



Australian Government
Australian Research Council

**ARC submission to the Australian
Universities Accord Discussion Paper**

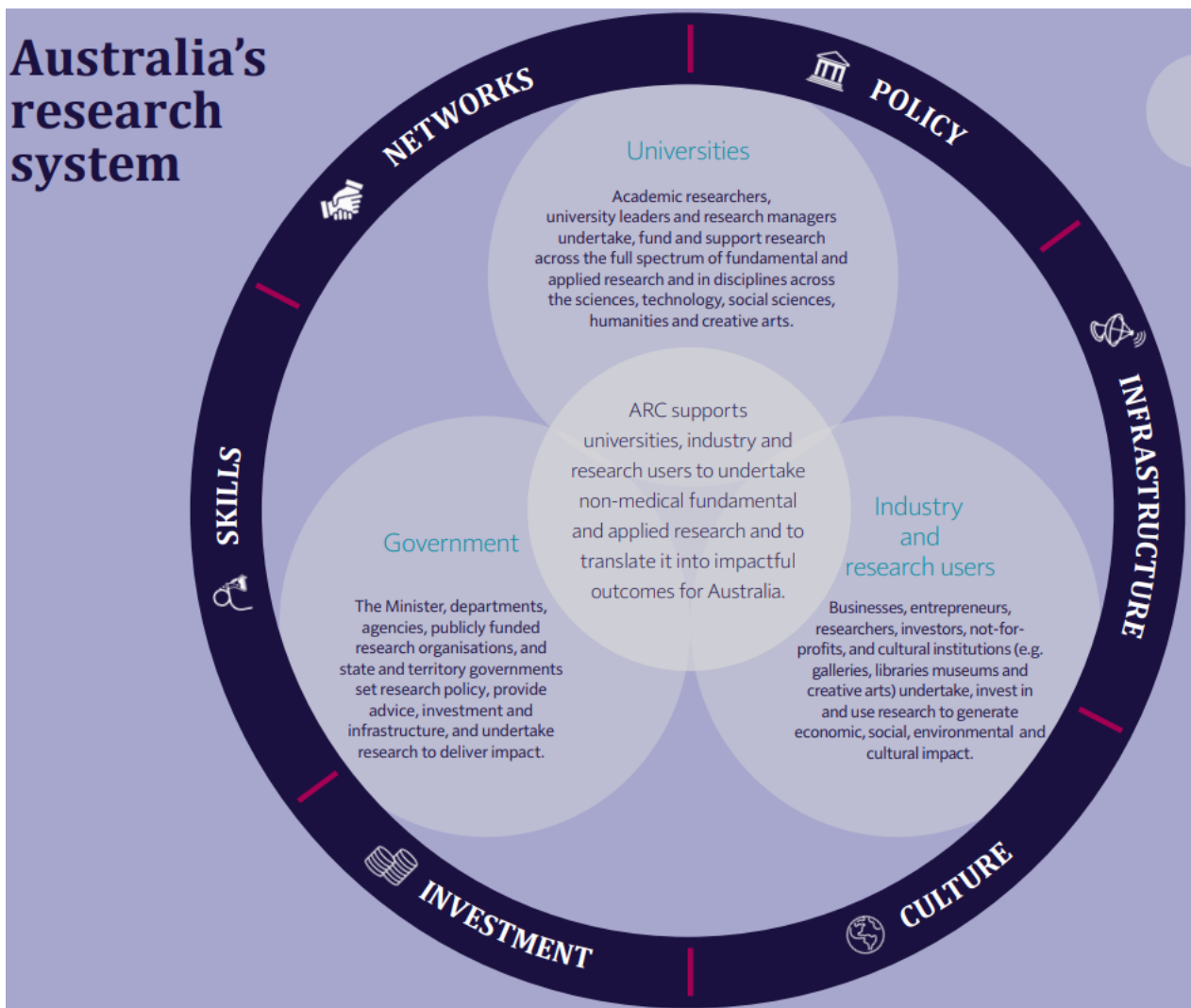
INTRODUCTION

The Australian Research Council (ARC) welcomes the opportunity to make a submission in response to the Australian Universities Accord Discussion Paper.

