

Universities Accord – Consultation on Terms of Reference

20 December 2022 Office of the Vice-Chancellor **Charles Sturt University**



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Professor Mary O'Kane AC Chair, Australian Universities Accord Department of Education GPO Box 9880 Canberra ACT 2601

Dear Professor O'Kane

Consultation on Accord Terms of Reference

Charles Sturt University welcomes this opportunity to provide feedback on the Terms of Reference for the Australian Universities Accord, and to help set some priorities for the work of the Accord Panel.

The Australian Universities Accord provides an opportunity to re-set higher education policy and funding, ideally with the goal of making Australia's higher education system more sustainable, more inclusive, more strongly aligned with the nation's needs, and ready to address global, national, regional and local priorities, whether these are cultural, social, environmental or economic.

As Australia's largest regional university, and a sector leader in graduate employment and starting salaries, Charles Sturt is an exemplar of the main higher education policy goals of the past decade or more: improving higher education access and attainment and building stronger links with industry.

We provide high-quality on-campus and online education to a diverse population of students. Our students are not only from rural, regional and remote areas but from around the country and around the world, with many First Nations, first-in-family, and low-SES students in the mix – far more than the majority of our metropolitan counterparts. Many of Charles Sturt's courses provide students with hands-on experience via clinical placements, classroom experience, or work placements and internships with regional industries.

Similarly, much of the University's research is conducted in partnership with industry and other endusers, with a strong focus on concrete outcomes in agriculture, education, health and allied health, policing and security, IT, and environmental management.

Recent shocks to Australia's universities, and to the nation as a whole, have reinforced the need for a diverse, flexible, innovative and sustainable higher education system. Charles Sturt University's submission in response to the Accord's Terms of Reference is focused on those objectives, and on the basic policy and funding settings necessary to ensure that Australian universities can work with government, communities and other partners to meet the needs of a wide range of students and help deliver on important national and regional goals.

Yours sincerely

Professor Renée Leon PSM Vice-Chancellor and President



Universities Accord Terms of Reference

About Charles Sturt University

Charles Sturt is Australia's largest regional university, with more than 43,000 students and approximately 2,000 full time equivalent staff. We are a unique multi-campus institution based in some of New South Wales' most vibrant regional communities. We have campuses in Albury-Wodonga, Bathurst, Canberra Dubbo, Goulburn, Orange, Port Macquarie, and Wagga Wagga, all with strong connections to surrounding rural and remote communities.

Charles Sturt has a long and proud history in meeting the education, training, and research needs of regional students, communities, and employers, and the University Strategy 2030 continues this tradition with clear goals for students, research, and the wider community.

As a university we are particularly proud of our track record in improving higher education access and attainment for rural, regional and remote students and communities. In 2021 among Charles Sturt's domestic students,

- 20.7 per cent were from low SES backgrounds,
- 4.2 per cent were First Nations Australians (compared to a sector average of 2 per cent),
- 51 per cent of students were from regional, rural or remote locations (compared to a sector average of 24 per cent), and
- a very high proportion around 40 per cent each year are the first in their family to go to university¹.

Boosting higher education participation and attainment among all these groups remains a core part of the University's mission.

In research, Charles Sturt works closely with regional communities, employers, health services and other partners, as well as with national industries and other universities, on projects with real-world benefit in agriculture, environmental management, education, health and aged care, and policing and security.

The University is a major employer in several large regional centres, and supports and hosts a range of social, cultural and sporting activities, including school events and exams. Like our colleagues in other universities, we have played a critical role in helping regional communities deal with the challenges of bushfires, floods and the pandemic. During the recent floods in western NSW, for example, we provided shelter for evacuated residents in student accommodation on our Orange campus.

One of Charles Sturt University's great strengths is its relationships with local communities, employers, health services, schools and other organisations. It is by virtue of these relationships that we are able to understand and respond to local and regional needs - for example by developing the innovative Collaborative Teacher's Aide Pathway program to boost the teaching workforce in regional areas. Our direct links with regional schools – which include training many of their staff – mean we can help to build regional students' aspirations for future study and careers.

We work closely with local employers to develop and deliver courses that meet regional workforce needs. Our relationships with regional industries mean the University can provide work placements and practical, hands-on experience for many students - experience that contributes to Charles Sturt having some of the highest rates of graduate employment and graduate starting salaries among Australian universities. More

¹ See the latest data from the <u>Good Universities Guide</u>.



than 75 per cent of Charles Sturt's graduates go on to work in regional areas, placing the University at the centre of efforts to address regional workforce shortages in a wide range of industries.

