



**Queensland University of Technology**  
**Response to the ARC ERA EI Review Consultation Paper 2020**

Queensland University of Technology (QUT) welcomes the opportunity to comment on the Australian Research Council (ARC) review of Excellence in Research for Australia (ERA) and the Engagement and Impact Assessment (EI).

It is QUT's view that ERA has served its urgent and primary purpose – to provide a reliable means to confirm or correct previously impressionistic assessments of the quality of Australian university research, for the benefit of institutions, government, industry and the public. However, for a variety of reasons – some structural, some behavioural – it is our view that the dividend from this extensive and expensive exercise has significantly diminished in recent rounds, to the extent that ERA has run its course for the time being. ERA is no longer telling us much that we do not already know, and there are reasons to suspect that what it does say is now less reliable than it has been in the past. QUT therefore respectfully recommends that the ARC does not run further rounds of ERA in the foreseeable future.

In the event that the Government does decide to run ERA again as currently planned, however, QUT holds that the ERA methodology will require significant reform – including the validation of assumptions around proxy measures, the demonstration of excellence at scale, and to better capture interdisciplinary and emerging research excellence – in order to ensure that future rounds improve ERA's utility and reliability, for the benefit of government, the sector and other stakeholders. Accordingly, we have made some suggestions in this submission to that end.

QUT applauds the ambition to demonstrate empirically the relevance and uptake of university research, but we argue that the current EI instrument is not yet fit for purpose. It provides only a highly subjective and very approximate estimation of the engagement and impact levels of Australian research. It is structurally susceptible to manipulation and persuasion – to the particular detriment of smaller and less wealthy institutions – in ways that favour a variability in outcomes that have no relation to the underlying impact and engagement that it is intended to measure. The production of 'results' that do not accurately reflect underlying performance risks the cultivation of a misplaced confidence in the picture presented, which is worse than the condition of not having an exercise at all. EI should be postponed until a more effective and reliable methodology is devised.

In the event that the Government decides to continue with both EI and ERA, however, QUT strongly advocates running these exercises separately. They are distinct exercises with distinct purposes, and should remain complementary but not convergent. Not only would combining the exercises into one assessment prejudice smaller institutions who lack the resources to undergo both simultaneously, but doing so would compromise the aims of each assessment in turn – limiting ERA's evaluation of how disciplines rank nationally and internationally as well as EI's distillation of end-user engagement and societal impact.

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## Section 3—Excellence in Research for Australia

### ERA policy

#### Value of ERA

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

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

A moderate to small amount. The ERA evaluation framework has historically provided a useful indicator of research excellence, especially for research well aligned to specific Field of Research (FoR) discipline level areas. However, the added value of further iterations is less clear, particularly without substantial reform of the instrument, to ensure the fitness of metrics as proxies for underlying quality, and to adequately capture interdisciplinary research. While earlier iterations of ERA have provided government with confidence about research quality, it is unclear how much impact it has across industry, business and the wider community.

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

A moderate amount. ERA has historically provided a valuable national stocktake and assessment of Australian research performance in discipline level areas. However, the areas where there is opportunity for development are less likely to be captured in the exercise, due to these areas not likely to meet the low-volume threshold for evaluation.

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

A moderate amount. The current ERA evaluation framework unevenly captures excellence across the full spectrum of research performance, due to the use of focused disciplinary assessments which favour single FoR code units of evaluation (UoEs), and is less effective at capturing interdisciplinary and emerging research fields.

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

A small amount. The disciplinary framework of ERA tends to make it a poor tool for capturing emerging research areas and opportunities, which are more likely to be interdisciplinary or in fields outside of (or even developing in opposition to) the established disciplines. The emerging areas are also unlikely to meet the low-volume threshold and therefore, more likely to fall under disciplines tagged as 'Not for assessment'.

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

A small amount. Comparisons based on national and international research ranking systems are inherently difficult, due to the different methodologies used. Exacerbating this is the lack of detail around the metrics used to establish the world standard benchmarks and how they have changed over time for broad disciplines.

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.*

Agree. ERA objectives are appropriate for meeting the future needs of its stakeholders. However, the assessment framework must be reviewed and reformed to reinforce confidence in the metrics and to better capture research in emerging areas and areas of interdisciplinary research.

