Excellence in Research for Australia

Flinders University Presentation

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Objectives of ERA

- Establish an evaluation framework that gives government, industry, business and the wider community assurance of the excellence of research conducted in Australia’s institutions;
- Provide a national stocktake of discipline-level areas of research strength and areas where there is opportunity for development in Australia’s higher education institutions;
- Identify excellence across the full spectrum of research performance;
- Identify emerging research areas and opportunities for further development;
- Allow for comparison of Australia’s research nationally and internationally for all discipline areas.
General ERA Principles

1. Unit of Evaluation is the four-digit ANZSRC Field of Research code (ie. 157 possible Units of Evaluation); evaluation occurs at the two-digit level too

2. Evaluation by Research Evaluation Committees in discipline clusters; Eight Clusters in total

3. There is a minimum level of output to be considered ‘research active’ for evaluation in ERA

4. Evaluations informed by a ‘dashboard’ of discipline-specific indicators

5. Some peer review of outputs accessed through institutional repositories in some Clusters
# The ERA Clusters

<table>
<thead>
<tr>
<th>Cluster 1</th>
<th>Physical, Chemical &amp; Earth Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 2</td>
<td>Humanities and Creative Arts</td>
</tr>
<tr>
<td>Cluster 3</td>
<td>Engineering and Environmental Sciences</td>
</tr>
<tr>
<td>Cluster 4</td>
<td>Social, Behavioural and Economic Sciences</td>
</tr>
<tr>
<td>Cluster 5</td>
<td>Mathematics, Information and Computing Sciences</td>
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<tr>
<td>Cluster 6</td>
<td>Biological and Biotechnological Sciences</td>
</tr>
<tr>
<td>Cluster 7</td>
<td>Biomedical and Clinical Health Sciences</td>
</tr>
<tr>
<td>Cluster 8</td>
<td>Public and Allied Health Sciences</td>
</tr>
</tbody>
</table>
The ERA Unit of Evaluation

- The **baseline** - the Discipline in an institution = Four-digit Field of Research Code (ANZSRC) eg., **2101** Archaeology
- The **higher perspective** – the division in an institution = Two-digit Field of Research Code (ANZSRC) eg., **21** History and Archaeology
- The ERA Unit is not the department nor the individual researcher
ERA Process Overview

<table>
<thead>
<tr>
<th>Metrics Profile 1</th>
<th>Metrics Profile 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metrics Profile 3</td>
<td>Metrics Profile 4</td>
</tr>
<tr>
<td>Metrics Profile 5</td>
<td>Metrics Profile 6</td>
</tr>
</tbody>
</table>

Peer Review (if included)

Note - There are no weightings

Research Evaluation Committee

Final report
A quick history of ERA

- Consultation 2008–2010
- Trial for 2009
- ERA – the future
Consultation – 2008 -2010

- Metrics methodology – expert committees
- Discipline-specific indicators
- Ranked journals and conferences
- Esteem measures
- Advice from the Research Evaluation Committees and peer reviewers who participated in the trial
- Sector feedback
Why the ERA Trial in 2009?

- Testing the methodologies
- Two clusters were selected for trial
  - PCE - metrics based
  - HCA - combination of metrics and peer review
- An evaluation framework of research in universities – a shift from volume to quality in all disciplines
- Lessons learned has informed the Submission Guidelines and other processes for ERA commencing in 2010
Summary of the 2009 Trial Submissions

• **Cluster 1** (Physical, Chemical and Earth Sciences)
  - 39 out of 41 institutions submitted data
  - Just over 40,000 research outputs were submitted

• **Cluster 2** (Humanities and Creative Arts)
  - All 41 institutions submitted data
  - Just over 47,000 research outputs were submitted including **7,000** creative works
Indicators for 2009 Trial

• Volume and Activity
  – Profiles showing research outputs and staffing

• Citation Analysis (PCE)
  – Relative Citation Impact (RCI) against world and Australian institution benchmarks.

• Peer Review (HCA)

• Ranked Journals

• Research Income
  – Broken down into categories and profiled against field average benchmarks using full-time equivalent (FTE) staff numbers

• Applied
  – Patents sealed & Commercialisation income
What was reported from the Trial?

• **Institution reports** (only to each institution):
  • Ratings for each assessable Unit of Evaluation, plus Committee comments
  • Feedback to institutions about their submission, repositories, data integrity etc.

