Council of Deans Summit
1st March 2013

Developing research capacity in your discipline

Professor Aidan Byrne
CEO, Australian Research Council
Overview

- ARC

- Current landscape
  » Programs
  » ERA
  » Near to long-term issues
Government Investment in R&D

- Business & Innovation: 24%
- Universities: 21%
- ARC: 9%
- NHMRC: 8%
- CRCs: 2%
- Other Health: 6%
- Rural: 5%
- Energy and the Environment: 5%
- Other Science: 4%
- CSIRO: 8%
- Other Government: 11%
Total number of proposals received by the ARC by (expected) commencement year

- Technology
- Studies in Human Society
- Studies in Creative Arts and Writing
- Psychology and Cognitive Sciences
- Physical Sciences
- Philosophy and Religious Studies
- Medical and Health Sciences
- Mathematical Sciences
- Law and Legal Studies
- Language, Communication and Culture
- Information and Computing Sciences
- History and Archaeology
- Environmental Sciences
- Engineering
- Education
- Economics
- Earth Sciences
- Commerce, Management, Tourism and Services
- Chemical Sciences
- Built Environment and Design
- Biological Sciences
- Agricultural and Veterinary Sciences
NCGP 2-Digit Trend Data 2002-2012 ($ awarded)
STEM Vs HASS (roughly)(ARC $ awarded)
Average Grant Size - DP11 to DP13 - By 2 digit FOR showing awarded amount as part of requested amount
What are the Schemes?

**Discovery**
- Australian Laureate Fellowships
- Discovery Early Career Researcher Award (DECRA)
- Discovery Indigenous
- Discovery Projects (includes DORAs)
- Future Fellowships

**Centres**
- ARC Centres of Excellence
- Co-funded Centres

**Special Research Initiatives**
- e.g. Science of Learning

**Linkage**
- Linkage Infrastructure, Equipment and Facilities (LIEF)
- Linkage Learned Academies Special Projects
- Linkage Projects
- Industrial Transformation Research Program
National Competitive Grants Program

**Discovery Projects**
- Laureate Fellowships
- Future Fellowships
- DECRA
- Discovery Indigenous

**Linkage Projects**
- Centres of Excellence
- Co-Funded & SRI
- ITRP

5 year averages
The Industrial Transformation Research Program

Overall objectives:

- foster important partnerships between business and universities;
- support researchers (higher degree by research & post doctoral fellows) to gain ‘hands-on’, practical skills and experience in important priority areas.

Consists of two schemes:

Research Hubs

Training Centres
National Competitive Grants Program

Topical discussion points

- Making applications shorter, faster
- Factors affecting the success rate
- Panels – peer review process
- DECRAs & DORAs
- Women in Research
First-time awardees on DECRA and DP
DP13 - Submission and success rate by gender and career age

- Male proportion
- Female proportion
- Male success rate
- Female success rate

- 0-5 Yrs
- 5-10 Yrs
- 10-15 Yrs
- 15-20 Yrs
- 20-25 Yrs
- 25 Yrs plus
Leveraging the Benefits: Open Access

- Starting in January 2013, it is mandated by ARC funding rules that completed projects must make their publications available on an open access repository.

- Details: [http://www.arc.gov.au/applicants/open_access.htm](http://www.arc.gov.au/applicants/open_access.htm)

- Questions remain –
  - How open is open?
  - Timeframes, ‘loopholes’, is it fast enough?
  - Green or Gold? Green and gold? Colourblind?

