Individual researcher's performance measurement as tool for career development and staff management

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Research at UQ

The University of Queensland has internationally-acknowledged excellence in research, research training, and technology transfer and commercialisation (6 faculties and 8 Institutes)

➢ Building large research institutes (critical mass and focus on research quality)

➢ Supporting our academic staff to pursue national and international research excellence

➢ Recognising and rewarding outstanding performance in research and RHD supervision

➢ Encouraging knowledge and technology transfers .

✓ Over $500m in research expenditure ($1.4B p.a. budget)

✓ Ranked **43rd** in the world by QS (2010), 81st by THE and 108 by Shanghai Jiao-Tong (2010)

✓ Ranked **78th** by SCImago institutions rankings (citation/staff)

100 YEARS AHEAD
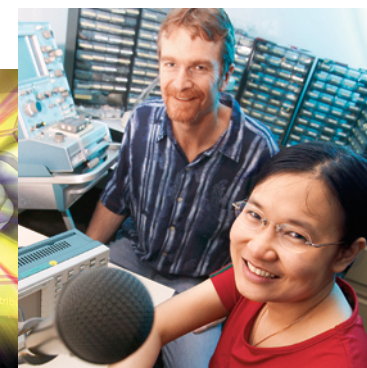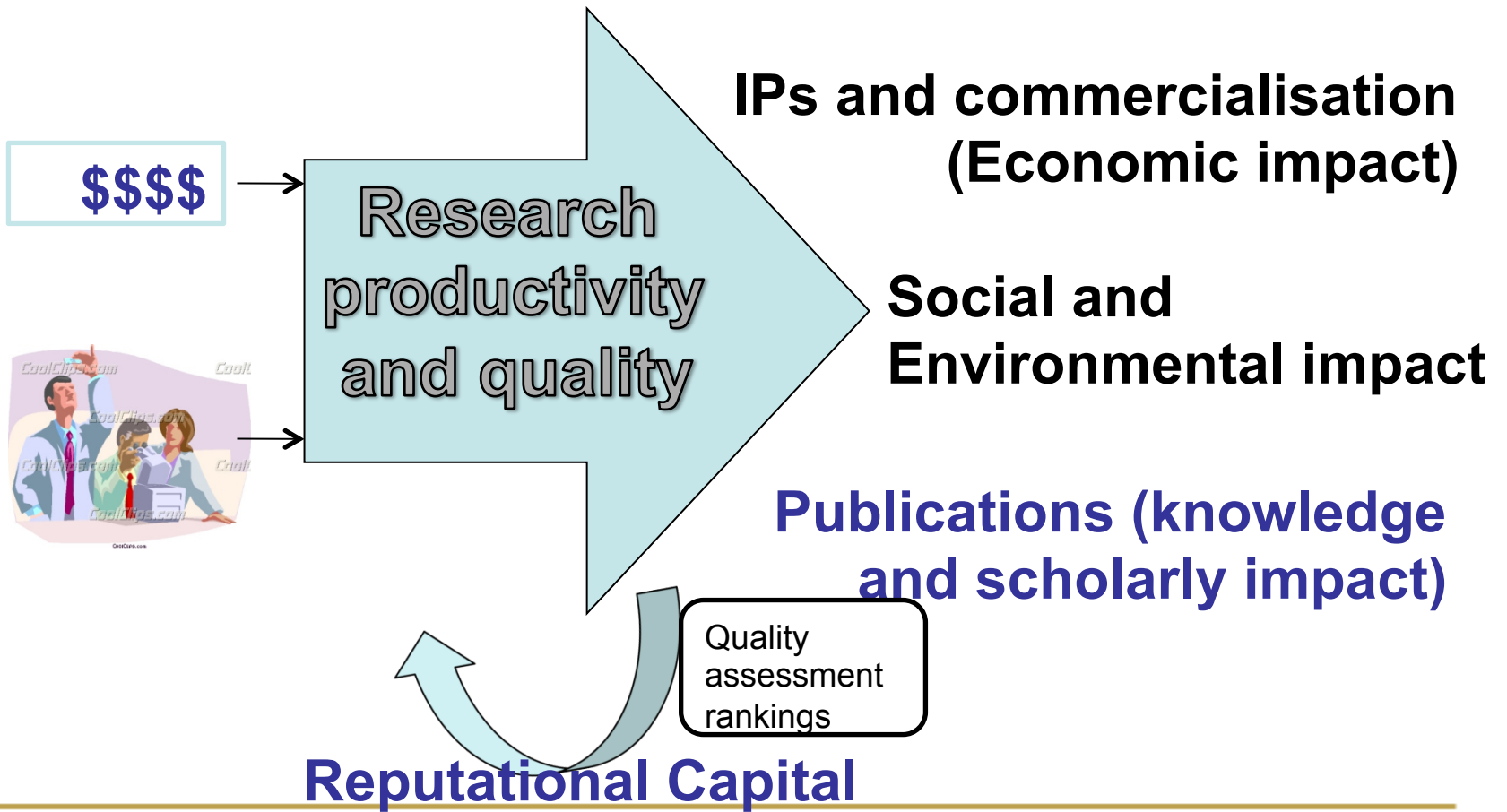
Excellence in Research for Australia

