RESEARCH AUSTRALIA
AN ALLIANCE FOR DISCOVERIES IN HEALTH

ASSESSING THE WIDER BENEFITS ARISING FROM UNIVERSITY-BASED RESEARCH



August 2013

Research Australia submission in response to the Discussion Paper

ABOUT RESEARCH AUSTRALIA

Research Australia is an alliance of 160 members and supporters advocating for health and medical research in Australia. Research Australia's activities are funded by its members, donors and supporters from leading research organisations, academic institutions, philanthropy, community special interest groups, peak industry bodies, biotechnology and pharmaceutical companies, small businesses and corporate Australia. It reflects the views of its diverse membership and represents the interests of the broader community.

Research Australia's mission is to make health and medical research a higher priority for the nation. We have four goals that support this mission:

- A society that is well informed and values the benefits of health and medical research.
- Greater investment in health and medical research from all sources.
- Ensure Australia captures the benefits of health and medical research.
- Promote Australia's global position in health and medical research.

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ASSESSING THE WIDER BENEFITS ARISING FROM UNIVERSITY-BASED RESEARCH

RESEARCH AUSTRALIA SUBMISSION IN RESPONSE TO THE DISCUSSION PAPER

INTRODUCTORY COMMENTS

In addition to responding to the specific consultation questions using the provided template, Research Australia makes the following comments and submissions.

Research Australia supports the aim of measuring the benefits of research, but acknowledges that it is difficult and expensive to do well. We also recognise that efforts in Australia and overseas to measure the benefits of research are relatively underdeveloped, and that the methodologies and approaches for doing so are still in their infancy. For this reason, we support the proposal in the discussion paper to undertake a pilot exercise.

Research Australia submits that a full evaluation needs to be undertaken at the end of the pilot exercise to answer a number of questions, including whether:

- the aim of measuring research benefits is achievable;
- the results will be practically useful and will add to or alter conclusions that would have been drawn using the current processes; and
- the costs of undertaking the exercise outweigh the benefits.

No decision about a further future assessment of research benefits should be made until this evaluation has been completed. The proposed trial assessment should be viewed as an experiment in measuring the benefits of research.

No burden?

The preamble to the Discussion Paper refers to the statement on *Assuring quality while reducing the higher sector education regulatory burden*, issued in May 2013 by the then Minister for Tertiary Education, Skills, Science and Research, and the then Minister for Higher Education and Skills.

> 'The statement addresses concerns within the higher education sector about the cost of regulatory compliance and reporting, and the need for constant vigilance to prevent the imposition of inefficient new reporting requirements…
>
> The Government intends that this (new assessment process) will take place without adding to the reporting burden that universities already face.'

Even if the quantitative assessment is based entirely on data that is already collected, the proposed collection of case studies from universities cannot be implemented without increasing the existing reporting burden on universities.

The 'Excellence in Innovation' exercise undertaken by the Australian Technology Network of Universities and the Group of Eight in 2012 was dependent on case studies. The subsequent evaluation of the exercise by Rand Europe

estimated 'The costs associated with the identification, articulation and evaluation of impact case studies are estimated to be about five to ten days (or AU$5k-AU$10k) per case study.'[1]

Research Australia submits that the Department must acknowledge that the research benefit assessment exercise outlined in the Discussion Paper will impose a burden on universities. If the exercise is to proceed, the Department should:

- minimise the administrative burden imposed on universities; and
- compensate for this burden with offsetting reductions in the reporting burden in other areas and/or by funding the provision of case studies for the pilot exercise.

Inferring benefit, not measuring it

The Discussion Paper defines the benefits of university research as the 'positive social, economic and environmental changes that can be attributed to university research'.

The Discussion paper also defines 'Research Engagement': 'the pathways from university research activities to uptake and adoption of research outputs by research users and the realisation of subsequent economic, social and environmental benefits'.

This is significant because the discussion paper is not actually proposing to directly measure the 'positive social, economic and environmental changes that can be attributed to university research', instead seeking to measure the existence and extent of research engagement. The quantitative measures referred to in the discussion paper (collaborations, patent quality, licensing commercialisation income) are, at best, intermediate measures- indications of research engagement' - from which research benefit is to be inferred.

The difficulties of directly measuring the benefits of research are acknowledged, and while the use of indirect measures to infer benefits is attractive, as noted earlier the measurement of research benefits is a relatively immature field. While the proposed quantitative measures may seem intuitively to be appropriate, there is little or no evidence for the effectiveness of various metrics as measures for inferring research benefit.