The consultation paper highlights that a priority for the Panel is to explore the fundamental role of higher education in contemporary Australia, including how, **through education and research and engagement in the community**, Australia’s higher education providers underpin and contribute to the intellectual, cultural, community and economic development of the nation. As the national research council, the ARC supports university research in collaboration with other partners, that is essential for national economic development, international competitiveness and the attainment of social goals.

The ARC is a vital component of Australia’s innovation and research system providing 7% of Government’s annual investment in research and development. We play an integral role in supporting the research sector to produce high-quality and impactful research through the delivery of the National Competitive Grants Program (NCGP) which provides around \$850 million per year. Our broader remit includes the provision of high-quality research policy advice, overseeing the Australian research ethics and integrity framework, the national university research evaluation system that promotes excellence in research and its engagement and impact, providing grants services to other agencies, powerful data assets, and our role in fostering research quality, translation and impact.

Figure 1: The role of the ARC in Australia’s research system - Source: ARC Strategy 2022-2025



We support Australian universities to undertake the highest-quality fundamental and applied research and research training and encourage national competition across all disciplines except medical research. We are the only Commonwealth research funding body that supports non-medical basic research. Our programs also support research infrastructure and drive collaboration with industry, and other research end-users including Government and not-for-profit organisations.

Our purpose is to grow knowledge and innovation for the benefit of the Australian community by:

- funding the highest quality research
- assessing the quality, engagement, and impact of research
- providing advice on research matters.

OUR SUBMISSION

Our submission focusses on two of the seven main themes for the Review: delivering new knowledge, innovation and capability; and meeting Australia's knowledge and skills needs, now and in the future. We have addressed questions 23, 26, 41, 42 and 47 to highlight how the government can:

- boost university and industry collaboration by drawing on lessons from the new ARC Industry Fellowships and leveraging existing mechanisms like the ARC Linkage Program
- promote excellent research through new forms of national research evaluation
- protect the integrity of Australian research through more comprehensive oversight
- use the ARC as an important ongoing avenue to support basic research.

We can assist the Accord Panel with additional data and insight and complement the work of the Independent Review into the *Australian Research Council Act 2001*.

Q23 How should the Accord help Australia increase collaboration between industry, governments, and universities to solve big challenges?

The ARC supports strong involvement of universities, industry, government and other end-users in the co-design, funding and undertaking of research in collaboration-focused schemes. The NCGP currently has a range of collaborative grant schemes under the Linkage Program. These support research at various scales and are primarily focused on research that is strategic basic or earlier on in the applied research scale or at Technology Readiness Level 1-3 compared to other Government programs like the Australian Economic Accelerator (AEA) and Cooperative Research Centres (CRCs). For Linkage Program grants between 2015-2020, the most common Partner Organisation types were Australian industry (28%), followed by Australian state, territory, and local governments (21%) and Australian non-profit organisations (14%).

To promote greater collaboration between universities, industry, government and other end-users, the majority of the ARC's Linkage Program schemes require applications to include partners outside of the Australian university sector. Approximately 75% of collaborations between Australian universities and Partner Organisations through NCGP-funded projects are reported to be ongoing. In addition, 96% of Partner Organisations rated the NCGP-funded project they were involved in as very beneficial (60%) or beneficial (36%). This data indicates that continued investment for joint research activity will continue to support greater collaboration across sectors and industry investment, which benefits the partners and Australia more broadly. This is further evidenced by the results of the ARC's Engagement and Impact (EI) 2018 assessment which found that ongoing collaboration between researchers and industry and other external partners was instrumental in the successful translation of research to impacts beyond academia.¹

One future opportunity is to focus more on improving researcher pathways to enable mobility between university, industry, end-user and government settings. Increasing this mobility is one of the objectives of the ARC's new Industry Fellowships Program. The 3 schemes in this program offer salary and project funding to support academic researchers in establishing or expanding their careers in industry settings, as well as facilitating industry-based researchers to work in university settings. The effectiveness of these fellowships will be evaluated as the program matures and could present itself as a model to improve mobility across sectors in the future.

¹ ARC (2019) *Engagement and Impact Assessment 2018-19* / Section 3 Impact and Approach to Impact / Approach to Impact / [Support for ongoing collaboration](#).

Q26 How can Australia stimulate greater industry investment in research and more effective collaboration?

