Measuring and enabling university research and innovation capacity
26 July 2011

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CEO, Australian Research Council
Government Investment in R&D 2011-12

- Business & Innovation: 24%
- Universities: 21%
- ARC: 9%
- NHMRC: 8%
- CRCs: 2%
- Other Health: 6%
- Energy and the Environment: 5%
- Rural: 2%
- Other Science: 4%
- Other Government: 11%

Investigator Driven: 4.5%
What problem were we trying to solve?

- Demonstrate quality/value of investment in university research to government
- Raise the quality of Australian research effort
Australian academic publishing practices

Source: Butler 2002
Excellence in Research for Australia

- 2007 New Government elected with a commitment to replaces RQF with a metrics based approach
- 2008 ARC given responsibility for quality framework
- 2008 Develop policy and case for funding and vice versa
- 2009 ERA Trial in physical sciences and humanities and creative arts
- 2010 ERA Full Evaluation
- 2011 Refinements to framework
- 2012 Next ERA round
ERA Process Overview

- Volume and Activity
- Journal Quality
- Citation analysis or peer review
- Research Income
- Applied Measures
- Esteem

Please note – no weightings

Research Evaluation Committee

Web: arc.gov.au  |  Email: info@arc.gov.au
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 myths

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

☑ ERA does not evaluate individuals
☑ ERA does not evaluate individual outputs
☑ Ranked Journals did not drive ERA ratings
☑ ERA evaluations utilised metrics and peer review moderated by expert judgement
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

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Changes for 2012

• Changes to the ranked journals and conferences
• Interdisciplinary Research
• Raising the Threshold
• Capturing Applied Research
• Eligibility for fractional staff

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Unintended consequences-journal rankings

• Journals only easily accessible information
• Rapid response time
• Codified existing behaviour/practice
• Simplified application
## The refined journal indicator

<table>
<thead>
<tr>
<th>University of Y</th>
<th>FoR0201</th>
<th>Astronomical and Space Sciences</th>
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<tbody>
<tr>
<td><strong>Journal Title</strong></td>
<td><strong>Papers</strong></td>
<td><strong>Contribution</strong></td>
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<tr>
<td>1</td>
<td>Advances in Space Research</td>
<td>171</td>
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<tr>
<td>2</td>
<td>Applied Physics Letters</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>Nature</td>
<td>72</td>
</tr>
<tr>
<td>4</td>
<td>Astronomy and Astrophysics: a European journal</td>
<td>69</td>
</tr>
<tr>
<td>5</td>
<td>Geophysical Research Letters</td>
<td>51</td>
</tr>
<tr>
<td>6</td>
<td>Mathematics and Computers in Simulation</td>
<td>27</td>
</tr>
</tbody>
</table>

*Please note that this is not based on any university's submission to ERA 2010*
ERA 2012 – still to do

• Draft Submission Guidelines have been issued to the sector in July 2011 for comment by Monday 1 August 2011

• Expanding peer reviewer pool

• Making peer review more robust (selection of outputs, reviewers)

• Scrutiny of processes and outcomes

• System development and testing
ERA outcomes - implications for institutions, government and other key stakeholders

- Changes in research culture (focus on excellence)
- Sustainable Research Excellence (from 2012)
- Compacts and Institutional Planning
- Tertiary Education Quality and Standards Agency ??
- Research Training Scheme (from 2013)
Research Block Funding

- Research Income
- Research Student Completions and Load
- Publications
- ERA

- APAs
- IPRS
- Research Training Scheme
- Joint Research Engagement
- Sustainable Research Excellence
- CTS
ARC Strategic Objectives

• To support excellence in research
• To build Australia’s research capacity
• To provide informed high quality policy advice to government
• To enhance research outcomes through effective evaluation
• To raise the profile of Australia’s research effort and be an effective advocate for its benefits
The ARC

National Competitive Grants Program
$810M in 11-12

Discovery & Fellowships
$502 M

Linkage & Centres
$308 M

Evaluation and Policy

Excellence in Research for Australia

- Statutory Agency established 2001
- Mission: to deliver policy and programs that advance Australian research and innovation globally and benefit the community
- Fund direct costs to Universities and partners
- All disciplines except clinical medicine & dentistry
The ARC aims to:

• Foster a range of different cohorts
• Create the right incentives for collaboration
Encouraging Opportunity

**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

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Discovery Early Career Researcher Award (DECRA)

- Provide career opportunities for early-career researchers who have been awarded a PhD within five years or, commensurate with significant career interruption, within eight years.
- Up to 200, three year Awards will be available each year, commencing in 2012.
- Funding of up to $125,000 will be provided to support a fixed salary ($85,000) and project costs.
Researchers in Industry Training Awards (RITA)

• Up to 200 Awards will be available initially, 100 each in 2012 and 2014;
• Each Award will include a minimum research student stipend of $30,000 per year; to be supplemented by funding from institutions and the industry partner to attract the best researchers.
• The individual Award recipients must spend a substantial period of their candidature working directly with the industry partner(s).
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
The ARC does not:

• Employ researchers directly

• Aim to provide a complete externally funded career structure

• Fund all the excellent research proposals it receives
NCGP – the latest developments

- Evaluation of Linkage Projects
- Improvements to Peer Review (first stage)
- Changes to Discovery Projects and Discovery Indigenous
- New schemes (DECRA and RITA)
- Two additional Laureate Fellowships
- Simplified NCGP Funding Rules
- Removing Duplication
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