In recent years, Charles Sturt has made significant investments in new facilities to boost participation, grow our research, and deepen our relationship with regional communities. These include the construction and opening of our new School of Rural Medicine in Orange, a rapidly expanding campus in Port Macquarie, a new cyber security centre in Bathurst, and the Gulbali Institute for Agriculture, Water and the Environment in Albury and Wagga Wagga.

We have also established partnerships with local employers including regional health services, with national and international firms including IBM, Transgrid, John Deere, Axiom and Marathon Health, and with government agencies including the NSW Department of Primary Industries (DPI), CSIRO and the Department of Agriculture, Fisheries and Forestry (DAFF). Many of these partnerships involve staff based on the University's campuses: IBM in Bathurst, DPI and DAFF in Wagga Wagga, Marathon Health in Albury and Axiom in Port Macquarie. These partnerships provide a range of learning, research and collaboration opportunities for students and staff, provide high-wage jobs for the region, attract other businesses, and provide new services to the community.

As a comprehensive regional university, Charles Sturt fulfils a complex and wide-ranging role in regional NSW, while also serving state and national priorities in education, health, medicine, agriculture and in managing and adapting to climate change. It is our hope that the Australian Universities Accord recognises the multi-faceted role of the nation's universities, and establishes legislative, regulatory, policy and funding arrangements to celebrate, reward and foster their position at the heart of Australian education, innovation, and cultural and economic development.

In this submission, Charles Sturt University offers to the Panel the perspectives of a large, multi-campus regional university on the seven priorities of the Accord, and in particular on:

- the need to address the continuing gap in educational participation and attainment of rural, regional and remote populations compared to metropolitan centres,
- the higher costs of providing comprehensive, high-quality education in regional areas,
- the imbalance in research funding and its effects on regional innovation, and
- the legislative and regulatory environment for universities.

On these matters, Charles Sturt University recommends the Accord Panel:

- recognise comprehensive regional universities as an important and distinctive part of the nation's higher education system,
- 2. in relation to Job-ready Graduates:
 - revisit and revise the funding arrangements for teaching and learning, including loading and indexation to cover the higher cost of provision in regional areas,
 - (ii) assess whether regional funding programs can support new targets for boosting participation and attainment for rural, regional and remote students and meet the needs of regional students, universities and communities, and
 - (iii) re-examine the balance between public and private benefit in determining Commonwealth and Student Contributions,
- 3. examine ways to simplify, improve and smooth access to student support payments,
- 4. support the development of a simplified reporting and governance framework for universities,



- 5. consider universities' engagement with communities, employers and other stakeholders as a factor affecting quality, access and opportunity,
- 6. explore models for funding student support based on a broader set of criteria reflecting the higher needs of some cohorts of students,
- consider greater use of independent surveys of student experience, graduate outcomes and other measures in policy and funding arrangements for universities, and particularly in performance assessments,
- 8. explore new models for providing base and competitive funding for research and research infrastructure, with a particular focus on capability-building, and
- 9. advocate the development of a national research strategy.



1. Meeting Australia's knowledge and skills needs, now and in the future

There is widespread recognition that Australia is wrestling with a skills and capability crisis, with workforce shortages across a range of industries and justified concerns about the capability of the nation's education and training systems to produce quality graduates in sufficient numbers to meet future needs, even when those needs are well understood.

There is also wide recognition that the crisis is even greater in regional areas, with chronic shortages in the education, health, medical, agriculture, IT and engineering workforces, exacerbated by the draw of the cities.

Dealing with this crisis is at the heart of Charles Sturt University's identity and mission. In many of our communications with government and other stakeholders we emphasise – with pride – the fact that around 75 per cent of the University's graduates stay and work in regional areas, making a vital contribution to regional communities and economies. Our recent efforts, including many of the industry partnerships mentioned above, will help to maintain and build on this result. A key challenge in doing so is ensuring sufficient practical placements for students – in industry, in clinical settings, in regional schools and so on – while ensuring that the placements provide quality supervision and meaningful work experience without adversely affecting students' progress with their studies (or personal and work responsibilities).

