Promoting Research Excellence

Professor Margaret Sheil
CEO, Australian Research Council
Australian Research Council
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
Government Investment in Research 2010-11
ARC Investment in Research (2010-11)

National Competitive Grants Program
$708M

Discovery & Fellowships
$423 M

Linkage & Centres
$285 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
ARC Funding 2002 – 2010 and Application Numbers
National Competitive Grants Program (NCGP)

- Highest-quality research
- New ideas, advancement of knowledge
- Facilities and equipment
- Internationally competitive researchers
- Building research capacity
- Industry links and internationalisation
NCGP Funding

- NCGP funding (2010-11) = $708,733 million
- $376 million – Major Grants supporting 1126 innovative projects
- $255.9 million – 13 new ARC Centres of Excellence
NCGP Programs & Schemes

Discovery Program
- Discovery Projects
- Discovery Indigenous Researcher Development
- Future Fellowships
- Australian Laureate Fellowships

Linkage Program
- Linkage Projects
- Linkage Infrastructure, Equipment and Facilities
- Linkage Learned Academies Special Projects
NCGP Programs & Schemes (cont’d)

Centres

- ARC Centres of Excellence
- ARC Special Research Centres
- Co-funded Centres of Excellence

Special Research Initiatives

- Research in Bionic Vision Science and Technology
- Stem Cell Science
- Thinking Systems
- EMBL
- AAO Fellowships
Funding of the Chemical Sciences
Funding of the Chemical Sciences

Inorganic chemistry

<table>
<thead>
<tr>
<th>Year</th>
<th>Funding (in $USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>4,000,000</td>
</tr>
<tr>
<td>2003</td>
<td>4,500,000</td>
</tr>
<tr>
<td>2004</td>
<td>4,000,000</td>
</tr>
<tr>
<td>2005</td>
<td>5,500,000</td>
</tr>
<tr>
<td>2006</td>
<td>5,000,000</td>
</tr>
<tr>
<td>2007</td>
<td>5,000,000</td>
</tr>
<tr>
<td>2008</td>
<td>5,000,000</td>
</tr>
<tr>
<td>2009</td>
<td>8,000,000</td>
</tr>
<tr>
<td>2010</td>
<td>6,500,000</td>
</tr>
<tr>
<td>2011</td>
<td>5,000,000</td>
</tr>
</tbody>
</table>
The ARC aims to ........

• Provide opportunities for researchers at every career stage
• Foster a range of different cohorts
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 Research Council – Promoting Excellence

Funding & Investment

Flexibility

Linking & Developing

Information

Partnerships
Discovery Projects – Male & female applicants and corresponding success rates by career age
Flexibility

- Career interruptions
- Teaching transitions
- Building Research Capacity (ECRs & women)
- Options to convert
Australian Research Council – Promoting Excellence

Funding & Investment

Flexibility

Linking & Developing

Information

Partnerships
Linking/Developing

- An exemplary training environment (Laureates)
- Outcome-orientated, high-calibre (Linkage)
- High-quality & supportive (DECRA)
- Enabling Indigenous Australians (Discovery)
# Building Research Capacity

<table>
<thead>
<tr>
<th>Australian Laureate Fellowships</th>
<th>Discovery Early Career Research Awards (DECRA)</th>
<th>Researchers in Industry Training Awards</th>
<th>Future Fellowships</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x PhD</td>
<td>$125,000</td>
<td>$30,000</td>
<td>Up to $143,000</td>
</tr>
<tr>
<td>2x Post-Doc</td>
<td>200 p.a. 3-year awards</td>
<td>100 3-year awards (bi-annual)</td>
<td>200 p.a. 4-year fellowships</td>
</tr>
<tr>
<td>17 5-year awards</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Web: arc.gov.au | Email: info@arc.gov.au
Australian Research Council – Promoting Excellence

- Funding & Investment
- Flexibility
- Linking & Developing
- Information
- Partnerships
ERA will inform

- Government
- Universities
- Research agencies
- Innovation system
- Business
- Postgraduate students
- International partners
Quality assessment exercises overseas

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

1. Unit of Evaluation is the four-digit ANZSRC Field of Research code (i.e., 157 possible Units of Evaluation); evaluation occurs at the two-digit level as well
2. Evaluation by Research Evaluation Committees in discipline clusters; eight clusters in total
3. There is a minimum level of output for a discipline 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
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

International Benchmarks

Research Evaluation Committees
ERA

Background Statement

Volume and Activity
Ranked Outlets
Peer Review
Citation Analysis
Esteem Measures
Research Income
Applied Measures

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ERA Unit of Evaluation – the FoRs

The ERA Unit is **not** the department nor the individual researcher.
Why a matrix approach to indicators?

