INQUIRY INTO FUNDING AUSTRALIA'S RESEARCH

Response to the Inquiry by the Standing Committee on Employment, Education and Training

June 2018

RESEARCH AUSTRALIA

CONNECTING · ENGAGING · INFLUENCING

ABOUT RESEARCH AUSTRALIA

Our vision: Research Australia envisions a world where Australia unlocks the full potential of its world-leading health and medical research sector to deliver the best possible healthcare and global leadership in health innovation.

Our mission: To use our unique convening power to position health and medical research as a significant driver of a healthy population and contributor to a healthy economy.

Our goals:

Engage
Australia in a conversation about the health benefits and economic value of its investment in health and medical research.

Connect
researchers, funders and consumers to increase investment in health and medical research from all sources.

Influence
government policies that support effective health and medical research and its routine translation into evidence-based practices and better health outcomes.

Nadia Levin
CEO & Managing Director
02 9295 8547
Nadia.levin@researchaustralia.org

www.researchaustralia.org
384 Victoria Street Darlinghurst NSW 2010

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2. As an issue that affects both our national productivity and international competitiveness, a national whole of governments strategy is required. Research Australia further suggests that COAG could be the appropriate mechanism for action.

3. Research Australia urges the Committee to consider the specific issue of how we provide funding for the specialist capabilities that underpin much modern reasearch, and whether there should be an alternative model for providing ongoing funding for these capabilities.

ToR 2: The process and administrative role undertaken by research institutions, in particular universities, in developing and managing applications for research funding

4. Research Australia recommends that the Committee investigate the adoption of a more risk based and proportional approach to grant acquittal requirements, including placing greater reliance on organisations' own independent financial audits, supported by a process of requiring detailed returns from a sample of grant recipients rather than from all recipients.

ToR 3: The effectiveness and efficiency of operating a dual funding system for university research, namely competitive grants and performance-based block grants to cover systemic costs of research

5. The review of research funding programs across all government departments recommended above (Recommendation 1) should include consideration of indirect research costs and the development of a common approach to the calculation and payment of funding to cover the indirect costs of research.

Summary of recommendations

ToR 4: Opportunities to maximise the impact of funding by ensuring optimal simplicity and efficiency for researchers and research institutions while prioritising delivery of national priorities and public benefit

6. Research Australia urges the Committee to publicly acknowledge the public benefit and importance of research programs that fund basic research and support investigator led research in all disciplines.

7. Research Australia urges the Committee recommend the Government instigate a Research Workforce Review to understand the required skills and qualifications for now and the future, and develop a strategy for how the workforce and research workplaces could best be structured to improve productivity and provide career paths, and prepare for the breadth of careers and opportunities that will exist in the future.

INQUIRY INTO FUNDING AUSTRALIA'S RESEARCH

RESPONSE TO THE INQUIRY BY THE STANDING COMMITTEE ON EMPLOYMENT, EDUCATION AND TRAINING

Introduction

Research Australia is pleased to respond to the invitation to make this submission to the Inquiry.

While Research Australia's focus is on health and medical research (HMR) and its utilisation to deliver the best possible healthcare, we recognise that HMR exists within a broader research and innovation ecosystem. Many disciplines are now, and will in the future, be relevant to HMR. Furthermore, we believe many of our comments and proposals have a broader application to research beyond HMR.

Research Australia acknowledges the need to periodically review whether Australia's research effort is being directed to the relevant questions and problems of greatest importance, and how effectively our research is applied to provide the solutions our community needs and wants.

While significant in its own right, the Australian Government's funding for research has an influence beyond the funding provided to individual researchers. It helps shape our research institutions and the research workforce, and influences the contributions made to research by the private sector, philanthropy, and state and territory governments. Research Australia's submission, while focused on Australian Government research funding, also explores some of these other implications and how they, in turn, affect research funding.

