



**Australian Government**  
**Australian Research Council**

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**ERA EI Review  
Consultation Paper  
2020**

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Version 1.0

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# 1 Purpose of the Document

The Australian Research Council (ARC) is undertaking a review of Excellence in Research for Australia (ERA) and the Engagement and Impact Assessment (EI) (the Review).

This paper forms the basis of public consultation for the Review. It sets out the key issues for consideration and discussion and has been informed by public reviews and stakeholder feedback.

## 1.1 Submitting feedback

The ARC invites responses to the consultation paper.

Feedback is particularly welcomed from stakeholders within the higher education research sector, discipline peak bodies as well as industry and other end-users<sup>1</sup> of university research, and more broadly.

We understand the impact that the COVID-19 pandemic has had on the Australian higher education sector and that this may affect the capacity of some universities to provide feedback. Please contact the ARC at [ERAIEIReview@arc.gov.au](mailto:ERAIEIReview@arc.gov.au) should you have any questions or concerns.

We thank you for your continued commitment to review and improve both ERA and EI.

Questions for consideration are provided throughout this paper. You are not limited to the questions posed in this document and additional feedback may be provided in the survey form.

Written responses can be made through [Survey Monkey](#) or by responding to the survey questions using the template in [Appendix D](#) of this document.

Submissions will be published at the conclusion of the review. If you do not wish for your submission to be published, please indicate this in your submission.

Submissions close **12 October 2020**.

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<sup>1</sup> A research end-user is an individual, community or organisation external to academia that directly uses or directly benefits from the output, outcome or result of the research. Examples of research end-users include governments, businesses, non-governmental organisations, communities and community organisations.

## 2 Review Aims, Context and Guiding Principles

### 2.1 Aims

The aims of the Review are to enable the ARC to:

- respond to the ongoing needs of the university sector, government and the public for a robust evaluation of Australian university research quality, impact and engagement
- simplify and streamline ERA and EI
- take advantage of recent developments in technology and big data
- ensure that ERA and EI continue to reflect world's best practice.

### 2.2 Terms of reference

The Review will consider:

- the purpose and value of research evaluation, including how it can further contribute to the Government's science, research and innovation agendas
- the extent to which ERA and EI are meeting their objectives to improve research quality and encourage university research engagement and impact outside of academia
- the effects of both ERA and EI on the Australian university research sector, whether positive or negative, intended or unintended
- opportunities to streamline the ERA and EI processes to reduce the reporting burden on the research sector (as recommended by the House of Representatives Report, *Australian Government Funding Arrangements for non-NHMRC Research*)<sup>2</sup> noting the guiding principles of ERA and EI are:
  - robust and reliable methodologies
  - applicability of the methodologies across disciplines
- opportunities for coordination of research data reporting and analysis across government, thereby improving whole-of-government reporting capability and reducing the reporting burden on universities
- publicly available data sources and new developments in technology and products to capture research evaluation data
- the frequency of ERA and EI
- the appropriateness and robustness of the ERA and EI methodologies.

### 2.3 Context

ERA evaluates the quality of university research. EI assesses the engagement and impact of university research. Both ERA and EI are based on the principle that transparent assessment and reporting of university performance provides incentives to universities to improve research quality, engagement and impact. The comprehensive and fine-grained information from ERA and EI assessments provides a valuable resource for universities to use in their strategic planning and

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<sup>2</sup> House of Representatives Standing Committee on Employment, Education and Training, *Australian Government Funding Arrangements for non-NHMRC Research*, (Canberra: Parliament of the Commonwealth of Australia, 2018).

research management, and for Government to use to inform research policy. Both programs demonstrate the value of investment in research to the Australian community. While the first three rounds of ERA were tied to a modest proportion of Research Block Grant funding to universities, ERA and EI have been primarily reputational, not financial, drivers of university behaviour (see Sections 3 and 4 for overviews of ERA and EI).<sup>3</sup>

Feedback is being sought about whether the current objectives and methodologies of ERA and EI will meet the future needs of stakeholders. In addition, stakeholder views are also requested on how ERA and EI may need to be modified in light of the following current and recent reviews:

- The [Research Sustainability working group](#) (2020) which is a working group of university Vice-Chancellors established to provide advice to the Minister for Education about sustainable approaches to research funding for universities during COVID-19 and beyond. While the linking of ERA and EI to funding is beyond the scope of the ERA EI review, the review aims to continually improve the robustness and suitability of ERA and EI as a measure of the quality of Australia's research and its impact beyond academia.
- The House of Representatives review of Australian Government Funding Arrangements for non-NHMRC Research (2018), which recommended that the frequency of ERA and EI be altered and their processes streamlined to reduce burden on universities.<sup>4</sup>
- The [Coaldrake Review of Higher Education Provider Category Standards](#) (2018-2019) which recommended changes to the benchmarking of research quality in the Higher Education Provider Category Standards. The Tertiary Education Quality Standards Agency (TEQSA) is responsible for processes and policies related to university provider category standards. The Coaldrake Review recommendations and Government's response have not specified a methodology for determining the benchmarking of research quality for TEQSA purposes, nor have they indicated that ERA will be used. The ERA EI review will consider the implications for universities of any changes to the ERA methodology.
- The [Australian and New Zealand Standard Research Classification](#) (ANZSRC) Review (2020) which updated the Fields of Research codes that are used to define disciplines in ERA and EI. The ERA and EI review will consider the implications for universities and research disciplines of the new changes.

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<sup>3</sup> In 2016, ERA outcomes were tied to approximately 4.8% (\$10.1 million) of Sustainable Research Excellence (SRE) funding which equated to 0.6% (\$10.1 million) of the total Research Block Grant allocation.

<sup>4</sup> House of Representatives Standing Committee on Employment, Education and Training, *Australian Government Funding Arrangements for non-NHMRC Research*, (Canberra: Parliament of the Commonwealth of Australia, 2018).

## **2.4 Guiding principles**

The ERA evaluation and EI assessment were developed within specific guiding principles ([Appendix A](#)). Any recommendations or outcomes of the Review must maintain these key principles to ensure that evaluation of university research is:

- robust
- reliable
- flexible (i.e. able to be applied across a broad range of disciplines).

In the context of COVID-19, the Review is also guided by considering the ongoing needs of the sector, and therefore value for effort or investment is also a key issue. Streamlining and simplifying the processes, effectively harnessing big data and technology to reduce reporting burden, and improving the transparency and robustness of both programs will help to ensure their value to stakeholders into the future.

Further information on [ERA](#) and [EI](#) can be accessed on the ARC website.



## 3 Excellence in Research for Australia (ERA)

This section provides an overview of ERA and issues raised in previous feedback from stakeholders. It includes questions relating to policy, methodology and process.

For further information about ERA, please visit the [ERA homepage](#) on the ARC website.

### 3.1 ERA overview

ERA is a national evaluation framework that evaluates the quality of Australian university research against international benchmarks.

In doing so, ERA aims to identify and promote excellence across the full spectrum of research activity, including both discovery and applied research, within Australian universities.

The specific objectives of ERA are to:

1. 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<sup>5</sup>
2. provide a national stocktake of discipline level areas of research strength and areas where there is opportunity for development in Australian higher education institutions
3. identify excellence across the full spectrum of research performance
4. identify emerging research areas and opportunities for further development
5. allow for comparisons of research in Australia, nationally and internationally, for all discipline areas.

ERA is a comprehensive collection of university data that includes all eligible researchers and their research outputs. It evaluates the quality of research at each university at the broad and specific discipline level.<sup>6</sup> This enables recognition of excellence regardless of the size or specialisation of a university.

At the conclusion of each ERA round, the ARC publishes a national report. *The State of Australian University Research 2018–19: ERA National Report* presents the outcomes of the most recent round, ERA 2018, and is available via the [ARC Data Portal](#).

With four rounds now complete, ERA provides a wealth of fine-grained, sector-wide and discipline-specific data and analyses of Australian university research not available from other sources. This includes performance ratings since ERA 2010, extensive research staffing data (including gender), all Australian university research outputs from 2003 to 2016, and research income and research application data from 2006 to 2016. Information from ERA is used by Government, universities, and other stakeholders for a variety of purposes. While some of this information is available publicly or through commercial providers, it is generally not available by discipline, or does not sufficiently cover all disciplines.

