

ERA EI Review Consultation Paper 2020 RMIT University Response

Method

Responses were collected from key stakeholders across the University. They include the three Colleges (Design and Social Context; Science, Engineering and Health; and Business and Law), plus a number from central administrative units. We therefore received a wide range of views in response to each question.

Accordingly, the below institutional response is a compilation which aims to capture a broad representation of the views received by:

- Averaging the measured response of each question (*A very large amount; A large amount; A moderate amount; A small amount; Not at all; Yes/No*)
- Noting the variations in the response explanations where appropriate (*peer-review/citation*)

We welcome any requests for further detail or discussion.

Section 3—Excellence in Research for Australia

ERA policy

Value of ERA

Q3.1 To what extent is ERA meeting its objectives to:

a. Continue to develop and maintain an evaluation framework that gives government, industry, business and the wider community assurance of the excellence of research conducted in Australian higher education institutions. *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

ERA provides a fair reflection of research excellence, although its impact is difficult to measure outside of the Higher Education sector.

b. Provide a national stocktake of discipline level areas of research strength and areas where there is opportunity for development in Australian higher education institutions. *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

In codes using the peer-review methodology, ERA provides an important and widely-trusted benchmark for disciplines to compare their international standing.

In codes using the citation analysis methodology, the situation is more complex. ERA provides clear measurables on what is expected, but whether these measurables reflect research strength is less clear.

Further analysis is required on the expanding gap in median rating between citation and peer-review disciplines

Discipline areas are increasingly interconnected, and it can be difficult to assign outputs to specific categories. A meaningful structure needs to be in place for interdisciplinary outputs.

c. Identify excellence across the full spectrum of research performance. *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A large amount

Responses varied according to disciplines as follows. However, at an institutional level, the need for a better assessment methodology to address the perceived divide between peer-review and citation-based assessments was emphasised.

Peer-review methodology

- ERA covers a wide range of research outputs that gauge performance comprehensively.
- Excellence is not always just about citations, it is also about NTROs and a wide range of other esteem factors

Citation-based methodology

- To a large degree, outlet and output citations define excellence.
- Further modelling with additional indicators plays an important role in truly identifying excellence in the discipline.

Higher Degrees by Research

- Need to ensure that HDR publications are included in ERA, which would mean institutions using the by-line method to claim research outputs.

d. Identify emerging research areas and opportunities for further development. *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

Below threshold areas indicate to the university an area of low activity. Areas with lower scores indicate where either poor or emerging performance is. The key problem with ERA is that it is largely based on lag indicators. Income, however, is a closer-to-present indicator and is taken into account in ERA ratings.

e. Allow for comparisons of research in Australia, nationally and internationally, for all discipline areas. *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A large amount

ERA has been an important benchmark for disciplines to compare their achievements with the international standard and attracting talent. Improvement is required around effectively representing interdisciplinary research.

There is also a perception amongst some researchers that many international collaborators and funders are attracted to Australia on the basis of individual researchers and research infrastructure rather than on the basis of ERA ratings. They may not be aware of or rely upon ERA ratings when making comparisons between Australian and international research.

Q3.2 The ERA objectives are appropriate for meeting the future needs of its stakeholders. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

Its strength lies in a census-level collection of research-related data.

Q3.3 What impacts has ERA had on:

a. the Australian university research sector as a whole

- ERA has led to a clear increase in research that is of higher quality and perceived higher quality
- ERA has helped identify, and justify, areas of research strength. It has driven researchers to consider their productivity and increase overall quantity and quality of research outputs. This in turn has increased Australian universities rankings generally.
- It has driven the citation-based disciplines to improve the citation of their work.

b. individual universities

- ERA has helped guide individual Universities selecting and building strengths and differentiation.
- ERA is helpful to schools/universities in promoting themselves as world leaders, which feeds into the recruitment process. It has also helped identify areas where research is

below world standard and helps universities identify areas to invest in and grow, and areas to reduce.

c. researchers

- Researchers can use ERA ratings as a screening measure to understand the research quality of a department/discipline.
- ERA has helped researchers identify partner universities and potential places where there is a concentration of researchers to work with.

d. Other?

