Australian Government
Australian Research Council
Clifton Suites, Canberra
03 May 2011

LH Martin Institute
Executive Leadership and Management in Research

Research dynamics
in the ERA era

Professor Margaret Sheil
CEO, Australian Research Council
An overview of ERA

ERA data: what does it all mean?

ERA: On-going sector contribution

Mentors and Role Models

Tips for Grant Writing
An overview: Excellence in Research for Australia (ERA)
Objectives of ERA

• Establish an *evaluation framework*;
• Provide a *national stock take* of discipline-level research;
• 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.
Overseas Quality Assessment Exercises

1986—The United Kingdom
1993—Hong Kong
1997—Germany
1998—Ireland
2002—The Netherlands
2003—New Zealand
2005—France
# ERA Process Overview

<table>
<thead>
<tr>
<th>Volume &amp; Activity</th>
<th>Ranked Outlets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation Analysis</td>
<td>Esteem</td>
</tr>
<tr>
<td>Research Income</td>
<td>Applied Measures</td>
</tr>
</tbody>
</table>

**Peer Review**

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**International Benchmarks**

![ERA 2010 National Report](image-url)
## ERA Unit of Evaluation – the FoRs

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Studies in Creative Arts and Writing</td>
</tr>
<tr>
<td>+ 1901</td>
<td>ART THEORY AND CRITICISM</td>
</tr>
<tr>
<td>+ 1902</td>
<td>FILM, TELEVISION AND DIGITAL MEDIA</td>
</tr>
<tr>
<td>+ 1903</td>
<td>JOURNALISM AND PROFESSIONAL WRITING</td>
</tr>
<tr>
<td>- 1904</td>
<td>PERFORMING ARTS AND CREATIVE WRITING</td>
</tr>
<tr>
<td>&gt; 190401</td>
<td>Aboriginal and Torres Strait Islander Performing Arts</td>
</tr>
<tr>
<td>&gt; 190402</td>
<td>Creative Writing (incl. Playwriting)</td>
</tr>
<tr>
<td>&gt; 190403</td>
<td>Dance</td>
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<tr>
<td>&gt; 190404</td>
<td>Drama, Theatre and Performance Studies</td>
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<tr>
<td>&gt; 190405</td>
<td>Māori Performing Arts</td>
</tr>
<tr>
<td>&gt; 190406</td>
<td>Music Composition</td>
</tr>
<tr>
<td>&gt; 190407</td>
<td>Music Performance</td>
</tr>
<tr>
<td>&gt; 190408</td>
<td>Music Therapy</td>
</tr>
<tr>
<td>&gt; 190409</td>
<td>Musicology and Ethnomusicology</td>
</tr>
<tr>
<td>&gt; 190410</td>
<td>Pacific Peoples Performing Arts</td>
</tr>
<tr>
<td>&gt; 190499</td>
<td>Performing Arts and Creative Writing not elsewhere classified</td>
</tr>
<tr>
<td>+ 1905</td>
<td>VISUAL ARTS AND CRAFTS</td>
</tr>
<tr>
<td>+ 1999</td>
<td>OTHER STUDIES IN CREATIVE ARTS AND WRITING</td>
</tr>
</tbody>
</table>

The ERA Unit is **not** the department nor the individual researcher.
# The ERA 2010 Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Descriptor</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<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>
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<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>
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<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>
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<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>
</tbody>
</table>
Scale of ERA 2010

• All 41 eligible institutions submitted data
• Over 330,000 research outputs and 55,000 researchers represented
• 2,435 units of evaluation assessed at the two- and four-digit level
• 149 Research Evaluation Committee (REC) members and 500+ Peer Reviewers contributed evaluations
• All aggregated data presented in the ERA 2010 National Report.
ERA data: What does it all mean?
Reading the national results

86% of assessed UoEs received a rating at or above world standard (i.e. rating of 3 or above).

Of all assessed UoEs at the four-digit FoR code level (58 UoEs), the average rating is 3.4. See Section 1 for two-digit FoR code average rating.

There were seven UoEs which received a rating of 2.

A total of 58 UoEs were assessed for Mathematical Sciences at the four-digit FoR code level.
ERA 2010 at a glance

✗ Averages and Rankings
✗ Sciences v. Social Sciences & Humanities

✓ ERA does *not* evaluate individuals
✓ ERA does *not* evaluate individual outputs
✓ Ranked Journals do *not* drive ERA ratings
✓ ERA evaluations utilised metrics and peer review moderated by expert judgement
Where is the best place to publish?