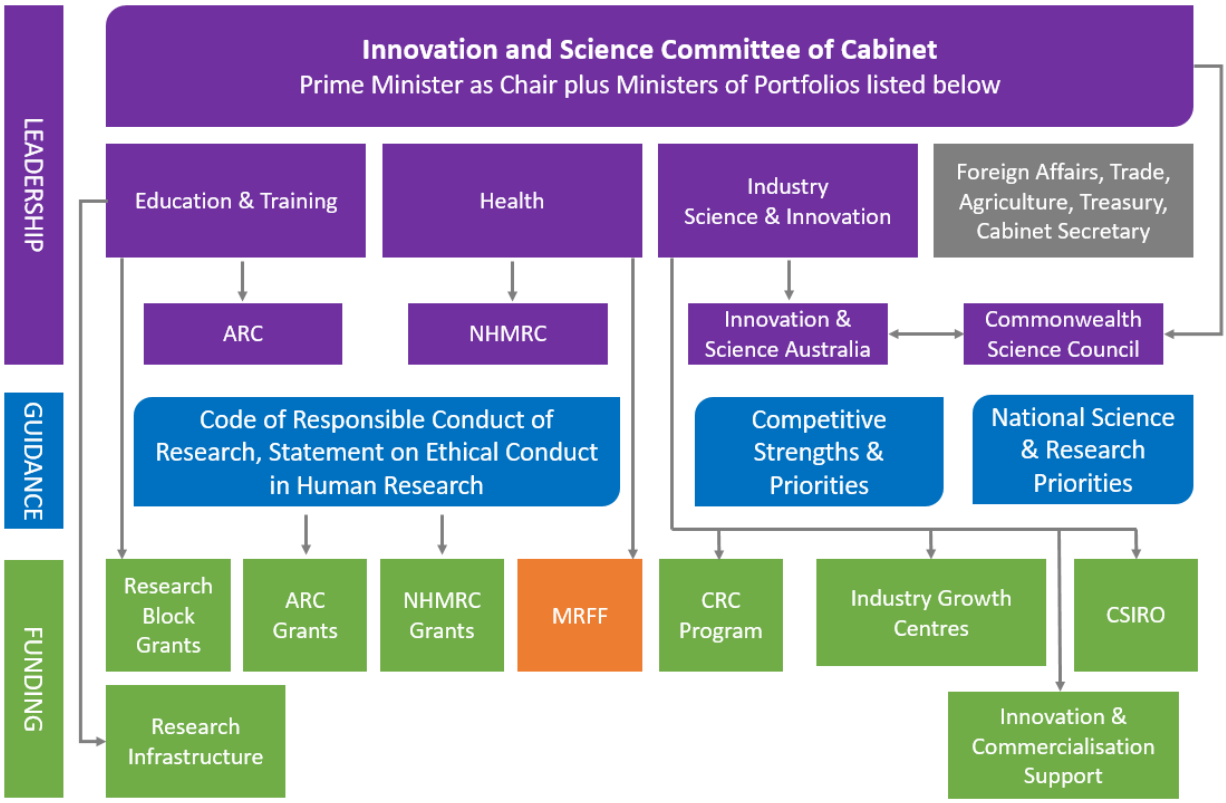
Research Australia's submission responds to the Terms of Reference provided to Committee by the Minster for Education and Training. Many of the issues raised by Research Australia reflect the changing nature of how, where, and by whom research is conducted; in turning creating the need for changes to research funding programs to better fit this new paradigm of larger, more collaborative and multidisciplinary research to serve a changing and contemporary society.

Term of Reference 1: The diversity, fragmentation and efficiency of research investment across the Australian Government, including the range of programs, guidelines and methods of assessment of grants

Lack of coordination between funding programs

The diversity of programs for research funding offered by the Australian Government reflects the diversity of research conducted in Australia and the programs' differing policy and economic objectives. It also reflects the broad impact of research on the Australian society and economy, with many different departments within Government providing funding for different research disciplines and different stages of the research pipeline, from basic research to translation. The breadth of the Australian Government's participation in research funding is reflected in the diagram below.

Australian Government Research Funding Framework



While this diversity in programs enables funding to be developed that is fit for purpose, the multitude of funding programs leads to complexity and variation in funding application processes and guidelines. While some of this variation is justified, much of it is unnecessary.