- There has been a greater focus on publication quality, engagement and impact
- There are fewer people in the University system that are not actively providing research outputs

Q3.4 How do you use ERA outcomes? *Please describe.*

- As a guide to how we are tracking
- To highlight organisational strength in grant schemes
- For acknowledging and maintaining competition
- To help drive productivity
- To devise directions for the long-term strategy
- To aid resources allocation
- To advocate for the development of improving research areas.

Q3.5 ERA outcomes are beneficial to you/your organisation. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

- May enhance the organisations' standing for attracting grants, mainly from Government bodies
- High scoring areas receive positive rewards
- Ensures there is a clear benchmark of quality
- Helps focus on key strengths.

Q3.6 Do you have any suggestions for enhancing ERA's value to you/your organisation? *Please explain your answer.*

- Make further (de-identified) ERA data freely available to researchers

ERA methodology

ERA methodology at a glance

Q3.7 The current methodology meets the objectives of ERA. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

- Although metrics don't provide a complete picture, broadly the method used is a fair reflection of research excellence.

Q3.8 What are the strengths of the overall methodology? *Please describe.*

- Measurable targets can help direct performance and consequently there is an apparent performance improvement
- It is taken at census level, with not just high performers included
- ERA sets out clear guidelines for institutions to follow
- It reveals the richness and quality of research- eg. in the creative arts, where researchers have had the opportunity to present their work in international and highly regarded venues and contexts.

Q3.9 What are the weaknesses of the overall methodology? *Please describe.*

- Not recognising industry-based work
- In low-volume codes, it may allow institutions to avoid or direct particular outcomes.

Citation analysis methodology

Q3.10 The citation analysis methodology for evaluating the quality of research is appropriate. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

- It is useful in providing a relatively quick and clear differentiation, but at the cost of accounting for context-specific factors; this is where peer-review is preferable.

Q3.11 Does the discipline-specific approach for evaluating research quality (citation analysis or peer review for specific disciplines) continue to enable robust and comparable evaluation across all disciplines?

Agree

Every discipline is very different in publication/citation statistics; hence it can be difficult to adequately compare across disciplines. Peer review is in this regard.

Q3.12 What are the strengths of the citation analysis methodology? *Please describe.*

- Citations are an important indicator of recognition of the work in the field
- The biggest advantage is that it is relatively quick and easy to evaluate, with a clear methodology that can be independently verified

- The strengths of the citation analysis have increased significantly in some disciplines as rankings have become more inclusive of important international journals.

Q3.13 What are the weaknesses of the citation analysis methodology? *Please describe.*

- It does not recognise niche areas of importance.
- It takes away from pursuing nonpublication outputs, e.g. commercialisation.
- It skews in favour of particular disciplines.

Q3.14 Can the citation analysis methodology be modified to improve the evaluation process while still adhering to the ERA Indicator Principles? *Yes/No. a. If you answered 'Yes', please describe how the methodology could be improved.*

Yes

It is important that the weighting of the citation metrics is not overstated.

Peer review methodology

Q3.15 The peer review methodology for evaluating the quality of research is appropriate. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

In general, we suggest that the peer review methodology is appropriate, noting that it is important to include skilled peer-reviewers experienced in the relevant discipline or interdisciplinary areas.

We need to ensure sufficient breadth of expertise of the peer review process. In some cases, only an internationally-recognised scholar of a field can properly assess the outputs on the listed criteria.

It is also important that a broad range of universities are represented in each of the panels to mitigate any perceived bias towards specific types of research. The quality of reviewers' reports should also be monitored to avoid variations in standards.

Q3.16 What are the strengths of the peer review methodology? *Please describe.*

- Provides a more subjective and nuanced review evaluation.

Q3.17 What are the weaknesses of the peer review methodology? *Please describe.*

Requires expert time

Q3.18 Can the peer review methodology be modified to improve the evaluation process while still adhering to the ERA Indicator Principles? Yes/No. a. If you answered 'Yes', please describe how the peer review methodology could be improved.

Yes

- Suggest having a larger pool of peer reviewers assigned to each unit of evaluation
- Consideration should be given to the relationship between the panel makeup and the suite of outputs being submitted. This might be better achieved by increasing effort across panel evaluation (or audit processes)

Contextual indicators

Q3.19 The volume and activity indicators are still relevant to ERA. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.