Validating the quantitative measures

Case studies provide more direct evidence of research benefits. The proposed approach of collecting both case studies and quantitative data provides the opportunity to test the validity of various quantitative measures as indicators of research benefit.

Research Australia submits that in addition to providing evidence of research benefit, the case studies should be used to validate the various quantitative metrics as indicators of research benefit.

This would require the collection of information about the case studies in such a way that the existence of the various quantitative metrics in the case studies is identified. For example:

- types of funding, and the stages in the research at which each was received;
- levels of collaboration, different types of collaboration, and different types of collaborators, and the stages in the research at which these occurred; and
- patents obtained.

[1] Molly Morgan Jones, Sophie Castle-Clarke, Catriona Manville, Salil Gunashekar, Jonathan Grant, RAND Europe, Assessing Research Impact An international review of the Excellence in Innovation for Australia Trial, 2012, p.xii

It is possible that individual metrics are not good indicators of research benefit but that particular combinations of metrics are effective. The analysis will need to be sophisticated enough to identify these relationships and groups.

A proper assessment of the validity of the indicators would also require the collection of cases studies that were assessed as having little or no research benefit, to enable the correlation between various quantitative metrics and the research benefits of the case study to be determined.

Taking this approach has the potential benefit of being able to reduce the reliance on case studies in the longer term, thus reducing the overall administrative burden and cost of the assessment exercise if it is to be continued.

Small scale, conservative approach to the pilot

As the measurement of research benefits is still at a largely experimental stage, Research Australia submits that a conservative approach to the proposed exercise is warranted; making use of a limited number of case studies, and only quantitative data that is currently being collected.

Research Australia submits that any expansion and/or continuation of the assessment exercise should only occur if and when the validity of the approach has been verified, and the benefits of the assessment have been demonstrated.

RESPONSE TO THE SPECIFIC QUESTIONS RAISED IN THE DISCUSSION PAPER

1. Introduction

Please provide any comments you have in relation to the issues raised in Part 1 of the paper, addressing if possible the following questions raised in Section 1.5:

- How might the above definitions be improved or supplemented?
- Are these definitions sufficient to describe the relationship between research, research engagement and benefits?

Research Australia's response:

The definition of Research Engagement is somewhat vague and general. If the aim is to be broad, and to encompass all the different possible paths and means of implementing research in practice, this is appropriate, but this intent should be made more explicit.

There are many different ways of describing the relationship between research, research engagement and benefits. When talking about 'pathways' it is important to recognise that the universities are only one of the entities involved. Describing the 'pathways to benefit' does not necessarily describe the relationships between the different parties, or their different roles. Any attempt to measure research engagement will need to take account of all these factors.

2. Aims, outcomes and principles

Please provide any comments you have in relation to the issues raised in Part 2 of the paper, addressing if possible the following questions raised in Sections 2.1, 2.2, and 2.3:

- Are there alternative or additional aims that should be included?
- Are there additional purposes or uses that should be considered to assist the design of the assessment?
- What are your views on the draft principles? What other principles or considerations should be addressed?

Research Australia's response:

Aims

The Aims for a university research benefit assessment seem reasonable for a mature assessment program and may be achieved in the longer term, but there should not be an expectation that the pilot will achieve these aims. The pilot should be seen as a developmental/experimental stage, and the immediate aim for the exercise should be the fourth aim, to 'further develop the evidence base upon which to facilitate future engagement between the research sector and research users, as well as future policy and strategy.'

Outcomes

A similar comment is made in relation to the outcomes. While it may eventually be possible to use outcomes from assessing the benefits of research to guide decision making, benchmarking and funding allocations, this is dependent on the future successful development of the assessment process.

Principles

For the initial pilot, the greatest emphasis must be placed on the principle of 'Minimising The Administrative Burden'. Only after a rigorous evaluation of the pilot has been undertaken and the value of the exercise has been demonstrated, should any consideration be given to expanding the data collection and the case studies.

Involving research users in the design, implementation and assessment phases is important but the work involved in doing so needs to be commensurate with the pilot nature of the exercise and consideration must be given to compensating those involved.

The other principles generally seem reasonable, and the initial pilot should provide some indication of how effective the assessment exercise can be in providing useful information to universities; encouraging research engagement and collaboration; and the level of granularity at which the data can be usefully collected and assessed.