In an environment in which researchers are increasingly participating in interdisciplinary teams and seeking funding from a range of different Australian Government programs, unwarranted complexity and variation can be a barrier to efficient application processes and affect the efficiency of the entire research enterprise. It also increases the administration cost to Government.

Furthermore, the range of different programs and funding eligibility criteria can lead to overlap in funding in some areas and gaps in others. The latter is particularly a problem for interdisciplinary research and where embedding social sciences and humanities research as key elements of biomedical and/or clinical projects.

Applications for funding for projects of this type can 'fall between the stools', being (for example), 'too medical' for an ARC funding program and not medical enough for the NHMRC. By way of an example, our membership has identified psychological research as another area that is affected, particularly where investigating aspects of function that have a continuum between 'normal' and 'diseased' in the population.

Research Australia submits that a review of research funding programs across all government departments should be undertaken with the specific aim of achieving as much uniformity as possible in application guidelines, processes and acquittal procedures. Research Australia submits that an Interdepartmental Committee at the direction of the relevant Department Secretaries could be responsible for undertaking this review, with support from the office of the Chief Scientist and the Australian College of Learned Academies (ACOLA). Oversight could be provided through the Commonwealth Science Council and/or through the Innovation and Science Committee of Cabinet.

Lack of coordination between governments

A lack of coordination in the provision of research funding by the Commonwealth, state and territory governments leads to duplication of effort, inefficiencies and lost opportunities. While this is perhaps most obvious in health and medical research, it also occurs in other areas of science, such as agriculture.

Notwithstanding the focus of this Inquiry on Australian Government research funding, Research Australia believes that this in an important issue, and one on which the Australian Government can take the lead. Better coordination of research funding between the Commonwealth, State and Territory governments provides the opportunity to maximise the societal and economic return on the investment by the Commonwealth in research funding.

Research Australia proposes that as an issue that affects both our national productivity and international competitiveness, a national whole of governments strategy is required. Research Australia further suggests that COAG could be the appropriate mechanism for action.

A new Whole of Governments National Research and Innovation Strategy could start with the current National Innovation and Science Agenda ISA (and the 2030 Plan) but provide the next level of detail at the Commonwealth level as well as integrating the strategies and programs of the state and territory governments. A whole of Governments National Research and Innovation Strategy could provide clear objectives, principles and a rationale for provision of research funding by Commonwealth, State and Territory Governments.

Such a strategy would provide a basis for a more coordinated and integrated approach to funding, including for research infrastructure. Better integration of existing research programs and

infrastructure would increase efficiency and productivity in both the research grant application process and the conduct of research. Development of the strategy would help to identify unknown gaps in funding where incorrect assumptions are being made at a Commonwealth, state and territory level about their counterparts' activities and objectives.

Going one step further, a Whole of Governments National Research and Innovation Strategy could be the precursor to a **Whole of Governments National Research and Innovation Agreement,** which could seek to coordinate the funding provided by Commonwealth and State Governments for research and innovation.

Specialist capabilities

Some research capacities are not well catered for by the current research funding programs. These are research capacities needed to support other research – e.g. health economics, data science, and registry expertise. These often play a critical supporting role in a research project, with expertise provided on a short term or part time basis, and frequently collaborating on many different research projects simultaneously.

The National Research Infrastructure Roadmap characterised research infrastructure in the following terms:

There are four layers that make up the Australian research infrastructure system:

1. *institutional research infrastructure*
2. *national research infrastructure*
3. *landmark research infrastructure*
4. *global research infrastructure*

For the purpose of the 2016 National Research Infrastructure Roadmap (2016 Roadmap), layers two, three and four have been addressed, guided by the following definition:

> *National research infrastructure comprises the nationally significant assets, facilities and services to support leading-edge research and innovation. It is accessible to publicly and privately funded users across Australia, and internationally.*

Institutional infrastructure, while critical, rightly falls within the domain of the individual institutions and has not been considered. [1]

The specialist capabilities meet this defintion of infrastructure (as services rather than assets) but typically reside somewhere between layers 1 and 2 above- used by more than one institution but not necessarily national. As such, these capabilities are not identified for funding as part of the National Research Infrastructure Roadmap. The service or facility may be based at a single institution/organisation or be a partnership. In other cases it will provide services beyond its own institution/organisation to other researchers.