HASS: strongly agree

STEMM: neither agree nor disagree

- These can probably be streamlined, especially via specifically tackling the issue of interdisciplinary outputs
- Volume and activity penalise researchers in low volume communities, or who might be tackling difficult problems.
- This needs to be considered for the COVID context. Universities with campuses that did not close will not be affected like universities in Victoria.

Q3.20 The publishing profile indicator is still relevant to ERA. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.

Agree

Q3.21 The research income indicators are still relevant to ERA. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

- There needs to be some normalisations across disciplines.
- Research income can also be an important indicator of industry engagement.

Q3.22 The applied measures are still relevant to ERA:

a. Patents. Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

b. Research commercialisation income. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

c. Registered designs. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

d. Plant breeder's rights. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

e. NHMRC endorsed guidelines. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

The measure shows clear indicators of research excellence as judged by external bodies.

ERA rating scale

Q3.23 The five-band ERA rating scale is suitable for assessing research excellence. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

Overall, we suggest there is a need for greater transparency about the assessment criteria and the assignment of scores in general. What is required to be rated "above world standard", for example, could be clarified further.

Q3.24 Noting that 90% of units of evaluation assessed in ERA 2018 are now at or above world standard, does the rating scale need to be modified to identify excellence? *Yes/No. a. If you answered, 'Yes', please explain how the rating scale can be modified to identify excellence.*

Yes

- Could add a 6 and make it a 6-point scale to identify international outstanding performance.

ERA low-volume threshold

Q3.25 The ERA low-volume threshold is appropriate. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

Overall, it is appropriate.

Q3.26 Are there ways in which the low-volume threshold could be modified to improve the evaluation process? *Please describe.*

ERA staff census date

Q3.27 What is the more appropriate method for universities to claim research outputs—staff census date or by-line? *Please explain your answer.*

Both methods have merit

- Census date represents capability on census, while by-line represents past activities
- By-line allows for the representation of HDR candidates' publication activities to a certain extent.

Q3.28 What are the limitations of a census date approach? *Please describe.*

- Provides incentive to trade staff at timescales that are set by the ERA process instead of sound human resources issues

Q3.29 Would a by-line approach address these limitations? *Yes/No. Please explain your answer.*

Yes

Q3.30 What are the limitations of a by-line approach? *Please describe.*

- Citation databases may miss non-standard by-line.
- Not all contributing institutions are necessarily represented in by-line due to practice or system limitations.
- On the other hand, there is the opportunity to over-represent the involvement of some institutions by listing them in by-line to claim ERA outputs.

ERA interdisciplinary research and new topics

Q3.31 ERA adequately captures and evaluates interdisciplinary research. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Strongly disagree

The ERA 2018 citation-based process may discourage interdisciplinary research, or research where it is difficult to find the appropriate code.

a. If you disagreed with the previous statement, how could interdisciplinary research best be accommodated? *Please describe.*

- Suggest (as a potential solution) seeking advice from another panel but including the full score in the chosen submission panel.

ERA and Indigenous research

Q3.32 My institution would meet ERA low-volume threshold in Indigenous studies at:

- a. Two-digit? *Yes/No. If you answered 'yes', please list which ones.*
- b. Four-digit? *Yes/No. If you answered 'yes', please list which ones.*

Q3.33 In ERA, the best approach for evaluating Indigenous Studies is (*choose one*):

- a. Using established ERA methodology i.e. the low-volume threshold would apply to the Indigenous Studies discipline and all its specific disciplines
- b. For Aboriginal and Torres Strait Islander studies by combining low-volume disciplines into single units of evaluation
- c. For Aboriginal and Torres Strait Islander studies by combining low-volume disciplines into two units of evaluation (one unit comprising Humanities, Arts, and Social Sciences disciplines and one unit comprising Science, Technology, Engineering and Mathematics disciplines)
- d. Other. *Please describe.*

Peer-reviewed disciplines: Option c above

Q3.34 What would be the advantages and/or disadvantages of your preferred approach for evaluating Indigenous studies in ERA? *Please describe.*

Option c:

Advantages are it aligns with the expertise of the ERA panels; disadvantages are it may not provide a single comprehensive assessment.

