RESEARCH *in the national interest – enabling the future*

Australian Government

Australian Research Council

Clifton Suites, Canberra
03 May2011

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

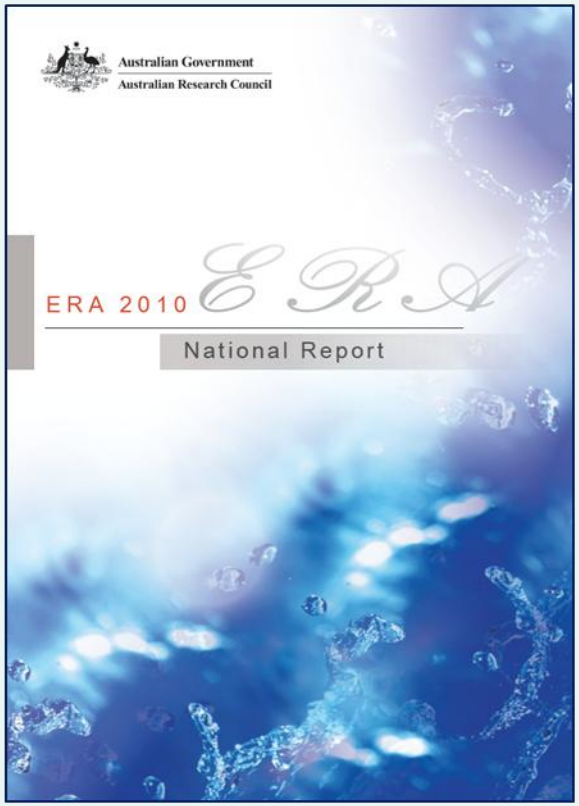
2005—France

ERA Process Overview

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

International Benchmarks

Research Evaluation Committees



ERA Unit of Evaluation – the FoRs

2-digit

4-digit

6-digit

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

The ERA Unit is not the department nor the individual researcher

The ERA 2010 Rating Scale

Rating	Descriptor
5	The Unit of Evaluation profile is characterised by evidence of outstanding performance **well above world standard** presented by the suite of indicators used for evaluation.
4	The Unit of Evaluation profile is characterised by evidence of performance **above world standard** presented by the suite of indicators used for evaluation.
3	The Unit of Evaluation profile is characterised by evidence of average performance **at world standard** presented by the suite of indicators used for evaluation.
2	The Unit of Evaluation profile is characterised by evidence of performance **below world standard** presented by the suite of indicators used for evaluation.
1	The Unit of Evaluation profile is characterised by evidence of performance **well below world standard** presented by the suite of indicators used for evaluation.

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.

Mathematical, Information and Computing Sciences

01 Mathematical Sciences

% assessed UoEs rated at or above world standard					Average National Rating
86%	FTEs	880	Esteem count(s)	106	3.4
	Research outputs	8,659	Patent(s)	1	
	Research income $	104,624,740	Research commer. income $	22,368,469	
	UoEs assessed	58			