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.*

a. ERA has enabled the sector as a whole to demonstrate not only the quality but the astonishing breadth of research undertaken in Australian universities, which has bolstered the sector's credibility in the public eye. Other than informing broad confidence in the sector's research capability, it has not been utilised as a conduit for further research funding into the sector.

b. ERA has enabled individual Australian universities to identify areas of strength and areas where their performance may not match their strategic importance or self-image. This is probably the single most influential dividend of ERA over its lifetime, but the effect was most prominent in the first couple of rounds of ERA. Apart from a little fine-tuning around the edges, universities have learned the big lessons and recent and future iterations are of diminished utility in this respect. However, ERA outcomes have had significant reputational implications for individual universities – mostly but not only positive – which has flow-on effects for recruiting research talent and their standing in the domestic and international student markets. From an administrative perspective, ERA evaluation rounds are resource-intensive and time-consuming, with universities investing significant staff effort to accurately report on relevant research activity in their corporate systems and prepare the data for the ERA submission. It has driven behavioural change in faculties and schools – again, mostly but not only positive – with regards to supporting and building areas of research strength, through encouraging publications in high quality outlets, and strategic recruitment.

c. The ERA exercise has promoted a shift in academic thinking around publication values from quantity to quality as the primary consideration, with a corresponding attention to bibliometric attainment.

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

At an institutional level, QUT does not use ERA outcomes as 'benchmarks' for institutional performance, due to its retrospectivity, but its methodology is one useful input in determining the suite of leading indicators we attend to in order to assess our research performance (e.g. publication in high quality outlets). Internally, some faculties

and schools have used the outcomes data strategically to forward plan with their research teams.

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

Agree. The ERA assessment provides a useful comparative platform to judge specific research strengths that is not available elsewhere. QUT recognises that ERA outcomes, similar to university rankings, lend third-party support to the reputation of the organisation. ERA outcomes signal institutional research strengths to international partners, which influences student enrolment (particularly intake of international students) and research capacity building. The ERA outcomes enable stakeholders to see institutional research strengths, which influences student enrolment, particularly intake of international students. Over time, QUT has performed strongly and increased its rank alongside close competitors/other Australian institutions. In most disciplines, QUT sits at Rank 4, and this success as being 'above world standard' has been promoted across and outside the institution.

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

Aside from the methodological discussion below, the value of ERA would be enhanced by the production of a simplified format of ERA outcomes more readily accessible to the non-expert, general public, accompanied by a publicity campaign to highlight the strength of the Australian university research enterprise.

## 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.*

Disagree. The current methodology needs to be reviewed and overhauled to better support the objectives of ERA across the full spectrum of research performance.

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

The inclusion of key quality indicators, **citation analysis** and **peer review**, to accommodate the differences across research fields. The inclusion of peer review as a quality indicator enables non-traditional research outcomes (NTRs) to be evaluated as part of the ERA exercise. This is valuable as NTRs are not counted in other assessments thus ERA provides visibility for this sub-set of research outputs.

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

The accuracy of metrics as proxies for underlying quality has diminished over time as researchers and institutions have become increasingly adept at refining activities to maximise returns. The inference drawn by some commentators that underlying quality is necessarily increasing in line with the observed sector-wide improvement in numerical performance lacks evidence – at a minimum the integrity of the metrics as proxies must be tested, and probably further refined. Also, the lack of a scale factor obscures meaningful differentiation – maintaining high quality across 1,000 outputs is a far more significant achievement than doing so across 100 outputs, yet the system has no means of recognising this distinction. The elevation of the activity threshold would aid in this objective. The current focus on mono-disciplinary assessments which favour single FoR code UoEs fails to adequately capture research in emerging areas or areas of interdisciplinary research.

## **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.*

Agree. Citation analysis is a valuable method for evaluating the quality of research, as it reflects the scientific impact and relevance of the research.

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?

As part of the ERA evaluation framework, citation analysis could be applied to more disciplines. QUT proposes applying citation analysis for all traditional research outputs (i.e. not for NTROs but elsewhere across HASS), where they are relevant to the disciplines, to supplement peer review. Conversely, the application of a peer review methodology to citation disciplines – even on an audit basis – could provide essential validation of citation metrics.

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

Citation analysis provides an objective approximation of the impact of scholarly publications, which in turn serves as a reasonably credible proxy for research quality.

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

A noted weakness of this methodology is that sometimes citation analysis provides incomplete information regarding the impact of papers within sub-disciplines of the FoR code. For example, more clinical publications may have a strong impact on clinical practice but may not necessarily attract high citations given that clinicians typically don't publish and if they do so, it is usually not in refereed journals. A given absolute value of citations may also have a very different meaning in different sub-disciplines. Additionally, some HASS disciplines are less susceptible to accurate citation analysis due to the heavier reliance on book publication and the longer 'half-life' of relevant citations, which can mean book-to-book and journal-to-book citations for non-digitised target books are missed.