Where your research will receive the most appropriate exposure!

<table>
<thead>
<tr>
<th>Discipline</th>
<th>FoR</th>
<th>A*</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>Immunology</td>
<td>1107</td>
<td>7%</td>
<td>14%</td>
<td>24%</td>
<td>55%</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>0607</td>
<td>3%</td>
<td>8%</td>
<td>14%</td>
<td>74%</td>
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<tr>
<td>Ecology</td>
<td>0602</td>
<td>9%</td>
<td>18%</td>
<td>36%</td>
<td>37%</td>
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<tr>
<td>Zoology</td>
<td>0608</td>
<td>1%</td>
<td>7%</td>
<td>18%</td>
<td>73%</td>
</tr>
<tr>
<td>Historical Studies</td>
<td>2103</td>
<td>6%</td>
<td>22%</td>
<td>32%</td>
<td>38%</td>
</tr>
<tr>
<td>Electrical and Electronic</td>
<td>0906</td>
<td>6%</td>
<td>16%</td>
<td>28%</td>
<td>49%</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macromolecular and Materials</td>
<td>0303</td>
<td>14%</td>
<td>19%</td>
<td>31%</td>
<td>36%</td>
</tr>
</tbody>
</table>
Research Outputs by Discipline Cluster
Strengths in Australian universities

- Astronomical and Space Sciences
- Optical Physics
- Quantum Physics
- Macromolecular & Materials Chemistry
- Physical & Structural Chemistry
- Geology
- Ecology
- Evolutionary Biology
- Plant Biology
- Zoology
- Clinical Sciences
- Electrical and Electronic Engineering
- Historical Studies
- Cardiovascular Medicine and Haematology
- Human Movement and Sports Science
- Immunology
- Oncology and Carcinogenesis
- Pharmacology and Pharmaceutical Sciences
- Medical Physiology
Gaps

• Agriculture, Land and Farm Management
• Automotive Engineering
• Maritime Engineering
• Engineering Design
• Complementary and Alternative Medicine

Pockets

• Classical Physics
• Aerospace Engineering
• Transportation and Freight

Strong Applied Research

• Electrical and Electronic Engineering
• Crop and Pasture Protection
• Resources Engineering
• Materials Engineering
• Extractive Metallurgy
• Nursing
ERA 2010 Rating by Cluster - at, above, or well above world standard (i.e. 3s, 4s, & 5s)

- Public and Allied Health Sciences
- Mathematical, Information and Computing Sciences
- Biomedical and Clinical Research
- Engineering and Environmental Sciences
- Biotechnology and Biological Sciences
- Physical Chemical and Earth Sciences
- Social, Behavioural and Economic Sciences
- Humanities and Creative Arts

Legend:
- 3&4
- 5
Ongoing Sector Contribution
ERA Development 2008-2010

- Several major rounds of consultation with sector
- Indicator Development Group (specialist sub-groups)
- Ranked journals and conferences
- Esteem indicators
- Full trial in 2009 of two clusters (PCE and HCA):
  - test of systems, processes
  - feedback from sector, RECs, peer reviewers to improve methodology for 2010
  - Trial institutional results were not made public
ERA 2010 Reviews for ERA 2012

Targeted Reviews
- Ranked Outlets
- Research Evaluation Committees (REC) process
- Applied Indicators
- ERA Submission Guidelines

Broad Feedback
- Low volume thresholds (plus outputs that contribute)
- FORs allocated to clusters
- Indicator matrix for each discipline
- Definitions/timeframes: reference periods and researcher eligibility
Summary

- ERA one source of information at one point in time
- Important to maintain behaviours that are driven by international norms for your disciplines
- ERA can guide future policy at the national level
- The sector’s role in the establishment and ongoing development of ERA is essential
Mentors and Role Models
Presentation Overview

Mentors and Role Models
- Leadership
- Guidance
- Bridging gaps

Achieving Excellence
- Applying for grants
- Peer Review process
- Dos and Don’ts
Role Model

An inspiration

You in the **future**?

