Southern Cross University

6 August 2013

Professor Aidan Byrne
CEO, Australian Research Council
Overview

- ARC
- Current landscape
  » Programs
  » ERA
  » Impact
  » Q&A
Detail of Government Investment in R&D 2012-13

- NHMRC: 9.3%
- ARC: 9.8%
- Industry R&D Tax Measures (estimated): 20.5%
- Block Funding to Higher Ed: 21.3%
- Other Business R&D Support: 0.2%
- Other Innovation Support: 4.6%
- DSTO: 4.9%
- Govt R&D Activities: 6.7%
- Other Science Support: 4.8%
- Energy and the Environment: 3.0%
- CRCs: 1.7%
- Other Health: 1.3%
- Rural: 2.9%
Trends of Government Investment in R&D 2003-13 ($m)

(source: budget tables)
ARC funding awarded by program – last 5 years

- Discovery - Projects: 41%
- Discovery Early Career Researcher Award: 3%
- Linkage - Projects: 18%
- ARC Future Fellowships: 16%
- Centres of Excellence: 7%
- Australian Laureate/Fed Fellowships: 5%
- Linkage - Infrastructure Equipment and Facilities: 4%
- Special Research Initiatives: 4%
- Other: 2%
Total number of proposals received by the ARC by (expected) commencement year
STEM (blues) vs HASS (reds) ($ARC awarded)
Regional Universities Network – ARC funding

- Southern Cross University
- The University of New England
- University of Ballarat
- University of the Sunshine Coast
- University of Southern Queensland
- Central Queensland University
Average Grant Size - DP11 to DP13 - By 2 digit FOR showing awarded amount as part of requested amount.

- Language, Communication and Culture
- Built Environment and Design
- Law and Legal Studies
- Studies in Creative Arts and Writing
- Philosophy and Religious Studies
- Education
- Economics
- History and Archaeology
- Psychology and Cognitive Sciences
- Information and Computing Sciences
- Agricultural and Veterinary Sciences
- Medical and Health Sciences
- Mathematical Sciences
- Technology
- Earth Sciences
- Engineering
- Biological Sciences
- Environmental Sciences
- Physical Sciences
- Chemical Sciences

- not awarded
- awarded
National Competitive Grants Program

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

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

5 year averages
First-time awardees on DECRA and DP

- # DECRA first-timers
- # DP first-timers
- % first-timers


Bar chart shows the number of first-time awardees on DECRA and DP from 2008 to 2013. The percentage of first-timers is also indicated for each year.
DP13 - Submission and success rate by gender and career age

The graph shows the submission and success rates for males and females across different career age categories. The x-axis represents career age groups (0-5 Yrs, 5-10 Yrs, 10-15 Yrs, 15-20 Yrs, 20-25 Yrs, 25 Yrs plus), while the y-axis indicates the proportion of submission and success rates.

- **Male Proportion**: Denoted by blue bars, indicating the male submission and success rates.
- **Female Proportion**: Denoted by red bars, indicating the female submission and success rates.
- **Male Success Rate**: Represented by a green line with triangles, indicating the male success rates.
- **Female Success Rate**: Represented by a purple line with crosses, indicating the female success rates.

The graph illustrates an increase in submission and success rates for both males and females as the career age progresses, although the female success rate starts to exceed the male success rate in the 20-25 Yrs and 25 Yrs plus categories.
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

- Category 1
- Category 2
- Category 3
ERA 2012 ARC/NHMRC research funding by discipline

$ Millions

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22

2-digit group

ARC

NHMRC
ERA 2012: Two Digit FoR codes
No. of Universities rated at world standard or higher

- 01 Mathematical Sciences: 11
- 02 Physical Sciences: 10
- 03 Chemical Sciences: 15
- 04 Earth Sciences: 4
- 05 Environmental Sciences: 10
- 06 Biological Sciences: 15
- 07 Agricultural and Veterinary Sciences: 9
- 08 Information and Computing Sciences: 12
- 09 Engineering: 9
- 10 Technology: 1
- 11 Medical and Health Sciences: 13
- 12 Built Environment and Design: 13
- 13 Education: 11
- 14 Economics: 7
- 15 Commerce, Management, Tourism and Services: 5
- 16 Studies in Human Society: 17
- 17 Psychology and Cognitive Sciences: 11
- 18 Law and Legal Studies: 10
- 19 Studies in Creative Arts and Writing: 15
- 20 Language, Communication and Culture: 15
- 21 History and Archaeology: 12
- 22 Philosophy and Religious Studies: 12

Legend:
- World standard
- Above world standard
- Well above world standard
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: 1

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- **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: 1

- **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
# Interdisciplinary activity

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Legend:
- **20-29%**
- **30-39%**
- **> 40%**
# Interdisciplinary activity

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Legend:
- 20-29%
- 30-39%
- > 40%
Patent/Relative Citation Impact by ERA 2012 Rating (4-digit)

High impact?

