

MAINTAINING RESEARCH EXCELLENCE

HEALTHCARE AND SCIENCE

Case studies from UK universities

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Beijing, 25 June 2010



THOMSON REUTERS

TODAY'S PRESENTATION

- Why has research assessment become so important?
 - Increasing global competition
 - How does research evaluation help to shape the questions?
- What have we learned from studies elsewhere?
 - Selectivity and competitiveness in the UK
 - Research assessment growing globally
- What forms of evidence-based research assessment have we recently developed?
 - What was the problem to be addressed?
 - What was the outcome?
 - How will this support excellence?

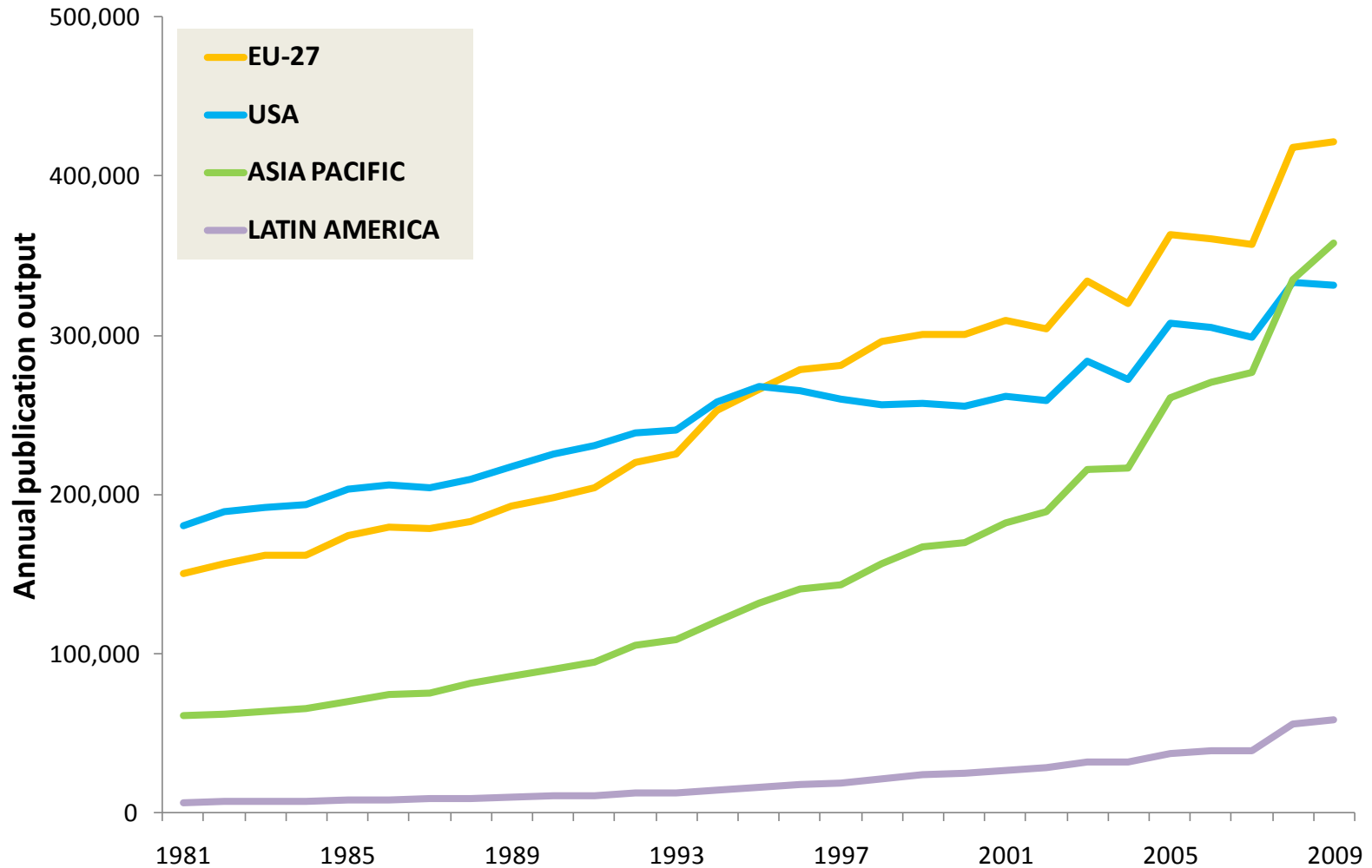
RESEARCH ASSESSMENT AND EVALUATION

- Research is a business best driven by researchers
- Intelligent management can identify priorities, support the environment, and target resources to get better outcomes
 - The key topics, the key laboratories, the key people
 - As resources get squeezed, we seek ‘posteriorities’
 - Good management must remain researcher-led
- Research culture has expanded over 25 years from the process of science to the business of science
 - Change within national systems and a spread between countries
 - Boundary of analysis and evaluation moving from **R** to **R&D** and is heading for “**R + D + I**”
 - Signals the relevance of the research enterprise to innovation and the economy
 - Academic impact becomes economic and social impact

A NEW GEOGRAPHY OF SCIENCE

- The G7 has enjoyed an extended period of research leadership
- New research economies are appearing ...

ASIA'S GROWTH IS DRIVEN BY CHINA



A NEW GEOGRAPHY OF SCIENCE

- The G7 has enjoyed an extended period of research leadership
- New research economies are appearing
 - India is now accelerating
 - Brazil will be a major and innovative player
- Old certainties are challenged
- New opportunities must be recognised and addressed
- Competition will be intense, so the maintenance of excellence will be a policy priority
- Competition is both national and institutional
 - Rankings issues show us that ‘brand’ competition is also trans-national