Charles Sturt University can only meet the diverse needs of regional employers and communities as a comprehensive university – one offering a wide range of courses and degrees, based in and dedicated to regional communities, and focused on providing quality education and professional development for regional students. We recommend that the Accord Panel recognise comprehensive regional universities as an important and distinctive part of the nation's higher education system, not least for their role in meeting regional knowledge and skills needs and supporting social inclusion for regional communities.

The current funding and policy arrangements for universities will have only limited impact on national and regional skills shortages. Recent attempts to steer students toward particular courses were not based on good evidence and took little account of local needs and challenges, including the higher cost of provision in regional areas. The Job-ready Graduates reforms introduced in 2020 are overly complex, do not provide sufficient funding to cover the cost of provision of many courses, even in fields identified as priorities.

For example, the design of JRG is such that it reduces the total funding for STEM subjects even when enrolments remain within a university's Maximum Base Grant Amount, a result at odds with one of the package's stated aims: to encourage more students into STEM and related fields. A specific example is Agriculture: the Commonwealth and Student contribution amounts introduced under Job-ready Graduates reduced total funding per Agriculture student from \$33,541 in 2020 to \$30,959 in 2021. Even with indexation, funding for each Agriculture student in 2023 is below 2020 levels, at \$32,320. This level of funding will make some agriculture courses and degrees unsustainable, leading to fewer students in an industry already suffering from significant workforce shortages. There are similar problems with the funding arrangements for nursing, health and allied health, and other high priority fields with high numbers of unfilled positions around the country.

Meeting known current and future skills needs and shortages, and contingency planning for unknown ones, will require coordinated government and private sector action in several domains:

- skilled migration policies informed by better data and priority-setting, including mechanisms to encourage more international students and skilled migrants to regional areas,
- greatly expanded access to training and professional education, including for those already in the workforce, and
- appropriate funding from a mix of sources including all levels of government, employers, and individuals.



As a first step, Charles Sturt University recommends the Accord Panel as a priority revisit and revise the funding arrangements introduced under Job-ready Graduates, including loading and indexation to cover the higher cost of provision in regional areas. We will make more detailed submissions about the JRG funding model during the Panel's future consultations.

2. Access and opportunity

Successive Australian Governments have recognised that people in rural, regional and remote areas have lower levels of higher education and attainment than their metropolitan counterparts, a gap that affects their career opportunities, economic and social participation, and even their health. The Halsey and Napthine Reviews highlighted the scale and persistence of this gap. The subsequent National Regional, Rural and Remote Education Strategy, along with some measures introduced under Job-ready Graduates, are an important first step towards correcting this imbalance.

There are several options for improving higher education access and attainment for rural, regional and remote students, each with advantages and disadvantages.

Regional and Country University Centres can provide access to courses at many different universities, space and facilities for study, and some support services. They have an important role in small communities and can be particularly useful in up-skilling and re-skilling for those already in the workforce. They cannot, however, provide a full suite of courses, the hands-on or practical dimensions essential to STEM and some professional degrees, 24/7 student support, or the sense of a learning community that is important for many students.

Branch campuses of large metropolitan universities fulfil a similar role, with similar pitfalls. They tend to be focused on a narrow range of programs, provide few on-site services or local jobs, and can exacerbate local skills shortages by siphoning students to their main campuses. They have few ties with regional communities and, like Regional and Country University Centres, provide only limited economic and social benefit for the towns where they are located.

Comprehensive regional universities like Charles Sturt offer a wide range of courses, have extensive teaching and learning resources including student support services, and provide a social and cultural environment that enriches the lives of students and the surrounding community. Through their relationships with local schools, regional universities provide an awareness of and pathways to higher education for students who would otherwise miss out on the opportunity. Through their relationships with local employers, they offer work integrated learning and avenues to employment. They are significant regional employers in their own right, making use of local suppliers and services and attracting new businesses to regional areas.

These advantages come, however, at a higher cost that the other options outlined above:

- Comprehensive regional universities need to provide support services, accommodation, and other resources for students.
- A high proportion of low SES, first-in-family, First Nations, and disadvantaged students means that
 regional universities must provide a higher level of support, often over longer periods than is required for
 other students, as well as providing those services to part-time and online students.
- Regional universities must build, maintain, and upgrade facilities for teaching, learning and research
 without being able to draw on the financial reserves and alumni and philanthropic support that large
 metropolitan universities have built up with decades of public investment.
- They need to attract and retain high-quality staff in a highly competitive national and international environment.