• **National report** on the ARC website
### The interpretation of the Rating Scale for the 2009 Trial – PCE

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Exceptional quality research outputs <strong>consistently and substantially exceeding world performance</strong> in this Field of Research. The Unit of Evaluation profile is characterised by evidence of outstanding performance presented by the suite of indicators used for evaluation. The research outputs demonstrate the highest standards of quality and scholarly impact.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Very high quality research outputs <strong>consistently exceeding world performance</strong> in this Field of Research. The Unit of Evaluation profile is characterised by evidence of excellent performance presented by the suite of indicators used for evaluation. The research outputs have made several major international contributions.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>High quality research outputs <strong>generally exceeding world performance</strong> in this Field of Research. The Unit of Evaluation profile is characterised by evidence of above average performance presented by the suite of indicators used for evaluation.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Research outputs <strong>commensurate with world performance</strong> in this Field of Research. The Unit of Evaluation profile is characterised by evidence of world average performance presented by the suite of indicators used for evaluation.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Research outputs generally <strong>below world performance</strong> in this Field of Research. The Unit of Evaluation profile is characterised by evidence of below average performance presented by the suite of indicators used for evaluation.</td>
<td></td>
</tr>
</tbody>
</table>
The Rating Scale for the 2009 Trial

• A rating of 2 was at world average
• A rating of 3 was above world average
• There were no bell curves or quotas for ratings for the Trial
• The rating scale has been changed for 2010 – more information on that later
Some general issues from the Trial

- Data integrity and validation
  - No FTE data
  - No information about authors, or partial author lists
  - No Background Statement or incomplete
  - Incomplete Research Statements
  - Duplication of some output data
  - Incorrect EID tagging of outputs
- Does the output really meet the ERA definition of research?
- Repository access and access to non-repository items for peer review
Addressing the issues from the Trial

- ‘Soft close’ for submission to allow time to correct errors in 2010
- Sneak peek – plans for an early Dashboard
- Portfolios – eg non-traditional outputs, with attached research statement
- Apportionment – outputs apportioned by institutions into FoR codes up to 100%
- Peer review – institutions able to nominate preferred FoR in which output is to be reviewed
- Research statements will remain at 250 words
ERA – The future
ERA – What’s ahead?

• Submission Guidelines and Technical Specifications were released in December 2009
• The full list of ranked journals and conferences is out now
• ERA Submissions open 1 June 2010
• ARC has to:
  ► Work with institutions on repositories
  ► Set up eight committees and identify pool of peer reviewers
  ► Do further system development (SEER)
  ► Conduct the full ERA process commencing in 2010 – all eight clusters evaluated simultaneously
ERA – how do we start?

• Ascertain eligibility of data types - outputs, researchers
• Collecting all the data for the one schema
• Tagging of journal articles with EIDs with the service provided by Scopus
• Selecting peer review items for those disciplines that have peer review as an indicator + repository preparation
• Preparing research statements
• Making the case – background statements
Data Types

• Traditional Research Outputs
• Non-Traditional Outputs
• Research Staff
• Research Income (Categories)
• Esteem
• Applied
• Supporting information - statements
Low Volume Thresholds

• For disciplines where citation analysis is used:
  – 50 or more indexed journal articles
• For disciplines where peer review is used:
  – ERA Trial: 20 or more outputs
  – ERA commencing in 2010: threshold raised to 30 outputs
• In cases of low volume at the four-digit level, analysis can still occur at the two-digit level if it reaches the threshold.
• Note books weighted 5:1 for threshold calculation, not for evaluation
Low volume scenarios

Which one needs a 2-digit Background Statement?

They both do!
How do we prepare for the ERA submission

• Help change perceptions – ERA is about coding of research outputs, it’s not based on people’s perceived expertise, or the Department/School

• Check the integrity of the data you gather on your research outputs - duplicates, EID tagging, year published, ARC validations and business rules

• Work with your research office when considering the FoR apportionment for your outputs. Journals versus other outputs

• Consider the best works for peer review – select for the discipline.
How do we prepare for the ERA submission

• Consider the best FoR where the peer review item should be evaluated

• Is this *really* research? The definition in ERA. Examples from the trial…..

• Consider the research component of the research output carefully, and write a clear case in the research statement to accompany the output in the repository. You must have statement with the creative work or portfolio
ERA Definition of research

For the purposes of ERA, research is defined as the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings. This could include synthesis and analysis of previous research to the extent that it is new and creative.
How do we prepare for the ERA submission

• Consider using the portfolio model – combining a range of smaller works

• A portfolio is a group of individual works submitted separately which together constitute a single non-traditional research output. Use one research statement to cover the whole portfolio

• A portfolio example was included in sample xml files released in December 2009
How do we prepare for the ERA submission

• Write a **good background statement** – it sets the context for the RECs, for discipline specific practices. Use the early “Dashboard” to help inform your case.