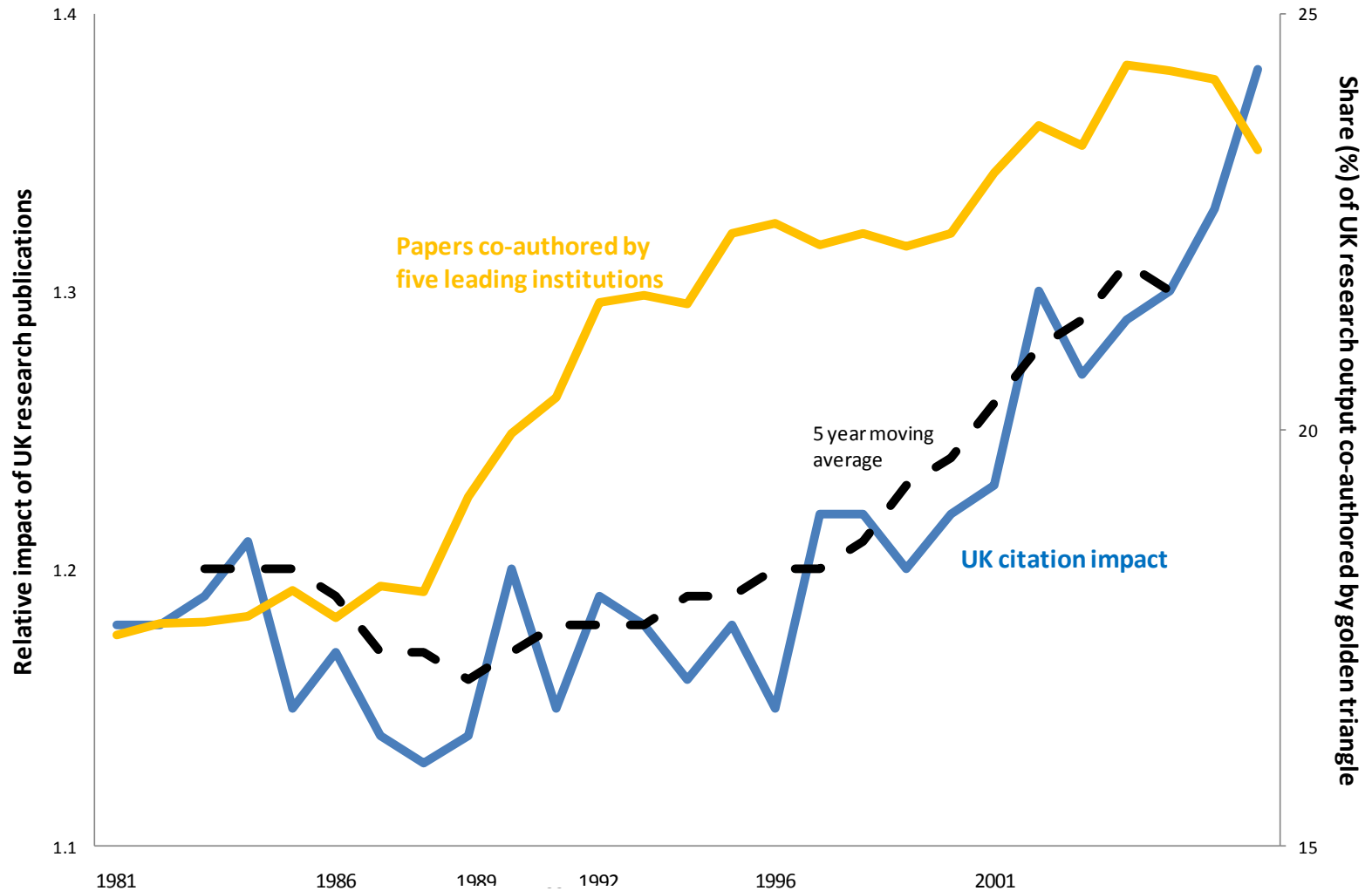
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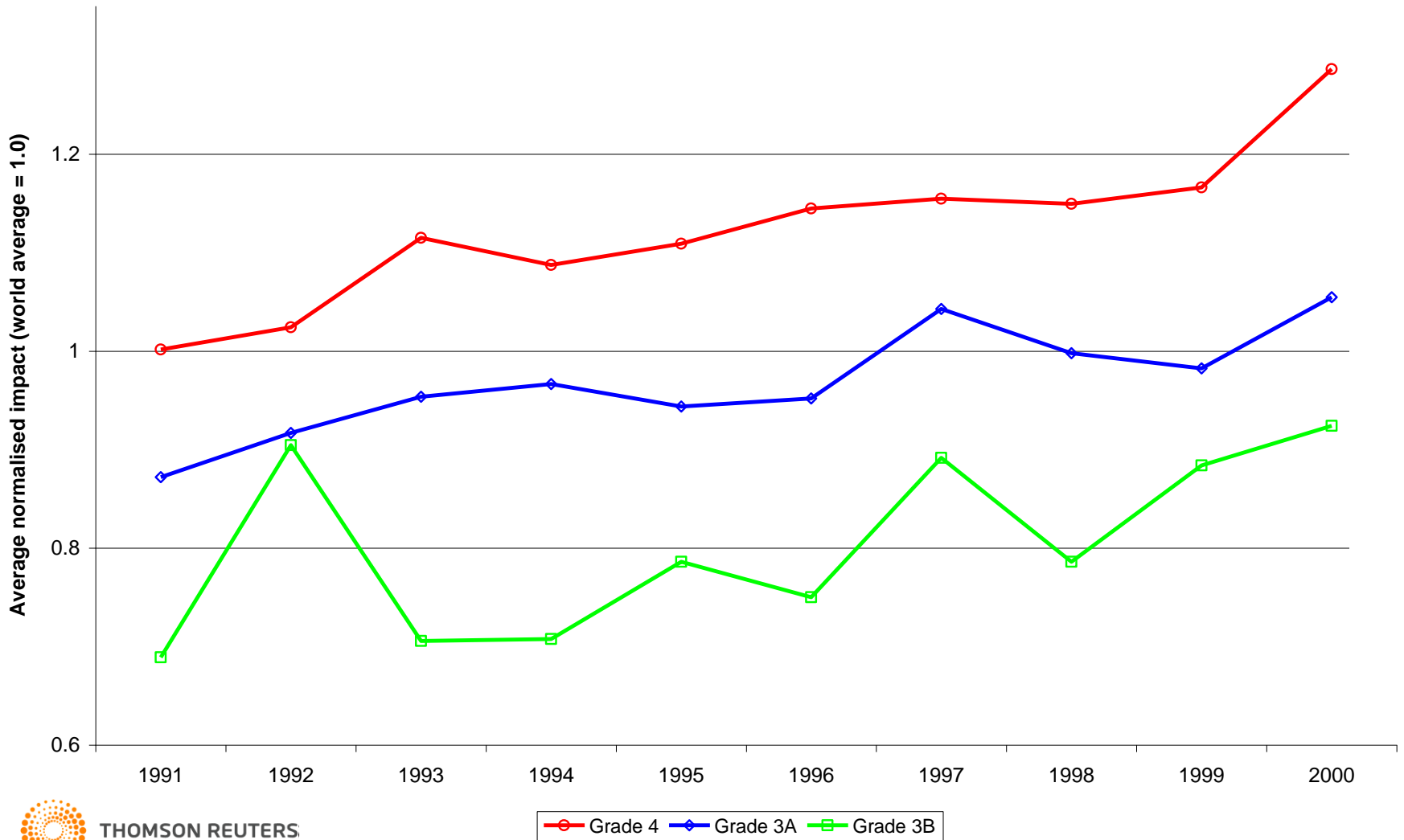
UK EXCELLENCE HAS BEEN DRIVEN BY RESEARCH ASSESSMENT (RAE)