The NHMRC Clinical Trials Centre at University of Sydney is an example of a national research capability that has secured ongoing funding in its own right which could be replicated elsewhere.[2] Its activities include designing and conducting large clinical trials, contributing expertise to others' trials, and developing new methods of data analysis for current and future research. Its existence helps to support and improve clinical trial capability across Australia, and serves as a possible model for other areas, including data science, support for registries and health economics.

Research Australia urges the Committee to consider the specific issue of how we provide funding for the specialist capabilities that underpin much modern reasearch, and whether there should be an alternative model for providing ongoing funding for these capabilities.

[1] Australian Government, Chief Scientist, 2016 National Research Infrastructure Roadmap, page 1

[2] https://www.ctc.usyd.edu.au/our-research.aspx

Term of Reference 2: The process and administrative role undertaken by research institutions, in particular universities, in developing and managing applications for research funding

Reducing the administrative burden

In responding to the first Term of Reference, we have referred to the multitude of funding programs and the unwarranted variation in funding application processes and guidelines. This variation complicates the role of research institutions in developing and managing applications.

Grant acquittal requirements can also place a significant burden on institutions, especially where required to account for individual expenditure. Once again, variation in acquittal requirements between funders adds another layer of complexity which is accompanied by additional administrative effort and cost.

Research Australia's earlier proposal for a review of research funding programs across all government departments to be undertaken with the specific aim of achieving as much uniformity as possible in application guidelines, processes and acquittal procedures, could reduce the administrative burden on research institutions associated with developing and managing applications for research funding. It also has the potential to reduce the administrative burden for Government.

In respect of acquittal requirements, a more risk based approach which takes account of the likelihood of non-compliance and applies a proportionate response, is an option that could help reduce this burden.

For example, in the case of programs where the risk of non-compliance is assessed as low acquittal requirements might only require periodic sign off by the Chief Investigator that a grant has been acquitted appropriately for the period. There would still be a requirement that detailed financial records are held and that these are available when required. (It also recognises that funded organisations' financial records are subject to annual independent audit, providing an additional safeguard.)

In the case of a funding program deemed to be low risk, the funding body would instigate a process of requiring detailed returns from a sample of grant recipients rather than all. In addition, organisations' own independent auditors could be required to certify that all grant acquittal requirements have been met.

Research Australia recommends that the Committee investigate the adoption of a more risk based and proportional approach to grant acquittal requirements, including placing greater reliance on organisations' own independent financial audits, supported by a process of requiring detailed returns from a sample of grant recipients rather than from all recipients.

Term of Reference 3: The effectiveness and efficiency of operating a dual funding system for university research, namely competitive grants and performance-based block grants to cover systemic costs of research

Indirect research costs

The funding from the competitive grant programs offered by agencies like the ARC, NHMRC and MRFF meet only part of the costs of the research to which they are directed. They are a contribution to the direct costs of research, such as paying researchers' salaries and purchasing necessary equipment and experimental materials. They do not cover the cost of 'keeping the lights on', quite literally and metaphorically: paying utility bills, administrative staff, maintenance on buildings and facilities.

The ARC and NHMRC distribute approximately $1.5 billion in grants each year. In 2016/17, the MRFF allocated $65 million in research funding, a relatively small amount. By 2019-20, the MRFF is forecast to be distributing $386 million in funding for direct research costs, and more than $600 million the following year, approaching the size of the other two schemes.

Securing appropriate levels of funding for the indirect costs of research conducted in Australia's higher education institutions and medical research institutes is a longstanding problem and one that has been exacerbated by recent developments, including an emphasis on universities partnering with industry on research projects and the looming prospect of reductions in the revenue of higher education institutions- it is widely recognised that teaching revenues from domestic and international students subside research expenditure, including covering indirect costs.

Higher education institutions receive funding from the Department of Education and Training's Research Support Program (RSP). The RSP distributes a pool of money to universities in proportion to research income each university received in the reporting period; the ratio varies depending on how the research revenue is categorised.