• Furthermore, as a multi-campus institution Charles Sturt University must provide these services and facilities in different and widely-separated locations, some mandated by legislation.

If regional universities are to continue to provide access to higher education for rural, regional and remote students, many of whom would otherwise miss out on the opportunity, then funding arrangements need to take into account:

- the full range of activities, services and facilities at regional universities,
- the actual cost of providing education, undertaking research, and operating infrastructure they require,
- the additional costs associated with operating across multiple regional locations.

Charles Sturt University recommends that the Accord Panel examine whether the regional funding programs introduced in Job-ready Graduates:

- 1. can support new national and local targets for boosting participation and attainment for rural, regional and remote students.
- 2. are consistent with the recommendations of the Napthine Review, and
- 3. provide an appropriate and sustainable base for comprehensive regional universities.

3. Investment and affordability

As noted above, Job-ready Graduates has led to a real reduction in total funding for almost all courses. In addition, JRG created a significant inequity in by expecting students in most Humanities ("society and Culture") courses to pay the same Student Contribution as their counterparts in Business, Law, Accountancy, Finance, and Economics, even as the design of JRG pre-supposed lower starting salaries and lifetime earnings for Humanities graduates. In this, Job-ready Graduates is, unfortunately consistent with a trend over the past few decades to emphasise the private and personal benefits of higher education, understood primarily in terms of employment outcomes and potential income, rather than the public benefits of having a highly educated and highly skilled population.

In addition, by structuring Student and Commonwealth Contributions on the basis of government priorities and expected economic benefit, Job-ready Graduates has undermined the public good mission of public universities, and the long tradition that sees university education as a way to cultivate innovators, deep and critical thinkers, creators, leaders, and good citizens, not just economic actors.

Further, Job-ready Graduates is based on the assumption that a student's choice of course can be driven by cost factors more than interest or intrinsic motivations – an assumption that has been widely, and wisely, called into question. It also assumes a more direct link between study and employment than is true for many graduates. Job and career changes are now far more common than they were even a generation ago, as evinced by the increasingly diverse employment backgrounds of MPs and Senators. Even in purely economic terms, the reality is that current and future graduates will require a wide range of knowledge and skills and it will be difficult to predict with any accuracy the full extent of courses of study that will be most in demand in the workforce a decade or more from today.

A university funding system focused primarily on meeting skills shortages will eventually lead to an oversupply of graduates in some fields and an undersupply in others, without sufficient capacity in the higher education system to meet new priorities and with a high risk that some fields of education and research will disappear from the Australian higher education system altogether. The result will be a less inclusive society, a less diverse and flexible economy, and an even greater dependence on imported knowledge and skills.



Charles Sturt University recommends that the Accord Panel, as part of its consideration of the impact of Job-ready Graduates, re-examine the balance between public and private benefit in determining Commonwealth and Student Contributions.

Other changes to higher education funding introduced in recent years have had the effect of constraining rather than driving student choice:

- Student support payments and publicly funded scholarships, including postgraduate stipends, have not kept up with higher living costs and inflation.
- Access to them is limited, complex, and can work at odds to the best interests of the student: Austudy, for example, can deter students from moving to study at the university best able to meet their needs.
- The higher participation costs for some courses (textbooks, protective clothing, uniforms or other clothing
 for practical and work placements) acts as a deterrent for many students, especially when they come on
 top of common costs like travel, accommodation, and day-to-day living expenses.
- HELP loan limits can discourage students from undertaking the postgraduate study necessary for entry to some professions, or to develop their capabilities as a researcher, teacher, or health practitioner.

Charles Sturt University therefore recommends that the Accord Panel examine ways to simplify and smooth access to student support payments, with more realistic indexation arrangements and greater flexibility in how the payments can be used as a core feature.

Another recent development in higher education funding is the introduction of performance-based funding. This is a worthwhile measure. Universities should be and are accountable for the way they use public funding, and this includes the expectation that it should lead to quality outcomes: not just the number and employability of graduates but the effective management of its physical and other assets and resources; appropriate remuneration and employment arrangements for staff; fruitful engagement with communities and industry; research characterised by excellence and impact, broadly defined; and their overall contribution to the nation. Some of these outcomes can be recognised only over time, and not all can be captured in metrics, so funding linked to a university's performance is best understood as a mix of patient capital and prudent speculation.