Rating:	1	2	3	4	5	Total
Distribution:	1	7	25	16	9	58

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

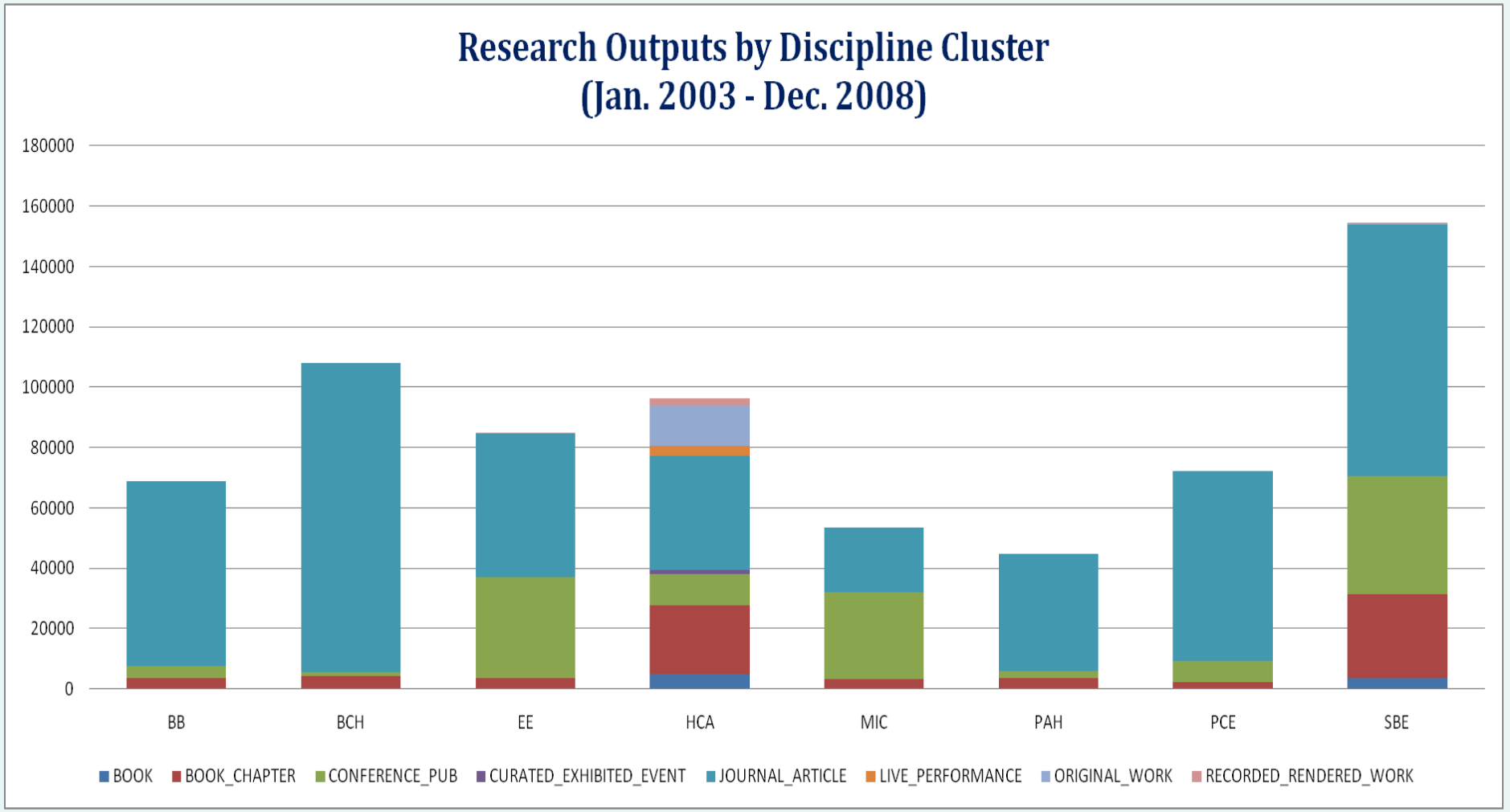
- ✘ Averages and Rankings
- ✘ Sciences v. Social Sciences & Humanities

- ☑ 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!

Discipline	FoR	A*	A	B	C
Immunology	1107	7%	14%	24%	55%
Plant Biology	0607	3%	8%	14%	74%
Ecology	0602	9%	18%	36%	37%
Zoology	0608	1%	7%	18%	73%
Historical Studies	2103	6%	22%	32%	38%
Electrical and Electronic Engineering	0906	6%	16%	28%	49%
Macromolecular and Materials Chemistry	0303	14%	19%	31%	36%


Research Outputs by Discipline Cluster
(Jan. 2003 - Dec. 2008)
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
BB
BCH
EE
HCA
MIC
PAH
PCE
SBE
BOOK
BOOK_CHAPTER
CONFERENCE_PUB
CURATED_EXHIBITED_EVENT
JOURNAL_ARTICLE
LIVE_PERFORMANCE
ORIGINAL_WORK
RECORDED_RENDERED_WORK

