



Australian Academy of Science

SUBMISSION TO THE

**RESEARCH ENGAGEMENT AND
IMPACT ASSESSMENT CONSULTATION**

FROM THE AUSTRALIAN ACADEMY OF SCIENCE / JUNE 2016

Response to the Engagement and Impact Assessment Consultation Paper

The Australian Academy of Science welcomes the opportunity to comment on the *Engagement and Impact Assessment* consultation paper. The Academy promotes scientific excellence, disseminates scientific knowledge, and provides independent scientific advice for the benefit of Australia and the world. The Academy is made up of over 500 of Australia's leading scientists, each elected for their outstanding contribution to science. The Academy would be pleased to provide further information or explanation on any of the points made in this submission.

The Academy has provided its response to selected questions posed in the consultation paper, as follows.

1. What definition of 'engagement' should be used for the purpose of assessment?

The definition of engagement should be broad and encompass the full spectrum of research engagement. This should include engagement activities with all organisation types, including but not limited to, private businesses, governments, government owned enterprises, non-government organisations, professional associations and societies, communities, and charitable organisations. The definition should be broad enough to include a wide range of engagement activity, including both commercial and public good engagement.

2. What definition of 'impact' should be used for the purpose of assessment?

The definition should allow for primacy to different domains (social, cultural, health, economic, etc.) for different fields of research, recognising the wide range of positive impacts that university research can have. Impact should be seen across multiple domains including social, cultural, health, environmental, public policy and economic. The definition should avoid giving primacy to one domain over the other. It should also recognise the long lag time that can take place between research and impact.

3. How should the scope of the assessment be defined?

Organisations

The Academy recommends that during the pilot phase, the scope of assessment should be limited to the 42 universities currently defined by the Table A and Table provisions of the *higher Education Support Act 2003*. However, it would be advisable to include provision to expand the scope of assessment to cover other public sector research organisations such as CSIRO, AIMS and ANSTO over a longer timeframe.

The discussion paper states that the...

“...ERA provides a complete view of the research performance in all Australian universities. It allows for the identification of areas of excellence as well as areas that require development or a shift of focus”.

Identifying where excellence is taking place

Unfortunately the ARC ERA exercise is limited in its usefulness for identifying areas of excellence as the use of Field of Research (FoR) codes to categorise research outputs does not reveal where geographically within a university excellence is occurring. Researchers are likely to contribute research outputs to the exercise for multiple different disciplines. For example, a university might score a 5 star world-class rating for Chemistry but this does not necessarily mean that its Chemistry department is world-class. Many of the contributors will be from outside of the Chemistry department in other disciplines (and the flexibility of the system provides universities with a limited ability to categorise research output favourably for purposes of assessment). This is the greatest weakness of the exercise as it makes it difficult for both universities and those wishing to collaborate with universities to identify where geographically within a university excellence lies. If the same approach is taken in the prospective impact and engagement exercise of the ERA it will be equally difficult to determine where impact and engagement excellence resides within a university.

4. Would a selective approach using case studies or exemplars to assess impact provide benefits and incentives to universities?

Research impact

The scope of the assessment for research impact should be selective rather than comprehensive, with universities putting forward their best examples. It would be preferable to use a case study approach or exemplars rather than trying to capture all research impacts, as this would be administratively burdensome. Such an approach is preferred to a quantitative exercise that uses a series of metrics, as this would overlook the impacts of research that are not easily reduced to such a metric.

Given the time-lag between research and impact it is questionable whether any research impact exercise would provide incentives and benefits to universities to increase their level of research impact. It would however, act as an incentive to *demonstrate* past impacts.

It is difficult to envisage the ARC ERA impact and engagement exercise in any form as acting as a greater incentive for increasing research impact than the plethora of other existing incentives. These include, among many others, working towards improved health outcomes, developing spin-out companies and products, providing input into policy decisions to improve environmental outcomes, and the soon to be introduced changes within the research block grants. For most researchers, the end goal is in itself already an incentive.