Principle 3 should be expanded to include supporting the research engagement: 'Encourage and support research engagement and collaboration, and research that benefits the nation'. The support element will come from providing evidence of which pathways work, and which do not.

3. Methodological considerations

Please provide any comments you have in relation to the issues raised in Part 3 of the paper, addressing if possible the following questions on research engagement metrics, research benefit case studies, and use of collected information.

Research engagement metrics

1. What considerations should guide the inclusion of metrics within the assessment?
2. What are the lead indicators for research benefits?
3. What information do universities currently collect that might form the basis for research engagement metrics?
4. What metrics are currently available (or could be developed) that would help to reveal other pathways to research benefit?
5. Noting that the Higher Education Staff Data collection is currently being reviewed, are there any research engagement metrics related to university staff that should be considered for inclusion?

Research Australia's response:

There is currently little or no hard evidence of what metrics should be included in the assessment. For this reason, Research Australia submits that in addition to providing evidence of research benefit, the pilot exercise should be used to determine the efficacy of the various potential indicators that are already collected in the ERA and various other reports and data sources referred to throughout the report.

Case studies provide more direct evidence of research benefits. The proposed approach of collecting case studies and quantitative data provides the opportunity to test the validity of various quantitative measures as indicators of research benefit. Of course, case studies also have a whole set of problems including the allocation of research undertaken across multiple sites, and research principally undertaken by a researcher as part of a team at another university before leaving that team and moving to their current institution.

Research Australia submits that the case studies should be used to validate the various quantitative

measures as indicators of research benefit.

This would require the collection of information about the case studies in such a way that the existence of the various quantitative measures in the case studies were identified. For example:

- types of funding, and the stages in the research at which each was received;
- levels of collaboration, different types of collaboration, and different types of collaborators, and the stages in the research at which these occurred; and
- patents obtained.

A proper assessment of the validity of the indicators would also require the collection of cases studies that demonstrated little or no research benefit, to enable the correlation between various quantitative measures and the research benefits of the case study to be determined. It is possible that individual metrics are not good indicators of research benefit but that particular combinations of metrics are effective. The analysis will need to be sophisticated enough to identify these relationships and groups.

The inclusion of new indicators that are not currently collected should only be considered after the efficacy of the existing potential indicators has been assessed.

6. In addition to ERA, NSRC, GDS, AusPat and HERDC data, are there other existing data collections that may be of relevance?
7. What are the challenges of using these data collections to assess research engagement?

Research Australia's response:

The data collections identified in the discussion paper should provide sufficient data for the pilot exercise. As indicated above, use of the pilot to validate the efficacy of various metrics will inform the inclusion of data in any future assessments.

8. What is your preferred unit of evaluation for research engagement and why?
9. What are the issues related to using FoR codes?
10. Is there a need to use four- or six- digit FoR codes or will the two-digit code suffice?
11. What are the opportunities and costs of breaking down analysis to the more detailed level?
12. Given an interest in "outcomes", would it be better to use the ABS's Socio-Economic Objectives for research (SEO) codes? Why/why not?

Research Australia's response:

Research Australia has no specific views on the level at which FoR codes should be collected. Largely this will be driven by the existing data collection. While collecting data at the greatest available level of granularity is intuitively attractive, it is possible to collapse six digit codes into four digit codes and four digit codes into two digit codes if the more general categories provide more useful volumes of information.

Ideally, SEO codes would be the most useful for the measurement of outcomes, but it is not a simple exercise to 'translate' FoR codes into SEO codes. Pragmatically, the availability of existing data is likely to drive this decision.

Box 1 – Approach to metrics: What are the strengths & weaknesses of the model?

Research Australia's response:

While using existing data is clearly preferred, caution needs to be exercised when applying and interpreting data that has been collected for other purposes. This issue will need to be explicitly considered as part of the evaluation and manipulation of data for research benefit assessment.

In relation to '2. Periodicity of process', the emphasis must be on using existing data collection exercises rather than creating a new reporting requirement for engagement metrics. For the pilot exercise in particular, there should be no additional data collection in respect of the quantitative data required for engagement metrics. Similarly, no additional quality assurance should be required.

In relation to '6. Reporting', any consideration of how data could be used in future should be the subject of further consultation once the pilot exercise has been appropriately evaluated.