- **UQ has comprehensive strengths in research**

- Reputational impact
- SRE funding (50/50 on TC and ERA) in 2012
- RTS (TBD, ERA plus volume measure)
- Compacts (areas of improvement)
- TEQSA (not on standard, RHD offering?)

- Research Strengths and Emerging Strengths Review within an institution

The Research Virtuous Cycle

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Inputs

Outputs

$$$$

Research productivity and quality

IPs and commercialisation (Economic impact)

Social and Environmental impact

Publications (knowledge and scholarly impact)

Quality assessment rankings

Reputational Capital

100
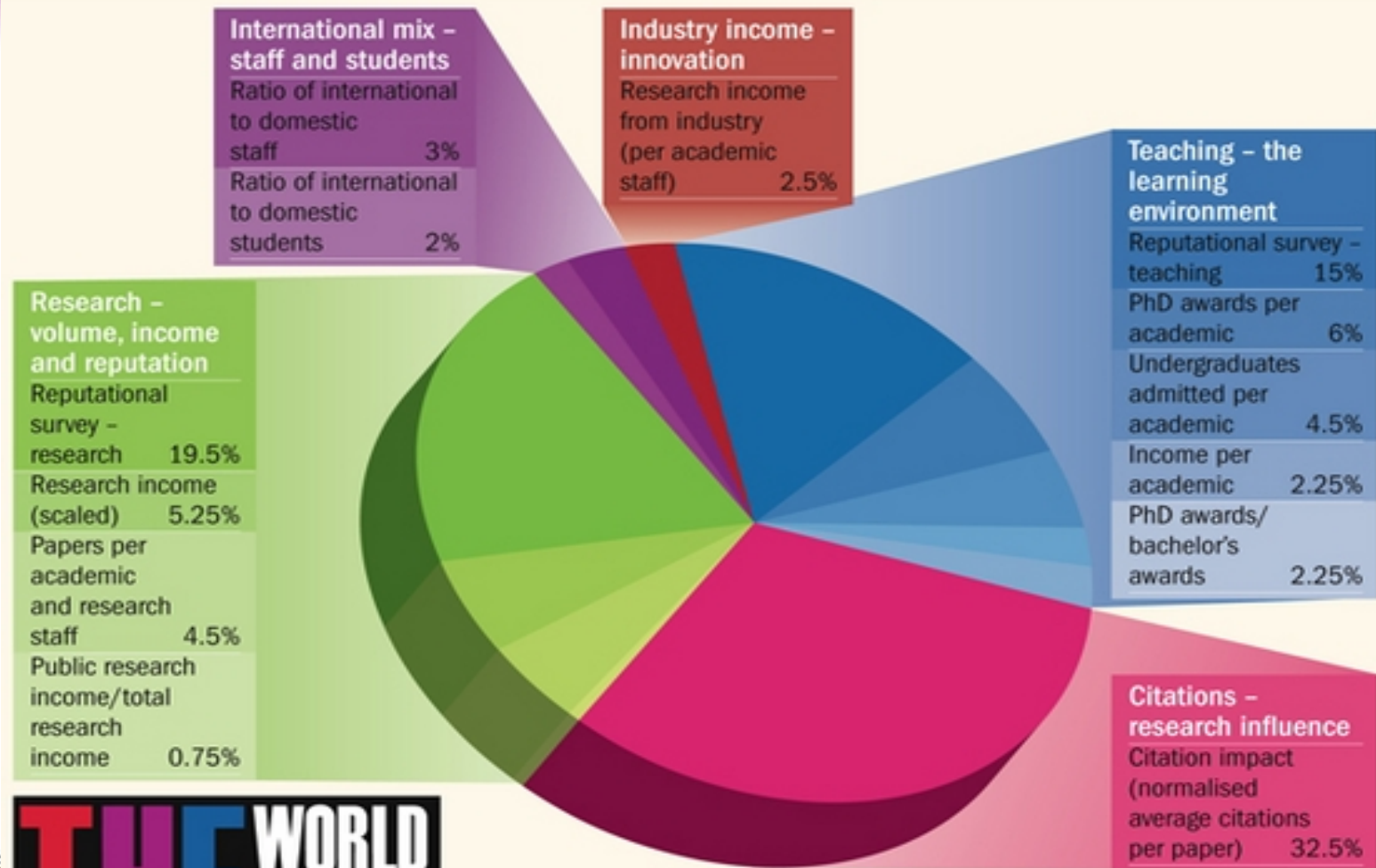YEARS AHEAD

University Ranking

THE - QS (Quacquarelli Symonds) World University Rankings were conceived to present a multi-faceted view of the relative strengths of the world's leading Universities.

Indicator	Explanation	Weighting
Academic Peer Review	Composite score drawn from peer review survey (which is divided into five subject areas). 6,354 responses in 2008.	40%
Employer Review	Score based on responses to employer survey. 2,339 responses in 2008.	10%
Faculty Student Ratio	Score based on student faculty ratio	20%
Citations per Faculty	Score based on research performance factored against the size of the research body	20%
International Faculty	Score based on proportion of international faculty	5%
International Students	Score based on proportion of international students	5%

World University Ranking – methodology
(announced June 2010)

WEIGHTING SCHEME FOR RANKINGS SCORES

International mix – staff and students
Ratio of international to domestic staff — 3%
Ratio of international to domestic students — 2%

Industry income – innovation
Research income from industry (per academic staff) — 2.5%

Teaching – the learning environment