In most NCGP collaborative grant schemes, ARC investment needs to be at least partially matched by industry and other Partner Organisations, incentivising greater industry investment in research. Schemes that mandate a minimum cash co-investment (versus in-kind investment) from partners achieve higher contribution rates than those that do not. For example, the latest round of the ARC's Industrial Transformation Research Hubs leveraged total participating organisation contributions (cash and in-kind) at the rate of \$3.17 for every ARC dollar provided.

Schemes in the Linkage Program offer one of the simplest mechanisms for stimulating real industry investment in research at a variety of scales and across research fields, as:

- smaller grants can support individual researchers or teams within a university setting to closely align with commercial operations and that is embedded within an industry or end-user setting
- larger grants (such as those of the ARC's Industrial Transformation Research Hubs) create platforms for networking and knowledge exchange and create critical mass, while also training the next generation of researchers with relevant industry or business acumen
- at all scales, these grants can support regional research initiatives that address local challenges, and support a diverse research workforce.

Q41 How should research quality be prioritised and supported most effectively over the next decade?

Having high quality university research has many positive benefits for the higher education system and the country. These include promoting the inclusion of cutting-edge content in courses, attracting the best and brightest to study and train in Australia and supporting the innovation system to deliver economic and societal impacts. It is important that there are mechanisms and incentives that promote research quality within universities, such as using expert peer review to identify the best research proposals and having high-quality data that can inform future decision-making and clearly demonstrate research excellence to maintain a competitive edge.

The ARC's research evaluation program provides a deep understanding of Australian research quality. Even without links to funding, Excellence in Research for Australia (ERA) has been successful in driving improvements in the quality of research within universities. Between 2010 and 2018 the number of areas rated at world standard or above in ERA rose by 49%.

However, ERA came with a high reporting burden on universities, was retrospective and only reported every three years. With the greater take up of open access, big data and ICT developments, a significant amount of the data requested from universities can now be collected through automated systems used for publishing and open access activities and could be utilised to reduce that burden. The ARC is considering future approaches to research evaluation that are more data-driven, recognising the differences in disciplines, the limitations of a metric only approach and the importance of expert review. A more automated approach could also produce more regular reporting with the capacity for analytics and foresighting and value adding to the research sector and system.

To deliver maximum social, environmental, cultural and economic impact for the community, research requires a multi-disciplinary approach, particularly the combination of a range of disciplines from across Humanities, Arts and Social Sciences (HASS) and Science, Technology, Engineering and Mathematics (STEM) areas. The mobile phone is one of the greatest inventions of the past century and reflects the strong multi-disciplinary approach required to maximise benefit for users: mathematics, engineering, anthropology, sociology, behavioural sciences and legal studies. This approach recognises that successful products and services require not only great technology, but also meet the needs of humans in their day-to-day activities. It is therefore important to evaluate all areas of research to ensure Australia has the right knowledge and capabilities for the future.

While the majority of disciplines could be evaluated using a data-driven approach combined with expert review, a broad range of humanities, social science, mathematics and arts disciplines that are not citation based are reliant on expert review of non-traditional outputs such as books, creative works, software and curated public exhibitions. The evaluation of these areas could be more efficiently designed and could take various forms including providing some data to Government to supplement weaknesses in citation data coverage, and/or improving the use of research repositories. There are also other mechanisms to facilitate better automated data collection across all disciplines, such as open access publication, and persistent identifiers for researchers and research outputs.

Any new research evaluation framework should be guided by principles that help ensure it meets the needs of all stakeholders and is effective in serving Australia for the coming decades or more.

Efficient - the framework should have maximum value and impact for minimum effort, with the immediate priority of lifting reporting burden on universities.

Balanced - the framework should balance the benefits of using and obtaining curated but potentially restricted data from commercial citation providers with the principle of moving to open and freely available data.

Connected - the framework should be a forward-looking foundation for connection with other datasets, enabling the sector and government to answer complex, longitudinal questions on university research performance over time.

Diverse - any future framework should have the capacity to undertake best practice evaluation in any discipline and be able to incorporate any relevant output types, to ensure high quality information covers the diversity of Australian research.

Trusted and relevant - any future framework should be the go-to, trusted source of information on university research capacity, quality and impact for the sector and industry. Its rigour of evaluation and accuracy of data should set it apart from other sources, which means it must be as up-to-date as possible.

