

## **James Cook University response to ARC ERA EI Review**

**October 2020**

### ***Summary***

Research carried out in the Australian university sector is performing strongly by global standards, and generates a wide range of economic, environmental, social and cultural benefits for Australia and the world.

### **Excellence in Research for Australia (ERA)**

ERA has been effective as a comprehensive stocktake to identify the breadth and strengths of Australian research. It has been valuable, and in some circumstances, influential within universities but there are diminishing returns from its operations.

While the political imperative to validate claims of the excellence of Australian research, along with the responsibility for universities to be accountable for significant public investment are both acknowledged, ERA, in its current form, is past its use-by date.

Despite gathering a large volume of credible data, there is little evidence that ERA outcomes and their documentation in ARC National Reports and associated publications are taken up by government, industry, business and the wider community.

Overall, there is much to commend in the methodology of ERA, however there are issues that should be addressed. These, inter alia, contribute to convergence of ERA 5 ratings in citation fields and cleavage between citation and peer review outcomes.

The addition of Indigenous Studies Fields of Research (FoR) to the Australian and New Zealand Standard Research Classification 2020 (ANZSRC) will provide for evaluation of Aboriginal and Torres Strait Islander research. This is very welcome, but presents formidable challenges including validity of evaluation against 'world standards'. If current methodologies are applied without significant mediation and thought, there is a high risk that ERA will, effectively, be setting these fields up to fail.

The deferment of the next round to 2023 and the implementation of the new ANZSRC research classification provides an opportunity to

- improve the transparency and robustness, thus confidence, in evaluation, and
- commit to publicly provide a comprehensive suite of data post-evaluation to allow closer examination of the structure, investment patterns, trends, and intensity of research in Australia.

## Engagement and Impact (EI)

The political rationale for the implementation of EI is well understood. It is reasonable that:

- a) Governments should want
  - i. evidence of the economic, social, environmental and cultural benefits from investment in research, and
  - ii. assurance that universities have structures, capacity and processes to support effective engagement and increase the probability of impact.
- b) Universities articulate the myriad benefits from their research and engagement with research end-users and provide relevant support.

As international experience confirms, evaluating engagement and impact is a highly problematic exercise. Indicators are poor proxies for the fundamentally relational nature of engagement and delineating the actual research contribution to impact is challenging.

Universities have a long history of collaborating with research end-users, and the focus on engagement and impact has intensified over the past two decades or more, in part because;

- a) researchers have appreciated that deep engagement with end-users throughout the research process is often a necessary condition for adoption and thus impact, but also
- b) increasing competition and constrained Government funding has driven the need to diversify funding sources.

The outcomes of EI 2018 confirm that Australian universities are invested in delivering and improving their engagement and impact.

However, the EI exercise provided little additionality to that trajectory and the use of one impact case study per broad discipline has limited value in assessing an institution's contributions.

Unlike ERA, EI is far from a settled or mature framework. To be a useful, cost effective contribution for end-users and institutions there are several refinements and developments that should be considered.

## Recommendations

### **ERA**

- Publication of a comprehensive suite of ERA data post evaluation to allow closer examination of the structure, investment patterns, trends, and intensity of research in Australia. This should include volumetric data as well as core bibliometric and staff data.
- Improve transparency and robustness of ERA methodology by:

#### ***Citation fields***

- Addressing the shifting global bibliometric baselines (that have inflated Australia's relative performance throughout the ERA reference periods) by provision of additional baselines derived from a reference group of 5 – 10 similar countries (e.g. Netherlands, Canada, UK, Singapore, South Korea, Sweden, and New Zealand). This would provide a 'reality check' to validate where Australian research sits in the international context.
- Updating guidelines and directions to the REC so apportioning FoRs can be challenged even if outputs are allocated to the ARC Journal FoR defaults, if the REC believes that the output(s) are manifestly inappropriate.

**Peer review fields**

- Transferring some peer reviewed FoRs to citation analysis where such analysis is fair and robust.
- Providing bibliometric data as an additional input to the peer review process.
- Increasing international representation on peer review panels.
- Enforcing peer review sample guidelines.
- Providing mechanisms for quantitative normalisation of detailed peer review input.
- Increase the Low Volume Threshold (LVT) with provision for opt-in.
- Use of by-lines rather than a staff census date to guide eligibility.
- ERA and Indigenous research:
  - Design an evaluation approach that militates against the mis-application of ‘world standards’.
  - Clarity as to how the three core elements in the definition of Indigenous research are treated; research relating to Indigenous issues, research using Indigenous knowledges and research led by/undertaken by researchers who identify as Aboriginal or Torres Strait Islanders.
  - Adopt a LVT of 50 irrespective of whether it is increased for other fields.
  - Commit to establishing a ‘State of Aboriginal and Torres Strait Islander Research Report’ that synthesises data and insights from ERA, EI and other relevant sources e.g. outcomes of ARC/NHMRC grants.
- Publication of a comprehensive suite of ERA data including volumetric, bibliometric and staff data.

**Engagement and Impact**

In summary, JCU recommends:

- Use 2-digit SEO codes as the organising principle as they are better aligned to objectives (and reduce number of submissions).
- Maintain use of narratives in engagement and impact.
- Provision of external verification of claims by allowing URLs to e.g. reports, explicit Government recognition of contribution to policy and/or practice, annual reports of firms or industry peak bodies, media statements of end-users or actuarial studies.
- Provide for a portfolio statement for impact:
  - Portfolios to include subsidiary exemplar case study with options to include 2 – 3 brief examples.
- Split ‘approaches to impact’ across engagement and impact portfolios and delete as a distinct category for evaluation.
- Consider use of ABS HERD SEO data as a data source (and request ABS reverse decision to no longer collect such data).

### 3.2.1 Value of ERA

#### 3.1 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.

ERA has been effective in setting out the breadth and strengths of Australian research.

It has been valuable, and in some circumstances, influential within universities but there are diminishing returns from its operations. While the political imperative to validate claims of the excellence of Australian research, along with the responsibility for universities to be accountable for significant public investment are both acknowledged, in its current form, ERA is past its use-by date.

We see little evidence that ERA and its documentation in ARC National Reports and associated publications are taken up by government, industry, business and the wider community, in a way that is consistent with its ostensible external objective of assurance of excellence.

ERA seems to have little impact outside universities beyond the media ‘splash’ on release of the national report. The value of ERA through the media lens is also diluted by the plethora of institutional and subject global rankings.

The deferment of the next round to 2023 and the implementation of the new ANZSRC research classification provides an opportunity to

- improve the robustness and confidence in evaluation, and
- commit to publicly provide a comprehensive suite of data post evaluation to allow closer examination of the structure, investment patterns, trends, and intensity of research in Australia.

- 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 answer.

ERA provides a comprehensive, national stocktake of research where the volume of outputs meets the low volume threshold and includes a broad range of research outputs including commissioned reports and other non-traditional works.

However, even if ERA is considered successful at identifying areas of strength and areas, or where there is opportunity for development, there is no obvious evidence that these data have been usefully incorporated in national policy, strategy and/or funding. If post-evaluation reporting of a comprehensive suite of ERA data was implemented, it has the potential to deliver on this objective.

- 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.

ERA is a comprehensive exercise that identifies academic excellence across disciplines. As discussed below, the lack of volumetric and other data, along with issues as to the applicability of ‘world standards’, severely limits the efficacy of this feature.

ERA is not useful at capturing multi-and inter-disciplinary research. This is problematic as most of the key research challenges and opportunities substantially depend on such approaches (bur refer 4.3.10).

- 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.*

ERA is a lag indicator. It is unable to capture emerging areas particularly in some technology and bio-medical fields where research horizons may be less than 18 months. Research Evaluation Committees (RECs) may see some evidence of emerging areas in changes in publications and staff in the most recent year or two of the reference period, but clearly these are not identified.

Moreover, Fields of Research, even at 4-digit level, are typically too coarse-grained to identify relevant strengths for prospective research users. R&D intense firms, specialist Government agencies and NGOs need, and often have the capacity and networks to rapidly access relevant, specific expertise and knowledge. 2-digit (particularly) and 4-digit FoRs are irrelevant for that activity. This also applies to researchers who are well aware of research strengths in their fields at fine scale.

ERA is not a useful input to assist universities identify emerging areas and strategic opportunities for development.

- 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.*

This is not a straightforward task for national comparisons due to the absence of scale measures and variability of ratings across and within fields.

International benchmarking is problematic due to shifting baselines and more nuanced comparisons are better done with relevant field analysis at country, region or institutional level than simply against world averages. The dominance of North American and European journals, outputs and research agendas skews international comparisons particularly in HASS fields.