ERA process

Collection of ERA data

Q3.35 ERA should move to an annual collection of data from universities. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

It depends on the data collected and the subsequent analysis. Data collection without a full exercise may provide some benefit depending on how it is assessed and its quality and depth.

The current frequency is appropriate for institutions to develop research strategies. It should also be noted that the collection may require more than a year to prepare.

Q3.36 What would be the advantages and/or disadvantages of an annual data collection? *Please describe.*

Advantage:

More timely reflection of research quality and capability.

Disadvantage:

More administration work and if the depth of assessment is reduced this would reduce the effectiveness and value of ERA.. It would require an automated approach that would lose the necessary fine grain and expert judgement inherent in peer-review.

Publication of ERA data

Q3.37 In future ERA rounds, should the volume of outputs submitted for each unit of evaluation be included in the National Report?

a. Yes, *Please explain your answer.*

Yes

This will help readers of ERA to better understand the difference in size of submission/institution.

b. No, *Please explain your answer.*

N/A

Q3.38 In future ERA rounds, research outputs should be published with their assignment to specific disciplines following completion of the round. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

a. What would be the advantages? *Please explain your answer.*

Research outputs are indicators of excellence, and presenting exemplar research outputs would also enhance the transparency of the process.

b. What would be the disadvantages? *Please explain your answer.*

N/A

Q3.39 What other data do you think the ARC should publish following an ERA round? *Please describe.*

- It would be ideal to make more use of existing data sources, such as Dimensions, Scopus, InCites and ORCID in future ERA rounds and distinguish the different sources of the published data
- International collaboration networks for universities could be useful.

Section 4—Engagement and Impact Assessment

Q4.1 Considering that EI is a new assessment, to what extent is it meeting its objectives to:

a. encourage greater collaboration between universities and research end-users, such as industry, by assessing engagement and impact? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

The intention of the EI submission is commendable but the methodology from the previous round could be improved.

It is starting to show positive effect on collaboration between universities and research end-users: training and support provided by the Research Translation team at RMIT University, for example, focusses on the need to know who the research end users are and to engage and collaborate meaningfully with them from start to finish (from identifying needs and issues, to understanding end user context, barriers and enablers, to uptake, to supporting research translation and finally to capturing evidence of outcomes and impact).

b. provide clarity to the Government and the Australian public about how their investments in university research translate into tangible benefits beyond academia? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

Engagement and Impact outcomes have yet to gather traction and importance amongst government and the Australian public that ERA outcomes have. However, there is considerable potential over time for this to develop.

Q4.1 Considering that EI is a new assessment, to what extent is it meeting its objectives to:

c. identify institutional processes and infrastructure that enable research engagement? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

The conversation has started as a result of the EI exercise on appropriate engagement. However, further development will require government leadership, not only in the tertiary sector but also across industry.

d. promote greater support for the translation of research impact within institutions for the benefit of Australia beyond academia? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

This has definitely encouraged much more focus on, and university support in relation to, innovative and targeted research translation with a clear aim of achieving impact or benefit beyond academia.

e. identify the ways in which institutions currently translate research into impact? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount

We recommend better transparency with the impact statements assessment process, and further publicity of EI across industry and society showing the efforts being made to translate research into impact.

Q4.2 The EI objectives are appropriate for the future needs of its stakeholders. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree or disagree

It depends on the objectives of the different stakeholders. The objectives need to be clarified and promoted among researchers. The objectives should also be expanded to include greater transparency and increase the importance of EI across within and beyond academia.

Q4.3 What impact has EI had on:

a. the Australian university sector as a whole? *Please describe.*

Limited effect so far but growing.

It is important to further promote awareness and support on the importance of EI planning and tracking.

b. Individual universities. *Please describe.*

Limited effect so far but growing.

It is important to further promote awareness and support on the importance of EI planning and tracking.

c. researchers. *Please describe.*

The academic community is generally positive about the EI agenda, but has been held back due to limitations on both time and industry collaboration opportunities.

d. other sectors outside of academia? *Please describe.*

It is not obvious existing industry contacts have changed their expectations of University competence/interest. However, with promotion, it may help foster greater interest in universities by organisations outside academia.