High impact and high quality?

High quality?

Number of patents

Relative Citation Impact (1.0=world average; Custom World Data from Elsevier Scopus)
Research Commercialisation Income/Relative Citation Impact by ERA 2012 Rating (4-digit)

- High impact?
- High impact and high quality?
- High quality?
Quality is multidimensional

- Quality in ERA is multidimensional
- Publishing profile, income sources, background statements and applied measures all contribute to understanding the UoE
- Applied/researcher-led research is recognised in ERA
- Quality underpins evaluation across the spectrum of research activity
ERA is multidimensional

- Citation data
- Peer assessment
- HERDC Category income 2-4
- Research Commercialisation income
- Patents
- Plant breeder’s rights
- NHMRC endorsed guidelines
- Non-traditional research outputs (extended trial in ERA 2012)
Universities are multi-dimensional

We need a better and more complete description of activity.
Mapping Engagement:

Linkage Projects vs. Discovery Projects

Strength in scheme: avg. p.a. $LP + $DP

Money allocated:
- $112m
- $50m
- $12m

States:
- QLD
- NSW
- VIC
- ACT
- TAS
- WA
- NT
Engagement by Cohort
Strength in Linkage and Discovery Schemes

Group of Eight

Non-Aligned

Innovative Research Universities

Regional Universities Network

Australian Technology Network

Discovery

Linkage
Different Impact Landscapes = Different Impact measures?
Departmental Discussion paper released 19 June – Seeking submissions by Friday 16 August 2013.
Discussion Paper

• Aims

  – Demonstrate the public benefits attributable to university-based research;
  – Identify the successful pathways to benefit;
  – Support the development of a culture and practices within universities that encourage and value research collaboration and engagement; and
  – Further develop the evidence base upon which to facilitate future engagement between the research sector and research users, as well as future policy and strategy.
Discussion Paper

• Outcomes

- Providing an evidence base for decision making by universities, government and industry, including universities and businesses outside Australia;

- Promoting engagement both between university researchers and potential users of university research, as well as within the university sector;

- Promoting the research outcomes and engagement strategies of Australia’s publicly funded universities both domestically and internationally;

- Providing an evidence base for benchmarking standards within the university sector; and

- Linking outcomes to funding allocations.
Discussion Paper

• Principles

  – Provide useful information to universities
  – Minimise administrative burden
  – Encourage research engagement and collaboration, and research that benefits the nation
  – Involve research users
  – Collect and assess at the institution level, with some granularity by discipline

• Departmental Discussion paper 19 June – seeking submissions by Friday 16 August 2013.
Strategic Research Priorities
21 June 2013

• Societal challenges identified:

1. Living in a changing environment
2. Promoting population health and wellbeing
3. Managing our food and water assets
4. Securing Australia’s place in a changing world
5. Lifting productivity and economic growth
Societal Challenge 1

• Living in a changing environment:
  – Identify vulnerabilities and boundaries to the adaptability of changing natural and human systems
  – Manage risk and capture opportunities for sustainable natural and human systems
  – Enable societal transformation to enhance sustainability and wellbeing
Societal Challenge 2

• Promoting population health and wellbeing:
  – Optimise effective delivery of health care and related systems and services
  – Maximise social and economic participation in society
  – Improve the health and wellbeing of Aboriginal and Torres Strait Islander people
Societal Challenge 3

• Managing our food and water assets:
  – Optimise food and fibre production using our land and marine resources
  – Develop knowledge of the changing distribution, connectivity, transformation and sustainable use of water in the Australian landscape
  – Maximise the effectiveness of the production value chain from primary to processed food
Societal Challenge 4

- Securing Australia’s place in a changing world:
  - Improve cybersecurity for all Australians
  - Manage the flow of goods, information, money and people across our national and international boundaries
  - Understand political, cultural, economic and technological change, particularly in our region
Societal Challenge 5

• Lifting productivity and economic growth
  – Identify the means by which Australia can lift productivity and economic growth
  – Maximise Australia’s competitive advantage in critical sectors
  – Deliver skills for the new economy
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

• 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
Q&A session

- Making applications shorter, faster
- Factors affecting the success rate
- Health & medical research
- Defence Trade Control Bill
- International linkages (Asian White Paper)
- Budgets & Politics >> timelines
Thank You

Professor Aidan Byrne
CEO, Australian Research Council