Even more recently there has been discussion of performance-based funding at the school or course level, specifically in relation to initial teacher education. This is a very risky step, one that opens the door to public funding that prescribes what universities can do, and how they do it, who they do it with and for, and whether they will be allowed to do it in future. It is a step that can only come with a significant increase in the reporting burden for universities and at the expense of their autonomy, their ability to draw on the expertise of academic and other staff to meet to local and regional needs or respond to emerging challenges and opportunities.

Charles Sturt University recognises that there is an important but necessarily limited role for performance-based funding as part of the overall framework for public funding for higher education and research, and we recommend that the Accord Panel establish, as a fundamental tenet of the Accord, that public funding for universities should be based on principles consistent with their autonomy.

4. Governance, accountability and community

Governance of Australian universities is subject to both state or territory and federal legislation, and in recent years to expectations that governance arrangements should align with corporate models. But universities are not companies, and governance models that work for for-profit organisations may not be suitable for public, not-for-profit organisations answerable to a diverse set of stakeholders and funders. In particular, corporate style governance models do not necessarily work for multi-campus institutions where there may be an



expectation that governance arrangements should reflect the various communities the university serves. This is even more difficult when the size and composition of universities' governing bodies may be constrained by legislation.

Charles Sturt University recommends that the Universities Accord should enshrine the principles of good governance for universities rather than endorsing a particular governance model.

Implementation of the Accord should include a review of Australian universities' enabling acts, with a view to establishing a common framework for governance that prioritises autonomy, flexibility, and responsiveness to the needs of students, staff, and stakeholder communities. This work could be led by the Education Ministers Meeting.

Accountability arrangements for universities are complex – arguably more so than for other large public and private organisations. There are formal state and federal reporting requirements, as well as informal expectations encompassing communities, the media, local MPs and others. Again, there is scope for the Accord process to consider the full scope of universities' accountability and reporting requirements – including data collections – to develop a more streamlined framework.

At the institutional level, a 'report once' approach would be ideal, saving considerable time and effort for universities (and government agencies): universities could prepare and submit a single report, for use by the Department of Education, TEQSA and other regulatory agencies, and their state and territory counterparts. Similarly, a common reporting framework for research and other grants would be more resource- and cost-effective for universities and the agencies involved.

As noted above, Charles Sturt University is deeply engaged with regional communities and employers. This is not a consequence of governance and accountability arrangements, or even policy and funding arrangements, but a direct consequence of our location and history. Engagement with regional communities and others has a significant impact on the quality of the education we provide and on the outcomes for our students. The University recommends that the Panel consider universities' engagement with communities, employers and other stakeholders as an issue related to, and affecting, quality, and access and opportunity, rather than as part of the framework for governance and accountability.

5. The connection between the vocational education and training and higher education systems

Vocational education and training (VET) have a vital role in boosting education attainment for students from rural, regional and remote areas, and in meeting regional workforce needs.

Charles Sturt University has effective working relationships with regional TAFE and VET providers, with well-established formal pathway programs that include credit for prior study. These arrangements include a limited number of scholarships for TAFE looking to translate to university study. We are also exploring potential opportunities for closer integration with local TAFEs on some campuses, with co-location and shared facilities among the options being explored.

Charles Sturt University has welcomed recent greater attention on TAFE and VET as part of the national post-secondary education system, and in particular the decision by the Australian Government and some state governments to create fee-free TAFE and VET places aligned to areas of critical workforce shortages. We are concerned, though, about the lack of coordination between different jurisdictions when announcing these plans, and in particular how they interact with goals to boost participation in higher education in some equity cohorts.



6. Quality and sustainability

Charles Sturt University receives consistently higher ratings for student experience than many metropolitan universities, indicating a greater focus on meeting the needs of our students. This is essential for a university with a high proportion of students from low SES, first-in-family and First Nations backgrounds, as well as online and part-time students. Many of our students also have carer responsibilities or work commitments that mean we must provide 24/7 access to some support services, libraries, and study spaces. The cost of providing these services – and the additional costs attached to providing them in regional areas – are not factored into current funding arrangements.

Charles Sturt University recommends that the Accord Panel explore models for funding student support based on a broader set of criteria reflecting the higher needs of some cohorts of students. This should include recognition that the cost of providing support services to part-time students is not a simple fraction of full-time status, as many part-time students require support outside normal working hours and over a longer period than other students. Each student is as likely to need support services, irrespective of their study load, with the result that the overall demand on student services is greater for universities with a higher proportion of part-time students.