Q3.14 Can the citation analysis methodology be modified to improve the evaluation process while still adhering to the ERA Indicator Principles? *Yes/No.*

a. *If you answered 'Yes', please describe how the methodology could be improved.*

Yes. As the Consultation Paper notes, ERA performance has improved progressively with each exercise, and that 90% of units of evaluation assessed in ERA 2018 were at or above world standard. Significantly, this trend is notable in citation analysis fields of research (predominantly STEM fields) but not peer review fields of research (primarily HASS fields). Some commentators have argued this suggests that the quality of Australian research in STEM is rapidly improving, while HASS research has stagnated. QUT finds this reasoning superficial and suspect, as it is at least as likely that the differential outcomes are explained by the methodological variance itself. An increase in the sophistication of strategies to maximise performance against assessment criteria in citation analysis fields, for example, could explain an increase in performance relative to fields where the rather more enduring scepticism of peers provides a consistent moderating influence. Indeed, the stability of peer review assessments may be read as a commentary on the assumptions about the fitness of metrical approaches as proxies for underlying quality, particularly over time. The divergence has now widened to the point that the fitness of the metrics as proxies for quality requires empirical validation.

### **Peer review methodology**

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

Agree. Peer review is a valuable method for evaluating the quality of research, particularly (but not only) for disciplines where citation analysis is not appropriate. Peer review establishes the validity of research based upon the expert knowledge of other researchers in the discipline.

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

Peer review is a valuable method for evaluating the quality of research, particularly for NTROs, and potentially as a validation tool for citation metrics.

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

ERA peer review methodology is susceptible to conflicts of interest due to the review process not being independent; universities and staff being evaluated by ERA are also involved in the peer review. There needs to be greater transparency of and scrutiny within the ERA peer review process. Feedback following peer review would be valuable, but it is non-existent, making it challenging to help the research community improve or know where to improve or how to encourage changes in research behaviour. There are also concerns around evaluating the true quality of the output, particularly for NTROs, since in many cases ERA reviewers only evaluate research statements and not the NTRO itself (i.e. the performance or creative work). Peer review is also labour-intensive, but relative to the enormous effort involved in the entire ERA exercise nationally that is not an overwhelming consideration.

Q3.18 Can the peer review methodology be modified to improve the evaluation process while still adhering to the ERA Indicator Principles? *Yes/No.*

a. *If you answered 'Yes', please describe how the peer review methodology could be improved.*

Yes. Peer review could be improved by sitting alongside quantitative data made widely available. Citation information for all submitted works is easily retrieved from publicly accessible databases.

### **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.*

Agree. However, further consideration is required with regards to volume. The desirability of demonstrating quality at scale is structurally in tension with the exclusion of emerging fields. Consideration might be given to raising the threshold but including an 'opt-in' option for sub-threshold submissions to enable the submission of low-volume but high-quality work, particularly in emerging research areas.

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

Agree. The publishing profile indicator provides a broad, valuable overview of the output types that are reported across the disciplines. This information yields strategic insight (and potential trends) on where quality outputs are published in a specific discipline.

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

Agree. The research income indicators can be used to identify activity (outputs and projects) and provide a measure of research quality within research disciplines, and across disciplines when moderated for discipline average.

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.*

QUT does not support the use of the applied measures within ERA if the EI is to continue (where they are more relevant).

### **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.*

Agree, subject to the caveat at Q3.24. The continued use of the five-band ERA rating scale for assessing research excellence facilitates useful trend analysis.

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

- a. *If you answered, 'Yes', please explain how the rating scale can be modified to identify excellence.*

Yes. The ERA rating scale could be modified to include a high 5\* version of the 5 rating, within the current scale.

The rating scale, a comparison of national performance against world standard, provides a valid benchmark for the ERA assessment. However, the number of UoEs rated 5 has increased over time. The clustering of these scores around the rating scale ceiling creates a restrictive system, limiting opportunities for growth and losing the ability to compare high achieving research. To address these issues, the ERA rating scale could be modified to increase its granularity and provide a differential rank within the 5 rating.

### **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.*

Disagree. The low-volume threshold should be increased in high-output volume disciplines. The threshold could be better targeted to capture differences in practices between the STEM and HASS disciplines in reaching quantity thresholds.

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

It would be reasonable to elevate the low-volume threshold but allow for specific disciplines to opt-in (providing a justification statement) should they not meet the threshold. Alternatively, the thresholds could be made discipline-specific, recognising the

inherent differences in how discipline knowledge is created and examined. This would be particularly relevant for the new Indigenous Studies discipline and for emerging research areas, ensuring that all disciplines are recognised and research activity is not amalgamated into a 'more popular' discipline. To supplement this, ERA reporting needs a scale dimension to better identify and distinguish high quality research at scale.