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

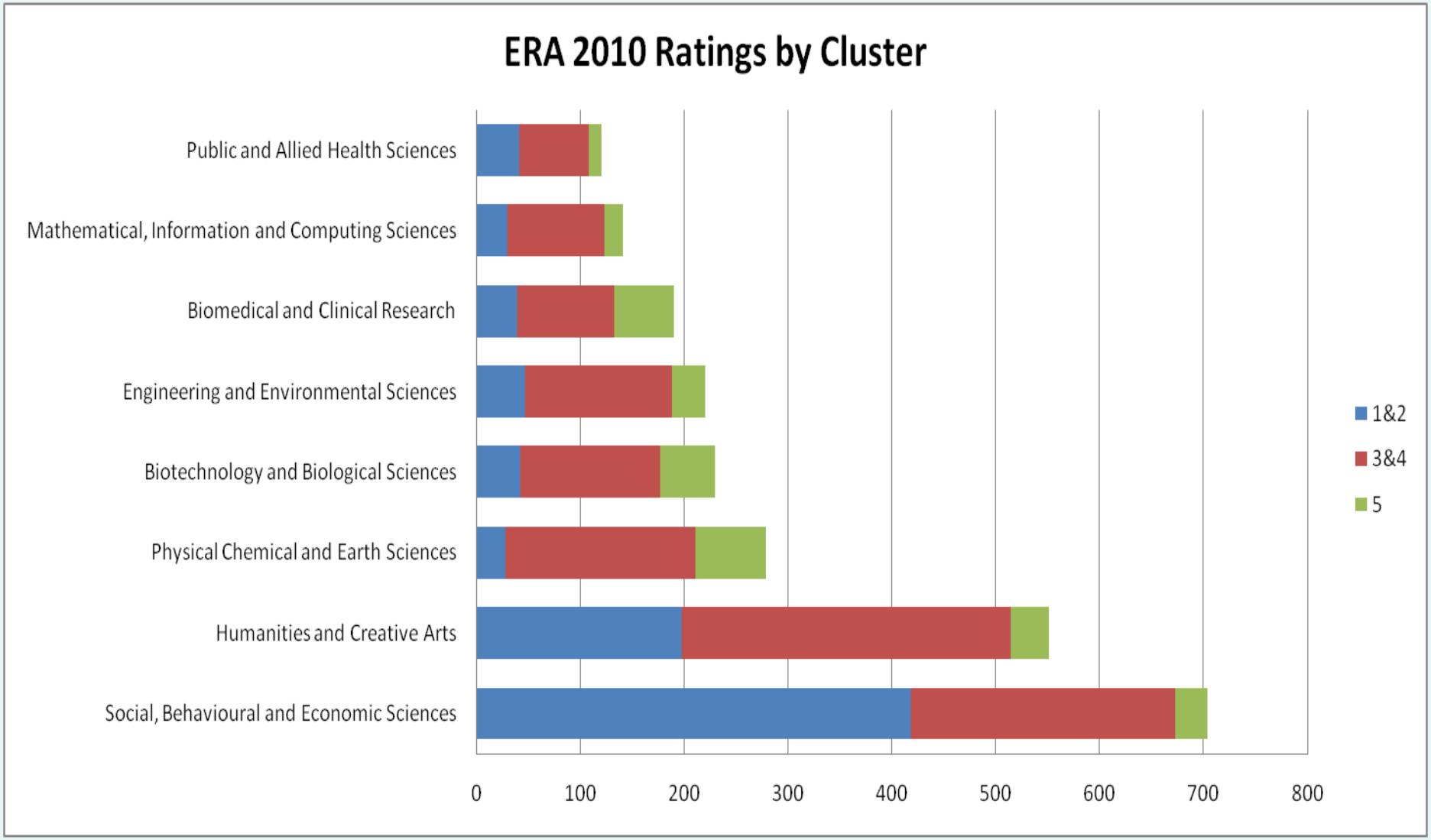
- Agriculture, Land and Farm Management
- Automotive Engineering
- Maritime Engineering
- Engineering Design
- Complementary and Alternative Medicine