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<sup>5</sup> In this document, institutions are generally referred to as universities except where 'institution' is used in a pre-existing definition. When the terms 'institution' or 'university' are used, the term is referring to Australian higher education providers as defined by the [Higher Education Support Act 2003](#) (Tables A and B)

<sup>6</sup> In ERA, the broad discipline refers to the ANZSRC two-digit Field of Research or Division. Specific discipline refers to the ANZSRC four-digit Field of Research or group.



For example, ERA outcomes and data:

- focus attention on research quality and thereby provide incentives for improvements in research performance
- inform a range of policy advice and initiatives across various Government portfolios
- assist universities with their strategic planning, decision-making and their research promotional activities in Australia and internationally (for example, to attract prospective researchers and students).

## 3.2 ERA policy

### 3.2.1 Value of ERA

As noted in the above section, a key objective of ERA is to identify research excellence across the full spectrum of research activity. The results of ERA have shown that over time, university research has improved in quality (see the ERA outcomes on the [ARC Data Portal](#)). Other indicators of research quality have also shown similar trends in the performance of Australian universities and researchers.<sup>7</sup>

ERA provides a rich source of information that can inform decisions and shape policies related to Australia's university research sector. For example, an independent report<sup>8</sup> on ERA commissioned by the ARC found that:

- domestically and internationally, ERA was credited with assisting Australian universities' improvements in international research rankings
- ERA had caused researchers to focus more on quality of publications rather than quantity
- ERA results were used widely by universities for strategic planning.

These conclusions are supported by more recent internal ARC analyses.<sup>9</sup>

The Review is investigating the extent to which ERA is meeting its objectives. In addition, stakeholder feedback is sought on the impacts of ERA on the Australian university research sector.

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<sup>7</sup> For example, over the same period that ERA has assessed research outputs (2003-2016), Australia's relative citation impact and share of the world's top 1 per cent of highly-cited publications have risen as noted in the [Australian Innovation System Report 2017](#), p. 19.

<sup>8</sup> ACIL Allen Consulting, [Benefits Realisation Review of Excellence in Research for Australia](#), (2013).

<sup>9</sup> ARC, [Australian Research Council Annual Report 2017–18](#), (2018).

## *Issues to be explored*

- 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.*
  - 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.*
  - 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.*
  - 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.*
  - 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.*
- 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.*
- a. If you disagreed with the previous statement, what should the primary purpose of ERA be going forward? *Please explain your answer.*
- Q3.3 What impacts has ERA had on:
- a. the Australian university research sector as a whole
  - b. individual universities
  - c. researchers
  - d. other?
- Please explain your answers.*
- Q3.4 How do you use ERA outcomes? *Please describe.*
- Q3.5 ERA outcomes are beneficial to you/your organisation. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- Q3.6 Do you have any suggestions for enhancing ERA's value to you/your organisation? *Please explain your answer.*

### 3.3 ERA methodology

ERA was announced in 2008 as a new national evaluation of university research quality. Since that time, rounds have been run in 2010, 2012, 2015 and 2018.

While the ERA methodology has matured over each round, the principles underpinning the ERA indicators, agreed upon in 2008, have not changed. The ERA Indicator Principles are at [Appendix A](#). The key quality indicators continue to be peer review or citation analysis, depending on the discipline.

#### 3.3.1 Unit of evaluation

In ERA, the unit of evaluation is the *broad* or *specific* discipline, as defined by the ANZSRC two-digit and four-digit Field of Research codes, respectively, for an eligible university.<sup>10</sup> An example of the ANZSRC 2020 hierarchical classification structure is shown below:

*Division.....39 Education*

*Group.....3903 Education Systems*

*Field.....390304 Primary Education*

In general, for the purpose of this consultation paper, two-digit Field of Research codes are referred to as 'broad disciplines'. Four-digit Field of Research codes are referred to as 'specific disciplines'. 'Disciplines' refers to the broad and specific disciplines, collectively. For the purpose of ERA, when referring to a discipline at a particular university, 'unit of evaluation' is used.

Universities assign each item submitted for an ERA round (i.e. research outputs, researchers, research income and applied measures) to one or more specific disciplines.

#### 3.3.2 ERA methodology at a glance

##### *An ERA round process*

An ERA round opens with submission of data by universities for evaluation. Evaluations are conducted by Research Evaluation Committees through a series of individual and committee evaluation processes. These are outlined in the [ERA 2018 Evaluation Handbook](#).

##### *Indicators*

The ERA indicator suite has been developed to align with the research behaviours of each discipline. For this reason, there are differences in the selection of indicators applicable to each discipline.

The key quality indicators for ERA are either citation analysis, or peer review of a 30 per cent representative sample of research outputs. Citation analysis is used more commonly for disciplines in the natural sciences<sup>11</sup>. Peer review is used more commonly in the humanities and social sciences.

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<sup>10</sup> Eligibility of Australian universities is determined by whether a university is listed in Table A or Table B of the [Higher Education Support Act 2003](#).

<sup>11</sup> Exceptions were 0101 Pure Mathematics which is assessed as a peer review discipline. 08 Information and Computing Sciences, 1005 Communications Technologies, and 1006 Computer Hardware have also been assessed as peer review disciplines since ERA 2012.

Citation analysis is used for disciplines in which research findings are predominantly disseminated through academic journals and there are sufficient outputs in indexed peer-reviewed journals to allow robust citation analysis.

For a range of disciplines, such as humanities, social sciences, information sciences and disciplines at the applied end of the spectrum, citation analysis may not be appropriate—either because these disciplines do not predominantly disseminate their research findings through academic journals, or the citations information for the journals for these disciplines is not available. Many of the disciplines disseminate their research findings through other types of outlets, such as books, conferences, reports, creative works, exhibitions and performances. Therefore, in these disciplines, peer review of a 30% sample of outputs across all output types is the indicator used. In ERA, a sample of research outputs is evaluated by committees of internationally recognised experts, and additional peer reviewers.

For ERA, the ARC identified disciplines suitable for citation analysis through consultation with discipline peak bodies.

There are also four additional categories of contextual indicators which assist evaluators to understand each unit of evaluation:

- volume and activity
- publishing profile
- research income
- applied measures

For more information on the application of specific indicators to individual disciplines, refer to the [ERA 2018 Discipline Matrix](#). Further details regarding the citation and peer review methodologies are provided in the following sections.

### ***Issues to be explored***

- |       |  |
|-------|--|
| Q3.7  | The current methodology meets the objectives of ERA. <i>Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.</i>   |
| Q3.8  | What are the strengths of the overall methodology? <i>Please describe.</i>   |
| Q3.9  | What are the weaknesses of the overall methodology? <i>Please describe.</i>  |
| Q3.10 | Does the discipline-specific approach for evaluating research quality (citation analysis <u>or</u> peer review for specific disciplines) continue to enable robust and comparable evaluation across all disciplines? |

### **3.3.3 Citation analysis methodology**

The most basic and common measure of research activity is the number of peer-reviewed journal publications. Tracking the number of citations to these publications can reveal trends in the impact and influence of the research. While analysis of citation metrics is a key indicator for some disciplines in ERA, expert review of the indicators by the research evaluation committees is fundamental to the methodology. The analysis of citation metrics is considered by the Research Evaluation Committees and it is the committees that decide the ratings.

Citation analysis cannot be used for evaluating research performance across all disciplines, rather it is used for disciplines whose primary research output is in academic journals. Generally, these disciplines are the science, engineering, medical and health disciplines.

For ERA, the ARC identified disciplines suitable for citation analysis through consultation with researchers in disciplines. For the most recent round of ERA, the disciplines that use citation analysis are shown in the [ERA 2018 Discipline Matrix](#).

ERA uses two broad types of citation analysis—relative citation impact (RCI) and the distribution of publications against year and field-specific benchmarks.

A detailed explanation of the citation methodology is located in Section 5.5 and Appendix I of the [ERA 2018 Evaluation Handbook](#).

### **Issues to be explored**

- Q3.11 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.*
- Q3.12 What are the strengths of the citation analysis methodology? *Please describe.*
- Q3.13 What are the weaknesses of the citation analysis methodology? *Please describe.*
- 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.