• Not all indicators are suitable for all disciplines

• Pick and choose what is right for each discipline

• The indicator suite must ensure comparable quality across a range of indicator types

• Journal Rankings are not THE indicator
## 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 Communication Sciences</td>
</tr>
<tr>
<td>Cluster 6</td>
<td>Biological Sciences and Biotechnology</td>
</tr>
<tr>
<td>Cluster 7</td>
<td>Biomedical and Clinical Research</td>
</tr>
<tr>
<td>Cluster 8</td>
<td>Public and Allied Health, and Health Sciences</td>
</tr>
</tbody>
</table>
The ERA 2010 reference periods

• Publications reference period
  1 January 2003 – 31 December 2008

• Non-publication reference period (income, applied, esteem)
  1 January 2006 – 31 December 2008

• Staff census date
  31 March 2009

• Citation reference period
  1 January 2003 - 1 March 2010
ERA 2010 – the data....
The ERA 2010 Rating Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Descriptor</th>
</tr>
</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>
</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>
National Strengths

- Astronomical and Space Sciences
- Optical Physics
- Quantum Physics
- Macromolecular & Materials Chemistry
- Physical & Structural Chemistry
- Geology
- Ecology
- Evolutionary Biology
- Plant Biology
- Zoology

- 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
Research Excellence in Chemical Sciences
Research Excellence in Inorganic Chemistry

Inorganic Chemistry (0302)

- Count of 1s
- Count of 2s
- Count of 3s (highest)
- Count of 4s
- Count of 5s
Australian Research Council – Promoting Excellence

Funding & Investment

Flexibility

Linking & Developing

Information

Partnerships
Partnerships (International)

- Non-Australian PhD candidates
- Non-Australian Fellowships
- Overseas Partner Investigators
- DECRA encourages international post docs
International Strategy

To ensure Australia benefits from and makes a strong contribution to international research developments, partnerships, collaboration and policy.

- **Objective 1:** Build on existing ARC support for international research collaboration through the NCGP schemes

- **Objective 2:** Facilitate new opportunities for international research collaboration

- **Objective 3:** Maintain strong linkages with overseas research funding agencies on international research collaboration opportunities

- **Objective 4:** Allow for comparisons of Australia’s research nationally and internationally for all disciplines areas
Our focus on internationalisation

• Early-2008, the Minister announced that all fellowships will be open to international applicants to work in Australia

• *Discovery Projects*
  – new internationalisation objective
  – restrictions on the use of ARC funds for Partner Investigators living overseas have been lifted

• Significant changes to *Linkage Projects* Scheme
  – International organisations
  – *From 2009* citizenship/residency requirements for postgraduate students removed
Partnerships (Industry)

- Non-Australian APA(I)s
- Linkage
- Research in Industry Training Award
- Cooperative sharing - research facilities
Examples of Partner Organisations

Alcoa
BAE Systems Australia
BHP Billiton Ltd
BlueScope Steel Ltd
Brisbane City Council
CSL Limited
GlaxoSmithKline Aust Pty Ltd
Hydro Tasmania
Rio Tinto Ltd
Telstra Corp Ltd

Bartlett Grain Pty Ltd
Gold Coast City Council
Lastek Pty Ltd
Leica Geosystems
Micronisers Pty Ltd
National Australia Bank Ltd
Native Seeds Pty Ltd
Orica Australia Pty Ltd
Ridley Aqua-Feeds Ltd
Ronin Films
Saltgrow Pty Ltd
Santos Ltd
Sialon Ceramics Pty Ltd
Suncorp General Insurance
Tissue Therapies Ltd
Ulan Coal Mines Ltd
Williams Boag Architects

Wind Prospect Pty Ltd

Dupont-Pioneer
Kaltim Prima Coal
Microsoft Pty Ltd
Optus Networks Pty Ltd
Sprint Advanced Technology Labs
Yokogawa Electric Corp

Aged Care Queensland Inc
Agricultural Producers Commission
AIDS Council of NSW
Australian Football League
Australian Macadamia Society
Australian Institute of Sport
Brotherhood of St. Laurence
Delfin Lend Lease
Diabetes Australia
Electoral Council of Australia
Flora Hill Secondary College
Forestry TAS
Greening Australia Ltd
Illawarra Retirement Trust
Lifeline Australia Inc
Linux Australia Inc
Macquarie Library Pty Ltd
McDonalds Australia Ltd
National Heart Foundation
Neporendi Aboriginal Forum Inc
Oxfam Australia

QLD Health

Australian Museum
Barwon Health
Bawaninga Aboriginal Corp
Boulia State School
Bureau of Sugar Experiment Stations Ltd
Central Darling Shire Council
City of Greater Geelong
City of Rockingham
WA Dept of Environment
Geological Survey of VIC
Gippsland Coastal Board
Goulburn Murray Water
Healthy Waterways
Hunter Water Corp
Legal Aid QLD
Maribyrnong City Council
Midland Redevelopment Auth
Museum VIC
NSW Fisheries
NSW Police
Perth Zoo
Powerhouse Museum
Royal Flying Doctor Service
St Vincent de Paul Society
SA Museum
Timbercorp Ltd
Unions WA
VIC Dept of Education

Westmead Hospital
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