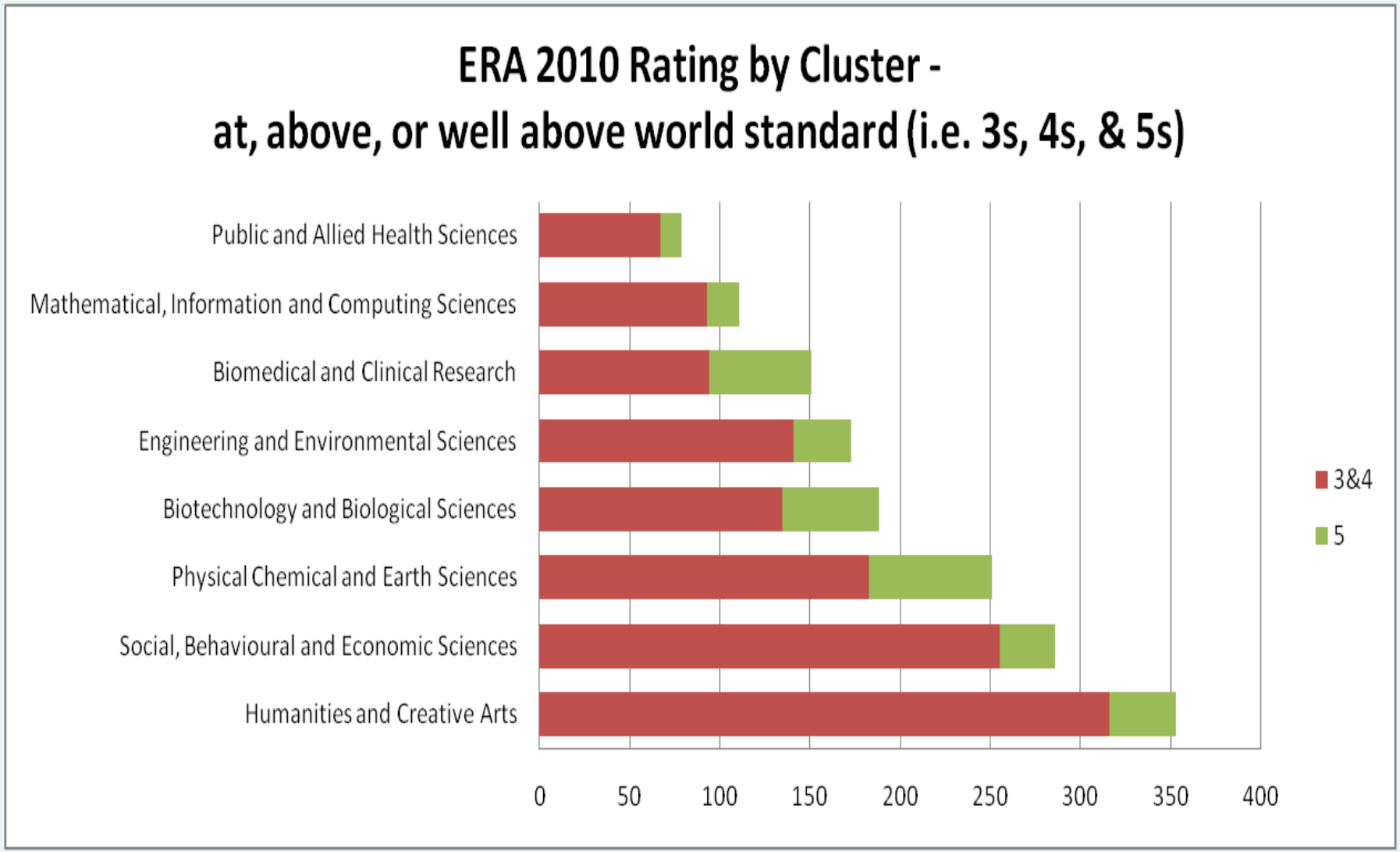
Pockets

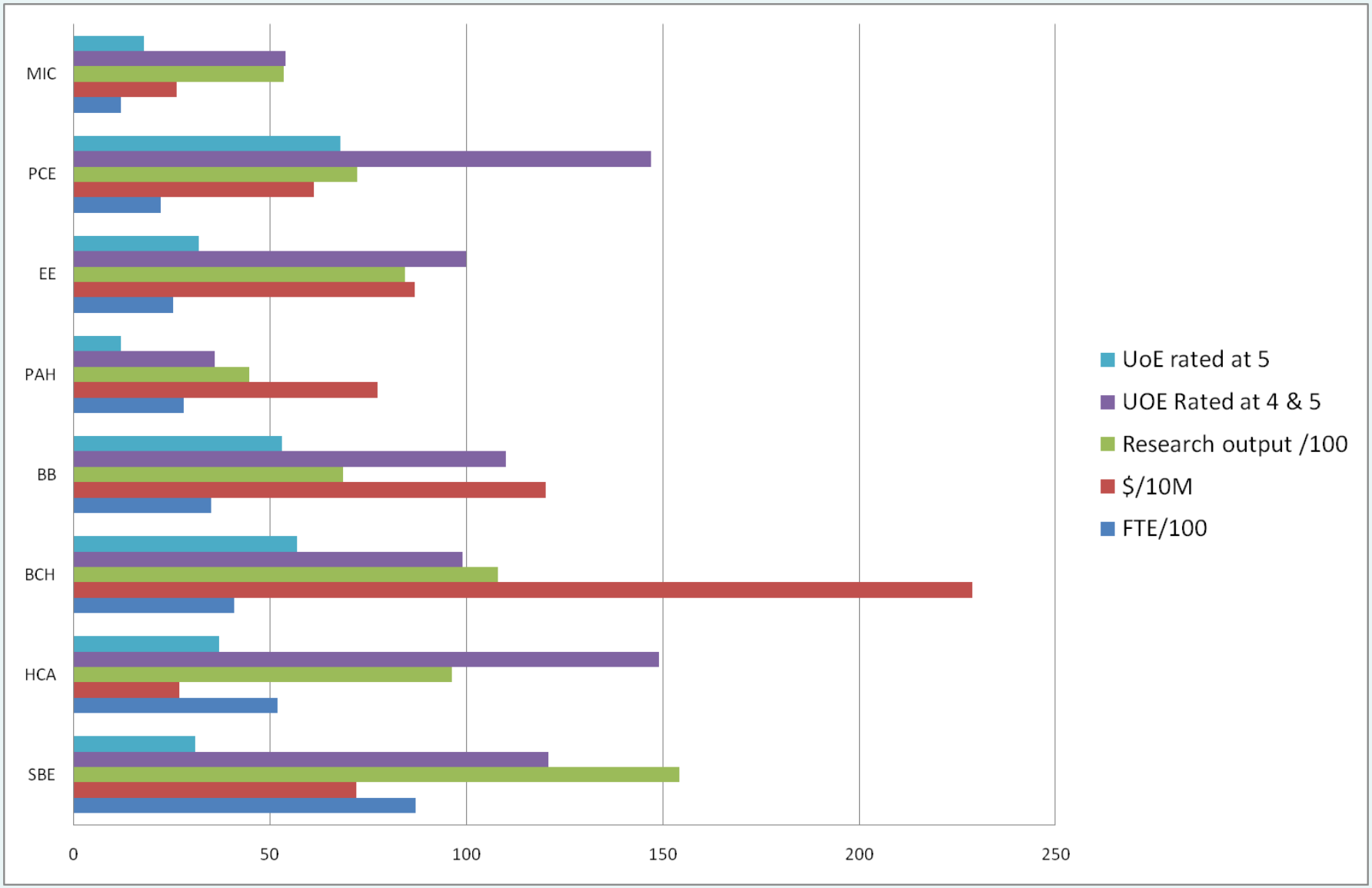
- Classical Physics
- Aerospace Engineering
- Transportation and Freight

Strong Applied Research

- Electrical and Electronic Engineering
- Crop and Pasture Protection
- Resources Engineering
- Materials Engineering
- Extractive Metallurgy
- Nursing


ERA 2010 Ratings by Cluster
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
Humanities and Creative Arts
Social, Behavioural and Economic Sciences
0
100
200
300
400
500
600
700
800
1&2
3&4
5