- 1960s research growth, 1970s economic crisis
- 1980s – need for selective concentration of funds
- 1986 – first RAE
- 1989 – repeat, but simpler
- 1992, 1996, 2001 – the ‘standard’ model
 - 69 subject-based peer review panels
 - Portfolios of data on output, training, funding, strategy
- Outcome by grades 1 to 5
 - Reputational, quality ‘assurance’
 - Functional, input to selective funding model

EXCELLENCE IS LINKED TO ASSESSMENT AND SELECTIVITY



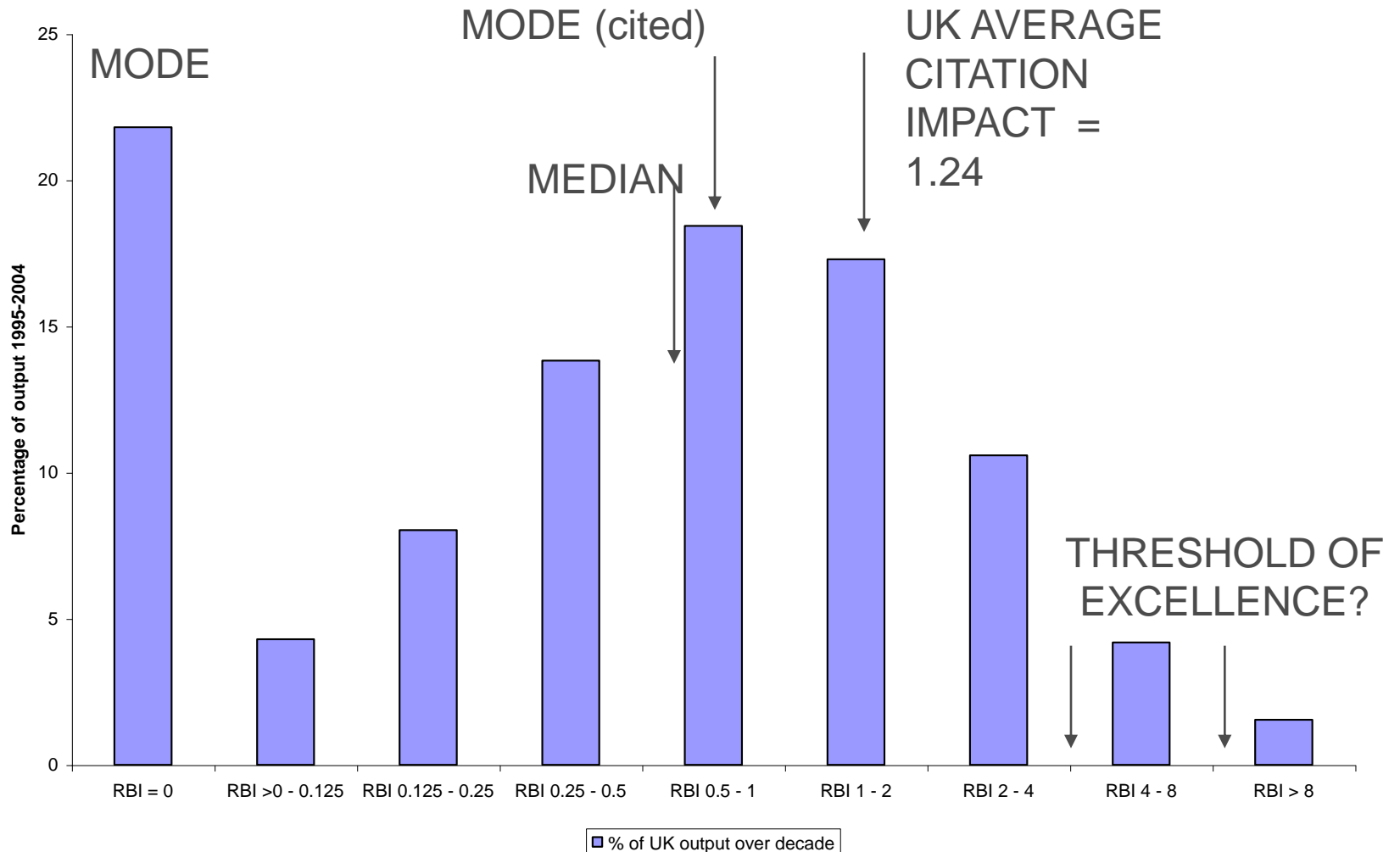
THOMSON REUTERS INDICATORS ARE COHERENT ACROSS UK'S RAE GRADES



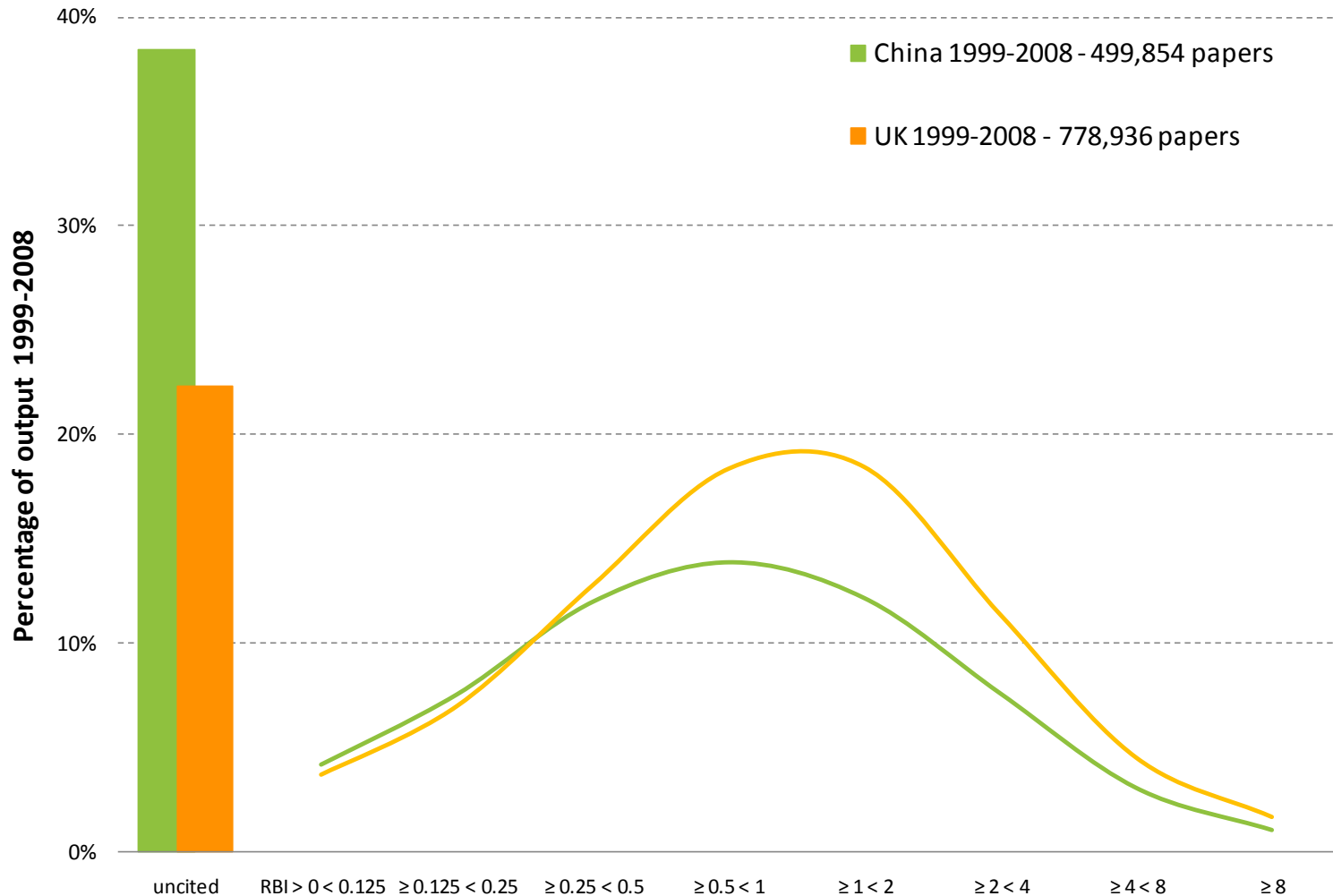
BUT THERE IS A PROBLEM WITH SIMPLE OUTPUT INDICATORS

- Accessible, rapidly produced, easily summarised
 - But they don't really express the complexity of research performance
- Average impact (e.g. 'crown indicator') can be very misleading
 - Errors of interpretation
 - Lots of papers are not cited
 - Skewed data, median much smaller than average
 - Only a small part of activity is cited very frequently, but high academic impact leads to economic and social impact
- So Thomson Reuters has developed Impact Profiles[®]

PROFILES CHANGE OUR UNDERSTANDING OF UK RESEARCH EXCELLENCE



PROFILES CAN BE VISUALISED AS A CURVE FOR READY COMPARISONS



GLOBAL RESPONSES TO COMPETITION

- New Zealand
 - Performance Based Research Fund, assessment very like the UK's RAE
 - Subject-based, cyclical, similar indicators
- Australia
 - Excellence in Research for Australia (ERA)
 - Main focus on journal articles
 - Many, many categories at two levels
 - Problems over choosing benchmarks
- Germany
 - Changing research culture from Humboldt's 'free the researcher'
- France
 - Universities merging and absorbing CNRS units

THE CHALLENGE FOR COUNTRIES AND INSTITUTIONS: MAINTAIN EXCELLENCE

- The UK and other G7 countries will be hard-pressed to maintain competitive edge in the face of emerging research strengths in Asia and Latin America
- Strategic focus on maintaining excellence will grow
 - Agencies will need to show that they selectively fund only the very best
 - Institutions will face intense competition for resources in their own country and more competition for students overseas
- Research managers will need more comprehensive and timely information to support decisions
 - There is no point in doing more research unless it is better research (the 'Brazil problem')