  - An open future: Open Data and Open Innovation
ERA 2012

- A larger and more productive research sector than in 2010

↑ research publications/outputs (up 24%)

↑ researchers and related staff (up 9%)

↑ patents (up 16%) and esteem measures (up 11%)

↑ Competitive grant ($3.75 billion, up 18%) and other public sector income ($2.39 billion, up 25%)
Income and quality

HERDC income Cat 1-3 by rating - 2010
Income and quality

HERDC income Cat 1-3 by rating - 2012
ERA 2012: All Broad Fields of Research (Two Digit FoR codes)
Number of Universities Rated at World Standard or Higher

- **At World Standard**
- **Above World Standard**
- **Well Above World Standard**

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Variation at Four-digit Level: STEM v HASS

**Mathematical Studies (01) and Language, Communication and Culture (20)**

**Number of Universities Rated at World Standard or Higher**

- **0101-Pure Mathematics** - 2012
  - At World Standard: 6
  - Above World Standard: 6
  - Well Above World Standard: 2

- **0102-Applied Mathematics** - 2012
  - At World Standard: 7
  - Above World Standard: 11
  - Well Above World Standard: 2

- **0103-Numerical and Computational Mathematics** - 2012
  - At World Standard: 3
  - Above World Standard: 1
  - Well Above World Standard: 1

- **0104-Statistics** - 2012
  - At World Standard: 2
  - Above World Standard: 6
  - Well Above World Standard: 1

- **0105-Mathematical Physics** - 2012
  - At World Standard: 3
  - Above World Standard: 3
  - Well Above World Standard: 0

- **2001-Communication and Media Studies** - 2012
  - At World Standard: 5
  - Above World Standard: 6
  - Well Above World Standard: 2

- **2002-Cultural Studies** - 2012
  - At World Standard: 10
  - Above World Standard: 7
  - Well Above World Standard: 4

- **2003-Language Studies** - 2012
  - At World Standard: 1
  - Above World Standard: 2
  - Well Above World Standard: 0

- **2004-Linguistics** - 2012
  - At World Standard: 7
  - Above World Standard: 5
  - Well Above World Standard: 2

- **2005-Literary Studies** - 2012
  - At World Standard: 9
  - Above World Standard: 3
  - Well Above World Standard: 5
Collaboration – ERA 2012

Research Output patterns - all output types

- 01 - Mathematics
- 02 - Physical Sciences
- 03 - Chemical Sciences
- 04 - Earth Sciences
- 05 - Environmental Sciences
- 06 - Biological Sciences
- 07 - Agriculture & Veterinary
- 08 - Information & Computing
- 09 - Engineering
- 10 - Technology
- 11 - Medical and Health
- 12 - Built Environment & Design
- 13 - Education
- 14 - Economics
- 15 - Commerce, Management & Tourism
- 16 - Studies in Human Society
- 17 - Psychology & Cognitive Sciences
- 18 - Law and Legal Studies
- 19 - Creative Arts and Writing
- 20 - Language, Communication & Culture
- 21 - History and Archaeology
- 22 - Philosophy and Religious Studies
## Interdisciplinary activity

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**Legend:**
- **20-29%**
- **30-39%**
- **> 40%**
ERA Outcomes by Cohort

- Regional Universities Network
- Non-alliance
- Innovative Research Universities Australia
- Group of Eight
- Australian Technology Network

Legend:
- 1
- 2
- 3
- 4
- 5

Web: arc.gov.au | Email: info@arc.gov.au
Where does the impact begin?

Academic activity → Papers → Patents → Impact

- Salaries: researchers, technicians
- Buy: equipment, books, ICT
- New Government Policy
- New Research Paradigm
- Spin-off Company
Case 1:

Case 2:

Case 3:
Effect of measurement & feedback

- Salaries (researchers, technicians)
- Buy (equipment, books, ICT)
- Papers
- Patents
  - New Government Policy
  - New Research Paradigm
  - Spin-off Company

ERA?
Effect of measurement & feedback

- $\quad$ Salaries
  - researchers
  - technicians
- $\quad$ Buy
  - equipment, books, ICT
- Papers
- Patents
- New
  - Government Policy
- New Research Paradigm
- Spin-off Company

IMPACT ?
Universities are multi-dimensional

We need a better and more complete description of activity.
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CEO, Australian Research Council