*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.*

JCU supports the importance of providing robust and transparent evaluation of Australian research, thus in their generality the objectives are supported (although, as per 3.1.d., ERA is not the right instrument to adequately identify emerging areas).

The concern is not so much with the objectives but, as noted above, the value of ERA is heavily constrained by the lack of publicly available, comprehensive data that can inform, inter alia, policy, implementation, funding, priority setting and sector analysis. Even if provided, ERA would only be one source of input.

*Q3.3 What impacts has ERA had on:  
Please explain your answers.*

- a. the Australian university research sector as a whole*

ERA has served the sector well through shifting the focus from the quantity of outputs (previously rewarded, for example, in Research Block Grant (RBG)/Composite Index allocation by the old HERDC points system) to the quality of scholarly outputs.

It has encouraged the understanding and use of metrics in performance evaluation at individual, group, faculty and institutional level.

Its impact at JCU, and no doubt other institutions, has been marginal in high performing areas, with a strong research culture, rigorous and effective leadership, and extensive international partnerships.

However, in weaker areas it has contributed to a sharper focus on more deliberative scholarly publication strategies to 'diminish the tail' and better align the research with prospective research-users both within and external to the academic field.

ERA is consistent with, and has contributed to the growing recognition and standing of the Australian university system in various global rankings. However, ERA's impact on rankings should not be over-stated as rankings indicators that focus on scholarly publications and bibliometrics typically account for 20 – 40% of indicator weightings in composite rankings systems including ARWU, Times and QS.

*b. individual universities*

(covered in a.)

*c. researchers*

As outlined in Q3.4, ERA has not been used in a direct sense at individual level.

As indicated in a) there have been useful indirect effects in terms of focus on publication strategies and, in some fields, heightened awareness of problems of vanity/predatory publications (although these are not ERA eligible outputs).

There are indirect effects of potentially adverse external perceptions in low-rated FoRs in terms of capacity, and, at the margins, staff/HDR recruitment.

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

The approach adopted by JCU for ERA is to be attentive but not slavish. Its prime impact has been almost exclusively on encouraging more deliberative publication strategies. However, this has not involved, as has been the case at some institutions, preventing publication in journals with e.g. a low Journal Impact Factor or rated in low quartiles in Scimago. Pleasingly, the driver has been predominantly the relevant research groups or academic units taking their own 'bootstrapping' initiatives rather than top-down interventions.

There are some areas of research at JCU which have little visibility or modest reputational value in the ERA context but are fundamental to the university's 'social licence' in north Queensland. These include health, education and social welfare delivery and training in underserved rural and remote communities, notably Aboriginal and Torres Strait Islander communities and near Pacific neighbours, and regional development.

The objective of ERA to rate performance, relative to putative international standards, is not necessarily antithetical to JCU's social licence. Researchers in such fields are encouraged to consider how their research might have broader national and international significance and publish, and collaborate, accordingly. However, this should not displace activity away from their core mission and activities, often in response to deep and long-standing regional engagement.

ERA has not been:

- A primary factor in recruitment of staff or adjuncts.
- Used in internal resource allocation even when ERA was a moderator in the SRE block grant.
- An explicit indicator in promotions or performance reviews, although staff may choose to contextualise their research and contributions to ERA performance. (Line managers are specifically advised not to misuse ERA data e.g. average Relative Citation Impact (RCI).

While creative works are a small part of JCU's total research portfolio, the research statement requirements for NTROs have been particularly useful to encourage clarity of research contributions to creative works (and opened up constructive relations and informal mentoring with researchers from two institutions with strong performance in NTROs).

The reputational value of ERA outcomes for JCU (and no doubt other institutions) has ebbed over the four rounds because ERA has diminished as a useful differentiator (ERA has never had cache in international student recruitment).

To illustrate this, in 2010, JCU was the only institution of 19 UoEs to be rated ERA 5 in 0502 Environmental Science and Management (5.3%), however in ERA 2018, 28 of the 32 UoEs were rated a 5 (87.5%).

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

As per above, ERA has been useful in refining publication strategies. The outcomes – in terms of positional/marketing goods – have declined in their value. Although ERA ratings, appropriately, are not intended to be differentiators.

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

As discussed elsewhere, it is essential for the credibility of ERA that there are improvements to the transparency, methodology and public availability of data. If this were achieved, ERA would be more valuable to inform strategic planning, although ERA will always be one part of a suite of input to such considerations.

(It would also be helpful if the ERA National Report was available in pdf form rather than the current HTML, with data tables in csv format).

### 3.3 ERA methodology

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

As detailed in Q3.1, the ERA methodology only partially meets its objectives. It has been effective as a comprehensive stocktake but not effective in enabling actions that utilise its outcomes in e.g. policy.

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

Key strengths include

- Comprehensive evaluation.
- Size independent evaluation once LVT is achieved (but see comments below for peer review).



- Recognition of disciplinary differences (at coarse grain).
- Principle that outputs are coded based on their specific contents even when this varies from the journal default FoRs (this provides for a more accurate evaluation than relying on journal classification as per global rankings).

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

Specific issues are addressed below but one dimension that warrants comment is the lack of transparency in both citation and, in particular, peer review fields of research.

One manifestation of this is the inability of institutions to seek explanations for anomalous results. While most of the ratings have been in line with our expectations there have been some surprising or inconsistent results, both above and below.

Two examples are:

- In ERA 2015, JCU received ERA 2 ratings for each of the three substantive 4-digit FoRs in 13 Education (and there were no outputs in 1399 Other Education) yet 2-digit Education was rated a 3.
- In ERA 2018, 0102 Applied Mathematics was rated a 3 but at the 2-digit level 01 Mathematical Sciences was rated a 4 even though on all bibliometrics the 4-digit code, which comprised 92% of the 01 submission, was superior.

These examples raise questions as to consistency of the RECs own deliberations but also, it would have been useful to have the opportunity to understand the rationale.

### *Q3.10 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?*

In principle the discipline specific approach allows for robust comparison across institutions within disciplines at 4-digit level (less efficacy at 2-digit). Comparisons are limited by the reliability of outcomes particularly in peer-review fields, and the validity of e.g. shifting citation baselines and use of contextual data.

The obvious shortcoming of the discipline specific approach is the cleavage between citation and peer reviewed FoRs. This makes comparison both unreliable and potentially corrosive.

### **3.3.3 Citation analysis methodology**

#### *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.*

In principle, citation methodology provides for a relatively objective evaluation. A significant problem, however, is the failure to adjust for shifting global baselines that has inflated Australian citation impacts. (refer Q3.13).

This, along with optimisation strategies near the LVT has contributed to the convergence of submissions rated ERA 5 (59% of 4-digit evaluations in ERA 2018).



While there has been a relative improvement across the Australian university research system, as evidenced by bibliometric data in e.g. Scopus and Clarivate Analytics databases as well as the number and distribution of Australian institutions in various global rankings, it is improbable that the improvement from 2010 to 2018 has been as dramatic as ERA ratings suggest given time scales of research.

A 'reality check' is warranted to provide a more rigorous perspective. Accordingly, JCU recommends that additional baselines be derived from a reference group of 5 – 10 similar countries (e.g. Netherlands, Canada, UK, Singapore, South Korea, Sweden, and New Zealand). This would provide a more robust comparison to validate where Australian research sits in the international context.

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

- Low cost - uses externally validated bibliometric data
- Metrics well established and understood
- Size independent once LVT achieved
- Field and year specific baselines
- Has a degree of transparency
- Does not use journal impact factors
- Challenges confirmation bias
- 6-year reference period provides fair coverage given variability of citation peaks both across and within fields (e.g. theoretical, experimental)
- Use of three key bibliometrics – RCI, distribution of RCI across RCI classes and % of outputs in top percentiles – provides an effective view of the Unit of Evaluation (UoE) as a publication set and ameliorates problems of distortions by citation outliers (which is an egregious failing in the Times (THE) Global Ranking)
- Citation metrics inform expert judgement but are not used mechanistically

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

Citation analysis is complex and requires expert judgement to understand variances and distortions. Determinations are not always transparent or seemingly well aligned with core input data.

The most pressing problem with ERA, though, has been the effect of shifting global baselines. This has been driven by significant change in the global structure of research over the reference periods for the four ERA rounds as China, in particular, along with other low-middle income nations including India, have modernised and expanded their research capacity.

Australia, along with other similar developed countries with a high proportion of international collaborations has been a beneficiary of this transformation.

This is best illustrated in Table 1 which shows that China has massively increased its outputs throughout the period from 2003 (the first reference year for ERA 2010) to 2019. Initially China's citation impacts were well below world averages but as volume increased this has made material impacts on global averages.

Growing convergence in volume and impact of China and the USA is likely to stabilise baseline relativities compared to the period in Table 1.