Reputational survey – teaching — 15%
PhD awards per academic — 6%
Undergraduates admitted per academic — 4.5%
Income per academic — 2.25%
PhD awards/ bachelor's awards — 2.25%

Research – volume, income and reputation
Reputational survey – research — 19.5%
Research income (scaled) — 5.25%
Papers per academic and research staff — 4.5%
Public research income/total research income — 0.75%

Citations – research influence
Citation impact (normalised average citations per paper) — 32.5%

THE WORLD UNIVERSITY RANKINGS

For the latest World University Rankings news, debate and social networking, see
www.timeshighereducation.co.uk/world-university-rankings/

Shanghai Jiaotong Ranking

Criteria	Indicator	Code	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	Alumni	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	Award	20%
	Highly cited researchers in 21 broad subject categories	HiCi	20%
Research Output	Articles published in Nature and Science*	N&S	20%
	Articles indexed in Science Citation Index-expanded, and Social Science Citation Index	PUB	20%
Per Capita Performance	Per capita academic performance of an institution	PCP	10%
Total			100%

* For institutions specialized in humanities and social sciences such as London School of Economics, N&S is not considered, and the weight of N&S is relocated to other indicators.

Challenges in Research Excellence

- **People** –critical mass of top talent (ARF/QEIIs, Future Fellows, Laureate/Australia Fellows, HiCis) – **attract and retain more**

- How to increase **excellent** RHD students

- **Funding** *(SRE: ERA-linked performance bonus), JRE –diversification of funding)*

- Sustaining world-class **research infrastructure**

- Enhancing **Industry and Business Engagement**

- Managing and Lifting **Research Performance** across the board – needing measurement tools!