### 3.3.4 Peer review methodology

For a range of disciplines, such as humanities, social sciences, and disciplines at the applied end of the spectrum, citation analysis may not be appropriate—either because these disciplines do not predominantly disseminate their research findings through academic journals, or because the citation data for the journals for these disciplines is not available. If the research output of the discipline is not predominantly made up of journal articles, then citation analysis would only give a partial view of the research activity and would not support an accurate evaluation of the research quality.

The research outputs available for peer review through ERA evaluations include the traditional range of academic outputs such as journal articles, books, book chapters, and conference publications. ERA evaluations also include a range of non-traditional research outputs for some disciplines such as original creative works, live performance of creative works, recorded/rendered creative works, curated or produced substantial public exhibitions and events, and research reports for an external body.

In ERA, a peer review sample of 30 per cent of research outputs is evaluated by committees of internationally recognised experts, and additional peer reviewers.

The sample is nominated by the university. As with disciplines that use the citation analysis methodology, there must be a sufficient volume of research outputs within a unit of evaluation to ensure that the evaluation is robust.

A detailed explanation of the peer review methodology located in Section 5.6 of the [ERA 2018 Evaluation Handbook](#).

#### **Issues to be explored**

- 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.*
- Q3.16 What are the strengths of the peer review methodology? *Please describe.*
- Q3.17 What are the weaknesses of the peer review methodology? *Please describe.*
- 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.

### 3.3.5 Contextual indicators

Apart from the key quality indicators, ERA also includes a suite of contextual, or supporting, indicators. These are:

- volume and activity
- publishing profile
- research income
- applied measures.

For the most part, the contextual indicators are designed to provide expert evaluators with a deeper level of understanding about the unit of evaluation they are assessing, and their presence or

absence has virtually no effect on the rating given to a unit of evaluation. The one exception to this is the research income indicator. At the final meeting of the research evaluation committee, the committee may decide to increase a rating of a unit of evaluation where it is considered to sit on the boundary between two ratings and the income is exceptional.

Further information is in [Appendix B](#).

### **Issues to be explored**

- 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.*
- 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.*
- 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.*
- 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.*
  - b. Research commercialisation income. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
  - c. Registered designs. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
  - d. Plant breeder's rights. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
  - e. NHMRC endorsed guidelines. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

### **3.3.6 ERA rating scale**

ERA uses expert review of research quality indicators to provide ratings for individual units of evaluation. The ERA ratings are scaled 1 to 5, with 1 being well below world standard and 5 being well above world standard. 'World Standard' refers to a quality standard. It does not refer to the nature or geographical scope of particular subjects, or to the focus of research nor its place of dissemination. The ratings are bandings, meaning that a range of performance can be recognised within a single rating. Descriptors for each rating band in ERA are at [Appendix C](#).

Over the four rounds of ERA there has been an improvement in the ratings of units of evaluation at both the broad discipline and the specific discipline level. The rating improvements over ERA rounds for units of evaluation at the specific discipline level are shown in Figure 1.



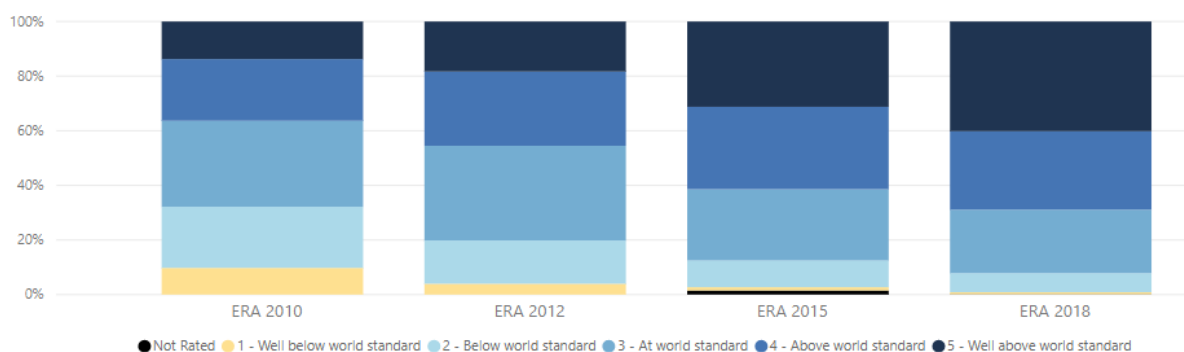


Figure 1: Comparison of percentage distribution of specific discipline unit of evaluation ratings across ERA rounds

### Issues to be explored

One of the objectives of ERA is to facilitate improved research quality. There has been an increasing number of '4' and '5', and a drop in the proportion of '1' and '2' ratings over rounds as the example in Figure 1 shows. While this improvement reflects strategic decisions made by universities regarding their investment in research, some feedback has raised questions about whether the current rating scale can continue to differentiate sufficiently performance at the upper end of the 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.*

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.

### 3.3.7 ERA low-volume threshold

A university is only evaluated in ERA in a broad discipline, or specific discipline, if the number of research outputs submitted reaches the low-volume threshold.

The low-volume threshold also ensures that most Australian universities are evaluated in at least one field of research, regardless of their size. With a higher low-volume threshold, it is possible that smaller universities will no longer be evaluated in some disciplines in which they were assessed previously. With a lower low-volume threshold, it is possible that there will be insufficient data to accurately rate some units of evaluation.

For further information on the low-volume threshold and how it applies, see the [ERA 2018 Evaluation Handbook](#), section 1.5.1.

The ARC has received feedback from some universities that the low-volume threshold is not appropriate and is interested in further information from stakeholders as part of this consultation.

Note—due to the recent publication of the ANZSRC 2020, the ARC is unable to provide detailed modelling of the effects of different low-volume thresholds. Stakeholders are invited to provide comments on the low-volume threshold; however, the ARC will need to model likely effects prior to making a decision on any changes.

### ***Issues to be explored***

- Q3.25 The ERA low-volume threshold is appropriate. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- Q3.26 Are there ways in which the low-volume threshold could be modified to improve the evaluation process? *Please describe.*

### **3.3.8 ERA staff census date**

For ERA, the eligibility of research outputs claimed by a university is based on a researcher's place of employment on the ERA census date, not where they were at the time of publication. Using a census date means that all current publications by a researcher, published in the reference period, are carried to the current employing university, regardless of where the original research was conducted. In doing so, the census date provides a snapshot of the current research capacity of the university.

The census date approach applies to all research staff who have a formal association with the university. For employed staff, all their eligible research outputs must be submitted. For casual staff, or those with another type of association, for example, adjunct staff and visiting fellows, only those of their outputs with a by-line to the submitting university may be included.

Another option for determining which university can claim a research output is by using researcher by-lines. With a by-line approach, a university would only be able to claim a research output if the output has the university named in the by-line. Such an approach would reduce incentives to engage staff merely for the purpose of claiming all their research outputs within the reference period; however, it would also prevent a snapshot of the current research capacity of a university.

### ***Issues to be explored***

- Q3.27 What is the more appropriate method for universities to claim research outputs—staff census date or by-line? *Please explain your answer.*
- Q3.28 What are the limitations of a census date approach? *Please describe.*
- Q3.29 Would a by-line approach address these limitations? *Yes/No. Please explain your answer.*
- Q3.30 What are the limitations of a by-line approach? *Please describe.*

### **3.3.9 ERA interdisciplinary research and new topics**

ERA is a discipline-based research evaluation exercise which uses the ANZSRC Fields of Research (FoRs) to define disciplines. Interdisciplinary and multidisciplinary research is disaggregated and evaluated in its individual discipline components. Each eligible researcher and research output can be assigned to up to three specific disciplines, with a percentage apportioned to each.

For each unit evaluated, Research Evaluation Committees can see an interdisciplinary profile which shows how the research outputs have also been assigned to other specific disciplines. This provides contextual/discipline information for committee members to consider when undertaking their evaluation. Where multi or interdisciplinary work is being considered, the Chair of a committee can also call on members in other committees to provide expert advice.

### ***Issues to be explored***

Some concerns have been raised by the sector that in evaluating and reporting research quality by discipline, ERA is discouraging interdisciplinary research.