<b>Table 1: Select countries and metrics; 2003 and 2019</b>									
	Outputs		Change	% share of global outputs		Field-Weighted Citation Impact		% Outputs in Top 10% by Citation	
	2003	2019		2003	2019	2003	2019	2003	2019
Australia	28,526	88,508	310%	2.5%	3.6%	1.34	1.64	14.4	17.1
China	67,211	563,083	838%	5.8%	22.9%	0.64	1.15	4.9	14.9
India	28,112	142,502	507%	2.4%	5.8%	0.63	0.79	5.6	8.8
Netherlands	23,228	51,098	220%	2.0%	2.1%	1.68	1.77	19.4	18.5
UK	85,986	164,638	191%	7.5%	6.7%	1.49	1.58	16	16
USA	314,721	514,862	164%	27.3%	20.9%	1.57	1.37	17.9	14.1
World	1,151,022	2,461,090	214%	100.0%	100.0%	1	1	10.1	10.1
<i>Source: Scopus via SciVal data exported 20 September 2020.</i>									
<i>Outputs are restricted to articles and reviews as per ERA eligibility</i>									

While the share and quality of Australian research has improved over the ERA period, the significant increase of ERA 5s in citation fields is partially an artefact of methodology. This may make for good headlines, but there are good reasons to be sceptical that the convergence on ERA 5 ratings is a well-grounded reflection of Australian research.

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

As foreshadowed in Q3.11, JCU recommends additional baseline data be derived from a reference group of 5 – 10 similar countries and be incorporated into the dashboards provided for the RECs to provide more robust contextual data to inform their consideration of ratings.

This may mean, of course, that there will be downward pressure on ratings, thus prospectively providing more realistic evaluations.

As a potential anti-gaming measure, JCU suggests updating guidelines and directions to the REC that apportioning to FoRs can be challenged even if outputs are allocated to the ARC Journal FoR defaults, if the REC believes that output(s) coding is manifestly inappropriate.

The ARC should, if requested, provide explanations to institutions when citation analysis is at substantial variance with ERA scores or inconsistent as per examples above (Q3.9).

### 3.3.4 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.**

It is difficult to make informed judgements on the application of the methodology in ERA because of the lack of transparency.

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

In principle, peer review by experts with deep knowledge of their fields and the capacity to make sound judgement is an appropriate methodology to evaluate research quality, particularly in some humanities, social sciences and creative arts where bibliometric data are not effective quality proxies.

The 30% sample approach is fair and superior to a UK approach of top 4-5 outputs as such cherry picking can distort the overall standing of the UoE (it would be akin to limiting citation outputs to those with an RCI > 2). However, this does place a high burden on peer reviewers.

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

The ERA peer review process remains a ‘black box’ with no clarity or transparency as to

- the applicability of ‘world-standard’ to evaluate locally or nationally significant work in peer review fields particularly in social sciences, humanities and creative arts, and
- how the reports of the 1200 individual reviewers are aggregated and normalised.

The ERA 2018 evaluation handbook shows that smaller UoEs could be evaluated by as few as five reviewers; two peer reviewers and three REC members. This is a fragile base exacerbated by the improbability, given the range of FoRs that panels cover, that any given three REC members will have deep knowledge of the field at hand. This is particularly the case with NTROs. How many REC members had deep expertise in, say, research inputs to musical composition?

In the post-evaluation meetings after ERA 2015, the ARC suggested that peer reviewer reports might include some quantitative elements (e.g. scores across quartiles) and that these data would be summarised and provided to the submitting institutions. This, however, was not operationalised. This should be revisited perhaps along the lines of existing ARC grant ranking algorithms to assist normalisation and contextualisation of detailed peer reviewers’ reports.

Despite being a size-independent evaluation once LVT is achieved, the significant difference in Go8 share of ERA 5s in citation fields (43%) and peer review (82%) in ERA 2018, raises important questions. Perhaps it is the case that these fields are systemically weaker at non-Go8s. However, in the absence of volumetric data, it is open to speculate that confirmation bias is playing a tacit role. Not so much on the name of the institution, but more so with the number of researchers with name recognition operating as an additional quality proxy supplementing or displacing to some degree the evaluation of the contents of the peer review sample. That is to say, in practice, the evaluation may not be truly size independent.

*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.

There are several measures that would improve the credibility of the peer review process.

**Transfer some FoRs currently evaluated by peer review to citation analysis**

Peer review FoRs with sufficient volume of indexed articles and reviews to enable fair and robust evaluation, should use the citation methodology (with thoughtful understanding and analysis of international benchmarks).

Due to the implementation of the new research classification codes, it isn’t feasible to model this precisely, however given experience in previous ERA rounds and close correspondence between the old and new codes in some fields, JCU suggests that all of the 4-digit FoRs in 38 Economics as well as 4402 Criminology and 4301 Archaeology - and perhaps 4406 Human Geography - are clear candidates for citation analysis.

National data on the percentage of indexed outputs in peer review FoRs are not available, but indicatively, these disciplines all had a higher percentage of indexed journal articles and reviews as a proportion of total outputs than a number of the citation FoRs in JCU’s submission for ERA 2018. We would not expect JCU’s profile to be anomalous in these FoRs.

JCU’s submissions for Economics and Criminology also had significantly higher shares of indexed outputs than most of the Engineering FoRs at national level as derived from the *Research Outputs by Type* spreadsheet embedded in the ARC ERA 2018 National Report.

Decisions as to which, if any, such fields are evaluated by citation analysis in ERA 2023 will need to be confirmed prior to submission; not based on a threshold test applied to actual submitted data.

In considering transfer of some FoRs from one methodology to the other, there may also be a case for citation FoRs to move to peer review where there is a strong focus on policy, social science and critical qualitative methodologies e.g. 4203 Health services and Systems. At this juncture, JCU recommends that FoRs in Public Health remain in citation fields for ERA 2023 with a view that following that round there be careful analysis of the nature of submissions to see whether they would fit better with a hybrid evaluation.

#### **Hybrid evaluation: Addition of citation data for peer review panels**

Quantitative measures can challenge bias, accordingly, JCU recommends that bibliometric data are provided to the peer review RECs for, prospectively, all FoRs. The relevance of such data will vary across fields with it likely to be useful indicators for education and business fields through to no relevance in creative arts and some humanities disciplines. To determine applicability, options could include:

- a) Setting a minimum threshold e.g. national mean of indexed articles and reviews comprising 35% of total outputs, or
- b) Rather than a uniform threshold, the ARC and REC Chairs could make determinations on whether bibliometric data are to be provided based on judgements of the publication norms for each FoR. In any case, all UoEs in each FoR must be evaluated using the same indicators.

#### **International REC members**

Increasing the number of international panel members may help rigor of applying world standards, and address concerns of confirmation bias. Their participation may be easier than previous rounds, where international REC members were required to travel to Australia, given the COVID-driven ubiquity and experience with Zoom or similar technologies.

#### **Peer review sample.**

The guidelines for ERA 2018 state:

institutions must draw the peer review sample from a representative sample of the institution's eligible researchers for that four-digit FoR. (3.6).

JCU is not aware whether this requirement is being tested. As part of the data integrity stage of the ERA 2015 submission process, the ARC requested clarification on changes in the portfolio (even though some of these were clearly addressed in the Explanatory Statements or responses to Business rule inquiries).

A similar audit by the ARC to confirm or challenge whether peer review samples are in line with the guidelines would improve confidence in the process and limit gaming through over and/or under representation by e.g. level and gender.

#### **Recognition of additional workload for peer review REC members relative to citation RECs**

The difference between citation and peer review methodologies means that REC members in peer review do have a substantially larger workload as they are reading many of the submitted samples.

Allowance for this difference in time required, should be recognised in resourcing including provision of quantification and normalisation of detailed peer reviewers' assessments.

### **3.3.5 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.*

A plurality of indicators is an essential feature of sound research evaluation practice so, on that basis, JCU

agrees with the retention of the contextual indicators. However, in practice, the difference between real and contextual indicators may be somewhat fuzzy.

While RECs are instructed that research income, for example, can only be used at a ratings threshold to increase not decrease the rating, it is stretching credulity to consider that research income does not inform some individual REC member's perception to some degree irrespective of specific directions from the ARC.

Volume and activity indicators are relevant and may also be helpful in identifying potentially anomalous submissions.

*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.*

The publisher profile is useful to check that the journals are appropriate to the code and are 'known' places to publish. However, publisher profiles may also operate as a conscious or unconscious quasi-quality proxy. The prominence or otherwise of high impact factor journals can colour perceptions and, may, for instance, militate against heterodox or emerging research.