There are more effective ways to ensure such research impact, such as developing programs that assist universities and end-users of research to work together to achieve research impacts.

5. If case studies or exemplars are used, should they focus on the outcome of research or the steps taken by the institution to facilitate the outcomes?

It would be preferable to focus on both process and outcomes of research. This would allow others to gain a greater understanding of the steps needed to ensure successful research engagement and impact.

6. What data is available to universities that could contribute to the engagement and impact assessment?

i. Should the destination of Higher Degree Research students be included in the scope of the assessment?

The destination of Higher Degree Research (HDR) students should not be included as a mandatory indicator in the scope of the assessment, as this information is often not available to universities. However, given the clear value to the economy and to society of HDR graduates who gain employment and use their research skills in the private sector, in government or in the community sector, there would be value in incorporating HDR student destination as an optional indicator where the information is available to universities.

ii. Should other types of students be included or excluded from the scope of assessment (e.g. professional Masters level programmes, undergraduate students)?

While arguably the education of students is where universities have their greatest impact, this impact is not necessarily the impact of research undertaken at that university. Therefore it would not generally be appropriate to include taught students within the scope of assessment for a research impact exercise.

7. What are the key challenges for assessing engagement and impact and how can these be addressed?

The key challenges for assessing impact are:

Time-lag

The significant time-lag that can occur between research and impact, makes any retrospective exercise limited in its usefulness in terms of driving future behaviour.

Data gaps

As this exercise is looking to retrospectively assess research impact it will come across data gaps. Universities and researchers have not been systematically collecting the information required to best show research impact, as this has not been a requirement. This will make it difficult for universities and researchers to demonstrate past research impact and engagement.

Assigning credit

It is very difficult to assign proportionate credit for research engagement and impact activities. For example, there will be cases where researchers will have conducted research at one institution, undertaken activities to ensure its impact at another, and by now might have moved again to a third institution. Care will need to be taken to ensure that credit for impact and engagement is awarded to the correct institution.

Quantifying impact and engagement in areas of public good research

There are many areas of research impact and engagement that are not easily quantifiable, particularly in terms of measuring the dollar value of impact and engagement, or measuring the broader value to society of scientific applications or services. This includes large areas of health and environmental research amongst others. Some research can have impact by saving human lives,

reducing health burdens and the cost to the health system, or by improving biodiversity outcomes. The long-term financial and public-good outcomes of such impact and engagement can be very high, but it can be difficult to measure using traditional metrics, such as those that look solely at the financial inputs from the different parties involved.

One option not canvassed within the discussion paper is to determine the number of hours of *pro bono* collaboration between universities and end-users of researchers. Universities and researchers frequently engagement with research end-users without any formal financial arrangement being in place, as they see such engagement as part of their mission. Should the research engagement measures solely focussed on paid-for engagement, such as using existing income measures, there is a risk that significant areas of research engagement will be overlooked.

Unintended consequence – displacing private sector research activity

An unintended consequence of introducing measures of research engagement will be the increased incentive for universities to undertake ‘routine’ or consultancy style research that is already currently being undertaken by the private sector. Care must be taken to not inadvertently introduce incentives that effectively encourage universities to displace current private sector research activity—which in many fields is already quite low—by focussing on routine consultancy research at the expense of ground-breaking new to world research.

Administrative burden

A key challenge for the exercise will be to ensure that the administrative burden associated with collection and reporting of information does not adversely impact the ability of researchers to undertake their primary task of conducting research, or of collaborating and engaging with external stakeholders and research end-users. This is not an argument against the assessment exercise, but ensuring optimum simplicity of process should be kept front of mind.

- 8. Is it worthwhile to seek to attribute specific impacts to specific research and, if so, how should impact be attributed (especially in regard to a possible methodology that uses case studies or exemplars)?**

No response provided

- 9. To what level of granularity and classification (e.g. ANZSRC Fields of Research) should measures be aggregated?**

The two-digit FoR code would be the most appropriate level at which to measure research impact and engagement.