### **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.*

QUT supports the use of the staff census date as the more appropriate method for universities to claim research outputs. The staff census date is more reliable than the by-line, as it demonstrates the current capacity of research expertise. By-line reliability is limited by researchers' lack of compulsion to be affiliated with an institution. Without the corresponding affiliation, the number of research outputs that a university can claim for the purpose of the ERA exercise is potentially reduced, and would not provide an accurate assessment of research excellence.

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

The limitations of a census date approach lie predominantly with having adequate resources/administrative teams to capture, report and categorise the non-affiliated publications (within the ERA reference period) for any new staff that were employed by the institution, at the census date.

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

A by-line approach would partly address this limitation by streamlining the process to claim research outputs, but at the cost of missing unattributed by-lines where affiliation exists but is not recorded. Through use of automated harvesting platforms, there would be a reduced administrative workload to capture any affiliated (by-lined) publications in the research management systems at an institution. However, universities would still need to curate the harvested data to meet ERA eligibility and institutional alignment of research strengths.

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

The limitations of a by-line approach are i) researchers do not reliably attribute their affiliation on research outputs, ii) it is not possible to distinguish if the author is staff or an HDR student based solely on the by-line, and iii) consideration needs to be given to NTROs which often don't have an actual affiliation affixed to the output. It is difficult to get institutions acknowledged on NTROs and affiliation is reliant on the author's declaration.

### **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.*

Disagree. The ERA framework is based on disciplinary assessments which favour single FoR code UoEs, under-recognising interdisciplinary research.

### **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.*

No. QUT would not meet the ERA low-volume threshold in Indigenous studies at the two-digit FoR code level.

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

Yes, (tentatively, in the absence of detailed modelling). QUT could potentially meet the ERA low-volume threshold in Indigenous studies at the four-digit FoR code level. However, the dilution of research outputs currently sitting in the ANZSRC 2008 FoR codes when applying the ANZSRC 2020 FoR codes for the next ERA exercise must be considered. The task of mapping outputs between the old and new FoR codes has not yet been done, so QUT is unable to provide a definitive list of the four-digit ANZSRC 2020 FoR codes which would meet these criteria at this time.

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

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

**Option a.** As Indigenous Studies is a new classification in ANZSRC 2020, QUT has yet to undertake detailed modelling regarding volume of outputs. Of the list provided for consideration, QUT supports **option a** as the best approach for evaluating Indigenous Studies in the ERA exercise.

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

The advantage of **option a** is the recognition of the specific disciplines within Indigenous Studies, which have not been evaluated separately in the past, but rather were evaluated under broad disciplines at the two-digit FoR code level. Noting that this is only an advantage if the low-volume threshold is met for the specific disciplines, in a majority of institutions nationally.

However, scalability and achieving critical mass are the main issues. QUT does not have a large social sciences faculty or school where Indigenous Studies would predominantly sit. Support for Indigenous Studies is highlighted through the QUT strategic plan which lists *Indigenous Australian Engagement, Success and Empowerment* as a key strategic priority for the university. QUT is currently developing an Indigenous Studies pipeline through the Carumba Institute with the aim to grow proficiency and critical mass in this area.

## 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.*

Disagree. It is doubtful that annual returns would produce any net saving of labour, let alone enough to warrant the devotion of additional staff time in the years between rounds. It may also have an inhibiting effect on strategic research focus decisions.

It is also unclear how pre-institutional outputs will be dealt with in an annual collection of data. Clarification is required for whether the outputs submitted annually will be based on those with the institution's by-line or authored by academics at the university on the staff census date.

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

An annual data collection would limit the ability of an institution to accurately demonstrate their research strengths and portray their performance in emerging research areas. An annual assessment would disfavour NTROs, which require longer periods of time to collect evidence of research significance.

Regardless of the government submission requirements, universities still engage in annual generation of research output data, research income and other research activity for internal reporting purposes. This means there is unlikely to be any major reduction in the administrative burden for universities, nor any significant savings in resources, under a proposed annual ERA data collection.

### **Publication of ERA data**

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

- a. *Yes, Please explain your answer.*
- b. *No, Please explain your answer.*

Yes. In future ERA rounds, QUT supports the inclusion of volume of outputs submitted for each unit of evaluation in the National Report. Volume should be reported in a banded way so it can be captured in the numerical ERA score (e.g. 5H for well above world standard at high volume, to indicate excellence at scale; or 5\*H for exceptionally well above world standard at high volume, to indicate outstanding excellence at scale should an additional rank be added above 5). Publication of these results should be used as a platform for universities to communicate the richness of research work undertaken in Australia. The volume of outputs effectively functions as an indicator to highlight discipline areas of strength, as well as those disciplines that are emerging.