*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 (but see Q3.19)

*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.*

The relevance of applied measures is highly variable across and within FoRs and are irrelevant for a high proportion of evaluations. Arguably they have more relevance and applicability in some submissions in EI.

However, patents – or patent families – and NHMRC endorsed guidelines may have some visibility in medical and health sciences. IP outcomes are likely to be highly marginal in most fields.

### **Explanatory Statements**

We note that there are no specific questions concerning the requirement to provide Explanatory Statements. We doubt they are particularly useful but that is a question for former REC members. They may consider that more specific guidance and requirements are required. Statements could also be used to provide reasons for opt-in decisions if LVT is increased but with opt-in provisions.

### 3.3.6 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.

The five-point scale is an effective approach with symmetry above and below the mid-point at ‘world standard’. It is not intended to provide fine-grained differentiation (ranking) of UoEs.

*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.*

While there has been an improvement in the quality of Australian research through the various reference periods for each round, the convergence on ERA 5s in citation fields is, in part, an artefact of methodology not granularity of ratings (refer Q.3.13).

JCU sees no benefit in extending the rating scale to a 6, 7 or higher point scale (there will be the problem of false precision especially if issues of transparency of the evaluation process are not addressed.).

It has been suggested that ERA adopt a 5\* rating for truly exceptional research on a world scale. JCU opposes this suggestion, but if implemented, this should not be simply a function of volume or RCI and other metrics against world standards, but should also be deeply informed by relativities against a reference group of similar countries in citation FoRs (as per Q3.11).

### 3.3.7 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.*

ERA is intended to be a comprehensive evaluation, thus the LVT is a trade-off between inclusion and reliability. A low LVT increases probability of distortions, especially in citation fields (problem of statistics of low numbers) and is open to optimisation strategies (there needs to be a quantum of strong work to earn a rating of 4 or 5 but there may be more opportunities to ‘hide the tail’).

On balance JCU supports increasing the LVT.

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

The argument to increase the LVT implies pre-suppositions about importance of scale and critical mass as well as suspicion that optimisation tactics are inflating results around the current LVT.

Critical mass is a relevant factor in identifying research strengths, but it is highly context dependent both within and across FoRs. Moreover, appeals to scale (in the ERA context), assumes that the university is the relevant unit of scale. Small groups collaborating with other institutions (as well as internally), may well be part of a research agenda that collectively has significant scale and critical mass. Conversely, some UoEs may have several hundred outputs which are mere aggregates of disparate, insular, ‘cottage industry’ publications.

The 2018 ERA National Report shows an increase of approximately 50% in the volume of outputs from the 2010 to 2018 round. This supports an argument to increase LVT. A countervailing factor, however, is the introduction of the ANZSRC 2020 which increases the number of 4-digit codes from 157 to 213. While a proportion of the new codes will split high volume (2008) codes providing a more cohesive classification, there will be a dilution factor.

Nevertheless, JCU supports lifting the LVT to 100 outputs (indexed articles and reviews for citation FoRs and weighted outputs for peer review), with an opt-in provision for UoEs with  $\geq 75$  eligible (weighted) outputs.

The basis for such inclusion e.g. emerging field, strategic focus or connection to cognate FoRs, can be outlined in the Explanatory Statements.

### 3.3.8 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.*

There are pros and cons with both approaches but on balance JCU supports limiting eligible outputs to those with an institutional by-line. This better captures the actual body of research in the reference period. However, the portfolio of publications needs to be curated by each institution for submission to ensure such outputs are really eligible.

If census date is retained then eligibility should be tightened to remove visiting, exchange, or seconded staff.

There are merits to only assessing the outputs of core academic staff (e.g. making professional and adjunct staff ineligible) however the contribution of adjunct staff, notably in medical fields, means inclusion is valid if the intent is to provide a comprehensive view of Australian research in the reference period.

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

One obvious limitation is it is a perverse incentive for gaming through recruitment of staff on a 0.4 FTE basis to gain the benefits of their prior work. It also means that publications by deceased or departed staff in the reference period are not included even though they may have made significant contributions and/or been recipients of long-standing investment and support by the institution. While co-authorship with staff who are eligible on the census date may capture some or most of these outputs, the discrepancy between eligible and actual research remains.

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

Yes.

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

- There will need to be clarity on calculation of FTE. A census date provides a single point in time to summarise FTE. However, what would the basis be for calculating FTE for by-line approach? Average FTE per annum per FoR to take account of staff changes throughout the reference period? And which reference period – outputs or research income?  
A census date could still work with a by-line approach to filter eligibility to exclude, e.g. visiting scholars, seconded staff, exchange staff or students (by-line may pick up honours projects).
- Authors affiliated with more than one institution (often the case for part-time and adjunct appointments) may not include all relevant affiliations on publications, even when they should



have. If they are in the medical fields, they may for example only list the hospital affiliation.

To accommodate this in the past (e.g. HERDC submissions), authors had to complete an author affiliation form (which required approval from Head of School/Director of Centre) to confirm that they were also affiliated with JCU for that publication (validation that did require extra work for repository staff).

While uncommon, some publications, e.g. books, do not record author affiliations in publisher metadata. Another reason to allow for institutional curation of a submission to ERA.

### 3.3.9 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 is not capable of identifying or usefully analysing interdisciplinary research. Some FoRs are likely to encapsulate intrinsically interdisciplinary research e.g. 3102 Computational Biology and Bioinformatics, 3105 Genetics, and 3801 Applied Economics but these are not separated out in the reporting. Some mapping of outputs apportioned across broad fields of research may be illuminating but it is likely that a matrix that maps SEOs and FoRs in EI would provide more useful national information (See Q4.44).

Splitting outputs and other indicators across three FoRs should be retained as it provides for more accurate treatment of the contents.

### 3.3.10 ERA and Indigenous research

JCU advocated for the inclusion of Indigenous Research at 2-, 4- and 6- digit level in the ANZSRC and, thus, by extension, inclusion in ERA.

However, the inclusion of codes for Indigenous research poses significant methodological and apportioning challenges. If current approaches were applied without significant mediation this poses a high risk that the ARC will be setting up Indigenous Research to fail.

The key problem is the applicability of 'world standard' to evaluate Indigenous research. While some outputs do have international relevance and attention, the primary focus is research aimed at addressing challenges and opportunities at local/community scale and typically published in niche or practitioner focused outlets that do not generate significant international citations. The appropriate measure here is less academic quality per se (although sound scholarship is expected) but rather, quality in terms of fit-for-purpose to inform policy, implementation, and practice, including dynamic, generative cultural practice.

(Focus on local challenges is not, of course, confined to Indigenous research, notably in regional institutions).

JCU's own analysis of publication data is consistent with that of the Clarivate Analytics paper - *The State of Aboriginal, Torres Strait Islander, Maori, and Pacific Peoples Research* - released in September 2020. The CA methodology and data are flawed but their general findings are usefully illustrative.

These show significantly lower bibliometric results for Indigenous research including the key ERA metrics of Relative Citation Impact and percentage of outputs in top percentiles. Using world benchmarks for citation fields such as 4206 Public Health will likely result in all submissions in 4504 Aboriginal and Torres Strait Islander Health and Wellbeing, rated below ERA 3.

Constructing alternative world benchmarks that restrict the global publication set to, say, a limited range of journals or keyword filtering is likely to produce dirty data through omissions, false inclusions and limited sample.

The challenges with peer review are perhaps even more complex in determining ‘world standard’ given local/community focus, international Indigenous literature skewed to settler countries particularly the USA, and highly diverse and contested views and approaches within Indigenous studies fields. This is prospectively compounded by the relatively small pool of experienced Aboriginal and Torres Strait Islander researchers who must constitute a very substantial part of this REC.

JCU urges the ARC to consider, and make explicit in the ERA guidelines;

- a) how evaluations against ‘world standards’ will be modified and utilised, including guidance provided to the RECs, or
- b) develop an alternate and appropriate framing of ratings for these FoRs.

In addition, there will be challenges determining the boundaries of inclusion – e.g.

- research into chronic disease in North Queensland will typically include specific consideration of Aboriginal and/or Torres Strait Islander communities along with other categories such as low SES, gender, obesity and other co-morbidities.
- Archaeology of Aboriginal or Torres Strait Islander cultural heritage conducted in collaboration with Traditional Owners and Custodians but utilises mainstream scientific methodologies.
- Whether it is an Indigenous researcher or a non-Indigenous researcher using western methodologies in e.g. oncology or anthropology does not make one Indigenous Studies and the other not.

In the ANZSRC, the codes within 45 Indigenous Studies are 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.