TODAY'S PRESENTATION

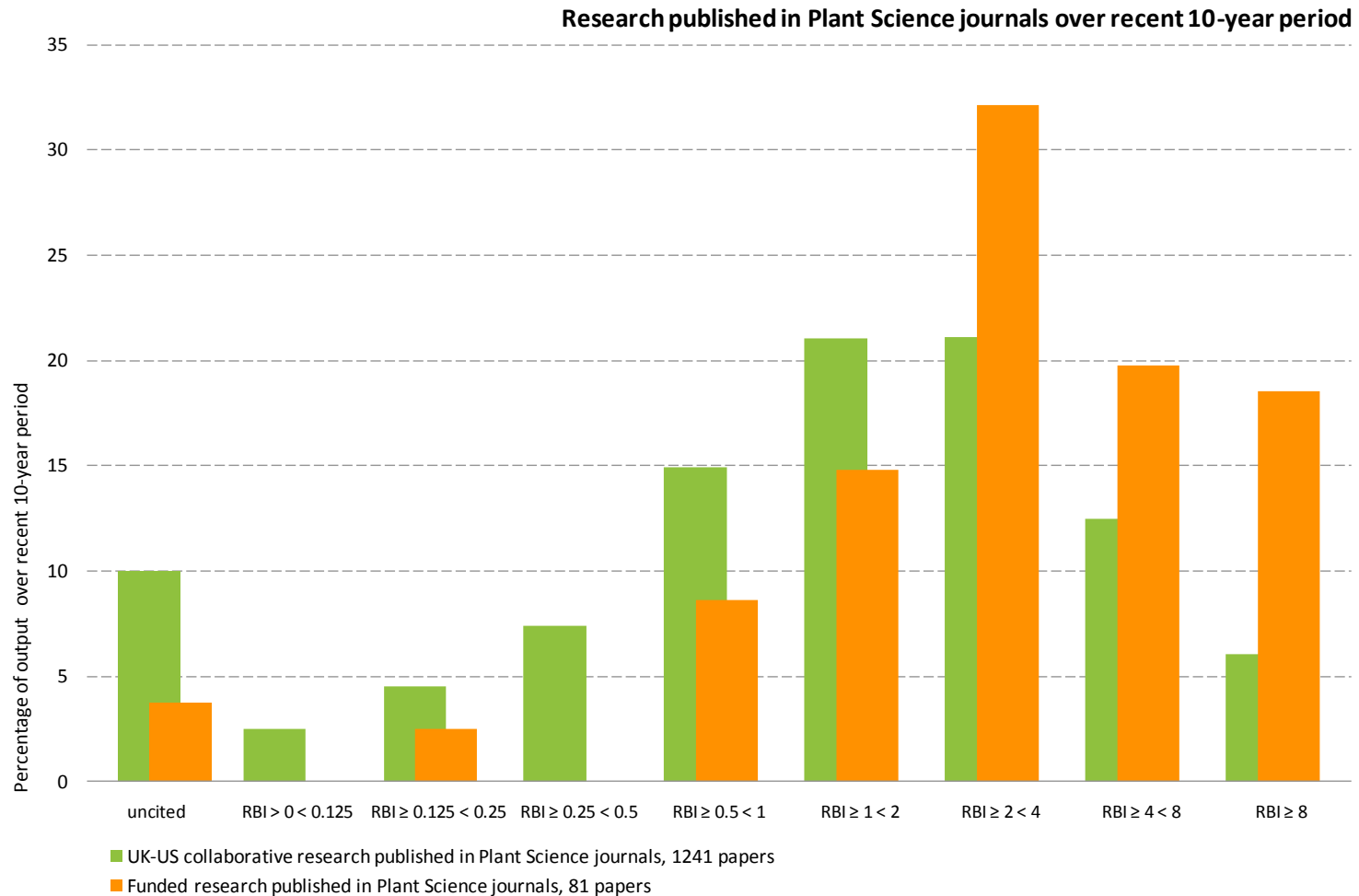
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HOW CAN THOMSON REUTERS SUPPORT THE DRIVE FOR EXCELLENCE?

- Increasing demands on research managers to use resources effectively
- Data cannot replace peer review, because expert decision making retains confidence of research community
- But research evaluation can support decision making, enabling faster and more confident implementation
 - Richer data sources
 - Accurate and complete data, properly attributed to source
 - Analyses relevant to management processes
 - Improve visualisation for ease of use

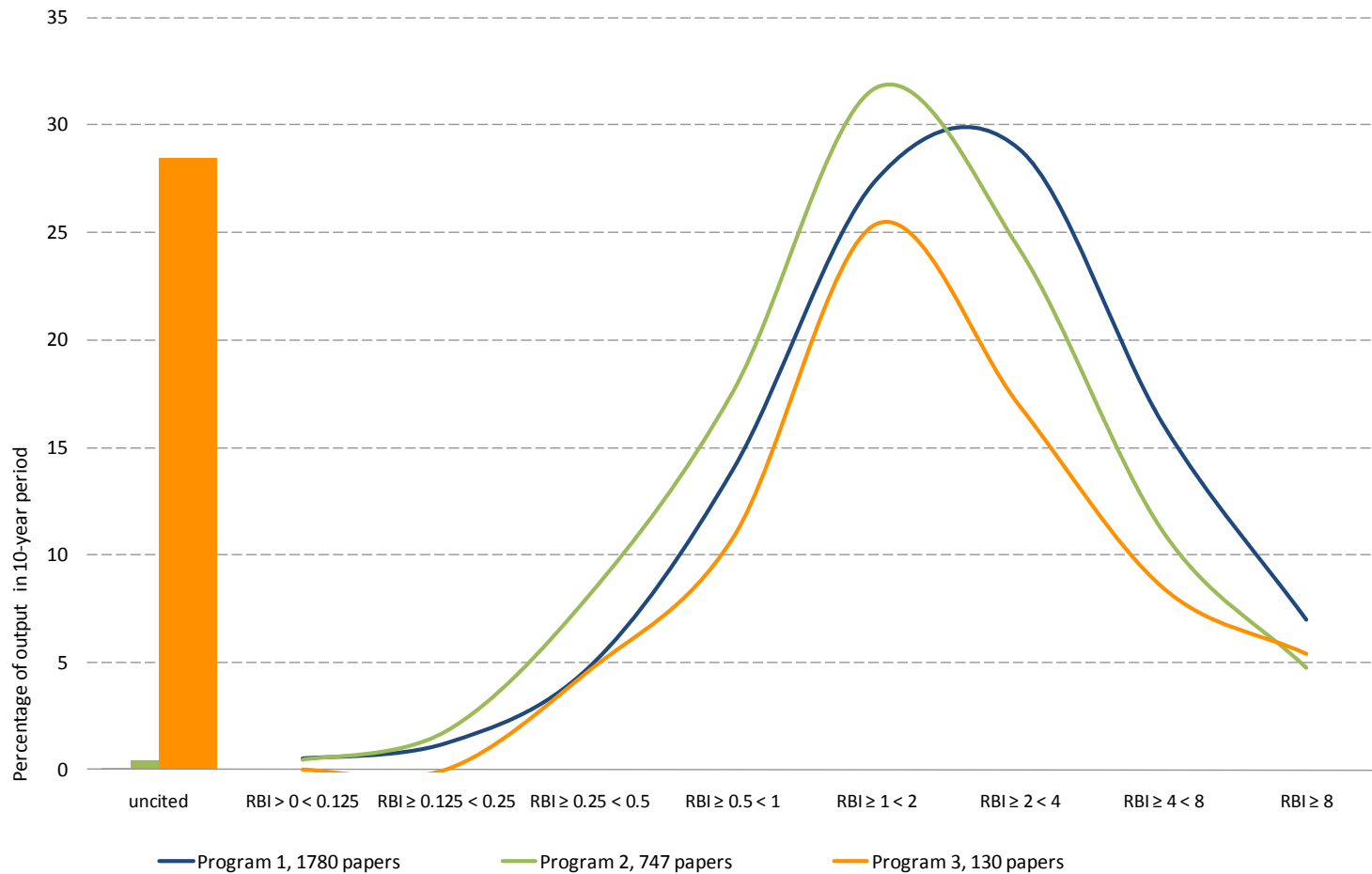
“IS RESEARCH WE FUND WELL CITED?”