Q-index: Individual performance tool

Q-Index - Scope of Indices
- Use 6-year window of activity consistent with ERA
- Include current academics (including Level A*), and those who were included in the most recent census
- **Components**:
- Research Input Points (RIP) – grant income
- Research Output Points (ROP) – publications
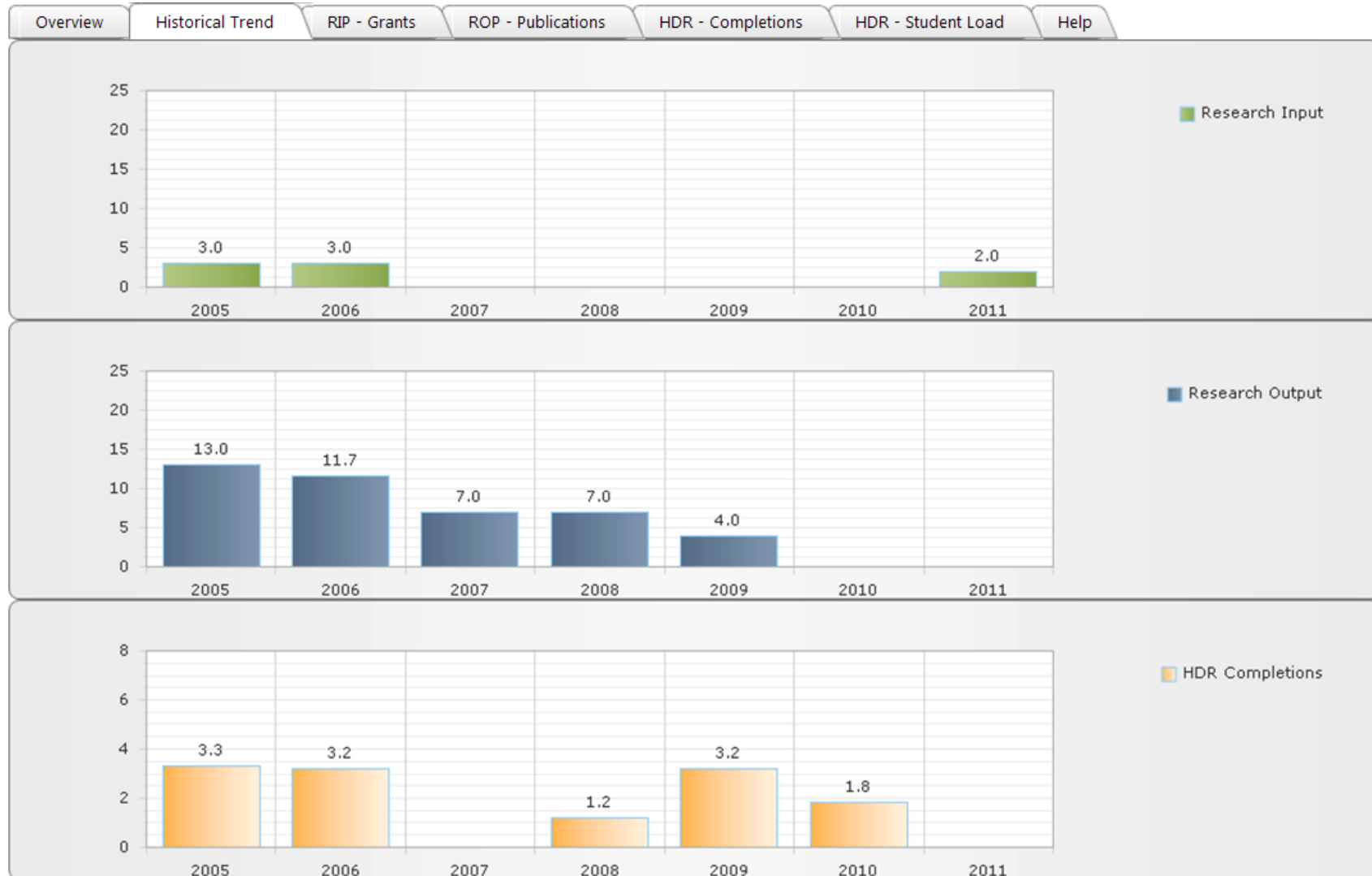- HDR Completions
- HDR Load

  Each component will be **normalised** such that the staff member with the highest raw point score in each component equates to 100% for that component.