- Q3.31 ERA adequately captures and evaluates interdisciplinary research. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- a. If you disagreed with the previous statement, how could interdisciplinary research best be accommodated? *Please describe.*

### **3.3.10 ERA and Indigenous research**

ERA has not evaluated Indigenous or Aboriginal and Torres Strait Islander research separately from other disciplines. This is because Indigenous research was classified in the ANZSRC 2008 at the most granular level (six-digit Field of Research—see Section 3.3.1) and so was not evaluated separately in ERA.<sup>12</sup> For example, the ANZSRC 2008 Field of Research 130301 *Aboriginal and Torres Strait Islander education* was evaluated within the specific discipline, *1303 Specialist Studies in Education* and, in turn, within the broad discipline of *13 Education*. The same applied to other areas of Aboriginal and Torres Strait Islander research including health, environment, language and culture.

### ***Issues to be explored***

The ANZSRC 2020 includes a new broad discipline for Indigenous Studies that includes separate specific disciplines for Aboriginal and Torres Strait Islander, Māori, Pacific Peoples and other Indigenous research. According to the current ERA methodology, these disciplines would be evaluated at a university where the low-volume threshold is met.

The ARC is investigating the best way to evaluate the new Indigenous Studies broad and specific disciplines in ERA, including whether universities will be able to meet the low-volume thresholds, and whether citation analysis or peer review is the best method for a particular discipline or set of disciplines. If there is insufficient volume in certain disciplines, it may be more feasible to combine them into one or two units of evaluation.

In ANZSRC 2020 Indigenous Studies is defined as research that significantly:

- relates to Aboriginal and Torres Strait Islander, Māori, Pacific, and other Indigenous peoples, nations, communities, languages, places, cultures or knowledges and/or
- incorporates or utilises Indigenous methodologies/ways of knowing, theories, practice and/or is undertaken with or by these peoples, nations or communities.

Note—as Indigenous Studies is a new classification in ANZSRC 2020, the ARC is unable to provide detailed modelling at this time regarding volume. We note that universities may also be unable to undertake their own modelling at this time. Stakeholders are invited to provide general comments regarding the evaluation of Indigenous studies; however, the ARC will need to undertake further data analysis and consultation prior to making a decision on any changes.

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<sup>12</sup> With the exception of 1802 Māori Law

- Q3.32 My institution would meet ERA low-volume threshold in Indigenous studies at:
- Two-digit? *Yes/No. If you answered 'yes', please list which ones.*
  - 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*):
- Using established ERA methodology i.e. the low-volume threshold would apply to the Indigenous Studies discipline and all its specific disciplines
  - For Aboriginal and Torres Strait Islander studies by combining low-volume disciplines into single units of evaluation
  - 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)
  - Other. *Please describe.*
- Q3.34 What would be the advantages and/or disadvantages of your preferred approach for evaluating Indigenous studies in ERA? *Please describe.*

### 3.4 ERA process

#### 3.4.1 Collection of ERA data

Currently, ERA collects data for evaluation every three years during the ERA submission and evaluation year; the most recent being 2018. In the response to the House of Representatives report on Australian Government Funding Arrangements for non-NHMRC research, some submissions recommended that ERA collect publication data annually, suggesting that this would streamline or reduce the reporting burden associated with a major triennial data collection.<sup>13</sup> The ARC is interested in the views of stakeholders regarding a move to annual collection of data from universities for ERA.

#### *Issues to be explored*

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

<sup>13</sup> House of Representatives Standing Committee on Employment, Education and Training, *Australian Government Funding Arrangements for non-NHMRC Research*, (Canberra: Parliament of the Commonwealth of Australia, 2018).

### 3.4.2 Publication of ERA data

The ARC publishes a range of information for each ERA round in the ERA National Report. This report includes the ratings for units of evaluation as well as data on research outputs, staff and research income aggregated at the specific or broad discipline level.

Some universities have suggested that volume data, that is, the volume of outputs submitted in each unit of assessment, should also be published.

In ERA 2018, additional data was released through the [Data Portal](#), including the metadata for each output submitted.<sup>14</sup>

To improve transparency and accountability the ARC intends to publish the discipline assignment information for each research output in future ERA rounds. Where more than one university has included the same output in its submission, the discipline assignment for each university would be shown.

#### *Issues to be explored*

- Q3.37 In future ERA rounds, should the volume of outputs submitted for each unit of evaluation be published?
- Yes, *Please explain your answer.*
  - No, *Please explain your answer.*
- 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.*
- What would be the advantages? *Please explain your answer.*
  - What would be the disadvantages? *Please explain your answer.*
- Q3.39 What other data do you think the ARC should publish following an ERA round? *Please describe.*

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<sup>14</sup> Metadata included: Research output title, Research output type, reference year, outlet, publisher, ISBN, ERA round, and Institution.

## 4 Engagement and Impact Assessment (EI)

This section provides an overview of the EI assessment, its history and development and analysis of issues raised previously in feedback from stakeholders. The section includes questions relating to EI policy, methodology and process.

For further information about EI, please visit the [EI homepage](#) on the ARC website.

### 4.1 EI overview

EI is a national assessment framework that assesses how researchers engage with the users of their research, and how they translate their research into impacts, beyond academia.

In doing so, EI aims to encourage greater collaboration between universities and research end-users, such as industry.

The specific objectives of the EI assessment are to:

- provide clarity to the Government and the Australian public about how their investments in university research translate into tangible benefits beyond academia
- identify institutional processes and infrastructure that enable research engagement
- promote greater support for the translation of research impact within institutions for the benefit of Australia beyond academia
- identify the ways in which institutions currently translate research into impact.

The Australian Government first announced the development of an engagement and impact assessment in December 2015, as part of its [National Innovation and Science Agenda](#) (NISA).

EI was developed through consultations with universities, stakeholders and experts and through a Pilot conducted in 2017<sup>15</sup>. The first full round followed in 2018.

EI uses expert review of quantitative and qualitative measures of research engagement and, qualitative measures of research impact and approach to impact at the broad discipline level. Further details of the EI methodology are outlined in Section 4.3.

Results and key findings from the EI 2018 assessment were released in March 2019 in the [EI 2018 National Report](#). Over 200 impact studies and 170 engagement narratives that received a high rating were also published as examples of best practice.<sup>16</sup>

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<sup>15</sup> Further information about the EI Pilot and its findings, is available on the ARC website.

<sup>16</sup> ARC, [ARC Data Portal](#).

## Issues to be explored

- Q4.1 Considering that EI is a new assessment, to what extent is it meeting its objectives to:
- 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.*
  - 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.*
  - 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.*
  - 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.*
  - 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.*
- 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.*
- Q4.3 What impact has EI had on:
- the Australian university sector as a whole? *Please describe.*
  - Individual universities. *Please describe.*
  - researchers. *Please describe.*
  - other sectors outside of academia? *Please describe.*
- Q4.4 How do you, or your organisation, use EI outcomes? *Please describe.*
- 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.*
- Q4.6 How else could EI outcomes be used? *Please describe.*

## 4.2 EI definitions

For the purposes of the EI 2018 submission and assessment, the following definitions were used:

### Research

Research is the creation of new knowledge and/or the use of existing knowledge in a new and creative way to generate new concepts, methodologies, inventions and understandings. This could include the synthesis and analysis of previous research to the extent that it is new and creative.



This is the same definition used for ERA. It is consistent with a broad notion of research and experimental development comprising *"creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of humankind, culture and society—and to devise new applications of available knowledge"* as defined in the ARC funding rules.

### **Aboriginal and Torres Strait Islander research**

Aboriginal and Torres Strait Islander research means that the research (as defined in the preceding definition) significantly:

- relates to Aboriginal and Torres Strait Islander peoples, nations, communities, language, place, culture or knowledges, and/or
- is undertaken with Aboriginal and Torres Strait Islander peoples, nations, or communities.

### **Engagement**

Research engagement is the interaction between researchers and research end-users outside of academia, for the mutually beneficial transfer of knowledge, technologies, methods or resources.

### **Impact**

Research impact is the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic research.

### **Research end-user**

A research end-user is an individual, community or organisation external to academia that will directly use or directly benefit from the output, outcome or result of the research.

