medical basic research is through the ARC. In real terms, Government funding to the ARC over

the past decade peaked in 2012–13. Since then, ARC real funding has been reduced by \$1.25 billion, or an average of \$140 million a year (in 2019–20 dollars).<sup>10</sup>

**Figure 2: ARC Funding** (2011–12 to 2021–22 (2019–20 \$))



Source: DISER Science, Research and Innovation (SRI) Budget Tables, December 2021.

<sup>10</sup> Based on Department of Industry, Science, Energy and Resources, Science, Research and Innovation (SRI) Budget Tables, December 2021.

## A strong basic research sector

The ARC is also under increasing pressure to administer research funding in an effective and transparent way. There are concerns of national security and foreign interference affecting research, and new Ministerial requirements such as the National Interest Test, have created a perfect storm of issues for the national funder. In this context it is critical that the ARC governance and operations are modernised by way of a comprehensive review which has not been undertaken since the establishment of the ARC Act in 2001.

*There are concerns of national security and foreign interference affecting research, and new Ministerial requirements such as the National Interest Test, have created a perfect storm of issues for the national funder.*

This review must also ensure that the principle of expert peer review in supporting excellent research is formally recognised and adhered to in order to safeguard Australia's international reputation and ensure our research environment is globally competitive.

### **Recommendation 4:**

#### **An incoming government should:**

- a. Boost Australian Research Council (ARC) funding (which covers the majority of Commonwealth supported non-health and medical research).**
- b. Launch a root and branch, independent review of the ARC aimed at strengthening and modernising the ARC's governance, its preparedness for challenging and unforeseen issues, and the independence of recommendations made to Government.**



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As noted above, in 2020 for the first time in at least 30 years, the full-time equivalent research workforce in the Higher Education sector decreased. It is crucial to the success of the nation and Go8 recommendations for Australian research that this decline is arrested and a resilient research workforce maintained.

**Recommendation 5:**

**An incoming Government should place a focus on nurturing and retaining researchers within the higher education sector, recognising their importance in industry engagement and translation and commercialisation pathways that are essential to building a more sovereign nation.**

*...in 2020 for the first time in at least 30 years, the full-time equivalent research workforce in the Higher Education sector decreased. It is crucial to the success of the nation and Go8 recommendations for Australian research that this decline is arrested and a resilient research workforce maintained.*

# 3 An integrated approach to the translation and commercialisation of research

Australia benefits when its world class basic research is translated so that it directly contributes to our economic, societal and environmental triple bottom line. In direct business terms it also benefits from the commercialisation of research into new products that can enhance existing industries and create new industries both at home and globally.

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Translation and commercialisation cannot be effective at the necessary scale the nation demands without an integrated approach across the full spectrum of research activity, and between universities and industry facilitated by Government.

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Unfortunately, Australia's national expenditure in R&D as a percentage of GDP has dropped from 2.25 per cent in 2008 to 1.80 per cent in 2019 – lower than the OECD figure of 2.68 per cent and well behind leading innovative nations such as the US – at 3.45 per cent, Korea – 4.81 per cent, and Israel – 5.44 per cent.<sup>11</sup>

*The decline has been largely driven by a drop in business investment in R&D as a percentage of GDP, that has gone from 1.37 per cent in 2008 to 0.92 per cent in 2019.*

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<sup>11</sup> OECD Main Science and Technology Indicators, GERD as a percentage of GDP:  
[https://stats.oecd.org/Index.aspx?DataSetCode=MSTI\\_PUB#](https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB#)

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The decline has been largely driven by a drop in business investment in R&D as a percentage of GDP, that has gone from 1.37 per cent in 2008 to 0.92 per cent in 2019. An incoming Government must use all levers at its disposal to increase our national investment in R&D to at least OECD average levels through a partnership with business and universities, in order to drive the translation and commercialisation of research. This includes employing the Government's single biggest investment in R&D – the R&D Tax Incentive – to encourage business to collaborate with universities.<sup>12</sup>

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One limiting factor for the translation and commercialisation of research is the availability of an expert workforce of professionals who can work across both the higher education and business sectors. It is important to note that the skill set of this workforce is largely distinct from that of the research workforce – and while a cross-over of the skill sets is valuable, it is not practical to expect the research workforce to simultaneously act as both researchers, and translation and commercialisation professionals.