- The normalised scores will be **weighted**:

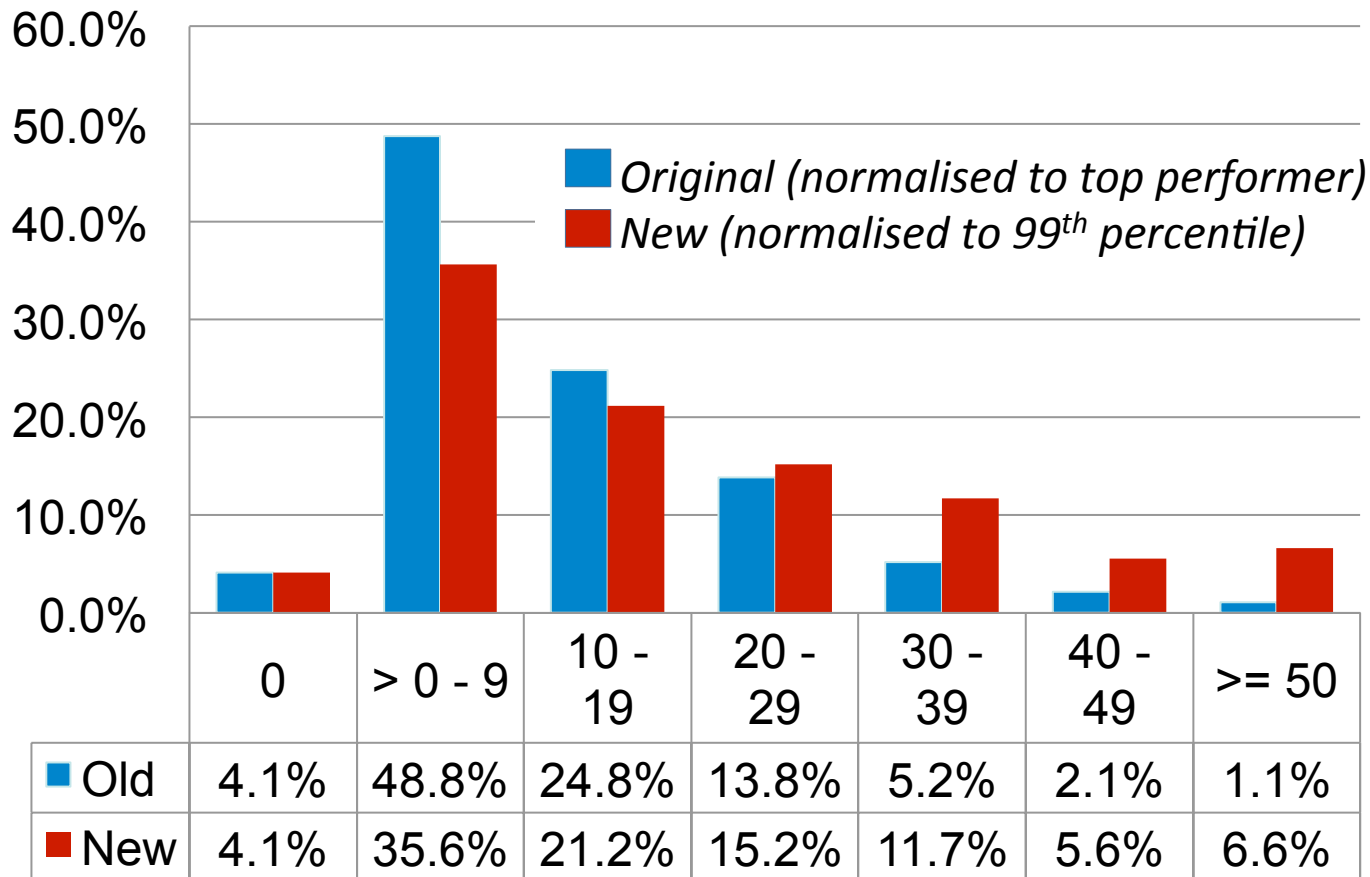| RIP	ROP	RHD Completions	RHD Load	Q-Index II
33.33%	33.33%	20.33%	13%	100%

Q-index: Individual performance tool

- Historical trend display

Q-index: improving the distribution

Scores in each component normalised against the 99th percentile:

- the top 1% of performers in each component (inputs, outputs, load, completions) all receive the maximum points for that component, mitigating the influence of outliers and improves the distribution of scores.