Examples of research end-users include governments, businesses, non-governmental organisations, communities and community organisations.

Specific exclusions of research end-users are:

- publicly funded research organisations (CSIRO, AIMS, ANSTO, NMI, DST etc.)
- other higher education providers (including international universities)
- organisations that are affiliates, controlled entities or subsidiaries (such as medical research institutes) of a higher education provider
- equivalents (international or domestic) of the above exclusions.

In EI 2018, certain types of organisations were excluded from the definition of end-user for the reason that engagement and impact was required to be beyond academia. There has been some feedback that the research end-user definition is unclear or excludes organisations which are legitimate end-users of research. There is an additional concern that university research which has an impact within the university sector is ineligible for assessment under EI's current research end-user definition. An example of this is research on higher education which leads to impact within the higher education sector.

## Issues to be explored

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

## 4.3 EI methodology

### 4.3.1 Unit of assessment

EI 2018 defined the unit of assessment as the two-digit Fields of Research, or broad disciplines, as set out in the ANZSRC (2008) at each university.

There were three types of units of assessment:

- broad discipline or two-digit Field of Research
- Aboriginal and Torres Strait Islander research (*Impact only, optional*)
- interdisciplinary (*Impact only, optional*)

In EI 2018, engagement was not assessed for Aboriginal and Torres Strait Islander research or interdisciplinary units of assessment because universities only reported data to ERA at the specific discipline level. Aboriginal and Torres Strait Islander research<sup>17</sup> and interdisciplinary research were not classified at this level within ANZSRC 2008. As the engagement indicators were drawn from the ERA data, no data was available to calculate engagement indicators in these areas.

During the development of EI, several options were considered to define the unit of assessment including the Field of Research codes (broad discipline) and the socio-economic objective (SEO) classification. The SEO classification allows research activity to be categorised according to the *purpose* or *outcome* of the research.<sup>18</sup> Ultimately, the decision to use the broad discipline was to ensure that data could be re-used from ERA, thereby reducing the burden on universities.

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<sup>17</sup> As explained in Section 3.2.10

<sup>18</sup> ANZSRC 2020

### ***Issues to be explored***

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

### **4.3.2 EI methodology at a glance**

EI is a selective assessment which has three components: research engagement, impact, and approach to impact. An EI round opens with submission of data by universities for assessment in EI. Assessments are conducted by assessment panels, comprised of expert researchers and end-users, through a series of individual and panel assessment processes. These are outlined in the [EI 2018 Assessment Handbook](#).

### **4.3.3 Selectiveness of EI**

Unlike ERA, which is a comprehensive evaluation, in EI only a single engagement narrative and a single impact study (which includes the approach to impact) is required per broad discipline in a university. A small suite of income-based engagement indicators, and indicator explanatory statement, are also included for engagement. Universities are able to select the information they include in an engagement narrative and/or impact narrative for each discipline. Universities are only required to provide a submission for disciplines in which they met the EI low-volume threshold. In EI 2018, the maximum number of units that could be submitted by any university was 25.<sup>19</sup>

The decision to make EI a selective assessment was intended to minimise the burden placed on universities participating in EI. In feedback the ARC has received from universities since EI 2018, views were mixed on the scale of EI. Some respondents proposed a more comprehensive assessment or greater flexibility around the numbers of units of assessment that can be submitted, while others have suggested using other mechanisms to determine submission eligibility apart from the number of research publications submitted in the unit of assessment during ERA 2018.

### ***Issues to be explored***

- 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.*

### **4.3.4 EI low-volume threshold**

In general, EI assessed broad disciplines at universities where there were meaningful levels of data for assessment. For this reason, a low-volume threshold was applied. The low-volume threshold for a unit was based on the number of research publications submitted in the broad discipline by a university for ERA 2018.

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<sup>19</sup> One per two-digit Field of Research, plus one Interdisciplinary impact study, plus one Aboriginal and Torres Strait Islander research impact study.

The ARC also acknowledged that for some units of assessment there might be no impact, or insufficient impact, to report. If a university met the low-volume threshold in a unit of assessment but

- the majority of the research outputs were primarily basic or fundamental research
- OR
- the research area at the university was too new

then a university could request that the unit not be assessed for impact. There was no option to request not to be assessed for engagement.

The low-volume threshold did not apply to the interdisciplinary or the Aboriginal and Torres Strait Islander research impact studies. Universities could opt-in to either or both.

For more information on the EI low volume threshold, please refer to the [EI 2018 Assessment Handbook](#), Section 1.4.1.

### **Issues to be explored**

- 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.*
- 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.*

### **4.3.5 Engagement indicators**

In EI 2018, four engagement indicators were assessed:

- cash support from research end-users (specified Higher Education Research Data Collection (HERDC) Category 1<sup>20</sup> and Categories 2,3 and 4)
- HERDC research income (specified Category 1 and Categories 2,3 and 4) per full-time equivalent research staff
- proportion of specified HERDC Category 1 grants to total HERDC Category 1—grant amount and number of grants
- research commercialisation income.

The engagement indicators were assessed holistically, as a suite of indicators, and within the context of the entire engagement unit of assessment, including the engagement narrative, and indicator explanatory statement. The indicator explanatory statement could be used to provide context or further explanation for the indicators. For example, universities could explain any anomalies in the data.

The ARC also collected data on co-supervision of Higher Degree by Research (HDR) students by research end-users. However, this data was not assessed in EI 2018. Not assessing this data in

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<sup>20</sup> Specified HERDC Category 1 grants are grants identified as having an end-user component. More information and a list of Specific HERDC Category 1 grants can be found in the [EI 2018 Assessment Handbook](#) at Appendix H.

EI 2018 recognised the challenges for institutions collecting this data and anticipated the Department of Education, Skills and Employment (DESE) changes to the collection of HDR data. DESE began collecting this data from 2018.

### ***ERA contextual indicators—applied measures***

ERA currently collects data on applied measures including:

- patents
- research commercialisation income
- registered designs
- plant breeder's rights
- NHMRC endorsed guidelines.

The ARC is interested in the view of stakeholders on the use of some or any of the ERA applied measures as measures of research engagement in EI.

### ***Issues to be explored***

- 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.*
- 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.*
- 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*
- 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.*
- Q4.20 Are there alternative metrics that would be appropriate across many or all disciplines? *Yes/No. Please specify the metrics.*
- Q4.21 Should any of the current Engagement metrics be redesigned? *Yes/No. If you answered 'Yes', which ones and how?*
- 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.*

- 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.*
  - b. Research commercialisation income. *Yes/No. Please explain your answer.*
  - c. Registered designs. *Yes/No. Please explain your answer.*
  - d. Plant breeder's rights. *Yes/No. Please explain your answer.*
  - e. NHMRC endorsed guidelines. *Yes/No. Please explain your answer.*

### 4.3.6 Engagement narrative

A narrative was included as part of the assessment of research engagement. This was in recognition that the income-based engagement indicators alone were not sufficient to assess a university's engagement performance and that there were no other readily available and appropriate indicators of research engagement. In the narrative, universities were required to describe the engagement activities of the discipline, including:

- the purpose of the engagement
- how researchers within the discipline engaged with research end-users for mutual benefit
- the duration and extent of the engagement activities.

Universities could include any qualitative or quantitative information in their narrative such as patents granted, book sales, consultation with/advice to government, and co-designing of performances and exhibitions.

In EI 2018, 626 engagement units of assessment were assessed, with 215 receiving a 'high' rating and a further 317 receiving a 'medium' rating.

Further detail on the engagement submission is available in the [EI 2018 Assessment Handbook](#).

Further information on the outcomes of EI 2018, can be located in the [EI 2018 National Report](#).

#### ***Issues to be explored***

Recognising the diversity of engagement activities across all disciplines and institutions, EI 2018 endeavoured to enable flexibility through the methodology. The ARC received a range of feedback from universities and assessors concerning the need to balance between enabling sufficient flexibility for universities while also enabling sufficient standardisation for assessment.

- 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.*
- 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.*
- Q4.26 The engagement narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- Q4.27 Additional evidence is needed within the narrative. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- a. If you agreed, what evidence should be provided? *Please describe.*

### 4.3.7 Impact narrative

Impact studies comprised two components: the impact narrative and the associated research. Universities were required to clearly outline the research impact and explain the relationship between the impact and the associated research for each unit of assessment.