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.*

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

Strongly disagree. QUT does not support the publication of research outputs with their assignment to specific disciplines, following completion of the ERA round. The metadata behind each research output would invite the strategic movement and assignment of FoR codes on co-affiliated outputs, creating opportunities to analyse high-ranked discipline outputs and 'game' the system. Access to this information could invite institutions to compare the discipline assignment of research outputs from other institutions, challenge the outcomes and copy assignments for future assessments.

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

It would be valuable for the ARC to publish the Open Access (OA) indicator. This information has been collected in the last two ERA exercises, but not published following the ERA round. The outcomes of this metric should be shared and promoted to highlight increases in the number of research outputs with OA among universities and the research community.

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

Not at all. There is no evidence that new collaborations have arisen as a result of awareness through the EI assessment.
  - b. provide clarity to the Government and the Australian public about how their investments in university research translate into tangible benefits beyond academia? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A small amount. While there are challenges in developing an assessment process which adequately estimates the extent of research engagement and impact, the exercise has at least demonstrated the fact that research at universities is used by the wider community. However, the effectiveness in delivering this information to the wider community, and whether it has provided clarity, remains to be determined.
  - c. identify institutional processes and infrastructure that enable research engagement? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A small amount. EI 2018 required institutions to undertake a stocktake of internal practices, training and infrastructure that enabled engagement activities (along with supporting evidence) to be captured. QUT already had a sound grasp of our activities in this respect but the external exercise assisted in identifying and addressing gaps and contributed to refining our institutional strategy to support long-term engagement goals.
  - d. promote greater support for the translation of research impact within institutions for the benefit of Australia beyond academia? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A small amount. The sector benefitted from the publication of engagement and impact narratives that received a HIGH rating.
  - e. identify the ways in which institutions currently translate research into impact? *A very large amount; A large amount; A moderate amount; A small amount; Not at all. Please explain your answer.*

A moderate amount. Similar to capturing information for the assessment of engagement, institutions revisited the approaches in which research was being translated into impact and captured this information in the narrative for 'Approach to impact'. At an institutional level, this enabled a collection of 'best practice models' which will continue to guide practice.
- Q4.2 The EI objectives are appropriate for the future needs of its stakeholders. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

Neither agree or disagree. While the current EI objectives have merit from the perspective of government and institutions, it is not clear whether these objectives align with the values of other stakeholders. Stakeholders will measure themselves against their own indices and QUT is not confident they will look to the EI assessment as a measure for success.

Q4.3 What impact has EI had on:

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

As this is a new assessment, it is too early to determine the impact on the Australian university sector as a whole.

- b. Individual universities. *Please describe.*

The EI assessment highlighted the value of developing institutional strategy that supports the translation of research, with appropriate systems to assist researchers track and record the activity/supporting evidence.

- c. researchers. *Please describe.*

It is too soon to tell if the EI outcomes are driving the behaviour of academics to deliver research with impact. Anecdotally, there have been increased conversations around research engagement and impact, accompanied by low confidence in the reliability of the EI instrument itself.

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

As this is a new assessment, it is unclear if sectors outside of academia are aware of the EI outcomes, or if they would give it much regard even if they do become aware. Due to the retrospective nature of the assessment, it is unlikely that the outcomes would influence the actions of stakeholders and end-users.

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

The EI outcomes have been announced internally via QUT media but have not been widely utilised at QUT. Our existing activities and controls around engagement, translation and impact are better suited to needs and are based on expert assessments of much higher rigour and reliability than the EI processes.

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.*

Strongly disagree. The instrument is not of sufficient rigour to underpin critical strategic decisions. The current assessment rating scale of HIGH/MEDIUM/LOW provides insufficient information about the EI outcomes. There is not enough feedback from the EI outcomes, particularly around best practice, to help improve future ratings.

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

The EI outcomes should not be deployed until the instrument's rigour is improved. At present it is well below the threshold of reliability necessary to underwrite even a crude traffic-light rating. It is far preferable to acknowledge that we do not yet know enough to make confident statements about performance than it is to allow an under-developed methodology to produce a set of apparently but not substantively precise findings. Once the instrument is improved, the ARC could use the EI outcomes to highlight and/or advise on best practice approaches to promote stronger engagement with industry, government and not-for-profit organisations.

### **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.*

Agree. The current Engagement definition is fine.

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.*

Disagree. QUT recommends the addition of the bolded text to the current Impact definition: "Research impact is the contribution that research makes to the economy, society, **education**, environment or culture, beyond the contribution to academic research".

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.*

Disagree. QUT recommends widening the definition of end-user for any given university to include publicly funded research organisations and organisations that are affiliates, controlled entities or subsidiaries of another higher education provider, to ensure a comprehensive view of engagement and impact across the nation.