Q4.4 How do you, or your organisation, use EI outcomes? *Please describe.*

EI outcomes have been used to promote our research via websites and on other promotional materials. They also have been used internally in research strategy development aiming to increase our research impact.

Q4.5 The EI outcomes are valuable to you or your organisation. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

The EI outcomes give an indication of how RMIT research is viewed externally.

Q4.6 How else could EI outcomes be used? *Please describe.*

Quality Engagement and Impact case studies should be made publicly available and promoted. Looking for and measuring EI outcomes encourages a longer term, more holistic attitude to research. Outcomes provide researchers with a clear picture of the next steps required. Evidence

of positive outcomes can also be used to support discussions with current and future research partners.

El definitions

Q4.7 The current Engagement definition is appropriate. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.* a. If you don't agree, what are your suggested amendments to the Engagement definition? *Please describe.*

Agree

Q4.8 The current Impact definition is appropriate. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.* a. If you don't agree, what are your suggested amendments to the Impact definition? *Please describe.*

Neither agree or disagree

It's important to avoid undue focus on the ultimate 'end' impact at community level given the multitude factors that can interact to influence or determine ultimate outcomes. We would like to see a more open interpretation of what impact includes in terms of benefit (perhaps referring to outcomes and impact).

Q4.9 The current end-user definition is appropriate. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.* a. If you don't agree, what are your suggested amendments to the end-user definition? *Please describe.*

Disagree

There is a lack of source of truth for the categorisation of the specific exclusions including publicly funded research organisations (CSIRO, AIMS, ANSTO, NMI, DST etc.) and other higher education providers (including international universities).

It may be better to evaluate end-user based on the initial benefit recipient, rather than the organisation type. For example, research funded by a higher education provider on higher education which leads to impact within the higher education sector.

There may also be value in differentiating between end-users (those who use research findings to inform behaviour) and beneficiaries (those who benefit from changes/outcomes). End users can also be beneficiaries.

b. Are there any end-user categories excluded in the current definition of research end-user that you think should be included? *Please explain your answer.*

No

Q4.10 Are there other key terms that need to be formally defined? *Yes/No. If you answered 'Yes', please explain your answer.*

No

El methodology

Unit of assessment

Q4.11 Are the two-digit Field of Research codes the most appropriate method to define units of assessment for Engagement and Impact? *Yes/No. Please explain your answer.*

Yes

Q4.12 Are there other ways to classify units of assessment in EI, for example, SEO codes? *Yes/No. Please explain your answer.*

Yes, SEO may be another option/addition, as the engagement and impact often means crossing FOR boundaries. However, this may cause extra administrative burden on researchers and institutions.

Selectiveness of EI

Q4.13 Should there be more or fewer units of assessment per university? *More units of assessment; The same number as in EI 2018; Fewer units of assessment.* a. How many and why? *Please explain your answer.*

We recommend greater flexibility around the numbers of units of assessment that can be submitted.

EI low-volume threshold

Q4.14 The EI low-volume threshold should continue to be based on the number of research outputs submitted for ERA. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.* a. If you disagree, how should eligibility for assessment in EI be determined? *Please explain your answer.*

Agree

Q4.15 The low volume threshold is set at the appropriate level. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.* *Please explain your answer.*

Agree

Engagement indicators

Q4.16 Overall, the engagement indicator suite for the assessment of research engagement is suitable. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree.* *Please explain your answer.*

Neither agree nor disagree

There was overlap between an Engagement Narrative and an Engagement Indicator Explanatory Statement. Consideration needs to be given to making these the same document, or the differences between the two documents need to be made clearer. A simpler format would aid socialisation of the value of EI across different target sectors.

Q4.17 The cash support from research end-users indicator using HERDC data is appropriate for the assessment of research engagement? *Strongly agree; agree; neither agree nor disagree; disagree; strongly disagree. Please explain your answer.*

Disagree

This is a blunt instrument and favours some disciplines over others. We recommend consideration of the available pool of research funding for Engagement assessment. Valuable engagement resulting in beneficial outcomes may occur without monetary exchange.