**Recommendation 6:**

**An incoming Government should commit to reversing the current trend of declining national investment in R&D by business and government as shares of GDP. At minimum, investment in R&D by Government should increase to reach average OECD standards.**

**Recommendation 7:**

**An incoming Government should work with universities and business in training an increased expert workforce of research translation and commercialisation professionals.**

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<sup>12</sup> For instance, see the 2016 Review of the R&D Tax Incentive:  
<https://treasury.gov.au/media-release/review-of-the-rd-tax-incentive>

## An integrated approach to the translation and commercialisation of research

Australia has significant national and international strength in Health and Medical Research. The latest Government audit of university research – Excellence in Research for Australia 2018 – reported that 31 per cent of all Australian university researchers and 29 per cent of all journal publications are in Health and Medical Sciences.<sup>13</sup> This strength extends to the translation and commercialisation of research which has been enhanced by the Government’s welcome creation of the Medical Research Future Fund.

The Go8 notes the announcement of the development of single national health and medical research strategy and recommends that an incoming Government follow through on this initiative to maximise the benefit of Australia’s world leading research to the Australian community.<sup>14</sup>

### **Recommendation 8:**

**An incoming Government should develop a dedicated national health and medical research strategy that can support future R&D from fundamental and lab-based research through to implementation and commercialisation.**

*The latest Government audit of university research ... reported that 31 per cent of all Australian university researchers and 29 per cent of all journal publications are in Health and Medical Sciences.<sup>13</sup>*

13 State of Australian University Research 2018–19: ERA National Report: <https://dataportal.arc.gov.au/ERA/NationalReport/2018/>

14 <https://www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/dr-katherine-woodthorpe-to-chart-future-directions-for-health-and-medical-research>

# 4 Support for Humanities, Arts and Social Sciences (HASS) research

Humanities, Arts and Social Sciences (HASS) disciplines drive our national well-being by underpinning how we understand ourselves and operate as a cohesive society; how we adapt to and adopt and design new technologies and products for the economy and educate a superior national workforce.

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However, recent Government programs such as the Job Ready Graduates package and the University Research Commercialisation Action Plan have undercut this value of HASS disciplines – to the detriment of the nation.

## **Recommendation 9:**

**An incoming Government should recognise and fund HASS research as adding major value to the Australian economy and wellbeing.**

*Humanities, Arts and Social Sciences (HASS) disciplines drive our national well-being... However, recent Government programs such as the Job Ready Graduates package and the University Research Commercialisation Action Plan have undercut this value of HASS disciplines – to the detriment of the nation.*

# 5 Safeguarding access to international research

In geopolitically uncertain times, not only does Australia need to safeguard our research through closely monitoring international research partnerships<sup>15</sup> but we also need to maintain the secure and ongoing access of Australian universities to necessary international research engagement with trusted partners. This includes through programs such as *Horizon Europe* and the development of specific research programs to underpin strategic alliances such as AUKUS.

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Currently, the Australian Government has limited commitment to formal bilateral research programs available to universities through a modest level of funding to the Australia-India Strategic Research Fund and the Australia China Science and Research Fund – under the umbrella of the Global Science and Technology Diplomacy Fund.<sup>16</sup>

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This level of support for Australian participation in international research schemes and endeavours is currently neither extensive nor strategic enough to capitalise on the collaboration and resourcing opportunities that are available to us and which we need to develop in the national interest.

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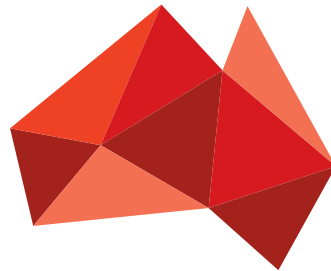
<sup>15</sup> See the Go8 report *Essential decisions for national success: supporting Australia's international education sector*.

<sup>16</sup> <https://www.industry.gov.au/policies-and-initiatives/increasing-international-collaboration-on-science-and-research>

**Recommendation 10:**

**An incoming Government should commit to strongly supporting Australian researcher access to the world's largest R&D funding program – the *Horizon Europe* program. This can happen via third country association or through dedicated funding that would enable participation in *Horizon Europe* schemes and projects.**

*This level of support for Australian participation in international research schemes and endeavours is currently neither extensive nor strategic enough to capitalise on the collaboration and resourcing opportunities that are available to us and which we need to develop in the national interest.*



# GROUP OF EIGHT AUSTRALIA

MEMBERS

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