Personal/Professional

Examples of pathways or behaviours

Mentors

A guide

You in the **present**

Impartial

Career advice
Secure your own leadership skills and attributes

• #1 Don’t cater
  Avoid feeding others
  Avoid making notes, coffee & copies

• #2 Be prepared
  Don’t believe others know more than you

• #3 Learn to let go
  Don’t look back
  Don’t do the work of others
Set the example

Encouraging opportunity; not simply *providing* it

Reinforcing leadership

Changing the landscape and the language we use
Reinforcing Leadership –
Australian Laureate Fellowships

FOCUS:
• International repute
• Sustained leadership & mentoring

OBJECTIVES:
• Attract and retain outstanding research leaders
• Build and strengthen world-class research capability
• Provide excellent research – training environment
• Expand knowledge base
• Forge strong links
• Support research

Kathleen Fitzpatrick

Georgina Sweet
Encouraging Opportunity

Career interruptions

For ECRs and women researchers

Options to convert & teaching transitions
Changing the landscape and language we use – Research Opportunity and Performance Evidence (ROPE)

- Changing how we measure excellence
  Track record v. Performance evidence

- Assessors take into account any career interruptions, such as:
  - Childbirth
  - Carer’s responsibility
  - Misadventure
  - Debilitating illness
Achieving Excellence
The ARC aims to:

- Provide opportunities for researchers at every career stage
- Foster a range of different cohorts

- Researchers in industry
- Research-only
- Women
- Indigenous
- Teaching and research
The ARC does not:

- Employ researchers directly
- Aim to provide a complete externally funded career structure
- Fund all the excellent research proposals it receives
Australian Laureate Fellowships

- 2x PhD
- 2x Post-Doc
- 17 5-year awards

Discovery Early Career Researcher Award (DECRA)

- $125,000
- 200 p.a. 3-year awards

Researchers in Industry Training Awards

- $30,000
- 100 3-year awards (bi-annual)

Future Fellowships

- Up to $143,000
- 200 p.a. 4-year fellowships
A few tips for grant writing

• Messages to pass on
• Advice on proposals
• Peer review
• Career advice more generally
What do I want to do?

- You *must* believe in the importance of the research you are proposing to do
- You *must* be able to *convince* your peers of its importance
- Think about the research in the *whole context* of your professional career
Do you *need* a grant?

- You don’t always need to get money to do your research
- If you do need money, where can you get it?
- Do you need to work on publication records first?
What grant program can I use?

• What are the aims of the various grant programs?

• There is no point in applying for funding if your research is not consistent with the aims.

• Think of the scale of $$, the level of competition, the time to apply and the time for funds to arrive.
How can I write a successful proposal?

EXERCISE:

• Write down a 100-word summary of your proposal

• Show it to your neighbour and talk about it with them
TOP RANKED PROPOSALS

• Manage to balance technicality and accessibility
• Present problems and/or controversies and explain how they will solve them
• Explain how the momentum of the subject demands funding now
• Show how Australian work fits into the international picture
• Back up compelling claims with evidence and others' judgments
TOP RANKED PROPOSALS

• Carefully temper ambitious goals with plausible approaches
• Display evidence of responsible but often daring approaches to the problem
• CIs have strong international track records
• Present excellent progress reports on previous grants
LOW RANKED PROPOSALS

• Use too much technical jargon
• Make grandiose and implausible claims about outcomes
• Don't support claims of excellence or progress with evidence
• Relate to research areas without momentum
• Are weakly linked into national and international research networks
LOW RANKED PROPOSALS

• Emphasize the collection of data rather than the solution of controversies
• Set a negative or depressive tone about the state of the subject in Australia
• Contain a high rate of spelling and grammatical errors
• Are badly structured and difficult to follow
Problems of Peer Review

**Matthew effect**
- The accomplishments of those who have already achieved distinction are overestimated (e.g. do athletes really know about banking?)

**Halo effect**
- The accomplishments of those associated with successful people are overestimated
Problems of Peer Review

**Bias against novelty**
- Peer review sometimes fails to respect the value of attacks on the fashionable paradigm

**Cronyism**
- Assessors may use standards that are narrower than the overt criteria, defined by expectations in a ‘social group’
Don’t interpret ERA superficially

Secure your own leadership skills

Aim to become an excellent mentor

Exercise care in guiding younger researchers in grant applications