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
0
50
100
150
200
250
300
350
400
3&4
5


MIC
PCE
EE
PAH
BB
BCH
HCA
SBE
0
50
100
150
200
250
UoE rated at 5
UOE Rated at 4 & 5
Research output /100
$/10M
FTE/100

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)

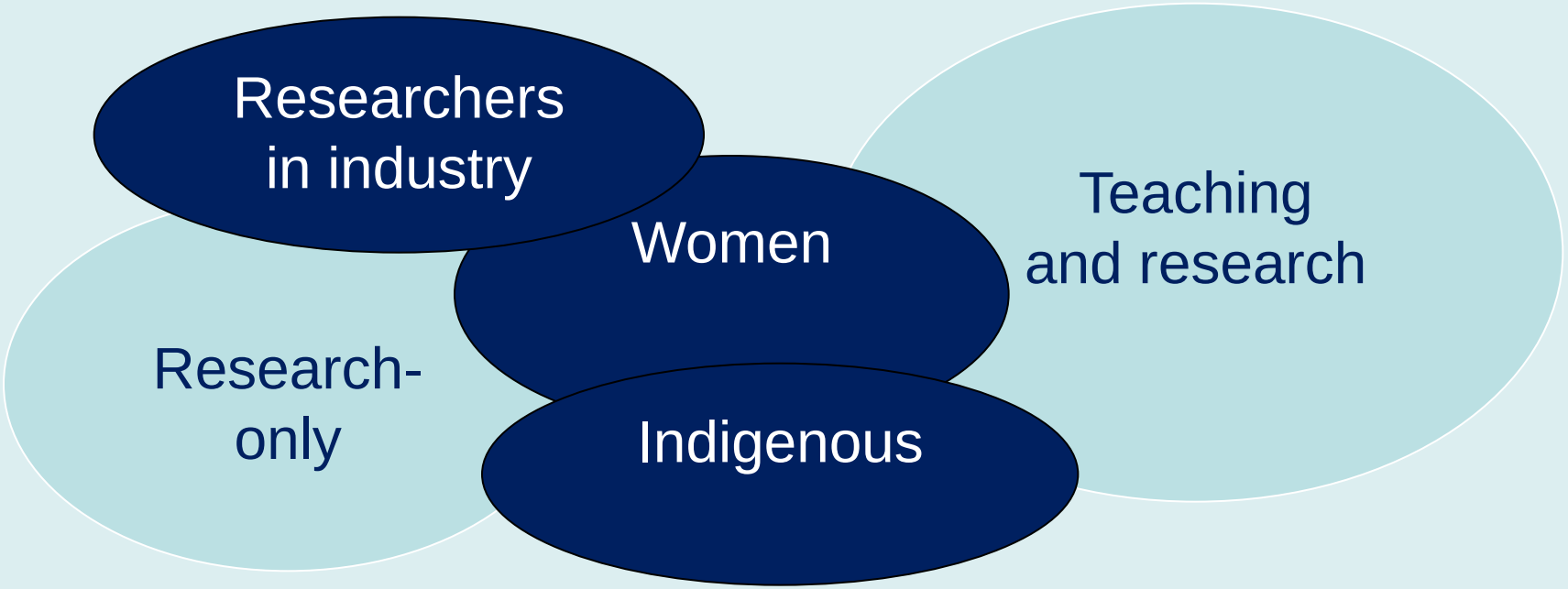
- Changing how we measure excellence
  Track record v. Performance evidence

- 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



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
  $143,00
- 200 p.a.
  4-year
  fellowships