Legend:
- Original (normalised to top performer)
- New (normalised to 99th percentile)

	0	> 0 - 9	10 - 19	20 - 29	30 - 39	40 - 49	>= 50
Old	4.1%	48.8%	24.8%	13.8%	5.2%	2.1%	1.1%
New	4.1%	35.6%	21.2%	15.2%	11.7%	5.6%	6.6%

Analysis of Level B and above; <u>excludes</u> staff flagged as "has not yet reached 5th anniversary of commencement at UQ", "Taken parental leave during reporting period" and Function = "N/A"

Q-index: Perfecting the tool

- Faculty and Institute means displayed for all Academic levels

	Level A	Level B	Level C	Level D	Level E
Faculty X	1.11	4.41	12.25	17.26	28.17

- Future changes to HERDC classifications and ERA rankings will be applied retrospectively to publications data to ensure consistency across the 5-6 year Q-Index window.

- We are investigating options for representing creative works for relevant disciplines.

Q-Index Improvements: Collaborative Work and Citations Per Paper

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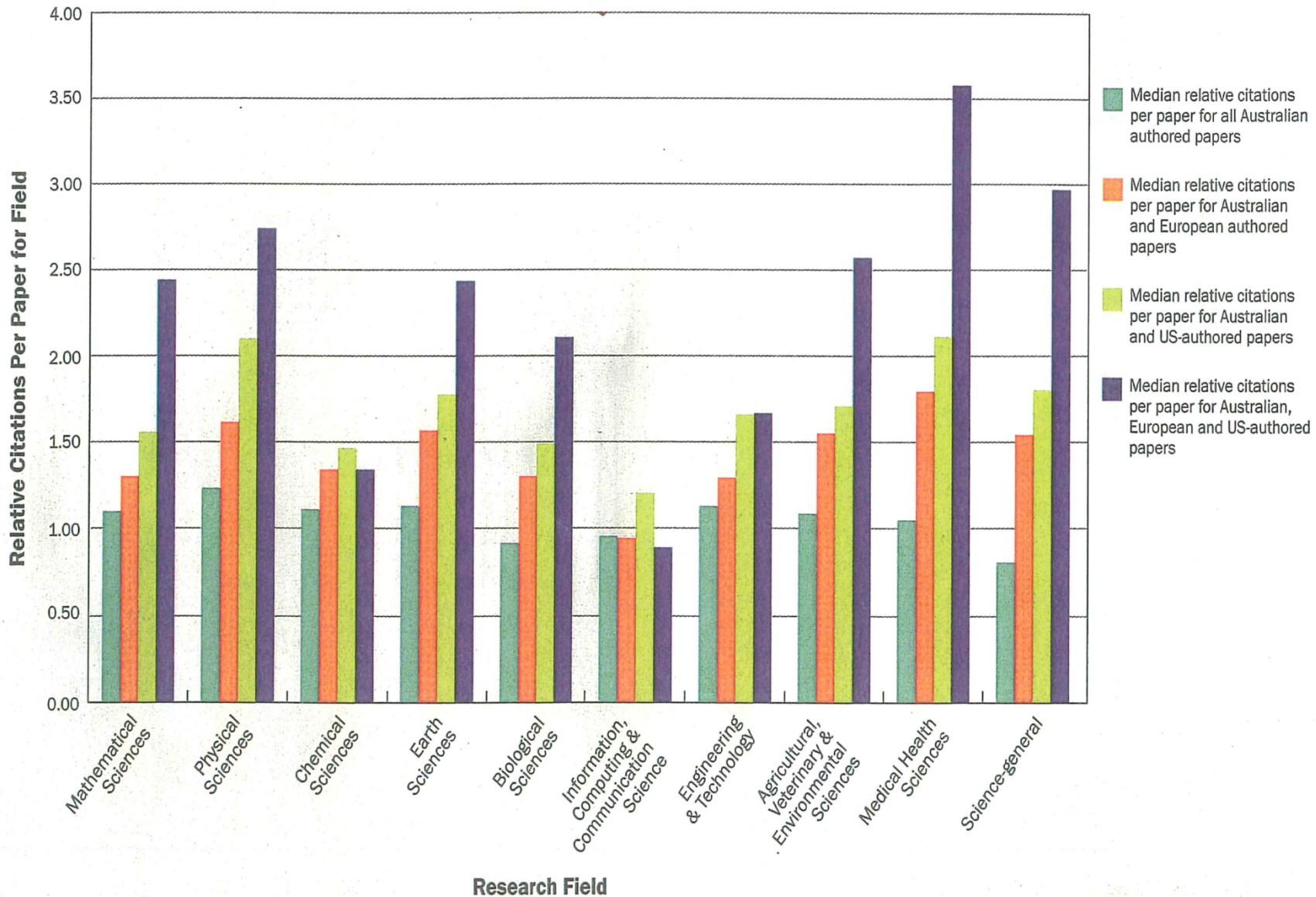
Staff Performance Management