Impact Profile[®] for research in Plant Science journals



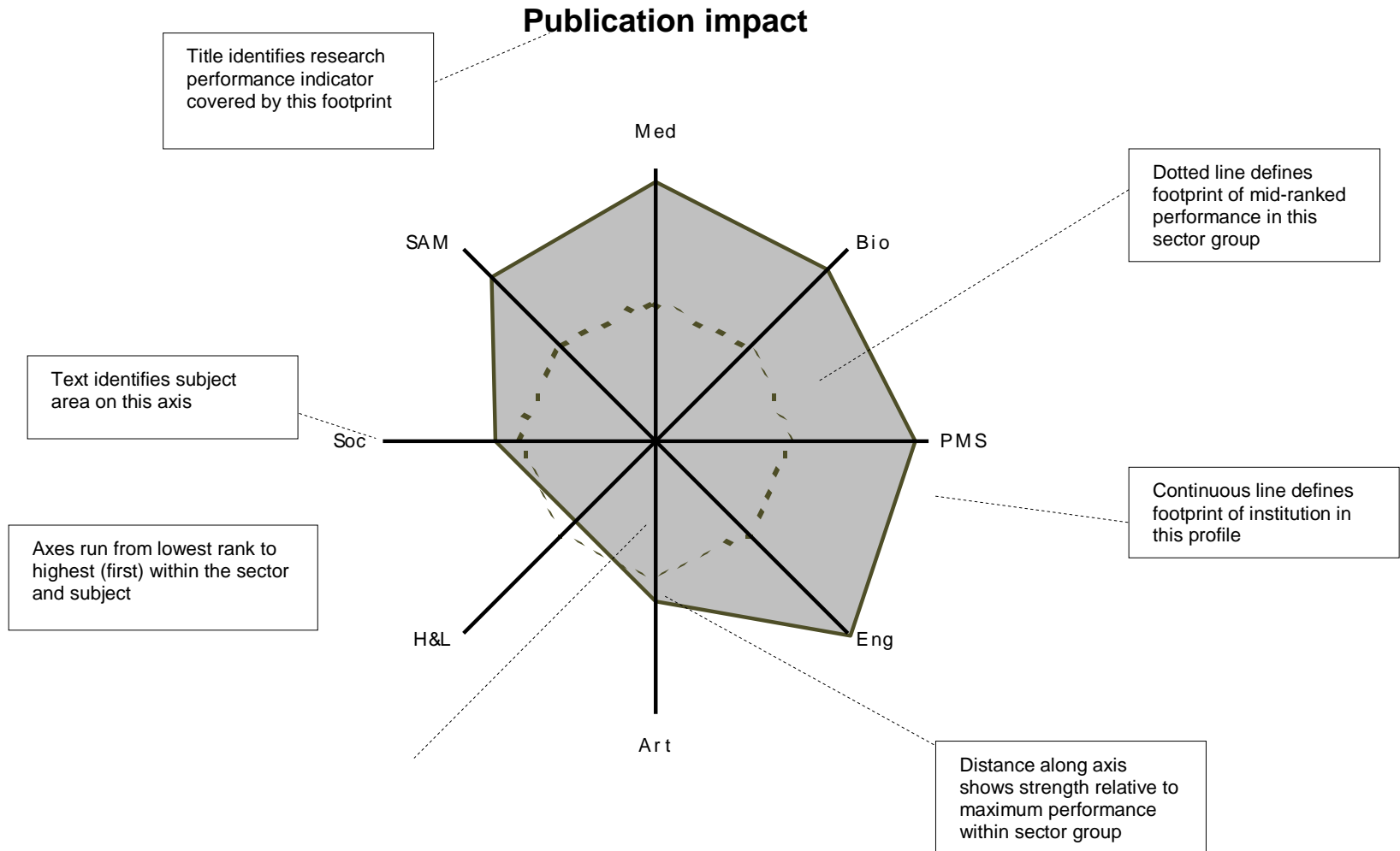
“IS ALL OUR RESEARCH EQUALLY GOOD?”