A few tips for grant writing

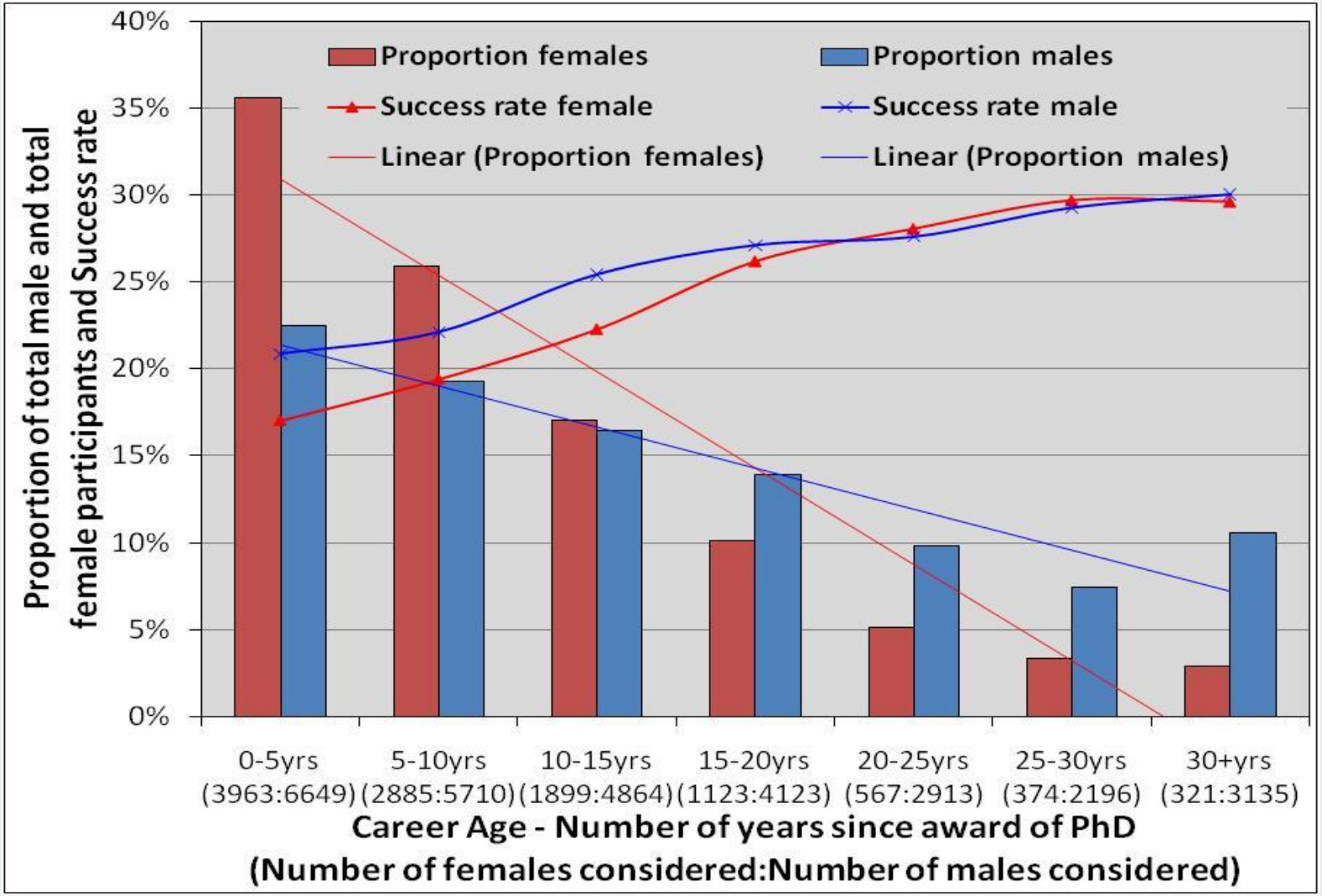
- Messages to pass on
- Advice on proposals
- Peer review
- Career advice more generally

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?


Proportion of total male and total female participants and Success rate
40%
35%
30%
25%
20%
15%
10%
5%
0%
Proportion females
Proportion males
Success rate female
Success rate male
Linear (Proportion females)
Linear (Proportion males)
0-5yrs (3963:6649)
5-10yrs (2885:5710)
10-15yrs (1899:4864)
15-20yrs (1123:4123)
20-25yrs (567:2913)
25-30yrs (374:2196)
30+yrs (321:3135)
Career Age - Number of years since award of PhD
(Number of females considered:Number of males considered)

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