Harnessing research evaluation frameworks to build an institutional research trajectory
The Yin and the Yang

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Building Research Capacity and Intensity in a Young University System
Age of Australian Universities 2010

Median age = 24 yrs
Mean age    = 46 yrs
Measures of Research Performance
Total Research Income 2009

The University of Melbourne
The University of Queensland
University of New South Wales
The University of Sydney
Monash University
The University of WA
The University of Adelaide
ANU
QUT
University of Newcastle
University of Tasmania
Curtin University of Technology
Griffith University
University of South Australia
Flinders University
Murdoch University
La Trobe University
Deakin University
RMIT University
Macquarie University
James Cook University
University of Technology, Sydney
University of New South Wales
University of Western Sydney
Swinburne University of Technology
Charles Sturt University
Edith Cowan University
University of Canberra
Victoria University
Southern Cross University
University of Southern Queensland
Central Queensland University
University of Ballarat
University of the Sunshine Coast
Australian Catholic University
Bond University
Melbourne College of Divinity
The University of Notre Dame Australia
Batchelor Institute

Total Research Income ($million)
Measures of Research Performance
% Growth in Total Research Income
2005 - 2009

- QUT: 121%
- UNSW: 113%
- CDU: 103%
- Griffith: 91%
- UniSA: 89%
- Curtin: 78%
- Murdoch: 76%
- La Trobe: 73%
- Can: 73%
- Deakin: 68%
- Qld: 61%
- Monash: 53%
- Woll: 52%
- CSU: 52%
- Sydney: 51%
- Newc: 49%
- Tas: 48%
- Flinders: 46%
- Adelaide: 43%
- UWA: 38%
- VIC: 36%
- Swinb: 34%
- JCU: 34%
- RMIT: 34%
- UWS: 33%
- Melb: 32%
- ECU: 22%
- UTS: 19%
- ANU: 13%

Other Institutions:
Macq: 4%
UNE: 3%
The Journey from Research ‘Active’ to Research ‘Intensive’

- **Building Research Activity:**
  Publish and earn some income
  Measures: Number of research outputs and total research income

- **Building Research Excellence:**
  More quality publications and more competitive funding
  Measures: Quality of research outputs and competitive research income

- **Building Research Intensity:**
  Number of disciplinary areas performing at world class levels
  Measures: Ratings in national research quality assessment exercises e.g. ERA and World University Ranking Systems
Australian Universities
Measure of Research Activity
Total Weighted Publications/FTE (2009)

Weighted publications per FTE

Age of institution as at 2010

R² = 0.4607
Australian Universities
Measure of Research Quality
Journal Publications/FTE (2009)

$R^2 = 0.6908$
Australian Universities
Measure of Research Quality
Competitive Research Income/FTE (2009)

Category 1 income per FTE vs Age of institution as at 2010

$R^2 = 0.7332$
Number of Disciplinary Research Concentrations Ranked ‘World Class’ or above (ERA 3, 4, 5)

Number 4 Digit FoR Ranked World Class or Above (3,4,5)

Age of institution

$r^2 = 0.75$
Understanding the Trajectory
UniSA Research Performance Dashboard
A Tool for Academic Leaders

- **Research Capacity**
  Number of research active staff

- **Research Activity**
  Weighted publication points
  Total research income
  HDR load and completions

- **Research Intensity**
  Weighted publication points/FTE
  Total research income/FTE
  HDR load and completion/FTE

- **Research Quality**
  Category 1 funding: total and % of total research income
  % A* and A journals
  Distribution of outputs in ERA disciplinary codes
  Citation Data: RCI by discipline
Building Research Capacity
UniSA Research Institutes

Supported Researchers

- EBI
- HRI
- ISST
- ITR
- IWR
- SAN
Building Research Capacity in Real Time
Sansom Institute for Health Research 2004-2009

Research Active Staff

Research Income

Research Income/Full Member

Category 1 Research Income
Principle:

ERA should use the sample size required for measures of research income and publications to provide the most current read out of research excellence across Australia’s Universities.
Potential Funding Implications of ERA

Current RTS Allocation vs Number of 2-digit FORs above world standard (ERA 2010)
World University Ranking Systems:
Impact of Institutional Age

- Universities < 50 years old fall ‘below the radar’ of current world university ranking systems

- In order to build research capacity in nations with relatively young universities, it is necessary to build a ranking system which can identify universities which are on track to build research intensivity i.e. the top 300 ‘next generation research intensives’

- There is therefore a need to develop benchmark indicators for institutions that measure the trajectory from ‘research active’ to’ research intensive’.
Impact of Institutional Age

SJTU Top 300
Median age = 141 yrs
Mean age = 183 yrs

SJTU Top 500
Median age = 124 yrs
Mean age = 167 yrs
2010 QS Top 300
Impact of Institutional Age

Median age = 132 yrs
Mean age   = 170 yrs
Median age = 146 yrs
Mean age    = 184 yrs
Number of institutions in THE discipline rankings by age of institution 2010

- Physical Sciences
- Engineering and Technology
- Life Sciences
- Social Sciences
- Clinical, Pre-Clinical and Health
- Arts and Humanities
2010 SJTU average scores by age for citation indicators (all institutions n=300)

<table>
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<tr>
<th>Score Range</th>
<th>Highly cited researcher</th>
<th>Articles published in Nature and Science</th>
<th>Science and Social Science citations</th>
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Benchmarking Against ‘The Next Generation of Research Intensive Universities’?

- The Way Forwards

- Identify cohorts of ‘new’ or ‘younger’ institutions within current world ranking systems and rank within cohort – but current research performance measures may reflect the destination not the journey.

- Consider new suite of research performance indicators that benchmark:

  - research ‘activity’
  - research ‘quality’
  - strengths in number of discipline areas within appropriate cohorts i.e. the worlds early-mid career research institutions.
Engaging the Global Academy
UniSA International Research Collaborations

THES University World Ranking

Tier 1
- Top 50 overall ranking
- Top 51-150 Discipline ranking

Tier 2
- Top 151-300 in overall
- Top 301 or beyond in overall ranking

Strength of Collaboration
- Low
- Moderate
- Strong
Context: Building a Globally Competitive University System

- Global Knowledge Network
- Global Research and Innovation Performance
- Global Education Innovation

Globally Competitive University System

- Proportion of GDP invested in R&D
- Knowledge Transfer/Engagement/Translation/Adoption

Skilled Workforce

- Innovative Industries, Business, Government
- Australia – Knowledge-based Economy, Sustainable Growth, Socially Cohesive

Regional Responsibility

Globally Competitive