Impact Profiles[®] by program



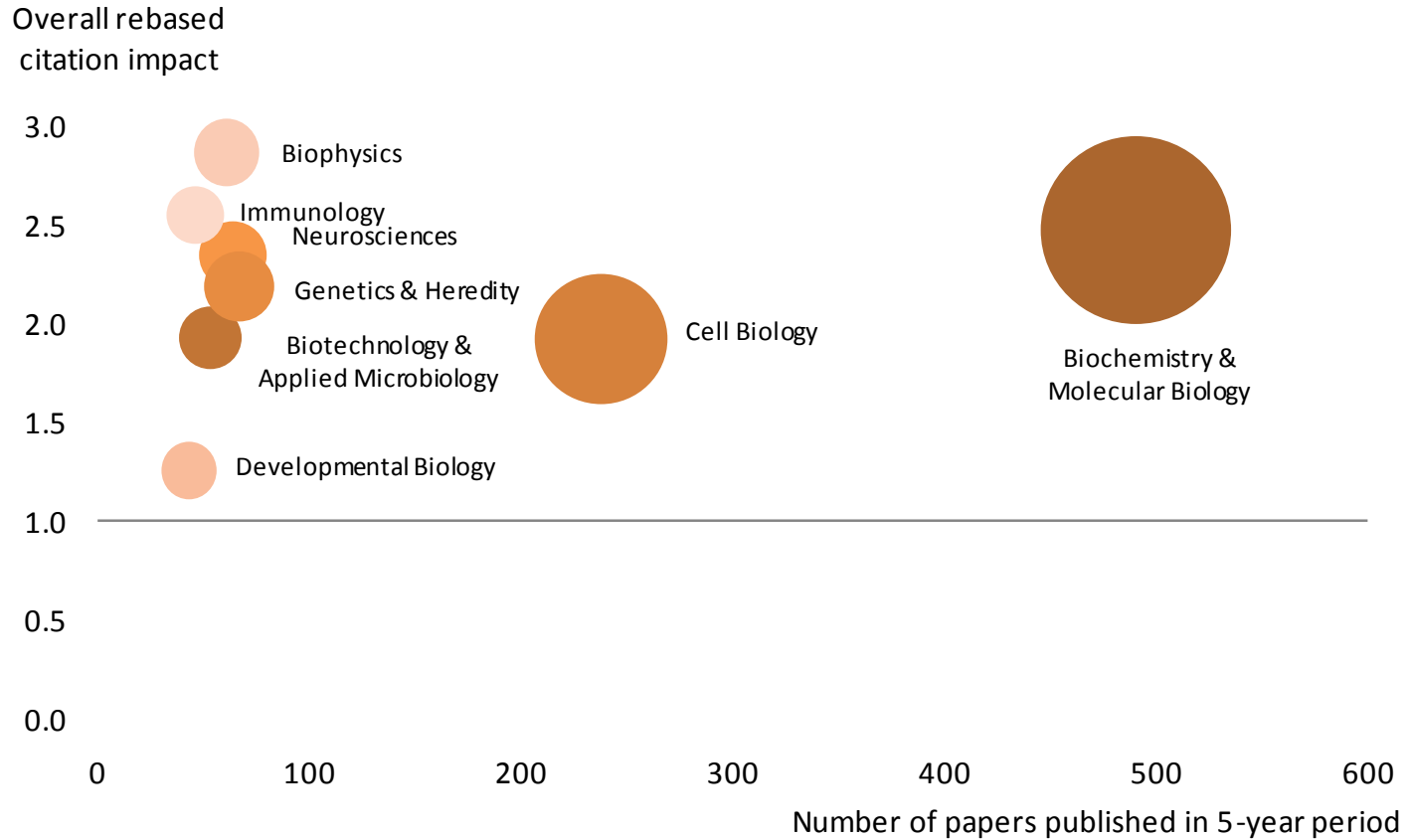
“WE NEED MULTIPLE INDICATORS”

Research Footprint[®] - benchmark and variables



“WHAT ARE OUR STRENGTHS AND WEAKNESSES?”

Bubble diagram



Size of bubble represents the proportion of papers in that category

“IS OUR RESEARCH AS GOOD AS OTHERS?”

Research evaluation dashboard

All research articles and reviews

Output - all publications	2004	2005	2006	2007	2008	Total
Customer	429	630	520	580	720	2879
Institute 1, Spain	107	175	177	221	244	924
Institute 2, Japan	758	1072	1076	1128	1311	5345
University 1, UK	302	315	294	293	258	1462
University 2, Australia	372	689	515	581	519	2676
University 3, USA	504	753	576	747	837	3417
Pharmaceutical company, USA	314	327	308	336	322	1607

Output - research articles and reviews	2004	2005	2006	2007	2008	Total
Customer	307	372	383	366	419	1847
Institute 1, Spain	90	128	138	170	178	704
Institute 2, Japan	583	722	797	851	929	3882
University 1, UK	251	248	250	245	216	1210
University 2, Australia	299	339	316	355	328	1637
University 3, USA	392	489	413	445	569	2308
Pharmaceutical company, USA	226	241	237	247	247	1198

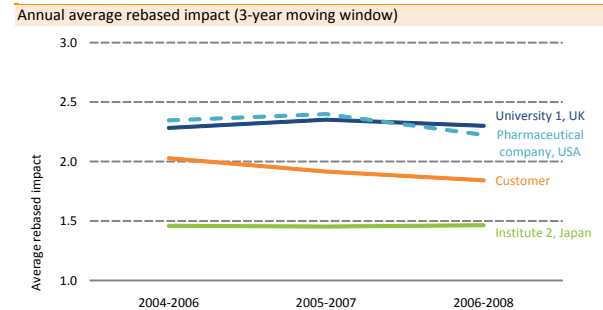
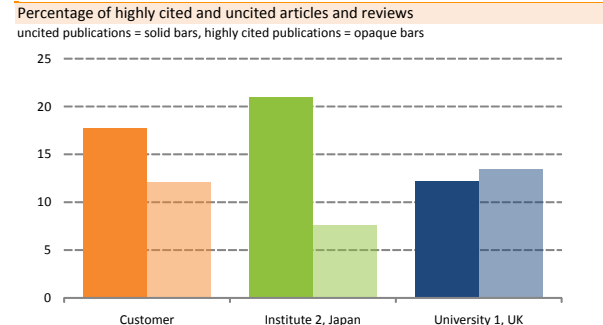
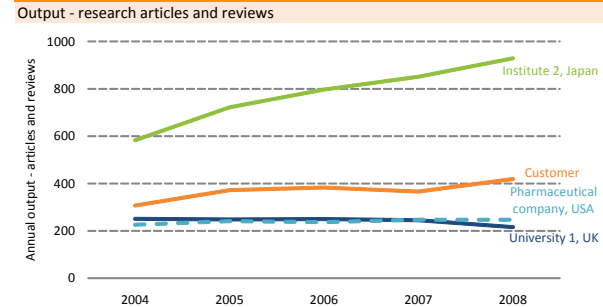
Percentage of articles and reviews cited more than expected	2004	2005	2006	2007	2008	Average
Customer	46.6	48.1	49.1	41.5	33.4	43.4
Institute 1, Spain	44.4	43.8	50.7	43.5	37.6	43.6
Institute 2, Japan	42.5	43.9	42.7	39.6	32.5	40.0
University 1, UK	39.8	42.7	42.4	38.0	35.6	39.8
University 2, Australia	39.5	41.9	39.6	39.7	30.8	38.3
University 3, USA	39.5	39.5	43.1	46.7	29.5	39.1
Pharmaceutical company, USA	37.2	44.0	43.5	46.2	33.2	40.8