During the consultation for the new codes, a key motivation of Aboriginal, Torres Strait, Maori and Pacific Islanders stakeholders in Australia and New Zealand was the ability of the codes to provide visibility to Indigenous knowledges, and research undertaken by researchers who identify as Indigenous.

The 2<sup>nd</sup> and 3<sup>rd</sup> dot points of the definition broadly capture these elements, albeit with grey areas as the extent that research ‘utilises Indigenous methodologies/ways of knowing’ or research ‘undertaken with’ may fall on a continuum and require judgement as to extent of applicability and apportioning.

However, there is a high probability that research captured in the first dot point will dominate.

A quick overview of outputs flagged as Aboriginal and Torres Strait Islander research in the JCU ERA 2018 submission, suggests that 85% of the outputs did not include authors who identify as Aboriginal or Torres Strait Islander.

In a substantial proportion of that work there was close engagement with Traditional Owners and Custodians and a wide range of Aboriginal and Torres Strait Islander NGOs and other entities. Ethics approvals require detailing the relevant arrangements and consent. However, these interactions did not include co-authorship.

JCU does not currently have a comprehensive line of sight on the extent to which the outputs submitted in ERA 2018 and flagged as Aboriginal and Torres Strait Islander research incorporated or utilised Indigenous methodologies – that would require a detailed audit.

It is important to note that a significant proportion of the research relating to Indigenous issues, including publications authored or co-authored by researchers who identify as Aboriginal and Torres Strait Islanders, use western academic methodologies. JCU submits that it is critical that research is evaluated on its own methodological terms and the panel should not impose a hierarchy of Indigenous knowledges over non-Indigenous or vice versa. Clarity on this should be explicit in the guidelines and evaluation handbook. This potential tension needs to be addressed as it may constitute a perverse incentive to change codes, or apportioning to codes, if there is a concern that evaluation will be skewed on such lines.

JCU is concerned that ERA will not be useful to help understand Aboriginal and Torres Strait Islander research as a unique domain unless there is the capacity for sensible disaggregation of data and the ability to reconfigure that, and other material including EI, into a coherent frame.

Accordingly, JCU submits that the ARC consult with relevant Aboriginal and Torres Strait Islander organisations with research expertise such as the Lowitja Institute, to explore establishment of a ‘State of Aboriginal and Torres Strait Islander Research Report’ as a discrete summary report that utilises and synthesises data, examples and insights from ERA, EI and, prospectively, other relevant sources (e.g. outcomes reports from ARC/NHMRC grants with an Aboriginal and Torres Strait Islander focus).

Given the proximity of the next ERA and EI rounds (2023 and 2024) such a report should be considered for 2024.

This could incorporate, for example, a mode of evaluation triangulation that considered

- the efficacy of research and innovations on community through influence and uptake on policy and practice (informed by EI),
- innovation of the research on the research enterprise (informed by ERA), and
- delivery against justifications of prior grants and contracts. (Current development of a research impact framework and cognate evaluation tools by the Lowitja Institute may be of significant utility).

It can also consider the capacity and profile of the Aboriginal and Torres Strait Islander research workforce (informed by ERA and other sources).

Independently of whether a report of this scope is supported, the following data should be identified in submission and summarised in the ERA National Report:

- All outputs (irrespective of FoR) authored/co-authored by researchers who identify as Aboriginal and Torres Strait Islander should be flagged (as per gender identification in ERA 2018). These data should play no role in evaluation.
- Outputs that meet the 2nd ANZSRC criteria of research that incorporate or utilises Indigenous methodologies/ways of knowing should similarly be flagged (feasibility of this should be open to further consultation with relevant Aboriginal and Torres Strait Islander expertise).

*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.*

If the LVT is 100 then 4504 Aboriginal and Torres Strait Islander Health and Wellbeing is likely to be close to the LVT. No other FoRs will be close.

If LVT is 50 then three other FoRs are likely to be within range:

- 4501 Aboriginal and Torres Strait Islander Culture, Language and History
- 4502 Aboriginal and Torres Strait Islander Education
- 4505 Aboriginal and Torres Strait Islander Peoples, Society and Community

JCU strongly recommends that the LVT for these codes should remain at 50 even if the LVT for other FoRs is increased.

*Q.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.*

As argued above, the current methodology for ERA to evaluate research against putative 'world standards' is an inappropriate and misleading frame for evaluating the quality of Aboriginal and Torres Strait Islander research.

The codes are highly variable in their disciplinary specificity. Education (4502), Environmental Knowledge and Management (4503), Health and Well-being (4504) and perhaps Sciences (4506) have a broad disciplinary coherence, however Culture, Language and History (4501) and Peoples, Society and Community (4505) capture very disparate fields. For example, 4505 includes accounting, anthropology, architecture, commerce, criminology, customary law, economics, human geography, marketing, politics, sociology, tourism and urban and regional planning. This captures far more disciplinary and methodological diversity than the non-Indigenous Studies 2-digit FoRs.

Options b) and c) are intended to pragmatically maximise the number of evaluations. However, it is questionable that such aggregation will provide meaningful insights. JCU's preference is that 4502, 4503, 4504 and perhaps 4506 should not be aggregated with other FoRs. Universities who are below the LVT, or choose not to opt-in, will be evaluated at the 2-digit level. The argument to aggregate 4501 and 4505 to meet the LVT makes more sense by virtue of their existing omnibus characteristic.

Accordingly, JCU recommends that evaluation be carried out with the following characteristics

- a) Peer review for all FoRs
- b) Research excellence, understood as fit-for-purpose in the context of Aboriginal and Torres Strait Islander challenges and opportunities, be privileged.
- c) Citation metrics provided for 4503, 4504, 4506 as input data for the REC. However, world benchmarks should
  - i. be set aside (e.g. no RCI, & percentage of papers in top percentiles), or

- ii. the REC provided with detailed advice on their incommensurability for evaluation of most outputs, or
- iii. calculated only on Australian benchmarks.
- d) LVT set at 50 irrespective of LVT in other FoRs.
- e) The 5-point scale retained – its even temper from 1 – 5 with a mid-point of 3 is sound – however, these should have different descriptors than reference to world standard.
- f) No, or minimal, aggregation of 4-digit codes (as discussed above).

JCU also suggests that institutions provide FoRs at 6-digit level. While evaluation should not be at that level (volumes will be too low in many cases) having that data may be useful for additional summary evaluation in the ERA National Report and, more pertinently, the suggested 'State of Aboriginal and Torres Strait Islander Research Report' recommended above.

Given the relatively low volume of these outputs we do not believe that identifying FoRs at 6-digit level in this field is particularly onerous (JCU repository records these as a matter of course) and, no doubt, there will be good will and willingness to do so across the sector.

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

The primary advantage of our preferred approach is that it provides for a more nuanced and relevant approach to evaluating Aboriginal and Torres Strait Islander research and avoids the prospectively corrosive effects of the misapplication of world standards.

JCU recognises that this presents a challenge as there are merits in using the same methodology (e.g. citation or peer review, LVT) across the full spectrum of research. However, in our view, the benefits far outweigh issues of consistency.

### **3.4 ERA Process**

#### **3.4.1 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.*

JCU supports the annual collection of data; presumably, analogous to HERDC publication report with additional 4-digit FoR and 2-digit SEO classifications, inclusion of eligible NTROs, and no publication points.

However, if annual reporting is adopted, it is critical that universities have the capacity to curate the submission for ERA including recoding, as necessary. In some cases, outputs may be deleted if it became apparent that the publisher did not meet appropriate academic standards, in other cases it may be deemed that the research was a better fit elsewhere. This would also provide for the ARC to request explanation for subsequent recoding if concerned about gaming.

It is well to note that research fields are not immutable thus recoding over time is valid, e.g. stroke has increasingly been understood as part of neuroscience, whereas less than a decade ago it was more typically seen as part of cardiovascular medicine.

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

Annual collection of data has the benefit of spreading the workload required for ERA submission over several years, not one significant effort every 3 years and may also alleviate concerns about gaming.

If this were done then the ARC could determine whether it wanted to run an ERA round every 3, 4 or 5 years, or indeed, other periods if circumstance warranted.

### 3.4.2 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.

The credibility and analytic utility of ERA will be enhanced by a wider range of information being publicly available. For example, the absence of publicly available volumetric data meant that the ACOLA review of Regional Universities was unable to make meaningful, quantifiable comment on the state of research in the regions, particularly in HASS fields.

JCU supports the publication of volumetric data. However, this should be a nuanced exercise to assist analysis and not just a simple number that may reductively be used for simplistic rankings or a high/low binary.