No provision has been made to fund the universities' indirect research costs associated with funding received from the MRFF. As it currently stands, universities will need to fund these costs from their own resources, which will become an increasingly large impost over coming years. Even if MRFF funding is to be treated as 'Category 1' income (the same as ARC and NHMRC funding), without a substantial increase in funding available from the RSP over the next few years, there will be a significant reduction in the ratio of indirect research cost funding to direct research income. This will leave higher education institutions to fund the difference.

While their circumstances and funding for indirect costs are different, the situation is at least as difficult for Independent Medical Research Institutes (IMRIs), those not affiliated with a university. IMRIs are ineligible to participate in the RSP or to receive funding from the ARC. IMRIs receive direct research funding from the NHMRC and receive funding for indirect research costs from the NHMRC through the Independent Research Institute Infrastructure Support Scheme (IRIISS). IRIISS provides funding to IMRIs to assist with indirect research costs, at a rate of up to 20% of

the value of NHMRC grants awarded to IMRIs. In 2017, the NHMRC distributed $29.5 million in IRIISS grants; $30.85 million in grants under this scheme has been announced for 2018. Some state governments also provide limited financial support to some IMRIs.

In respect of the MRFF, some recent guidelines for funding have provided that 'The Department may, at its sole discretion, provide infrastructure support to Administering Institutions that are also NHMRC-approved independent medical research institutes (IMRIs).'[3] While welcome, the discretionary and ad hoc nature of this financial assistance points to the need for a longer-term solution.

The issue of funding for indirect research costs was raised as during the public consultation on the Inaugural five-year strategy and two year priorities for the MRFF conducted by the MRFF Advisory Board in 2016. While the MRFF Advisory Board subsequently drew attention to the issue of funding for indirect research costs:

> *A whole-of-government approach is needed to address the issue of research costing to ensure the research sector can continue to thrive. MRFF funding cannot in isolation solve the conundrum that surrounds indirect costs and may with the injection of new funds increase the need for a solution. The Advisory Board, while advocating for a whole-of-government and research sector agreed solution, must therefore abstain from implementing yet another funding model. In the short term MRFF program investment should adhere to existing costing approaches. Collaboration between Government and funded bodies to identify an equitable solution should be prioritised.*[4]

The current fragmented approach to the funding of indirect costs creates barriers to collaboration. A more uniform and flexible approach is needed. Various models are possible and this needs a more detailed investigation and review beyond just research block grants to universities. We also recognise that the funding of indirect costs is also an issue where research is conducted at sites which are funded by state and territory governments, such as hospitals.

Research Australia submits that the review of research funding programs across all government departments recommended above should include consideration of indirect research costs and the development of a common approach to the calculation and payment of funding to cover the indirect costs of research.

Such an investigation could consider the option of directly attaching indirect research cost funding as a 'loading' to direct research grants and options for a base level of indirect research cost funding to research organisations (particularly important to small organisations which can live or die on the success on one or two grants). Any such change could be implemented gradually over several years.

[3] Medical Research Future Fund – Guidelines for the 'Clinical Trials Activity Rare Cancers, Rare Diseases and Unmet Need Grant Opportunity Opening Date Monday 25 June. Ppp.14-15.

[4] Australian Government, MRFF Advisory Board, 2016, *Australian Medical Research and Innovation Strategy 2016-2021*, p.7

Term of Reference 4: Opportunities to maximise the impact of funding by ensuring optimal simplicity and efficiency for researchers and research institutions while prioritising delivery of national priorities and public benefit

National priorities and public benefit

Research Australia acknowledges that it is important that research funding helps address national funding priorities and public benefit. However, Research Australia cautions against a view that this means the Australian Government should only fund research that is directed at specific (and often short term) national priorities.

Research outcomes can be unpredictable. For example, advances in our understanding of the immune system are leading to insights into a whole range of diseases, including conditions as varied as diabetes and cancer. Understanding how we can regulate the immune system to trigger certain immune responses and inhibit others is leading to effective cures and treatments for a broad range of different diseases including cancers. The basic research which underpins this research into treatments for specific conditions was not funded because it would lead to cures for cancer or to meet a national priority.