Percentage of uncited articles and reviews	2004	2005	2006	2007	2008	Average
Customer	2.6	3.8	5.2	12.3	57.5	17.8
Institute 1, Spain	1.1	2.3	1.4	8.8	51.7	16.1
Institute 2, Japan	2.7	3.5	6.6	16.9	61.9	20.9
University 1, UK	1.6	2.4	4.0	6.9	50.9	12.1
University 2, Australia	2.3	4.1	5.1	15.2	62.5	18.1
University 3, USA	8.4	5.7	15.3	15.7	62.9	23.9
Pharmaceutical company, USA	2.7	2.9	5.5	10.1	53.4	15.3

Percentage of highly cited articles and reviews	2004	2005	2006	2007	2008	Average
Customer	14.3	12.1	11.8	8.7	13.6	12.1
Institute 1, Spain	11.1	13.3	13.0	13.5	17.4	14.1
Institute 2, Japan	4.6	6.1	6.9	5.8	12.7	7.6
University 1, UK	12.0	9.7	12.0	15.1	19.4	13.5
University 2, Australia	5.0	6.8	11.1	9.9	11.9	9.0
University 3, USA	5.1	8.8	11.4	7.7	10.5	8.8
Pharmaceutical company, USA	11.1	11.7	11.0	16.6	18.2	13.8

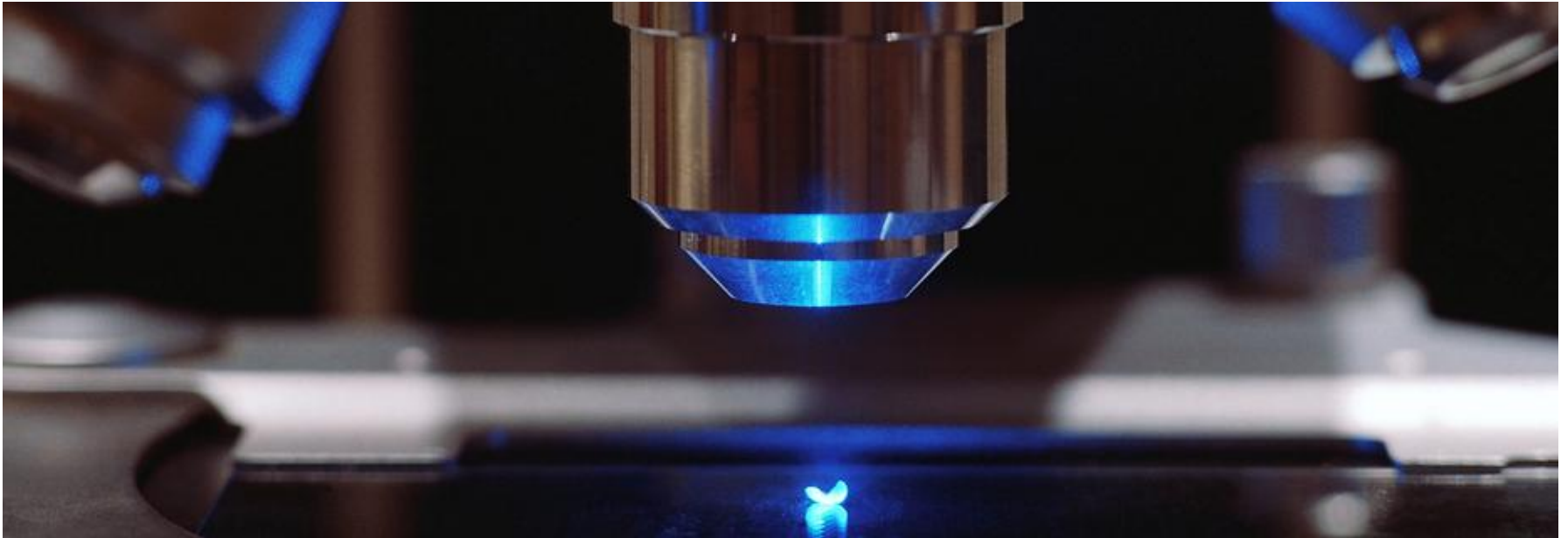
Annual average rebased impact	2004	2005	2006	2007	2008	Average
Customer	2.1	2.0	2.1	1.7	1.7	1.9
Institute 1, Spain	2.0	2.2	1.9	2.8	1.9	2.2
Institute 2, Japan	1.5	1.5	1.4	1.5	1.5	1.5
University 1, UK	2.3	2.2	2.3	2.5	2.1	2.3
University 2, Australia	1.5	1.8	2.0	1.8	1.9	1.8
University 3, USA	1.4	1.7	1.8	2.0	1.7	1.7
Pharmaceutical company, USA	2.1	2.7	2.2	2.2	2.2	2.3

All research articles and reviews



REVIEW OF PRESENTATION

- Research assessment has become a priority
 - Limited resources, growing competition
 - Research evaluation supports management decisions while retaining researcher endorsement
- What have we learned from studies elsewhere?
 - Thomson Reuters indicators match peer judgments
 - Selectivity led to concentration, which is associated with increased competitiveness
 - More countries developing more focussed assessment
- New forms of evidence-based research evaluation
 - Twenty years experience have produced new understanding of the data and of visualising the data
 - Problem-orientated development and interpretation is leading to a wide range of accessible analyses of direct value to research managers



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