To that end JCU proposes four volumetric fields for public reporting:

- Output quartiles (with threshold for use e.g. # UoEs > 16 per 4-digit FoR); **OR**
- Output volumes in, say, 5-6 bands normalized for the field; and
- Actual volumes per 4-digit FoR (peer review should include weighting); and
- Each institution's percentage contribution to national outputs, FTE and research income (these data including fractionalised counts for outputs are provided to each institution after each ERA round on an in-confidence basis, but not publicly); and
- Distribution of outputs and FTE staff by 2-and 4-digit FoR code for each institution (this was provided at 2-digit level in Section 1 of the ERA 2018 National Overview).

The use of quartiles or normalised bands is intended to give perspective to disciplinary differences across FoRs. A high volume UoE in some medical FoRs could be over 3,000 outputs but a high volume UoE in the social sciences could be 600 (weighted) outputs.

There will need to be a minimum number of submitted UoEs for quartiles to be useful, perhaps, 16. As the median number of UoEs submission per 4-digit FoR was 13 in ERA 2018, it is likely that bands will be more efficacious.

The argument that publication of volume data may raise privacy concerns is not sustainable. It is a trivial exercise to identify relevant researchers and their track records through professional/academic societies, conferences and other networks as well as through third party databases such as SciVal and Incites.

*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.*

Yes. Improved transparency. But not an issue of pressing importance.

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

The current ERA National Report and cognate documents/spreadsheets have almost no value to inform analysis and understanding of structure, investment patterns, trends and intensity of research across Australia. Given the cost and work that goes into ERA, JCU submits that it is essential to maximise value from the exercise including publicly providing a comprehensive suite of data post evaluation from all submissions.

Volumetric data are the most important but there is no valid reason why all the indicator data provided in the institutional reports are not published including

- RCI – against Australian, World and the proposed quality ‘reality check’ reference group discussed above;
- % of outputs in top citation percentiles by Australia, World and ‘reality check’ reference group benchmarks; and
- FTE/headcount by level and FoR.

Publication of staff data by FoR would fill a significant gap in Department of Education Staff Statistics publications which report against Field of Education for Teaching and Research and Teaching-only staff but does not identify any fields for Research-only staff. ABS HERD workforce data aggregates staff and HDR candidates.

## **4. Engagement and Impact Assessment**

### **4.1 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.*

Universities have a long history of collaborating with research-end users, albeit with variability across and within institutions and disciplines/academic groups. The focus on engagement and impact in universities has intensified over the past two decades or more, in part because;

- a) researchers have appreciated that deep engagement with end-users throughout the research process is often a necessary condition for adoption therefore impact, but also
- b) increasing competition and constrained Government funding has driven the need to diversify funding sources.

EI is consistent with, rather than a driver of, greater collaboration and has not delivered significant additionality.



The changes to RBD allocations to give equal weighting to HERDC categories has more impact.

*Q4.1b 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.*

While impact case studies can provide useful exemplars to illustrate impact, it is hard to see how it provides any clarity on system outcomes for the Government or wider community. Perhaps the results of EI 2018 - 85% of engagement submissions ranked medium or high, 88% of impact case studies and 76% of the approaches to impact evaluations - confirm that engagement and impact are far from 'green field' sites in Australian universities.

JCU is not aware of any useful outcomes for the Australian public. It has not ameliorated politicised attacks on some humanities grant projects, or more broadly, hostility to science in e.g. climate change and vaccinations.

*Q4.1.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.*

Preparation of the EI 2018 submission flushed out some relational activities that were largely invisible to the wider university community and leadership. It was also a reality check for a few areas that perhaps had an inflated view of the efficacy of their approach. This was helpful.

However, productive engagement and impact activities are not necessarily strongly correlated with institutional processes, for example, effective, long term engagement is typically highly dependent on the calibre of the interpersonal relationships rather than formal structures.

The summative observations in the EI National Report noting characteristics of strong and weak engagement/impact submissions, largely confirmed the university's own experience. It is, however, one thing to recognise best practice, it is another in a highly constrained resource environment (financial and time) to implement them effectively on a wide scale. Universities are also confronted with the same challenges as the EI exercise in terms of robust assessment of engagement activities. This is particularly pertinent in e.g. workloads, recruitment and promotions.

*Q4.1.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.*

EI reinforced the importance of translation but did not add much of note. The appointment of additional staff to support engagement and impact, repositioning the research office (now called JCU Connect), significant investment in new innovation centres in Townsville and Cairns to, inter alia, provide for co-location of firms and other end-users, were initiatives taken prior to EI.

*Q4.1.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.*

Case studies provide some useful exemplars including key elements in their pathway to impact. Some case studies have characteristics that are, to varying degrees generalisable, but it is not clear that they are of significant systemic value.

*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.*

The objectives are fine in and of themselves however at this stage of maturation and design, EI is very limited in delivering against those objectives.

*Q4.3 What impact has EI had on:*

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

In our judgement EI has made little impact on the sector (see comments on additionality above). The EI National Report had scant visibility which was not helped by the unfortunate timing of the release of the ERA National Report a matter of days prior.

*b) Individual universities. Please describe.*

JCU acknowledges that the ARC deliberately sought to limit the cost of the exercise (relative, for example, to the UK REF) with the intent to encourage more deliberative strategies to change behaviours. However, in practice, that meant for most, if not all universities, it had more impact on professional staff in DVC-R and research offices than the academic workforce.

*c) Researchers.*

In developing the submission, JCU held workshops for each engagement Unit of Assessment (UoA) which included senior research leaders and, deliberately, early career researchers (ECRs). Numbers ranged from 7 to about 25 for each workshop and usefully identified quite a range of informal and formal engagement activities and prompted some consideration of their efficacy. However, it was also costly in terms of total staff time and travel for the Cairns based staff who attended the Townsville workshops.

In contrast, once selected, the impact case studies typically involved only one or two researchers with write up largely undertaken by two professional staff members (JCU did not engage external writers/science communicators). That is, the impact process for EI was almost totally invisible within the university.

The outcomes have had virtually no impact.

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

JCU is not aware of any impact apart from the occasional 'human interest' story in local media.

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

Use is modest but includes:

- Impact case studies in modified forms have been used for local advocacy and positional marketing (some of the case studies were already well covered in media and marketing materials);
- Description of engagement activities to support some grant, contract or tender applications;
- EI identified engagement activities that were not well recognised and some of those have been useful examples to add to, or modify, activities in cognate areas; and
- ER and Impact case studies have been used in PD for ECRs as part of work using pathways to impact logic tools.

**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.*

Given the costs and time to develop the submission, the return is low. As noted above, EI identified some activities that were largely invisible and challenged some assumptions as efficacy of their approach. It did provide some exemplars that had a little utility with end-users (mainly confirming the recognition of the partners in the high impact evaluations).

At a higher level, JCU recognises that the ARC repository of high impact case studies may have utility for specific topic searches, although we are not aware if there has been significant use for that purpose.

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

Engagement and impact assessment is relatively new and intrinsically more difficult to achieve than academic evaluations, which do have some agreed quantitative proxies.

As the field of engagement and impact assessment continues to become more professional worldwide, and understanding and use of indicators matures, the evaluation instruments are likely to be more effective.

To help that development, the ARC should better position EI as a constructive learning-by-doing framework through provision of critical feedback from the panels to each institution on key elements that led to the rating of each submission. No doubt the ARC will wish to minimise disputes over ratings, but thoughtful feedback would be useful to address weaknesses, shortcomings and understand strengths.

The ARC could also consider allowing a small number of relevant professional and academic staff observe the panels deliberations as a professional development exercise analogous to the NHMRC program to allow ECRs observe panel deliberations.

## 4.2 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.*

For the purposes of EI, the definition in its generality is fine but 'mutually beneficial' presupposes the outcome(s) of the engagement. Effective engagement is, usually, a necessary condition of impact, thus part of a continuum rather than a separate domain.

**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.*

The definition is fine but there is an argument that exclusion of higher education institutions should be

relaxed for evaluation of education research as they are the primary end-user of tertiary education research.

*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

*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.*

See Q4.12 below

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

If the policy intent is to demonstrate one of the value propositions of Universities through assessing economic, social, environmental and cultural engagement and impact with research-end users, it makes more sense to move away from a research disciplinary frame and use socio-economic objective (SEO) or industry sector classifications as the organising principle.

A handicap to taking that pathway is data are not as thoroughly collected and curated for these classifications compared to FoRs.

The ABS recently advised universities that it would no longer collect SEO coded data for the biennial HERD report. This has always been an under-utilised resource and could have provided EI with a pre-existing core data set using SEO codes. These would also have the benefit of showing all research expenditure not just the existing subset of external HERDC income which would give a better context for each university's investment in each SEO. This particularly applies to HASS fields where general university funds are a significant proportion of the investment relative to external funding.