The narrative also needed to explain the contribution the research had made beyond academia, including:

- who or what benefited from the results of the research
- the nature or type of impact and how the research made a social, economic, cultural, and/or environmental impact
- the extent of the impact, with reference to appropriate evidence
- the dates and time period in which the impact occurred.

The associated research which led to the impact presented needed to be described including:

- what was researched
- when the research occurred
- who conducted the research and what was the association with the university making the submission to EI 2018.

Universities were also required to list beneficiaries related to the impact described and the countries in which impact occurred.

In EI 2018, 637 impact units of assessment were assessed, with 277 receiving a 'high' rating, and a further 284 receiving a 'medium' rating.

Further detail on the impact narrative is available in the [EI 2018 Assessment Handbook](#).

Further information on the outcomes of EI 2018, can be located in the [EI 2018 National Report](#).



### **Impact indicators**

Unlike engagement, there were no mandatory indicators for impact although universities had the option of including, in their submissions, additional indicators they thought represented research impact. During the EI Pilot in 2017, the ARC investigated a range of indicators for impact but ultimately no indicators were found that satisfied the principles for EI indicators ([Appendix A](#)).

### **Issues to be explored**

EI 2018 recognised the diversity of impact and pathways to achieving impact for different disciplines and institutions by providing flexibility for universities to present their impact studies in their own way.

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

### **4.3.8 Approach to impact narrative**

In the approach to impact narrative, universities were asked to summarise the strategies implemented by the university, its colleges, faculties, groups, departments and/or centres for achieving the impact described. Examples of strategies that could be detailed included:

- support provided by the university, its faculties, colleges, groups, departments, and/or centres for researchers to affect positive impact
- how that support was implemented by the research area
- how researchers interacted and engaged with research end-users or beneficiaries
- evidence of reviewing impact processes and outcomes during the period
- evidence of how mechanisms of translation were integrated into research practices

- human resources policies, initiatives and strategies
- financial or other resources made available to facilitate the realisation of the impact
- other strategies used in relation to this unit of assessment that aided in the realisation of the impact.

In EI 2018, 159 approach to impact units of assessment received a ‘high’ rating, and a further 325 received a ‘medium’ rating.

Further detail on the approach to impact narrative is available in the [EI 2018 Assessment Handbook](#).

Further information on the outcomes of EI 2018, can be located in the [EI 2018 National Report](#).

### **Issues to be explored**

Feedback indicates that the approach to impact narrative was one of the more challenging EI elements for universities and assessors. As with other EI narratives, feedback has suggested a more structured template with examples of what should be included and excluded. There are also general challenges with the interconnectedness of engagement, impact and pathways to impact and therefore there was some overlap of activities reported in submissions for engagement and approach to impact.

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

### **4.3.9 EI rating scales**

In EI 2018, there were three separate ratings per unit of assessment—one each for engagement, impact and approach to impact. Ratings were determined by discipline-based panels of experts that comprised distinguished researchers and highly experienced research end-users.

EI 2018 uses a three-point rating scale for the engagement, impact and approach to impact ratings: High, Medium and Low.

The rating descriptors for each rating for the above three areas is attached as [Appendix C](#).

### ***Issues to be explored***

The ARC is interested in stakeholders' views on the rating scales and descriptors for engagement, impact and approach to impact. The key areas of interest are the number of points on each rating scale and the description of those points of the rating scale.

- 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.*
- 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.*
- 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.*
- 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.*
- 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.*
- 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.*

### **4.3.10 EI interdisciplinary research**

In EI 2018, interdisciplinary research was specifically accommodated in two ways:

1. for each broad discipline impact study the university could indicate where the impact related to other disciplines by assigning up to two other broad disciplines that described the impact
2. universities could choose to submit an interdisciplinary impact study.

The purpose of the interdisciplinary impact study was to enable the submission of an impact study where the impact was so broad it could not reasonably fit within one broad discipline. Feedback from universities and assessors post-EI 2018 was mixed, with some considering the interdisciplinary impact study to be an important inclusion while others considering it was not needed, as the interdisciplinarity often occurred within a single broad discipline or was accounted for with the additional two broad disciplines that could be assigned to the impact.

### ***Issues to be explored***

- 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.*

### 4.3.10 EI and Aboriginal and Torres Strait Islander research

In EI 2018, universities could also choose to submit an impact study for Aboriginal and Torres Strait Islander research. Aboriginal and Torres Strait Islander research was identified at the most detailed level of the ANZRSC 2008<sup>21</sup> and EI 2018 reported at the broadest level. Therefore, impacts related to Aboriginal and Torres Strait Islander research would not have otherwise been reported, or where included in impact studies submitted to other broad disciplines like health or education, may not have been assessed by the most relevant experts.

Early feedback from Aboriginal and Torres Strait Islander researchers, and universities more broadly, indicates support for the Aboriginal and Torres Strait Islander research impact study continuing to be included in EI. In addition, a considerable number of impact studies with Aboriginal and Torres Strait Islander research content were submitted to other FoRs.

Aboriginal and Torres Strait Islander research was not submitted or assessed for engagement as there was no data available at that time.

#### *Issues to be explored*

The ANZSRC 2020 has a new two-digit code for Indigenous Studies which includes separate codes for Aboriginal and Torres Strait Islander, Māori, Pacific Peoples and other Indigenous peoples. It is anticipated that through these new codes, more data on Aboriginal and Torres Strait Islander research will become available from universities. The ARC is investigating the most appropriate way to assess Aboriginal and Torres Strait Islander research engagement and impact. The ARC will undertake further consultation regarding how Aboriginal and Torres Strait Islander research is assessed in EI.

- 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.*
- 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.*

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<sup>21</sup> for further explanation, see Section 3.2.10

## 5 Overarching Issues Common to both ERA and EI

There are a number of issues that concern both ERA and EI that will be covered in this section. Key issues include:

- The frequency of ERA and EI rounds
- Opportunities to simplify and streamline ERA and EI
- Taking advantage of recent developments in technology and big data.

### 5.1 Frequency of ERA and EI

The timing of ERA rounds has changed over time. The first full round was implemented in 2010, with the next following in 2012. From this time, the evaluation has been completed on a triennial basis, with a six-year reference period for research outputs. At present, the triennial cycle for ERA enables currency of the ratings for research excellence. ERA is a retrospective assessment of performance (for example, performance reported in ERA 2018 considered research that occurred between 1 January 2011 and 31 December 2016). A longer interval between ERA rounds would extend the lag time between when research activity occurs and when performance is reported through ERA.

While the frequency of ERA and EI rounds is ultimately a decision for Government, the ARC is interested in obtaining the views of stakeholders about the frequency of ERA and EI rounds to inform the advice it provides to Government.

#### Issues to be explored

- |      |   |
|------|---|
| Q5.1 | How often should ERA occur? <i>Every three years; Every five years; Other, please specify. Please explain your answer.</i>  |
| 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? <i>Please explain your answer.</i> |
| Q5.3 | How often should the EI assessment occur? <i>Every three years; Every five years; Other, please specify. Please explain your answer.</i>  |
| 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? <i>Please explain your answer.</i>  |

### 5.2 Streamlining and simplifying ERA and EI

The ARC is interested in other changes to the submission processes for both ERA and EI that could simplify and streamline them, and reduce the reporting burden on universities. A number of possible streamlining ideas have been put forward by universities including:

- Decoupling ERA and EI and running each in different years. The ARC has already announced that next rounds of ERA and EI will occur in 2023 and 2024, respectively.
- Annual collection of ERA data. Annual collection of ERA data is outlined in Section 3.3.1
- The use of publicly available data.