Q4.18 The research commercialisation income is appropriate for the assessment of research engagement. *Strongly agree; agree; neither agree nor disagree; disagree; strongly disagree. Please explain your answer*

Neither agree nor disagree

Commercialisation is particularly appropriate to a small number of disciplines, so assessment moderation is required. A wide range, from pure physics to policy studies, have no prospect of short-term commercialisation income but may be highly impactful and engaged in research terms.

Q4.19 Are there additional metrics that would be appropriate across many or all disciplines? *Yes/No. If you answered 'Yes', please outline the metrics. If you answered 'No', please explain your answer.*

No

Q4.20 Are there alternative metrics that would be appropriate across many or all disciplines? *Yes/No. Please specify the metrics.*

No

Q4.21 Should any of the current Engagement metrics be redesigned? *Yes/No. If you answered 'Yes', which ones and how?*

No

Q4.22 The co-supervision of HDR students should be made an engagement indicator in future rounds of EI. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

The quality of supervision is the key factor. Also, external co-supervisors engaged as honoraries couldn't be counted as end-user co-supervisors.

Q4.23 In your opinion, are any of the ERA applied measures appropriate indicators of research engagement in EI?

a. Patents. *Yes/No. Please explain your answer.*

No

Patents (or applied intent) do not necessarily imply engagement.

b. Research commercialisation income. *Yes/No. Please explain your answer.*

Yes

Research commercialisation income is a strong indicator of engagement, but not all engagement generates income.

c. Registered designs. *Yes/No. Please explain your answer.*

No, registration means little.

d. Plant breeder's rights. *Yes/No. Please explain your answer.*

No, plant breeder's rights mean little.

e. NHMRC endorsed guidelines. *Yes/No. Please explain your answer.*

No, NHMRC endorsed guidelines mean little.

Engagement narrative

Q4.24 The narrative approach is suitable for describing and assessing research engagement with end-users. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

a. If you disagree, what alternative approach could be used to replace the narrative? *Please explain your answer. If you are suggesting indicators, please be specific.*

Agree

Q4.25 One engagement submission per broad discipline is sufficient for capturing the research engagement within that discipline. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

Research engagement can be varied. One submission might miss out on others. Many disciplines have limited engagement, so submission #2 could be more characteristic than submission #1.

Q4.26 The engagement narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree.

It is of sufficient length.

Q4.27 Additional evidence is needed within the narrative. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

Metrics of the uptake, community involvement, etc. are also useful but there are diminishing returns on the effort required.

a. If you agreed, what evidence should be provided? *Please describe.*

Metrics of the uptake, community involvement, etc.

Impact narrative

Q4.28 The narrative approach is suitable for describing and assessing impact. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.* a. If you disagree, what alternative approach could be used to replace the narrative? *Please explain your answer. If you are suggesting indicators, please be specific.*

Agree

Q4.29 One impact study per broad discipline is sufficient for capturing the research impact within that discipline. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

Research impacts can be very varied. One submission might miss out on others. With limited impact in a discipline, submission #2 could be more characteristic than submission #1.

Q4.30 The impact narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree nor disagree

Q4.31 There is a need for additional evidence to be provided within the narrative. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.* a. If yes, what evidence should be provided? *Please explain your answer.*

Neither agree nor disagree

We suggest identifying better ways of including commercial in confidence and defence/classified research and their impact in the narrative.

Q4.32 In your opinion, are there quantitative indicators that could be used to measure the impact of research outside of academia? *Yes/No. Please explain your answer.*

Yes, e.g. Royalties from national and international use.

There are quantitative indicators that can be used to evidence impact, but indicators that are appropriate and/or feasible to measure are highly variable depending on:

- the change that is expected/desired
- pathway to that change (theory of change)
- the need for additional data
- access to data
- the degree to which extraneous variables can be controlled, measured etc.

Discussions with various disciplines may provide more information regarding any common (or inappropriate) indicators pertaining to their discipline, but (as per prior investigations by ARC) it may be better to continue to provide an open response option that allows appropriate evidentiary data to be incorporated. It is possible more clarity could emerge if classification groups change (e.g. grouped to align to type of outcome expected).

a. If you answered 'yes' to the previous question, please name and describe the quantitative indicator/s, and the disciplines for which they are relevant. *Please list and describe.*

Royalty income from Material/device/software use.