If SEO codes are adopted, then there would be good reasons to split 2001 Clinical Health from the other fields in 20 Health in line with the precedent set in EI 2018.

There would also be little reason to include 28 Expanding Knowledge as, by definition, that captures pure and basic strategic research that is not oriented to a SEO.

#### 4.3.3 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.*

If FoRs are retained, there would be a maximum of 23 submissions as compared to the 23 plus two optional submissions in EI 2018.

There seems little justification in relying on one interdisciplinary impact submission as it essentially just provides another case study for marketing/advocacy purposes. It does not seriously engage with the question of how universities deploy resources across disciplines to address key challenges.

Adopting SEO codes would reduce the maximum number of submissions to 18, assuming health is split and there is no submission for 28 Expanding Knowledge.

#### 4.3.4 EI low-volume threshold

*Q4.14 The EI low-volume threshold should continue to be based on the number of research outputs submitted for ERA. Strongly agree; Agree; Neither agree or disagree; Disagree; Strongly disagree.*

- a) *If you disagree, how should eligibility for assessment in EI be determined?  
Please explain your answer.*

Agree. If SEO codes are used, then these will need to be recorded in ERA submission. JCU routinely records SEOs in the publication repository and assume all other institutions do the same. If reported, it is not a difficult or onerous task to include them at 2-digit level as they will be sufficiently coarse grained thus not require significant review, except, perhaps checking of 28 Expanding Knowledge.

*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.*

The current LVT of 150 outputs (with books weighted at 5) is reasonable with opt-out provision for Impact where the research is predominantly pure basic or strategic basis or is sufficiently new such that it is premature to verify demonstrable impact.

#### 4.3.5 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.*

The fundamental driver of engagement is the quality, calibre, sustainability, and nature of the relationships between the end-users and the researchers/research groups. There are no simple or adequate metrics to quantify the nuances of such relationships particularly in a robust fashion consistent across institutions.

It is not clear how these are used by the panels, indeed, concerns with lack of transparency raised above for ERA apply even more to EI.

*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.*

Cash support is a poor proxy. While it can be a useful indicator in specific cases, using it as a uniform default excludes (thus downgrades) all sorts of critical in-kind and relational contributions. This applies to a wide spectrum of community groups and organisations but is particularly pertinent when working with disadvantaged groups including Aboriginal and Torres Strait Islander communities, domestic violence victims and support networks, and institutions in low to middle income nations.

In-kind contributions do not mean their participation is free. Hospitals, for instance, provide significant in-kind contributions through provision of staff time and expertise that has a cost for them.

End-user income is influenced by geography and economic structure. Universities based in regional economies with, for instance, a high degree of service sector SMEs such as tourism, are less likely to attract end-user funding compared with metropolitan institutions with proximity to diverse economies including advanced manufacturing. Having said that, global firms in e.g. pharmaceuticals, biotechnology, ICT, elaborately transformed manufacturing and defence industries have sophisticated inhouse capability to identify promising research and prospective partners wherever they are situated.

*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*

Research commercialisation income is highly context dependent and will have limited applicability.

*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.*

There are few, if any, engagement metrics that are robust and applicable across many or all fields. This is a problem that has been grappled with by Governments, funding agencies, research institutions across the globe for decades.

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

The draft final report of the Innovation Metrics Review Taskforce may provide some options.

There were several suggested examples/metrics in the Approach to Impact section of EI 2018 that may have some applicability. These could be refined and shifted to the engagement evaluation including

- Support provided by the institution and how implemented;
- Evidence of reviewing impact processes; and
- Human resource policies, initiatives, and strategies.

Again, context dependent, but co-location of staff and infrastructure is a strong indicator of engagement.

There are some metrics that could be usefully consistent in specific areas across the university sector such as conjoint appointments between hospitals/MRIs and Universities. However, this metric will be irrelevant or inconsequential for many fields.

The number of human ethics approvals will provide data on number of projects involving Aboriginal and Torres Strait Islander communities. These data are easily provided. More detailed data on number of Aboriginal and Torres Strait Islander entities who provide consent and/or are involved in the research project is likely to require additional work depending on how institutions record ethics data. For JCU it would require an examination of each approval.

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

Research income should be provided as a total quantum and scaled to per capita. Methodology for reporting research income should be streamlined (see Q5.9).

*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.*

Use of this indicator was foreshadowed in EI 2018 where data could be provided but not evaluated. Universities have established improved databases to capture such supervisory roles, thus it is reasonable to use the data in EI 2024 and then determine if it is a useful indicator.

However, end-user engagement during candidature can involve a spectrum of activity including co-location, internships, access to infrastructure or proprietary data, and co-funding that is not represented as co-supervision. Thus, this indicator could be supplemented by percentage of HDR candidates embedded in research end-user entities including internships or placements. This is a suggested indicator in the recently released National Priorities and Industry Linkage Fund (NIPFL) consultation paper. If this were to proceed, then using this metric in EI may better utilise data reported for other instruments thereby extracting better value for the costs of generating such data. Moreover, an activity metric of this nature is useful, as external co-supervision may reflect a lot of engagement or none, and, potentially, is open to gaming.

*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.

These indicators are of highly variable value across the spectrum of research. There is significant adoption of research that does not involve IP products and, moreover, holding a patent is not a significant indicator in and of itself as many patents are not commercialised and, indeed, some are effectively innovation blockers.

However, as these data are already collected for ERA and other reporting e.g. Knowledge Commercialisation Australasia (KCA) then they may add relevant information on a case by case basis.

Clarity as to how these, and other indicators, might be used by the panels is warranted.

#### **4.3.6. 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.*

In the absence of consistent, robust quantitative data and useful proxies, a narrative structure remains the best option to describe and assess research engagement. This was the most useful part of EI for JCU.

*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.*

One statement per FoR/SEO is sufficient.

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

No, the discipline of trying to encapsulate the range of activities helps provide focus.

*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.*

A significant flaw with EI was the lack of ability to provide external verification of claims in both engagement, impact and approaches to impact other than including it in discursive form within the narratives.

Submissions should be able to include URLs to publicly available evidence/endorsements including e.g. reports, explicit Government recognition of contribution to policy and/or practice, annual reports of firms/industry peak bodies, media statements of end-users or actuarial studies. These could be limited to, say, three URLs per UoA so as not to overly burden the panel.

#### 4.3.7 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.*

Yes, supplemented by relevant external validation as described in Q4.27.

*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.*

The use of one case study per UoA was close to meaningless in terms of capturing research impact within that broad field particularly for large diverse fields.

While there is likely to be resistance to increasing the workload for EI, JCU recommends a significant redesign of the impact part of EI should be considered. This would incorporate:

- a) A portfolio statement of, say, 1,500 – 2,000 words, for each 2-digit submission that outlines the focus, strategy and range of activities and investments that deliver impact, including mechanisms of translation, and
- b) A primary impact case study (of similar scope to EI 2018,) and
- c) 2-3 subordinate case studies (vignettes) of no more than 400 words to give some sense of the range of impacts.

This will not be fully comprehensive but will provide more insight than the current single case study. It will also be a less costly undertaking than multiple impact case studies proportional to number of FTE staff (as per UK REF). If SEOs are used this will reduce the number of Impact portfolios required.

The Approach to Impact assessment should be scrapped with some of that coverage better positioned in engagement and other elements fitting into the impact portfolio statement.

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

No, but if portfolio approach advocated above is adopted then may need longer portfolio statements.

*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.*

Yes, see Q4.27

**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.*

As with engagement, prospective indicators will be context dependent and not readily usable across all fields. These can include jobs created, increase in access to health services from e.g. research in telehealth, export of goods and services, environmental outcomes, effective control of invasive species and so forth. Use of such indicators will generally be provided through ability to use URLs to external evidence.

#### **4.3.8 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.*

The approach to impact section was the weakest element in EI. It should be scrapped as a separate evaluation and migrate relevant elements to engagement, the impact portfolio (if adopted) or subsidiary evidence in the case study.

If retained, narrative is the only effective way to describe the specific interventions, processes and investments undertaken by the University to support the impact identified in the case study.

**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.*

No. Specific attributes of one relationship that has led to demonstrable impact – e.g. co-location of staff and infrastructure over many years - cannot be assumed to be generalisable across the broad discipline.

**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.*

If retained, it could be shortened but better to split with engagement and subsumed into impact portfolio.

**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.*

No, but option to provide external validation may be useful (refer Q4.27).

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

There is significant overlap between engagement and approaches to impact. Some specific elements that

relate to the impact case study could be retained in a shortened form in the impact case study (or, more comprehensively in an impact portfolio) but it should not be evaluated separately.

#### 4.3.9 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.*

The engagement rating scale - high, medium, low - is coarse grained but sensible although designation of 'low' is an unnecessarily derogatory taint for a whole field; perhaps 'in progress'?