- **Reward and Strategic Support for Research Excellence** *(UQ Foundation Excellence Awards, Research Leaders Awards - Q-index, HiCi , Prestigious Fellowships)*

- **Encourage performance at low-to-medium range (**staff to self-reflect, track and monitor their research performance in a holistic manner)

- **Articulate research performance expectations taking into account academic level and workload balance.**

- **Manage very low performing staff?**

Strategic Uses of Q-Index

- Effectively use Q-index and ERA score cards to aid mapping of research strengths and emerging strengths, for strategic planning

- Q-Index as a benchmarking tool for recruitments – together with h-index + esteem factors

- Use the top Q-index researchers in selection committee or for advice on best candidates

Concluding Remarks

- Q-Index is not meant to be a single and simple index to rank academic researchers for promotion or any other purpose

- A tool provides quantitative reference point and benchmark for staff and their line managers in staff performance appraising processes

- Together with other information such as teaching performance and administrative service load makes staff management and career development planning much more evidence-based

- No tools would ever surpass human intelligence in judgement of quality. Q-Index is no panacea in addressing low performance, but as data-based measurement tool, simply reduces the degree of subjectivity and provides more rigor and reliability in assessing research performance

Acknowledgements

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Q-Index

Research Input Points (RIP)

UWA Socrates	Q-Index
1 point for any grant from $5,000 up to $50,000	Yes
2 points for any grant between $50,000 and $500,000	Yes
3 points for any grant over $500,000	3 points for any grant between $500,000 and $5,000,000
	4 points for any grant over $5,000,000
Externally peer-reviewed grants get a double weighting	No - Peer-reviewed grants are not weighted
Points should be shared evenly between internal CIs	$amount are shared evenly between all CIs (internal, external, and students) before points calculation
Internal students treated as staff for these purposes	Yes

Q-Index

Research Output Points (ROP) *(aligned with ERA data)*

UWA Socrates	Points	Q-Index	Points
A1 Research Monographs	5	A1 Research Monographs	10
Nature or *Science* C1 articles	5	*Nature* or *Science* C1 articles	5
C1 articles in the SSCI	4	C1 articles in ERA A* journals	3
C1 articles in both SSCI and SCI	3	C1 articles in ERA A journals	2
C1 articles in the SCI	2	C1 articles in ERA B journals	1
Other C1 articles not indexed	1	C1 articles in ERA C or not ranked	0
Book chapters not indexed by ISI	1	B1 research Book chapters	2
Refereed conference papers	0.5	ERA ranked A conference papers	2
All other output as for UWA's funding model	?	ERA ranked B conference papers	1
		ERA ranked C and unranked conference papers	0
		All other output	0
Creative works	Up to 5	Creative works	?
Points shared between internal authors only to encourage external collaboration		Points are not apportioned across authors as we do not want to discourage collaboration with students and internal colleagues	

Q-Index

Research Higher Degree Completions

UWA Socrates	Q-Index
2 points should be allocated for a Doctoral completion	Yes
1 point should be allocated for a Masters Completion (RTS masters)	Yes
Points apportioned across all supervisors on the basis of proportional supervisor load at completion	Yes
All supervisors are accounted for – UWA supervisors do **not** gain the points of external supervisors	Yes

Research Higher Degree Supervision Load

UWA Socrates	Q-Index II
N/A	2 points allocated for Full Time RHD Students
	1 point allocated for Part Time RHD Students
	Points apportioned across all supervisors on the basis of proportional **current** supervision load
	All supervisors are accounted for – UQ supervisors do **not** gain points for external supervisors; No weightings for PhD vs MPhil