### 5.2.1 Combining ERA and EI

The ARC is also interested in whether or not combining the ERA and EI methodologies into a single national assessment could streamline and reduce the reporting and assessment burden on universities. The UK Research Evaluation Framework (REF) currently includes an assessment of research quality and impact. However, it is important to consider that the policy objectives of the REF and funding structures in the UK are quite different to those in Australia, and therefore a similar approach may not be applicable or desired in the Australian context. ERA and EI have different policy objectives to each other, and, for example, to the UK's REF. While there may be some advantages in combining ERA and EI, equally, keeping them separate may enable an agile and responsive assessment framework that meets the needs of Government and the university sector over the coming years. In addition, some universities have indicated that a combined, single assessment may increase the reporting and assessment burden on the sector

### 5.2.2 Single collection and reuse of data

The House of Representatives report on Australian Government Funding Arrangements for non-NHMRC research, recommended that *'Universities no longer be required to provide any information or data that is already available.'*<sup>22</sup> Suggestions put forward in submissions included the single collection of HERDC data. DESE and the ARC are investigating the possibility of a single collection of HERDC data but the ARC is also interested in other suggestions for presently available data that ARC could utilise for ERA.

### Issues to be explored

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

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<sup>22</sup> House of Representatives Standing Committee on Employment, Education and Training, *Australian Government Funding Arrangements for non-NHMRC Research*, (Canberra: Parliament of the Commonwealth of Australia, 2018).

### 5.3 Utilising technological advancements and existing data sources

Since ERA 2010, advancements in data collection and analytic technologies have occurred.

The ARC is currently investigating possible sources of already existing data as well as ways to automate data collection, thus reducing the work required of universities. For example, in ERA 2018, ORCID iDs were collected during submission. [ORCID](#), a non-profit organisation, provides a persistent digital identifier (ORCID iD) to individual researchers. The ORCID iD is created and managed by the individual researcher. Currently, it is optional for universities to provide the ORCID iDs of their researchers in their ERA submissions.

Further, during the ERA 2018 process, it was optional to provide Digital Object Identifiers (DOIs) for research outputs. The DOI is maintained by a non-profit organisation, the [International DOI Foundation](#). Like ORCID iDs, the DOI is a persistent digital identifier used to identify individual research outputs.

#### Issues to be explored

Q5.10	ORCID iDs should be mandatory for ERA. <i>Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.</i> a. What are the advantages and/or disadvantages? <i>Please explain your answer.</i>
Q5.11	The automatic harvesting of output data using ORCID iDs would streamline a university's submission process. <i>Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.</i> a. What are the advantages and/or disadvantages? <i>Please explain your answer</i>
Q5.12	DOIs should be mandatory for ERA. <i>Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.</i> a. What are the advantages or disadvantages? <i>Please explain your answer.</i>
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? <i>Yes/No. Please explain your answer.</i> a. What are the advantages and/or disadvantages? <i>Please explain your answer.</i>



## Appendix A—Guiding Principles for ERA and EI

### *ERA indicator principles*

In identifying and developing appropriate indicators for each discipline, the ARC considered that they must be:

1. **Quantitative**—objective measures that meet a defined methodology that will reliably produce the same result, regardless of when and by whom the principles are applied.
2. **Internationally recognised**—while not all indicators will allow for direct international comparability, the indicators must be internationally-recognised measures of research quality. Indicators must be sensitive to a range of research types, including research relevant to different audiences (e.g. practitioner focused, internationally relevant, nationally- and regionally-focused research). ERA will include research published in non-English language publications.
3. **Comparable to indicators used for other disciplines**—while ERA evaluation processes will not make direct comparisons across disciplines, indicators must be capable of identifying comparable levels of research quality across disciplines.
4. **Able to be used to identify excellence**—indicators must be capable of assessing the quality of research, and where necessary, focused to identify excellence.
5. **Research relevant**—indicators must be relevant to the research component of any discipline.
6. **Repeatable and verifiable**—indicators must be repeatable and based on transparent and publicly available methodologies. This should allow universities to reproduce the methodology in-house. All data submitted to ERA must be auditable and reconcilable.
7. **Time-bound**—indicators must be specific to a particular period of time as defined by the reference period. Research activity outside of the reference period will not be assessed under ERA other than to the extent it results in the triggering of an indicator during the reference period.
8. **Behavioural impact**—indicators should drive responses in a desirable direction and not result in perverse unintended consequences. They should also limit the scope for special interest groups or individuals to manipulate the system to their advantage.

### *Guiding principles for EI*

The general model for the assessment that is being developed is for a:

- comprehensive engagement assessment of university research
- impact assessment that exposes performance at university and discipline level and the steps taken to achieve impact.

The following ten principles guide the development of the specific indicators of engagement and impact used in the assessment:

- **Robust and objective**—objective measures that meet a defined methodology that will reliably produce the same result, regardless of when and by whom the principles are applied.
- **Internationally recognised**—while not all indicators will allow for direct international comparability, the indicators must be internationally recognised measures of research engagement and impact. Indicators must be sensitive to a range of research types,

including research relevant to different audiences (e.g. practitioner focused, internationally relevant, nationally- and regionally-focused research).

- **Comparability across disciplines**—indicators will take into account disciplinary differences and be capable of identifying comparable levels of research engagement and impact.
- **Not disincentivise interdisciplinary and multidisciplinary research**—indicators will not disincentivise universities from pursuing interdisciplinary and multidisciplinary research engagements and impacts.
- **Research relevant**—indicators must be relevant to the research component of any discipline.
- **Repeatable and verifiable**—indicators must be repeatable and based on transparent and publicly available methodologies.
- **Time-bound**—indicators must be specific to a particular period of time as defined by the reference period.
- **Transparent**—all data submitted for evaluation against each indicator should be able to be made publicly available to ensure the transparency and integrity of the process and outcomes.
- **Behavioural impact**—indicators should drive responses in a desirable direction and not result in perverse unintended consequences. They should also limit the scope for special interest groups or individuals to manipulate the system to their advantage.
- **Adaptable**—recognising that the measurement of engagement and assessment of impact over time may require adjustment of indicators for subsequent exercises.

## Appendix B—ERA Contextual Indicators

### *Volume and activity*

The volume and activity indicators provide an overview of the types and volume of research outputs and an indication of the level of activity within a unit of evaluation, including the relative proportions of different types of research outputs.

### *Publishing profile*

The publishing profile indicator provides information on the depth and breadth of publishing behaviours within a unit of evaluation. The publishing profile helps inform expert judgement regarding the relevance of the outlets to the research being published. It also enables the expert evaluators to take into account any regional or applied focus of the research in the unit of evaluation.

### *Research income*

The research income indicator profiles research income by Higher Education Research Data Collection (HERDC) category. The Department of Education, Skills and Employment (DESE) maintains the HERDC as part of its process for determining annual allocation of research block grants by the Australian Government<sup>23</sup>. The HERDC categories are:

- Category 1—Australian competitive grants
- Category 2—Other public sector research income
- Category 3—Industry and other research income
  - (i) Australian
  - (ii) International A (competitive, peer reviewed research grant income)
  - (iii) International B (other international income)
- Category 4—Cooperative Research Centre (CRC) income

Research income is collected at the specific discipline level over the three-year reference period. The indicator shows trends over the reference period and is useful in identifying the particular nature of a unit of evaluation such as applied research or multidisciplinary research.

### *Applied measures*

ERA currently collects data on applied measures including:

- patents
- research commercialisation income
- registered designs
- plant breeder's rights
- NHMRC endorsed guidelines.

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<sup>23</sup> The Government's research block grants are established under the Higher Education Support Act 2003 and provide block funding to eligible Australian higher education providers for research and research training.

Applied measures in ERA are contextual indicators, they have virtually no effect on the rating given to a unit of evaluation; however, they do help the research evaluation committees to understand the nature of the unit they are evaluating. The ARC has received some feedback from the university sector that including the applied measures, such as plant breeder's rights, can be difficult.

For further information see the [ERA 2018 Evaluation Handbook](#).

## Appendix C—ERA and EI Rating Scales

### ERA

- **5—Well above world standard**—The Unit of Evaluation profile is characterised by evidence of outstanding performance well above world standard presented by the suite of indicators used for evaluation.
- **4—Above world standard**—The Unit of Evaluation profile is characterised by evidence of performance above world standard presented by the suite of indicators used for evaluation.
- **3—At world standard**—The Unit of Evaluation profile is characterised by evidence of average performance at world standard presented by the suite of indicators used for evaluation.
- **2—Below world standard**—The Unit of Evaluation profile is characterised by evidence of performance below world standard presented by the suite of indicators used for evaluation.
- **1—Well below world standard**—The Unit of Evaluation profile is characterised by evidence of performance well below world standard presented by the suite of indicators used for evaluation.