When considered alongside the University's long, sector leading track record in high graduate employment and high graduate starting salaries, Charles Sturt's student experience ratings are a good indicator of institutional quality, and one far more relevant to current and future students, their parents and families, employers, and communities than international rankings, league tables or ERA ratings. The University recommends that the Panel explore avenues for greater use of robust and well-respected independent surveys in policy and funding arrangements for universities, and particularly in performance assessments.

This kind of data can also reinforce the social license for public investment in higher education. The overall goal of higher education is to uplift national wellbeing and productivity, not to save money off the Budget bottom line. In recent years, the focus on reducing expenditure on higher education has forced universities to make difficult decisions about which courses and services to cut, to the detriment of student success and the health of the higher education system. For regional universities, the funding squeeze has meant uncertainty about the viability of many courses, campuses, and for some universities.

Furthermore, as decisions about what to sacrifice are being made at the institutional level, with limited strategic oversight, one consequence of recent cuts is decreased national capability in many fields, in both teaching and research, and even in areas flagged as national priorities or subject to workforce shortages. It will take years, and more public and private investment, to restore the health, resilience and flexibility of the higher education system.

Universities, and in particular regional universities, can no longer be viewed, measured and valued solely through the economic lenses of competitiveness, productivity and commercial outcomes. Public investment should be seen (and when necessary defended) as a public good, as something vital to national wellbeing, prosperity, sustainability, and social inclusion, in cities and in rural, regional and remote areas. That might be the core message the Accord communicates to governments and to the wider community over the next year, and the basis for future funding arrangements.

7. Delivering new knowledge, innovation and capability

The COVID-19 pandemic and the Job-ready Graduates reforms made clear the extent to which universities were funding their research activities by cross-subsidising with income from students, especially international students. Whatever criticisms might be made of this practice, it must be recognised as the result of relatively low public and private funding of research in Australia, which is well below OECD and other international



benchmarks, and insufficient to build and sustain the kind of diverse high-tech and high-wage economy espoused by governments and industry².

The Accord – and the associated review of the ARC – must tackle this issue as a priority, not least because universities still undertake the bulk of research effort in Australia³.

For Charles Sturt University and other regional universities, there are additional concerns about the way research (and research infrastructure) is funded. Current and historical arrangements favour large metropolitan universities, with an emphasis on track record, performance over time, scale, and, until recently, winning competitive research grants and publishing in peer-reviewed journals (both also dependent on track record). There is still little recognition in current arrangements of research that has a real-world impact for industry, especially SMEs, on clinical and professional practice, on community concerns, or, unfortunately, for research on issues specific or even unique to Australia.

There are related problems with:

- poor understanding of the actual cost of research (and the relatively higher cost of undertaking research in regional areas), leading to underfunding,
- limited funding for research infrastructure, with much of the funding that is available committed to largescale and high-profile projects,
- the focus in funding and performance assessment on a narrow range of research outputs,
- the impact of research funding arrangements on researchers' careers, leading to 'brain drain' to overseas universities,
- the lack of opportunities to develop potential or build capacity,
- insufficient funding for research training and poor remuneration for PhD students, and
- an increasing emphasis on commercialisation of research at the expense of basic and/or public good research.

Charles Sturt University suggests that these issues warrant consideration beyond the scope of the Accord. At present Australia has no national research strategy, no national targets or goals, few priorities beyond STEM and commercialisation, and no effective coordination of the substantial public investment in R&D.

It is within scope of the Accord, however, to examine ways to redress the bias towards large metropolitan universities in funding for research and research training. This would be an essential first step in dealing with some of the issues listed above. Charles Sturt University recommends that the Accord Panel explore models for providing base and competitive funding for research and research infrastructure that provide for capability-building, recognise future potential, and meet regional and local needs, with less of an emphasis on historical performance, narrow metrics, and international rankings.

² See the '<u>Science and Research</u>' section of the Parliamentary Library's *Budget Review April 2022*–23, which notes that current government investment is below a long-term average extending back to the late 1970s.

³ As measured in Person Years of Effort – see ABS Research and Experimental Development, Higher Education Organisations, Australia, and Research and Experimental Development, Businesses, Australia.