With the development of adequate data infrastructure, a flexible research evaluation system that is efficient, balanced, connected, diverse, and trusted and relevant could be established with the capacity to adapt to different areas of the research system as needed. Instead of applying a one-size-fits-all methodology, evaluation methods could adapt to the type and areas of research performance, in alignment with the global best practice principles of responsible research evaluation. Evaluations would continue to involve expert review and ratings by discipline or topic as needed, with peer review where necessary.

Contextual information on research capacity, such as staffing profiles, investment and support in the research environment provides additional important insights into the health of a sector and could also be captured.

A low-burden regular evaluation of the whole university sector could be conducted once adequate data infrastructure is achieved. This would help universities maintain their strong global standing, provide broad information on the sector for government, and facilitate funding allocation (if necessary). The evaluation could be conducted in a single round (all disciplines) or staggered over several rounds (different discipline clusters each year). It could use available data plus voluntary contributions from universities, with harvestable data analysed annually and other data on a staggered basis. Special evaluations of research performance could be tailored for priority areas, such as Indigenous studies, quantum computing, climate change or food and agriculture.

The Government spends billions of dollars every year on university research through block funding and competitive grants. Research evaluation performs an important role in ensuring that universities are using that funding to perform high quality research. Evaluating impact demonstrates that these research funds are translating to real world benefits.

Some universities have argued that the rising prominence of international rankings means that research quality can be understood without a national university research evaluation system. While this may be true for large comprehensive institutions that rank highly, international research data collections and rankings do not have the granularity or robustness to provide these assurances for all Australian universities. Australia has many smaller institutions that have low rankings (or are not ranked at all) but produce excellent research in certain disciplines, or perform mission-based research that is focused on Australian priorities. In the absence of a government evaluation program, universities would inevitably adopt some other means of measuring research quality and

informing business decisions. These incentives may or may not align with government priorities. Government evaluation programs provide an ongoing policy lever for government to set research quality incentives for universities that are aligned with government policy priorities.

National research quality and impact evaluation is important for government to be able to identify, and universities to promote, these pockets of excellence in small and specialised universities. Evaluation of research quality is critical to ensure Australian universities continue to be recognised for their strong standards, consistent research output, and world leading research. This recognition will draw the best minds to Australia and maximise impact to the benefit of the country.

Q42 What settings are needed to ensure academic integrity, and how can new technologies and innovative assessment practices be leveraged to improve academic integrity?

Academic and research integrity in Australia is a collaborative effort between multiple entities. The Tertiary Education Quality and Standards Agency (TEQSA) regulates the quality of higher education in Australia. A Higher Education Integrity Unit within TEQSA works collaboratively with government bodies that have primary responsibility for integrity threats relevant to higher education, such as cybersecurity, foreign interference and academic integrity.

The Australian community expects research to be conducted responsibly, ethically and with integrity and the ARC plays a vital leadership role in maintaining and promoting the responsible conduct of research.

The ARC and the National Health and Medical Research Council (NHMRC) are jointly responsible for the development and maintenance of **Australia's research integrity framework**. The ARC and NHMRC provide advice on implementation of the Code and supporting guides, and on how research integrity concerns should be managed, to researchers, universities and the general public.

The research integrity framework in Australia is underpinned by the *Australian Code for the Responsible Conduct of Research (2018)* (the Code), and supporting guides, including the *Guide to managing and investigating potential breaches of the Australian Code for the Responsible Conduct of Research (2018)*. The Code is co-authored by the ARC, NHMRC and Universities Australia.

Under the Code, institutions are responsible for managing research integrity concerns, including overseeing investigations and putting in place any remedial or corrective actions, which could include sanctions on a researcher found to have breached the Code. The research integrity framework is largely self-regulated by institutions that conduct research and employ researchers, within the nationally agreed Government framework.

The primary responsibility for ensuring the integrity of research lies with individual researchers and institutions within the nationally agreed framework. The Code sets out principles and responsibilities that both researchers and institutions are expected to follow. To be eligible to receive ARC and NHMRC funding, it is a requirement that institutions comply with the Code (through the respective funding agencies funding agreement). The Code is expected to be applied to all research conducted in Australia.