### EI

#### Engagement

##### High

- The UoA is characterised by highly effective interactions between researchers and research end-users outside of academia for the mutually beneficial transfer of knowledge, technologies, methods and resources.
- Research engagement is well integrated into the development and ongoing conduct of research within the UoA.

##### Medium

- The UoA is characterised by effective interactions between researchers and research end-users outside of academia for the mutually beneficial transfer of knowledge, technologies, methods and resources.
- Evidence that research engagement is incorporated into relevant parts of the research process within the UoA and/or that research engagement is improving.

##### Low

- The UoA has little or no effective interactions between researchers and research end-users outside of academia for the mutually beneficial transfer of knowledge, technologies, methods and resources.
- Little or no evidence that research engagement is incorporated into the research process or that research engagement activities are being developed.

#### Impact

##### High

- The impact has made a highly significant contribution beyond academia.

- A clear link between the associated research and the impact was demonstrated.

#### **Medium**

- The impact has made a significant contribution beyond academia.
- A clear link between the associated research and the impact was demonstrated.

#### **Low**

- The impact has made little or no contribution beyond academia.

### **Approach to impact**

#### **High**

- Mechanisms to encourage the translation of research into impacts beyond academia are highly effective and well-integrated within the UoA.
- Mechanisms for translating research facilitated the impact described.

#### **Medium**

- Mechanisms to encourage the translation of research into impacts beyond academia are effective and integrated within the UoA.
- Mechanisms for translating research facilitated the impact described.

#### **Low**

- Mechanisms to encourage the translation of research into impacts beyond academia are not effective and integrated.
- The mechanisms for translation did not facilitate the impact described.

## Appendix D—Summary of Questions

### Section 3—Excellence in Research for Australia

#### ERA policy

##### Value of ERA

- Q3.1 To what extent is ERA meeting its objectives to:
- 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.*
  - 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.*
  - 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.*
  - 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.*
  - 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.*
- 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.*
- If you disagreed with the previous statement, what should the primary purpose of ERA be going forward? *Please explain your answer.*
- Q3.3 What impacts has ERA had on:
- the Australian university research sector as a whole
  - individual universities
  - researchers
  - Other?
- Please explain your answers.*
- Q3.4 How do you use ERA outcomes? *Please describe.*
- Q3.5 ERA outcomes are beneficial to you/your organisation. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- Q3.6 Do you have any suggestions for enhancing ERA's value to you/your organisation? *Please explain your answer.*



## 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.*
- Q3.8 What are the strengths of the overall methodology? *Please describe.*
- Q3.9 What are the weaknesses of the overall methodology? *Please describe.*

### 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.*
- 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?
- Q3.12 What are the strengths of the citation analysis methodology? *Please describe.*
- Q3.13 What are the weaknesses of the citation analysis methodology? *Please describe.*
- 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.

### 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.*
- Q3.16 What are the strengths of the peer review methodology? *Please describe.*
- Q3.17 What are the weaknesses of the peer review methodology? *Please describe.*
- 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.

### 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.*
- 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.*
- 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.*
- 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.*
- b. Research commercialisation income. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- c. Registered designs. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- d. Plant breeder's rights. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- e. NHMRC endorsed guidelines. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*

### **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.*
- 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.

### **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.*
- 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.*
- Q3.28 What are the limitations of a census date approach? *Please describe.*
- Q3.29 Would a by-line approach address these limitations? *Yes/No. Please explain your answer.*
- Q3.30 What are the limitations of a by-line approach? *Please describe.*

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

### **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*):
- Using established ERA methodology i.e. the low-volume threshold would apply to the Indigenous Studies discipline and all its specific disciplines
  - For Aboriginal and Torres Strait Islander studies by combining low-volume disciplines into single units of evaluation
  - 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)
  - Other. *Please describe.*
- Q3.34 What would be the advantages and/or disadvantages of your preferred approach for evaluating Indigenous studies in ERA? *Please describe.*

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

### 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?
- Yes, *Please explain your answer.*
  - No, *Please explain your answer.*
- 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.*
- What would be the advantages? *Please explain your answer.*
  - What would be the disadvantages? *Please explain your answer.*
- Q3.39 What other data do you think the ARC should publish following an ERA round? *Please describe.*

## Section 4—Engagement and Impact Assessment

### EI Overview

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

- 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.*
  - 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.*
  - 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.*
  - 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.*
- 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.*
- Q4.3 What impact has EI had on:
- a. the Australian university sector as a whole? *Please describe.*
  - b. Individual universities. *Please describe.*
  - c. researchers. *Please describe.*
  - d. other sectors outside of academia? *Please describe.*
- Q4.4 How do you, or your organisation, use EI outcomes? *Please describe.*
- 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.*
- Q4.6 How else could EI outcomes be used? *Please describe.*

### ***EI 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.*
- 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.*
- 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.*
  - 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.*

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

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

### ***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.*

### ***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.*
- 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.*

### ***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.*
- 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.*
- 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*
- 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.*
- Q4.20 Are there alternative metrics that would be appropriate across many or all disciplines? *Yes/No. Please specify the metrics.*
- Q4.21 Should any of the current Engagement metrics be redesigned? *Yes/No. If you answered 'Yes', which ones and how?*
- 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.*

- Q4.23 In your opinion, are any of the ERA applied measures appropriate indicators of research engagement in EI?
- Patents. *Yes/No. Please explain your answer.*
  - Research commercialisation income. *Yes/No. Please explain your answer.*
  - Registered designs. *Yes/No. Please explain your answer.*
  - Plant breeder's rights. *Yes/No. Please explain your answer.*
  - NHMRC endorsed guidelines. *Yes/No. Please explain your answer.*

### **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.*
- 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.*
- 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.*
- Q4.26 The engagement narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- Q4.27 Additional evidence is needed within the narrative. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- If you agreed, what evidence should be provided? *Please describe.*

### **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.*
- 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.*
- 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.*
- Q4.30 The impact narrative needs to be longer. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*
- 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.*
- If yes, what evidence should be provided? *Please explain your answer.*
- 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.*



- 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.*

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

### **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.*
- 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.*
- 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.*
- 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.*
- 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.*
- 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.*

### **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.*



### ***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.*
- 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.*

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

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

### **Utilising technological advances and pre-existing data sources**

- Q5.10 ORCID iDs should be mandatory for ERA. *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.*
- 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.*

- Q5.12 DOIs should be mandatory for ERA. *Strongly agree; Agree; Neither agree nor disagree; Disagree; Strongly disagree. Please explain your answer.*
- a. What are the advantages or disadvantages? *Please explain your answer.*
- 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.*
- a. What are the advantages and/or disadvantages? *Please explain your answer.*

## Appendix E—Acronyms

Acronym	Full Title
<b>AIMS</b>	Australian Institute of Medical Scientists
<b>ANSTO</b>	Australian Nuclear Science and Technology Organisation
<b>ANZSRC</b>	Australian and New Zealand Standards Research Classification
<b>ARC</b>	Australian Research Council
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DESE</b>	Department of Education, Skills and Employment
<b>DOI</b>	Digital Object Identifier
<b>DST</b>	Defence Science and Technology (formerly DSTO)
<b>EI</b>	Engagement and Impact Assessment
<b>ERA</b>	Excellence in Research for Australia
<b>FoR</b>	Fields of Research
<b>FTE</b>	Full Time Equivalent
<b>HDR</b>	Higher Degree by Research
<b>HERDC</b>	Higher Education Research Data Collection
<b>HoR</b>	The House of Representatives
<b>MBIE</b>	Ministry of Business, Innovation and Employment
<b>NHMRC</b>	National Health and Medical Research Council
<b>NISA</b>	National Science and Innovation Agenda
<b>NMI</b>	National Measurement Institute
<b>RBG</b>	Research Block Grant
<b>REC</b>	Research Evaluation Committee
<b>REF</b>	Research Excellence Framework UK
<b>SEO</b>	Socio-Economic Objective Code
<b>SRE</b>	Sustainable Research Excellence funding
<b>TEQSA</b>	Tertiary Education Quality Standards Agency
<b>ToA</b>	Type of Activity