Approach to impact Narrative

Q4.33 The narrative approach is suitable for describing and assessing approach to impact. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.* a. If you disagree, what alternative approach could be used to replace the narrative? *Please explain your answer. If you are suggesting indicators, please be specific.*

Agree

Q4.34 One approach to impact narrative per broad discipline is sufficient for capturing the activities within that discipline. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

Single cases do not provide an adequate measure of the breadth nor depth of EI occurring in disciplines.

Q4.35 The approach to impact narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

Q4.36 There is a need for additional evidence to be provided. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

Although the opportunity was provided to submit 'additional impact indicators', it was rare to have access to worthwhile supporting datasets – as a result, not many of the case studies featured supporting impact indicators. We recommend that the ARC provide more guidance around what can constitute 'additional impact indicators' and be specific about how this can help disciplines.

Q4.37 Would there be benefit in combining engagement and approach to impact? *Yes/No. Please explain your answer.*

Yes. Impact is rarely achieved without significant engagement with end-users and/or beneficiaries. There need to be an opportunity (and clear encouragement) for responses to outline the engagement that occurred and how it supported the approach to impact. This doesn't mean there cannot continue to be another section that assesses and rewards purposeful engagement (given impact can take a long time and is by no means a certain outcome).

EI rating scales

Q4.38 The engagement rating scale is suitable for assessing research engagement. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Disagree

We believe the process would benefit from provision of a more structured template, also with examples of what should be included and excluded. The template could be developed with a mind to limiting overlap of activities reported in submissions between engagement, impact, and pathways to impact. This would then enable a 5-point scale to be used effectively.

Q4.39 The descriptors for the engagement rating scale are suitable. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree, notwithstanding comments in 4.38

Q4.40 The impact rating scale is suitable for assessing impact. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

We believe the process would benefit from provision of a more structured template, also with examples of what should be included and excluded. The template could be developed with a mind to limiting overlap of activities reported in submissions between engagement, impact, and pathways to impact. This would then enable a 5-point scale to be used effectively.

Q4.41 The descriptors for the impact rating scale are suitable. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree.

Q4.42 The approach to impact rating scale is suitable for assessing approach to impact. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

We believe the process would benefit from provision of a more structured template, also with examples of what should be included and excluded. The template could be developed with a mind to limiting overlap of activities reported in submissions between engagement, impact, and pathways to impact. This would then enable a 5-point scale to be used effectively.

Q4.43 The descriptions for the approach to impact rating scale are suitable. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree.

EI interdisciplinary research

Q4.44 Should EI continue to include an interdisciplinary impact study in addition to the two-digit Fields of Research impact studies? *Yes/No. Please explain your answer.*

No

The 2-digit areas are sufficient, if we have flexibility to supplement with more submissions per 2-digit area.

El and Aboriginal and Torres Strait Islander research

Q4.45 Should the EI low-volume threshold be applied to the unit of assessment for Aboriginal and Torres Strait Islander research in EI 2024 with the option to opt in if threshold is not met? *Yes/No. Please explain your answer.*

Yes. Aboriginal and Torres Strait Islander research needs to be encouraged.

Q4.46 Should the unit of assessment for Aboriginal and Torres Strait Islander research include engagement in EI 2024? *Yes/No. Please explain your answer.*

Yes. Aboriginal and Torres Strait Islander research engagement is important.

Section 5—Overarching Issues Common to both ERA and EI

Frequency of ERA and EI

Q5.1 How often should ERA occur? *Every three years; Every five years; Other, please specify. Please explain your answer.*

Opinions vary between three and five years. The argument on five years is that quality research takes time to develop, and 5-year is appropriate for institutions to develop sustained and coherent research strategies.

This also depends very much on the decisions made about evidence collection and technology use.

Q5.2 What impact would a longer assessment cycle (i.e. greater than three years) have on the value of ERA results, particularly in the intervening years? *Please explain your answer.*

A longer cycle may compromise on the currency of the data but provide more time for refinement of the assessment approach and culture change.