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

No.

## El methodology

### Unit of assessment

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

Yes. QUT supports the use of two-digit FoR codes to define the units of assessment for the purposes of Engagement and Impact.

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

The inclusion of SEO codes in the narrative may be of value.

### 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.*

The number of units of assessment should not change from EI 2018, with the exception of the inclusion of a unit of assessment for Indigenous studies to align with the revised ANZSRC 2020 classification.

### El 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.*

Neither agree or disagree. If the EI low volume threshold continues to be coupled with the research outputs submitted for ERA, it would be necessary to ensure the guidelines

for both exercises remained consistent over time, especially if ERA and EI assessments are to be run sequentially, as we recommend.

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

Agree. QUT had no concerns with meeting this threshold in the majority of broad disciplines. It would be useful to retain the option to 'opt-in' for the new Indigenous studies broad discipline, if the low volume threshold is not met.

### **Engagement indicators**

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

Neither agree nor disagree. The suite of engagement indicators is fine, on its own terms, but falls significantly short of providing sufficiently comprehensive data for comparative assessments. Additionally, not all indicators can be comprehensively applied across every discipline. There are difficulties with defining a specific set of metrics to measure engagement, as they are not necessarily valid, valued equally, or adequately sensitive to differences across disciplines. The engagement indicator suite should be open to development and change, to align with the nature of the research.

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.*

Agree. This indicator demonstrates the interaction of researchers with end-users for a mutually beneficial exchange of knowledge and resources. It is not difficult to link institutional strategic investments to HERDC research income, and the research income has been sufficiently captured against disciplines in QUT systems.

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*

Agree, with the important caveat that start-up and spinoff activities do not necessarily provide financial returns to the university, despite being a strong form of research commercialisation of benefit to industry and the Australian economy.

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.*

Yes. QUT supports **the destination of HDR and Masters students** as an additional metric to include with the indicators of engagement. Some of this data is already captured in existing surveys which could be repurposed upon setting clear parameters for the data collection for this exercise. The inclusion of **corporate and professional education training** should also be considered as an indicator of engagement, and potentially impact.

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

Yes. QUT suggest the inclusion of a metric for capturing **Open Access (OA)** publications beyond the specialist scholarly outlets for the discipline, to promote the responsible sharing of knowledge with the broader research community and end-users.

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

No.

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

Agree. The co-supervision of HDR students with stakeholders and industry partners is a valued engagement activity and mutual investment between the two entities. The industry funded and located PhD is a growing cohort and is instrumental in connecting research with implementation.

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.*

QUT supports all the ERA applied measures being included as appropriate indicators of engagement in the EI assessment **and removed** from the ERA assessment.

### **Engagement narrative**

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

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

Disagree. The inclusion of the narrative approach is an understandable response to the need to fill the very significant gap left by the indicator suite, especially in the humanities and social science disciplines and in non-commercial end-use scenarios. Were it only included to supplement an adequate suite of indicators, QUT would cautiously endorse its inclusion for the benefit of completeness. However its susceptibility to subjective persuasion is a fatal flaw in the absence of full coverage by the indicators, and this renders it inadmissible to backfill this dearth of essential evidence.

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.*

Agree. This approach minimises the administrative burden for universities and assessment panels, at a slight disadvantage to large universities with more stories to tell.

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

Disagree. The current requirements are sufficient.

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.*

Neither agree nor disagree. While the current requirements are sufficient, there may be scope for the inclusion of additional evidence, but only where relevant.

## **Impact narrative**

Q4.28 The narrative approach is suitable for describing and assessing impact. *Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree. Please explain your answer.*

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

Disagree. QUT does not have a problem with the narrative approach in its own right, but harbours deep concerns about EI's reliance on such a malleable anecdotal input source. Impact may be the result of many factors, and the narrative approach allows disciplines to define what they view as impact and provide suitable evidence to support the claim. The narrative provides the opportunity to outline how the organisation assesses impact, facilitates impact pathways and communicates the value of research and research training. This approach allows the greatest flexibility and can be equally delivered by STEM and HASS disciplines, so there is no disadvantage across broad discipline type, and ensures a broad range of research impact is captured. However the capacity of artfully crafted narratives to gild the lily, as it were, make this an exceedingly dangerous species of 'evidence' upon which to base assessments.

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.*

Agree. Each impact study should be comprehensive and the format flexible to suit all types of research impact.

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

Disagree. The current criteria are sufficient.

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

- a. If yes, what evidence should be provided? *Please explain your answer.*

Neither agree nor disagree. While the current requirements are sufficient, there may be scope for the inclusion of additional evidence, such as end-user surveys/testimonials and web or data analytics, but only where relevant.