The three-point scale should not be changed to e.g. align with ERA until the value and robustness of EI is more firmly established.

*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.*

Broadly agree, although as noted in Q4.7 'mutually beneficial' presupposes outcomes. Engagement submissions are inductive not exhaustive and the degree of effectiveness of engagement is likely to vary within each broad discipline. Thus, descriptors of interactions (highly effective, effective, little or not effective) and integration (well-integrated, incorporated, little or no incorporation) are useful heuristics but may not be solidly based. Nevertheless, at this stage of development these are adequate descriptors.

*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.*

The impact rating scale is coarse grained but sensible.

The three-point scale should not be changed to e.g. align with ERA until the value and robustness of EI is more firmly established.

*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.*

These are appropriate.

*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.*

Approaches to Impact should not be rated.

*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.*

It is not possible to generalise Approach to Impact across the UoA. In addition, mechanisms for translation may contribute to facilitation but they do not, by themselves, facilitate as that is substantially contingent on the end-user.

#### 4.3.10 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.*

If EI remains in its current form, one interdisciplinary example does not provide a great deal other than perhaps a nice case study for marketing/advocacy purposes. Accordingly, JCU recommends that it be deleted, or if retained as an opt-in as per EI 2018.

However, adding SEO codes to the ERA submission provides a matrix that can be used to illustrate how multidisciplinary work is deployed to address SEO opportunities and challenges of relevance to research-end users. These can be incorporated into engagement and impact (particularly impact portfolio if adopted).

#### **4.3.11 EI 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.*

Same LVT should apply for engagement and impact with an opt-in for both if LVT not met. It is important that universities demonstrate their efforts and commitment in this area.

*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, it qualifies irrespective of whether FoRs or SEOs are used given the implementation of ANZSRC 2020. Refer also detailed commentary in 3.3.10.

## **5. Overarching Issues Common to both ERA and EI**

### **5.1 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.*

JCU's preference is every three years. However, the answer to this question is somewhat contingent on the appetite to address methodological and reporting issues. If status quo largely retained, then ERA will be essentially limited to a costly compliance exercise, in which case every five years is sufficient. This would also have the benefit of reducing costs for the ARC and institutions.

If, however, methodological shortcomings are addressed, and comprehensive post evaluation data are publicly available then an ERA round every three years would ensure that ERA has additional value and better retains currency.

*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.*

If ERA is held every 5 years, its value will diminish particularly in the 4<sup>th</sup> and 5<sup>th</sup> year as

- a) relevance of outputs published 4 – 9 years prior declines, and
- b) university profiles change.

For universities, such a schedule would reduce costs, but also increase the risk of losing internal capacity and experience with managing ERA (another reason to support annual provision of publications data).

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

If the intent is to develop EI into an effective and useful instrument then it should be embraced as a framework 'in-progress' and it is reasonable to run it every 3 years for 2 – 3 iterations to enable maturation and better use of data and insights for external stakeholders and the sector.

If SEOs were adopted as the organising principle, and data collected for the ABS biennial HERD reports was recognised as providing useful core data, then the ARC should consider requesting that the ABS reverse its decision to collect SEO data. EI could then run EI every 4 years given that there would be 2 years of data already generated.

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

A longer assessment cycle may stall development and momentum of an under-developed framework.

Universities and the ARC will continue to generate impact case studies for the purposes of advocacy, positioning, general communication and marketing irrespective of EI cycles.

## **5.2 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.*

JCU strongly disagrees. The exercises are quite different in methodology and intent and combining them would create a very significant workload on key professional staff in particular.

*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.*

Better integration and use of other reporting instruments including HERDC, HEIMS, ABS (if decision on SEO is reversed) and KCA (if commercialisation indicators are retained).

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

For indexed outputs both Elsevier Scopus and Clarivate Analytics Web of Science are comprehensive and well understood in the sector.

Google scholar may be better at reflecting more comprehensive citation data for books and book chapters, particularly in HASS fields, but we are not aware of any mechanism that would provide system-wide harvesting of data (and citations also include non-academic sources).

*Q5.8 In your view, what are the most time-consuming elements of an ERA submission? Please describe.*

Checking eligibility and coding of outputs is the largest task, but for the most part the work undertaken here seems reasonable and useful internally as it helps ensure accuracy of internal repository metadata.

*a. Are there efficiencies that could be introduced? Yes/No. Please describe.*

Data for all outputs could be provided by WoS or Scopus with the ARC Journal list FoR defaults for allocation of FoRs to outputs. These would then need to be verified by the institution for accuracy of codes, apportioning and eligibility. However, we are not sure that this would save much time as everything would need to be cross referenced to the institutional repository in any case.

*Q5.9 In your view what are the most time-consuming elements of an EI submission? Please describe.*

Gathering evidence, identifying the contribution of research to the impact, clarity as to the actual impacts and writing up the engagement and impact case studies were all time consuming with the burden falling on a small number of professional staff. In some cases, the same staff as those with primary carriage of ERA.

Reworking research income is very time consuming in part because of JCU's internal set up and treatment of grants, contracts and so forth on a project basis.

*a. Are there efficiencies that could be introduced? Yes/No. Please describe*

Deleting/re-designing 'Approach to Impact' would assist. If adopted, the proposed portfolio approach to impact would increase workload, but this would be offset if SEOs were adopted.

Research income could simply re-use ERA data with no re-calculation of end user contribution.

Another option is to use HERDC data, now that it includes 'own-purpose' categories. In which case, the data reported for HERDC in the highlighted categories below could be used with addition of FoR/SEO codes. Not all elements in e.g. 4.3 will be contract work, and a blanket rule such as proposed may include additional income, but it would make the process far quicker.

HERDC data are required to be audited before submission so has already been thoroughly checked.

**Category 1:**

- 1.1 National Health and Medical Research Council (NHMRC)
- 1.2 Research Council (ARC)
- 1.3 Medical Research Future Fund (MRFF)
- 1.4 Rural R&D
- 1.5 Commonwealth Other
- 1.6 State/Territory Government
- 1.7 Other

**Category 2:**

- 2.1 Commonwealth (own purpose)
- 2.2 Commonwealth (other)
- 2.3 State/Territory/Local (own purpose)
- 2.4 State/Territory/Local (other)

**Category 3:**

- 3.1 Australian for-profit organisations
- 3.2 Australian not-for profit organisations
- 3.3 Australian philanthropy
- 3.4 International for-profit organisations
- 3.5 International not-for profit organisations
- 3.6 International philanthropy
- 3.7 International government (own purpose)
- 3.8 International government (other)

**Category 4:**

- 4.1 R&D income received from CRCs derived from Australian Government grants to CRCs
- 4.2 R&D income received from CRCs derived from private industry participants of CRCs
- 4.3 R&D income received from CRCs derived from other source

### 5.3 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.*

Inclusion of ORCID IDs should be mandatory for the next round as it helps drive broad uptake.

*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*

In principle yes, but JCU systems are not currently fully effective in exporting publication data to ORCID so the data may not be sufficiently comprehensive. In any case, institutions must be able to cross reference data sourced from external databases against institutional repositories and have the capacity to curate and validate the portfolio to ensure accuracy and conformity with ERA guidelines.

*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.*

JCU has no issue with DOIs being mandatory for journal outputs as most have a DOI. Some journals,

however, do not mint DOIs including smaller University journals and journals in HASS disciplines. Books, book chapters and conference papers do not usually have DOIs and nor do most NTROs.

JCU's repository records DOIs as a standard field and they can be useful in the ERA context to identify multiple versions of the one output in ERA citation provider databases.

*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.*

Importing publication data into institutional repositories from major databases including Scopus, Web of Science indexed, and Pub Med is a routine task.

There are differences between e.g. Scopus and WoS in terms of scope and reliability in the ERA context. Both include outputs listed as articles or reviews that are brief information pieces, commentaries, or current state-of-knowledge overviews with no critical assessments or creation of new knowledge to advance the field (i.e. do not meet the ERA definition of research). Conversely there are outputs that meet the ERA criteria for articles but are not designated accordingly.

Thus, at this stage, external databases are not sufficiently robust to replace institutional repositories. In addition, their journal classifications and apportioning algorithms do not reliably represent the actual contents of the research. In the future there may be analytics that allow for classification by e.g. various modes of network analysis that can replace the existing publication and bibliometric inputs to ERA.

However, for ERA 2023 and probably beyond, it is imperative that universities retain control over curating any submission irrespective of the source of publication data.

Collecting robust data for EI is a significant challenge which has prompted development of propriety software and a cottage industry of advisors/trainers. JCU does not have a view on their efficacy as yet.