• Work towards a **good quality copy** of your peer review item in the repository, or access to multiple copies of your non-repository items.
How do we prepare for the ERA submission

• Your Research Office may want to tag your research outputs with an institutional code or a research theme. It is up to the institution to use these tags, they are not mandatory and not used in evaluation.

• Why use the tags? Some examples

• This is not used for evaluation
## The New Rating Scale

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<td>The Unit of Evaluation profile is characterised by evidence of outstanding performance <strong>well above world standard</strong> presented by the suite of indicators used for evaluation.</td>
</tr>
<tr>
<td>4</td>
<td>The Unit of Evaluation profile is characterised by evidence of performance <strong>above world standard</strong> presented by the suite of indicators used for evaluation.</td>
</tr>
<tr>
<td>3</td>
<td>The Unit of Evaluation profile is characterised by evidence of average performance <strong>at world standard</strong> presented by the suite of indicators used for evaluation.</td>
</tr>
<tr>
<td>2</td>
<td>The Unit of Evaluation profile is characterised by evidence of performance <strong>below world standard</strong> presented by the suite of indicators used for evaluation.</td>
</tr>
<tr>
<td>1</td>
<td>The Unit of Evaluation profile is characterised by evidence of performance <strong>well below world standard</strong> presented by the suite of indicators used for evaluation.</td>
</tr>
<tr>
<td>NA</td>
<td>Not assessed due to low volume. The number of research outputs does not meet the volume threshold standard for evaluation in ERA.</td>
</tr>
</tbody>
</table>
Evaluation – some questions

• What would a REC assess to arrive at a rating?
• How will FTE and the background statements used?
• How does ERA assess individuals in the evaluations?
• We have no citations so how do we assess world average for my discipline?
Evaluation – some questions

• What does the Dashboard look like?
• How is peer review undertaken?
• How are different disciplines assessed?
• How important are ranked journals and conferences?
• How are esteem indicators used?
• How important are repositories when undertaking peer review?
Discipline-specific examples

• Nursing
• Condensed matter physics
• Computing
• Performing Arts & Creative Writing
Peer Review

• Peer review will be used for some disciplines
• In 2010 peer review is identified as an indicator for HCA, SBE, parts of EE and MIC
• Peer review is only one “indicator” on the Dashboard
• Institutions identify 20% of outputs for the peer review pool – best works for the discipline
• REC Members undertake expert review of the Dashboard including peer review of research outputs.
• Peer Reviewers only evaluate research quality based on peer review outputs, and their reports go back to REC Members
• No ratings on individual research outputs
Mythbusting - Ranked Outlets

• The first consultation cab off the rank – not the most important indicator on the Dashboard
• Only one of a number of indicators on the “Dashboard” – a window to articles not a flat profile
• Ranked Journals are required for development of discipline-specific benchmarks for citation analysis
• Ranked conferences essential for IT, Engineering & Built Environment
• Note discipline-specific practices
Esteem Indicators

• Consultation on esteem was undertaken
• A proxy for quality that is well understood
• There is a limited list of esteem indicators addressed in Submission Guidelines for the ERA process commencing in 2010
• It is shown as a metric profile – no information on individuals
Repositories

• Peer Review requires access to range of research outputs via Institutional Repositories or as non-repository items
• Don’t forget the research statement in the repository with creative works, or with a Portfolio – help the ERA RECs understand the research component.
• The Trial was very useful to identify key issues and the ARC is working with institutions to improve repository access for 2010. Security barriers, poor quality scans, size limits, metadata. New arrangements for books.
What’s next for you?

• Help your university prepare data on eligible research outputs, staffing, esteem information, research income, applied indicators

• Support the institution’s efforts in the peer review process by helping to select the best research outputs for the discipline

• Consider what should be in research statements to outline the research component of peer reviewed creative works

• Assist with crafting of 2-digit background statements that provide essential context for the disciplines within it. Help REC members understand the data.
ERA – The Future

• After the evaluation is completed, the ERA outcomes are made available to Government, universities, and released publicly. So…..

  ➢ what disciplines are achieving excellence?
  ➢ where is excellent research being done?
  ➢ how does this measure internationally?
  ➢ what needs more investment?
  ➢ is this emerging research?
  ➢ is this poor performance?
  ➢ What happens now?
Longer Term?

Universities?

Industry?

International?

Research Strategies?

Reputation?

Investments?

Funding?
Further information?

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• Hotline: 02 6287 6755