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.*

No. There is a lack of reliable, broadly applicable quantitative indicators that could capture and validly assess the diversity of research impact.

## **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.*

Disagree. Again, QUT does not have a problem with the approach to impact narrative as such, but finds EI's reliance upon it insupportable. It is certainly of value to show the



tangible outcomes generated from the impact and how the end-user utilised the outcomes to deliver real value, alongside the pathways developed to facilitate this process. It is also useful to furnish information about how the institution provided the environment and tools for research impact to occur is pivotal to the impact outcome and allows best practice models (translation strategies) to be shared in the research community. But the reliance upon the prospectus approach as the entirety of evidence is a serious flaw in the assessment of approach to impact.

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.*

Agree. This is sufficient to provide insight on the steps that an institution took to build and support an environment that enabled the impact study.

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

Disagree. The current requirements are sufficient, and ensure that preparation by institutions and assessment by review panels are not too burdensome.

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

Disagree. The current requirements are sufficient for assessment.

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

No. Engagement and approach to impact should be assessed separately. There are scenarios in which impact could occur without active engagement, and where engagement does not result in impact.

### **El 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.*

Strongly disagree. On the one hand the current scale is too broad to be useful; on the other, arguably the instrument lacks the precision to underpin even this scale.

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.*

Strongly disagree. The descriptors that distinguish the medium and high ratings of the scale are highly subjective (**effective interactions** versus **highly effective interactions**; the difference in engagement that is **incorporated** versus **well integrated**) without a clear rubric identifying the criteria to be met for each rating in the scale. In the absence of specific feedback on institutional engagement narratives, such a rubric would provide a guide for institutions to improve their strategies for research engagement in preparation for future assessments.

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.*

Strongly disagree. On the one hand the current scale is too broad to be useful; on the other, arguably the instrument lacks the precision to underpin even this scale.

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.*

Strongly disagree. The descriptors that distinguish the medium and high ratings of the scale are highly subjective (lack of meaningful distinction between a **significant**

**contribution** as opposed to a **highly significant contribution**) without a clear rubric identifying the criteria to be met for each rating in the scale. In the absence of specific feedback on institutional impact narratives, such a rubric would provide a guide for institutions to improve their strategies for research impact in preparation for future assessments.

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.*

Strongly disagree. On the one hand the current scale is too broad to be useful; on the other, arguably the instrument lacks the precision to underpin even this scale.

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.*

Disagree. The descriptors are highly subjective and should be more clearly defined. As previously discussed, QUT recommends the rating scale and associated descriptors be improved by the development of a clear rubric for assessment that identifies the criteria to be met for each rating in the scale. A rubric would provide a guide for institutions to improve their strategies in preparation for future assessments.

### ***El 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.*

Yes. There is no valid argument for excluding interdisciplinary research.

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

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

Yes. Should EI 2024 proceed it should include the low-volume threshold (with option to opt in if threshold is not met) for the unit of assessment applied to Aboriginal and Torres Strait Islander research. The promotion of Indigenous Studies is a key element of QUT's institutional strategic plan, building upon longstanding conservative growth in Indigenous Studies research and education through the recently established Carumba Institute. The current COVID-19 climate will likely have shut down many Indigenous communities and this will undoubtedly have a downstream effect on the engagement and impact opportunities that can be brought to fruition, not just for QUT but across all institutions.

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

Yes. Should EI 2024 proceed it should include the unit of assessment for Aboriginal and Torres Strait Islander research for Engagement. As noted earlier, critical mass at the two-digit FoR code for Indigenous Studies is unlikely to be achieved. Drawing upon relevant engagement data from other broad disciplines such as Education, Health and Justice, that support Indigenous research, will ensure these valuable networks and connections are captured for future development.

## 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.*

QUT does not believe there is a case for proceeding with another ERA round in the foreseeable future. However should the Government proceed, the interval between rounds should preferably provide at least a two-year overlap of the six-year reference period. The current plan to run it with a five-year interval provides only a one-year overlap, which is better than none at all but less than ideal. Running ERA again in 2022 (i.e. with a four-year interval and a two-year overlap with the reference period of ERA 2018) would capture the near-term effects of COVID-19, which would be of significant policy interest, but its results would need to be read in the context of a major external impacting event, and the (presumed) suppression effect on university research outcomes would need to be taken into account on any analysis of the time-series. Later rounds would then pick up the longer-term effects of universities' current work to refocus and realign our research activities with revised institutional strategies.

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

A longer assessment cycle for ERA will allow university strategic realignment in the COVID-19 context around both areas of strength and emerging research areas to produce results.