Q5.3 How often should the EI assessment occur? *Every three years; Every five years; Other, please specify. Please explain your answer.*

Opinions vary between three and five years and whether EI should be consistent with ERA. Impact takes time. Three years may be too short to show any major change. A three-year regime may lead to more focus on publication rather than EI, as publication is a factor that can be changed more quickly.

Q5.4 What impact would a longer assessment cycle (i.e. greater than three years) have on the value of EI results, particularly in the intervening years? *Please explain your answer.*

A longer assessment cycle may obscure incremental changes on key cases across the nation.

Streamlining and simplifying ERA and EI

Q5.5 ERA and EI should be combined into the one assessment. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.* a. What would be the advantages and/or disadvantages. *Please explain your answer.*

Agree

The processes could be aligned better to reduce administrative burden, but the distinctive goals and approaches should be maintained. Excellence and impact are different and should be rated differently.

Q5.6 Are there other ways to streamline the processes to reduce the cost to universities of participating in ERA and EI? *Yes/No. Please explain your answer.*

Yes

Engagement and impact can be difficult to capture. We would recommend clearer guidelines and expectations in future rounds.

Q5.7 In your view, what data sources could ERA utilise? *Please explain your answer.*

Ulrichs, Dimensions, Scopus, ORCID, Altimetric.

Q5.8 In your view, what are the most time-consuming elements of an ERA submission? *Please describe.* a. Are there efficiencies that could be introduced? *Yes/No. Please describe.*

The most time-consuming elements of ERA include collecting peer-review evidence, reviewing individual outputs to ensure they meet ERA eligibility, and ensuring appropriate FoRs are allocated.

Efficiencies may be achieved through:

- The ARC providing more detailed guidance on eligibility to reduce ambiguity
- The ARC sharing an initial national dataset, including FoRs, based on the chosen citation database to improve the efficiency of FoR auditing efforts by each institution and potentially reduce significant differences in FoR allocation for the same publication at different institutions
- FoR allocation improvement recommendation could also be provided by the ARC to the citation provider after the ERA assessment is finalised.

Q5.9 In your view what are the most time-consuming elements of an EI submission? *Please describe.* a. Are there efficiencies that could be introduced? *Yes/No. Please describe.*

The most time-consuming elements of EI include collecting evidence by researchers and selecting and writing the statements for reporting. Efficiency may be increased through utilising technological advances and pre-existing data sources, such as government-funded research and policy change.

Q5.10 ORCID iDs should be mandatory for ERA. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Agree

This helps reduce naming ambiguity and automate information collection process; however, note that ARCID is neither discipline-neutral nor comprehensive.

a. What are the advantages and/or disadvantages? *Please explain your answer.*

Advantage: ORCID is globally recognised, reduces naming ambiguity and provides easy system integration. It has the potential to allow for more standardised data from various disciplines.

Disadvantage: ORCID has its usability limitations, more so for disciplines and data types where there is limited or no integrated data sources. There are also a lot of data types required that ERA does not currently host.

Q5.11 The automatic harvesting of output data using ORCID iDs would streamline a university's submission process. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

a. What are the advantages and/or disadvantages? *Please explain your answer*

Neither agree nor disagree

This would streamline the process but that means output of researchers without ORCID (either intentionally or unintentionally) will not be captured.

In addition, we should note that ORCID would bring constraints in disciplines and data types where there is limited or no integrated data sources.

Q5.12 DOIs should be mandatory for ERA. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

Strongly disagree

Not all publications have a DOI. There is cost involved in minting DOIs.

a. What are the advantages or disadvantages? *Please explain your answer.*

NA

Q5.13 Are there new ways to collect data to reduce the cost and burden to universities of participating in ERA and EI whilst maintaining the robustness of the ERA and EI process? *Yes/No. Please explain your answer.*

Yes

As described in Q5.11, an initial dataset formed by integrating ORCID data with other appropriate data sources provided by the ARC to institutions would significantly reduce administrative burden. It would also greatly help if the ARC could work with ORCID on facilitating researchers to capture further data related to ERA and EI essential for reporting, relatively easily. However, institutions should still be responsible for verifying and curating their submissions, to ensure compliance and accuracy.

a. What are the advantages and/or disadvantages? *Please explain your answer.*

NA