- 10. What timeframes should be considered for the engagement activities under assessment?**

The timeframe for engagement activities should mirror that of the broader ARC ERA exercise. However, care will need to be taken when setting the reference period. Setting the reference period is straight forward for research assessment as dates of publication can easily be determined. It is likely that research engagement activities will straddle over any set timeframe for the assessment of engagement activities. As such, some flexibility will be needed here.

11. What timeframes should be considered for the impact activities under assessment?

Timeframes to societal impact will vary enormously within and between fields of research; from months or years in the case of highly applied ICT or agricultural research for example, to many decades in the case of basic medical research or blue-sky research in physics, mathematics, biology or chemistry. The Academy recommends that an appropriate timeframe to cater for this diversity would be 15 years before the reference period, and allowing flexibility in fields where the time-lag between research and impact may typically be longer. A reference period in which impact data can be collected should be for the last six years. Taking a shorter period than this would run the risk of the most high impact research being overlooked in the exercise, and thereby reducing the utility of the exercise.

While the discussion paper states that taking such an approach could mean that assessments could be based on research conducted more than 20 years previously, raising questions about the current relevance of the assessment results, this is just the reality of how research leads to impact. The results would still hold relevance as they help to demonstrate to the public, the government, and to industry partners that public funding for research represents value for money and leads to positive impacts, and requires time and effort to lead to substantial impact.

12. How can the assessment balance the need to minimise reporting burden

Where possible existing datasets and collections should be used in the development of research engagement metrics. The proposal in the discussion paper to include data already collected through the ARC ERA, such as research reports produced for external bodies, should be taken up.

As per the response to consultation question 4, ensuring the scope of the assessment for research impact is selective rather than comprehensive, with universities putting forward only their best examples would reduce the administrative burden of the exercise.

If a case study approach is used to measure research impact then introducing strict limits on the amount of material that can be submitted would reduce the administrative burden of the exercise.

13. What approaches or measures can be used to manage the disciplinary differences in research engagement and impact?

Work should be undertaken with different disciplinary associations to determine whether different approaches and measures are needed for different disciplines; particularly with respect to the differences between industry-oriented and public good research, and that focused on social versus economic and commercial benefit.

14. What measures or approaches to evaluation used for the assessment can appropriately account for interdisciplinary and multidisciplinary engagement and impacts?

Flexibility within the exercise should be employed to allow proportions of engagement and impact to be awarded to different fields of research. In addition to assessing individual fields of research consideration should be given to providing an assessment of the research impact and engagement of interdisciplinary and multidisciplinary research. This would help to show whether interdisciplinary or multidisciplinary research is more or less likely to lead to engagement and impact.

15. What types of engagement indicators should be used?

As outlined in the earlier responses, indicators that measure a broad range of engagement activity should be used. This should include qualitative statements of the nature of interaction(s) and outcomes, as well as indicators that can measure economic engagement, such as financial contributions by other partners, and other types of engagement. Such indicators might include estimates of the number of days of engagement activity by researchers and stakeholders, in-kind contributions to engagement activity, and the number of people engaged by an activity. Engagement should be considered in its broadest possible context, and in addition to economic engagement should also include how research activity engages people through other domains, such as through increased social and cultural opportunities, educational opportunities, engagement with professional societies and industry organisations, and participation in activities to implement research results in real world settings.

16. What types of impact indicators should be used?

It would be preferable to use case studies or exemplars for assessing research impact. These case studies should be assessed using peer review. The criteria that would be used within a peer review exercise should be made available prior to the submission of case studies. All the different ways in which research can have a positive impact should be measured and celebrated. Indicators that measure all the different forms of research impact should be used, allowing an assessment of economic, social, cultural, health and environmental impacts of research to be determined.