Research benefit case studies

1. What considerations should guide the inclusion of research benefit case studies within the assessment?
2. How should the number of case studies provided by each university be determined?
3. Are there any issues with institutions being able to submit joint case studies? If so, what are they?
4. What information should be included within a case study?
5. How should a case study be assessed? Should it be scored or rated in some way?
6. Are reach and significance useful concepts for an assessment of the benefits arising from university-based research?
7. What would make useful criteria for assessing the benefit of university research?
8. Are there data/evidence collection standards that you consider best practice within the university research context?
9. Is there data regularly collected by universities that could be employed to provide a picture of research benefits? If so, how is this information captured and validated?

Research Australia's response:

The collection of research case studies will require work on part of the universities, and this is contrary to the Government's intention that this new assessment process will take place without adding to the reporting burden that universities already face. Research Australia submits that the Department must formally acknowledge the burden the preparation of case studies will place on universities. If the exercise is to proceed, the Department should compensate for this burden with offsetting reductions in the reporting burden in other areas and/or by funding the provision of case studies for the pilot exercise.

The ability to compile panels of end users to undertake the assessment of the case studies is going to be key. The pilot needs to assess the viability of obtaining the services of sufficient numbers of end users to undertake this exercise on a larger scale and on a regular, ongoing basis.

One of the purposes of collecting case studies should be to validate the efficacy of the various quantitative measures to be collected. As noted above, the design of the case studies needs to enable the collection of information in such a way that the existence of the various quantitative measures in the case studies can be identified. A proper assessment of the validity of the indicators would also require the collection of cases studies that were assessed as having little or no research benefit, to enable the correlation between various quantitative measures and the research benefits of the case study to be determined.

To this end, the proposal that 'there be no set metrics or data that must be included in case studies' is not supported by Research Australia. This proposal is also inconsistent with the proposal on the same page of the Discussion paper that case studies should 'include key information to enable effective and verifiable comparison'.

Establishing timeframes

10. Should timeframes be used to limit what is reported on through case studies? If so, what timeframe(s) should be used?

Research Australia has no response to this question.

Unit of Evaluation

11. What is your preferred unit of evaluation for the assessment of research benefits and why?

Research Australia's response:

Research Australia agrees that the use of SEO codes at the Division level is appropriate. We note however that the matching of FoR codes to SEO codes is not always straightforward.

Box 2 – Approach to case studies: What are the strengths & weaknesses of the model?

Research Australia's response:

Research Australia has no further comment on this question.

Use of collected information

1. How might case studies and metrics be combined within the assessment?
2. Should outputs of the assessment be included within compacts and/or the research block grants calculation methodology?
3. What other existing instruments might they be integrated within?

Research Australia's response:

The combination of qualitative and quantitative data in research studies is an area of specific expertise. The quantitative and qualitative elements of the assessment exercise need to be designed together from the outset and expert advice on the design should be sought.

4. Next steps in the consultation process

Please provide any comments you have in relation to the issues raised in Part 4 of the paper, including on the proposed pilot exercise.

Research Australia's response:

Research Australia has no comment on the proposed consultation process.

The characterisation of the pilot as a 'proof of concept' is supported, as is the general approach outlined. As noted above, if the combined approach of using case studies and quantitative data is to be useful, careful consideration will need to be given to the joint design of the two components. This may make it difficult to rely on case studies that have already been collected, and at a minimum, they may need to be augmented with additional information.

Reliance on existing case studies will also make it difficult to assess the cost and administrative burden associated with progressing to a full scale assessment exercise, and this assessment is an essential outcome of any pilot exercise. Research Australia recognises the tension between seeking to minimise the cost and administrative burden of participating in the pilot on the one hand, and the need to ensure that the case studies used in the pilot enable a proper evaluation of the cost of undertaking a full assessment exercise.

Any evaluation of the pilot study should inform not only the question of 'how and when to proceed to a full-scale implementation', but answer the question of whether to proceed at all.

5. Other comments

Please provide any other comments you have in relation to the discussion paper.

Research Australia's response:

A primary concern has to be to avoid driving unintended consequences/perverse behaviours. There is plenty of scope for these to occur if the indicators of research benefits that are selected are inappropriate, or individual measures are given an inappropriate weighting. Validating the efficacy of quantitative research metrics rather than relying on anecdotal evidence or subjective judgments is essential if such unintended consequences are to be avoided.

This is particularly important before the metrics are adopted as part of any decision making process by universities, governments and funding bodies.

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