Research is experimental and therefore uncertain, as are the eventual outcomes. It is universally accepted that one way to hedge against this uncertainty is to fund excellence. Overall, the best research is going to lead to the best outcomes, and while it may not be possible to tell in advance where the next key discovery will come from, it makes sense to fund the best people to work on research ideas that have the most promise of leading to new and useful discoveries. Funding research excellence is the underlying philosophy of competitive grant programs offered by the National Health and Medical Research Council (NHMRC), the Australian Research Council and many other public funding bodies. It is about making the most effective use of scarce funding.

Research that is world leading (a measure of excellence) has the potential to yield the greatest benefit. Whether this benefit is increasing the pool of human knowledge, developing a cure for a particular disease, or a new technology, it is likely to be of greater impact than research that is being duplicated or performed better elsewhere in the world (or elsewhere in Australia for that matter). Research that is globally unique is also most likely to attract international funding and collaboration. This funding and collaboration in turn strengthens the expertise and capacity of the Australian research community. It is also likely to be the research that produces the greatest economic benefits in terms of opportunities for commercialisation.

Funding for research needs to strike a balance between programs that fund research to achieve specific objectives or address national strategic priorities on the one hand, and funding investigator led research on the other. Both are needed if we are to derive the greatest public benefit from the Australian Government's investment in research.

Research Australia urges the Committee to publicly acknowledge the public benefit and importance of research programs that fund basic research and support investigator led research in all disciplines.

Research Workforce

While the current Inquiry's terms of reference address funding for research, Research Australia believes that it is important to acknowledge that both the quantum of research funding and the mechanisms by which it is distributed, have a direct and significant bearing on the research workforce. In turn, workforce issues have a significant impact on the efficiency of research. These issues include current skills shortages (e.g. data science), a lack of planning for future skills needs (including ancillary/support roles), poor formal career structures and poorly understood career trajectories (where people are really going and what they are doing).

Research Australia urges the Committee recommend the Government instigate a Research Workforce Review to understand the required skills and qualifications for now and the future, and develop a strategy for how the workforce and research workplaces could best be structured to improve productivity and provide career paths, and prepare for the breadth of careers and opportunities that will exist in the future.

Such a review and strategy would complement Research Australia's proposed review of research funding programs and the recently completed reviews of Research Infrastructure, the review of Research Training, and *Australia 2030: Prosperity through Innovation*. A suitable starting point would be the 2011 Government report, *Research Skills for an Innovative Future: A Research Workforce Strategy To Cover The Decade To 2020 And Beyond*.

> *'The Government's review and development processes have identified five key areas of particular challenge for Australia's research workforce over the coming decade:*
>
> - *Meeting anticipated demand for research skills in the workforce;*
> - *Strengthening the quality of supply through the research training system by improving the standard and relevance of research training programs;*
> - *Enhancing the attractiveness of research careers;*
> - *Facilitating research workforce mobility; and*
> - *Increasing participation in the research workforce.'*[5]

Research Australia suggests that these key areas remain relevant to any new Research Workforce Strategy.

[5] Australian Government, 2011, Research Skills for an Innovative Future: A Research Workforce Strategy to cover the Decade to 2020 and Beyond, p.xii

Conclusion

The Australian Government's very significant investment in research underpins and influences the whole of Australia's research and innovation activity. As our economy and society change at an ever-increasing rate, becoming more connected and information driven, it is critical that this investment in research is driven by a coherent and well executed strategy that maximises the opportunities for Australia to capitalise on its world leading research capabilities. The current Inquiry provides an opportunity to improve the efficiency of Australian publicly funded research and to develop such a strategy, better positioning Australia for the years and decades ahead.

Research Australia is willing to contribute further information and use its convening power in the health and medical research and innovation sectors to respond to any further questions the Committee may have.

RESEARCH AUSTRALIA LIMITED
384 Victoria Street, Darlinghurst NSW 2010
P +61 2 9295 8546 **ABN** 28 095 324 379
www.researchaustralia.org