In addition to the Code, the *ARC Research Integrity Policy* (the policy), first published in 2015, aims to promote and support research integrity and safeguard confidence in the value of publicly funded research. The policy outlines the ARC's role in research integrity, including supporting the ARC's grant processes, and the possible consequences for research institutions and individuals if appropriate standards are not maintained.

The Code, its guides and the ARC policy are designed to create and promote a collaborative approach to research integrity where researchers and institutions are invested in creating a culture of excellence. The current research integrity framework aims to ensure that Australia produces high quality, credible and trustworthy research.

NHMRC and the ARC established the Australian Research Integrity Committee (ARIC) to review institutional processes used to manage and investigate potential breaches of the Code. ARIC assists with ensuring that institutions follow proper processes in investigating potential breaches of the Code.

Institutions that conduct research and employ researchers – universities, medical research institutes and other institutions – have a central role in the promotion of research integrity. Institutions are

also responsible under the Code, and as specified in the ARC and NHMRC funding/grant agreements, for investigating any concerns and complaints related to research for which they are responsible and for taking any disciplinary and corrective actions. This reflects the fact that researchers are employed by these institutions, and it is through the employment relationship that researchers' practices and behaviour can be directly managed. For example, institutions enforce employment codes of conduct and under these have a range of measures available to them, such as counselling, fines, demotion and termination of employment.

In the main, Australian researchers and universities actively manage their roles and responsibilities under the framework and support its veracity. However, there are limited instances where some researchers and universities do not respond effectively or continue undesirable behaviours and this weakens the sector's reputation.

There are two key challenges in the current research integrity framework: transparency and ability to apply sanctions in response to continued undesirable behaviours; and the lack of resources and pro-active approaches applied by the system to provide timely reviews.

Transparency and sanctions - the lack of legislative underpinning of the ARC's research integrity functions significantly limit the ability to address continuing integrity concerns. When combined with the lack of a requirement for public reporting by organisations of integrity matters that would enable consideration of size, scale and trends regarding integrity, this self-regulated system does present issues on these occasions.

Lack of review resources – across the research integrity system all organisations report a lack of sufficient resources to address research integrity cases, and anecdotal advice is that the number of cases appears to be growing substantially each year. Advice is that the time taken to undertake an investigation or a review has increased from around 6 months a decade ago to up to 3-4 years, and in those cases where an ARIC review is requested and accepted, it can add another 2 years to the process. Without consolidated data to understand the size and scale of the cases and trends, there is no opportunity to understand systemic issues, identify potential solutions or improvements that could potentially improve the outcomes, reduce the number of cases or the resources required.

An independent review of ARIC that focusses on the effectiveness and performance of ARIC in meeting its purpose under the Framework is underway and will be completed in mid-2023. Consultation has been undertaken with key stakeholders, and we will seek to utilise their feedback to inform potential opportunities for reviewing the system.

Q47 What structure of Commonwealth funding is needed for the Higher education sector to be sustainable over the next two decades?

Supporting basic research as the source of innovation

Australia undertakes a high proportion of basic research compared with other countries and this is primarily undertaken by universities. Government investment plays an important role in addressing the market failure in funding basic research, as findings are often incomprehensible to industry, or seen as too long-term and risky for business or others to invest in but has transformative benefits for society.

The ARC is the primary mechanism for Government investment in basic research, across all disciplines. The ARC provides 7% of government funded research and development annually, and around 60% of this funding supports basic research. Given this focus and the limited funding towards basic research, we recognise the importance of working to better align and coordinate with other R&D funding opportunities across all levels of government. Without recognition of the link between funding of basic research and economic and social prosperity, and its fundamental role in underpinning the innovation pipeline, there may not be adequate investment in this area. Underinvestment in basic research is proven to reduce the effectiveness of a country's education and research system and the resulting economic and social benefits.

Greater alignment and coordination across research programs could provide a range of benefits, including:

- greater transparency of the research pathway and national benefit
- increased understanding of the capability needs of the research sector, industry and end-users
- driving appropriate planning and support for training and research infrastructure.

All of these factors are critical to maximising economic and social impact from the research system for Australia.

This will be a consideration in the upcoming policy review of ARC programs, which will provide an opportunity to examine the structure of the NCGP and its key design factors to maximise national benefit in response to taxpayer investment.