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

QUT believes the EI assessment should not proceed without a very substantial body of work being undertaken to make the instrument fit for purpose. However should the Government wish to proceed, a longer cycle would suffice, timed to ensure it does not coincide with ERA.

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

A longer assessment cycle for EI would not have significant implications.

### 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.*

Strongly disagree. QUT does not support a combined ERA and EI submission. Combining these already very time-consuming resource-intensive exercises into one assessment would be a grave mistake. They do not have very many processes in common from which to derive efficiencies of co-administration, even though the burden within universities (and government) falls largely upon the same work units for both processes. Synchronous timing would therefore produce an inordinate imposition of labour for no discernible benefit. It would especially disadvantage universities who do not have the capacity to focus significant financial, temporal and staffing resources on a combined exercise (e.g. small, young and rural universities). Additionally, the two exercises are markedly different; ERA focuses on how disciplines rank nationally and internationally, EI captures commitment to end-user engagement and societal impact. The assessments should remain not only separate but perfectly asynchronous, to allow for more specialised attention towards research performance.

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.*

With a very substantially diminished return on the effort for ERA, and with an EI methodology that cannot deliver evidence of sufficient reliability or validity to make the exercise useful, the ARC should not run either ERA or EI in the coming period.

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

ERA should utilise data already held by the Commonwealth and supplied by universities through other regular reporting processes (e.g. HERCD research income, publications submitted to ARC and NHMRC).

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.*

Yes. In the ERA submission, the burden for universities lies in the reporting requirements, which is magnified by the structural disconnect between government bodies and departments. For example, QUT reports a researcher's publications in the ARC's RMS system, NHMRC's RGMS system (now Sapphire) and ERA's SEER system. For future exercises, ORCID iDs should be more widely utilised to capture relevant data, but the duplication of information that is held across different federal government departments is where the focus on minimising the reporting burden should be.

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.*

Yes. In the EI submission, the narratives become challenging without a reliable archival trail to piece together the chain of events, identification of partners and what influences had shaped the outcome. This can be dependent on accessing staff with institutional knowledge. This may still be an issue in the next EI round. Where possible, the indicators used to capture engagement activity should use data sets already provided by a university for HERDC, ABS HERD, staff HESDC, etc. However, these will need to be supplemented with discipline-specific metrics that are not yet part of any government reporting.

## 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.*

Strongly agree. This would require notification in advance, in order for all researchers to obtain an ORCID iD. Currently, the use of ORCID iDs is not an established practice across all disciplines, as it is seen to only have value for those output types that can be automatically harvested from external databases, but this requirement would drive cultural change, which would have ancillary benefits for other purposes. Further consideration would need to be given to NTROs and disciplines which do not have good coverage in external databases (e.g. SciVal is far more valuable for STEM than HASS).

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.*

Agree. QUT supports the use of automatic harvesting of output data using ORCID iDs to streamline a university's submission process. The use of ORCID iDs would provide an accurate set of harvested output data, for those researchers included in the university submission. However it is worth noting that automatic harvesting of outputs would mean that institutional submissions would include data that has not undergone curation within universities, and harvested outputs may not be compliant with ERA eligibility requirements. As such, there are no major time savings as universities would need to

review and manually curate the harvested data that is included in the submission, to ensure it fits the assessment purpose and accurately reflects the university's actual performance. Success will be dependent on the integration of systems at each institution.

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.*

Strongly agree. The use of a permanent, consistent identifier should be mandatory and supported as 'best practice' in the management of research data. This would require notification in advance, as DOIs are not a common identifier across all research output categories (including NTROs). There are also differences in the business practices of publishing outlets. While all publishers provide DOIs for journal articles, some publishers do not provide DOIs for book chapters.

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.*

The data for ERA and EI could be collected more efficiently by universities, provided there is consistency in the data requirements over time. The overall cost and burden to universities could be reduced, if universities were able to implement business practices that utilised current roles and resources, to ensure the ERA and EI data requirements were being met, at the time the data was being reported to the university, rather than chasing metadata (and supporting evidence) prior to an ERA and EI submission round. For example, universities employ many marketing and communication staff, but they are not generally tasked with archiving the evidence of program outcomes, event participation, industry involvement, levels of engagement and repeat business. This group of staff have the opportunity to collect this information, but capturing this data is at present typically not part of their job description (as discovered at QUT in the EI 2018 round). When the university has a reputational responsibility to report to government, there needs to be a coherent collection of archived material to substantiate the claims of engagement and impact. Additionally, university webpages could be better utilised to support engagement and impact, as they provide an interface with the end-user. Analytics of activity on these pages is a vital way of establishing the link and collecting evidence.