The UK Research Excellence Framework (REF 2014)

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REF background

- UK Research Assessment Exercise (RAE)
  - ran in 1986, 1989, 1992, 1996, 2001, 2008
  - at each stage becoming more detailed & expensive
  - directly determines the distribution of "QR" (research quality) central funds
    - £1.7B per year across all UK universities and subjects
  - has a major impact on university and subject reputation

REF 2014 costs

- Total cost of REF 2014: £246M (estimated)
  - £14M direct costs to funding bodies
  - £19M to universities for panel members' time
  - £212M to universities for preparing submissions
    - = £4k per submitted research
    - = 1% of researcher salary costs over 6 years
    - possibly double accounting – need to monitor research anyway?
- Evaluating £27B of publically-funded research
  - 1%
- Determining the allocation of £10.2B funds
  - 2.4%

"REF Accountability Review: Costs, benefits and burden", Technopolis report to the four UK higher education funding bodies.


REF2014
Research Excellence Framework

Overview of the process

REF assessed the quality of research in all UK universities, in all disciplines. It was carried out by 36 expert panels, grouped into 4 main panels.

Main Panel A: **Medical and life sciences**

Main Panel B: **Physical sciences and engineering**

Main panel C: **Social sciences**

Main Panel D: **Arts and humanities**

2011-12

Preparation

Panels were appointed. Guidance and criteria were published.

2012-13

Submissions

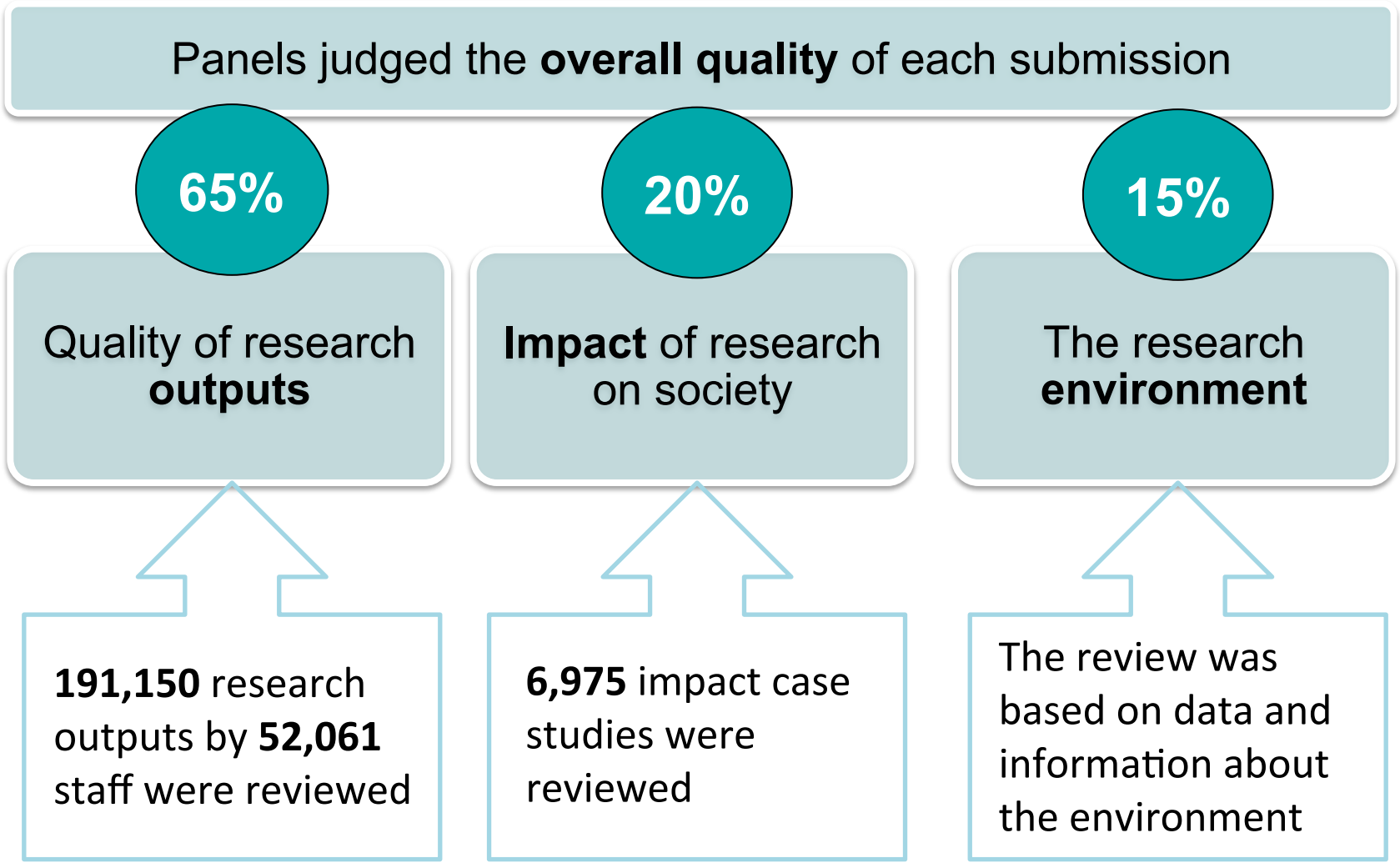
Universities made submissions in whichever subjects they chose to.

2014

Assessment

36 expert panels reviewed the submissions, guided by the 4 main panels.

What was assessed



REF2014
Research Excellence Framework

The research of 154 UK universities was assessed

They made **1,911** submissions including:

- **52,061** academic staff
- **191,150** research outputs
- **6,975** impact case studies

The **overall quality** of submissions was judged, on average to be:

★★★★ **30%** world-leading (4*)

★★★ **46%** internationally excellent (3*)

★★ **20%** recognised internationally (2*)

★ **3%** recognised nationally (1*)

Expert Panels

- Submissions were assessed by 36 Sub-panels working under the guidance of four Main Panels

Each Main Panel comprised:

- The chair
- Chairs of each sub-panel
- International members
- User members

Each Sub-Panel comprised:

- The chair and deputy chair
- Panel members
- Additional assessors (for outputs and impact)
- On average ~30 people

- The Equalities and Diversity Panel (EDAP) reviewed complex staff circumstances

Published results include the three sub-profiles and the overall quality profile for each submission

EXAMPLE - 2014 Research Excellence Framework Results

Quality profiles for all submissions (sample)

Institution name	Main panel	Unit of assessment name	Profile	FTE Category A staff submitted	4*	3*	2*	1*	unclassified
University X	A	Biological Sciences	Outputs	50.45	12.8	32.8	43.0	11.4	0.0
University X	A	Biological Sciences	Impact	50.45	20.0	45.0	35.0	0.0	0.0
University X	A	Biological Sciences	Environment	50.45	0.0	40.0	40.0	20.0	0.0
University X	A	Biological Sciences	Overall	50.45	12	37	41	0	0
University X	B	General Engineering	Outputs	65.20	25.9	43.1	27.0	4.0	0.0
University X	B	General Engineering	Impact	65.20	17.9	60.1	21.0	1.0	0.0
University X	B	General Engineering	Environment	65.20	10.0	70.0	20.0	0.0	0.0
University X	B	General Engineering	Overall	65.20	22	51	24	3	0
University X	A	Architecture	Outputs	40.00	17.0	60.0	20.0	2.0	1.0

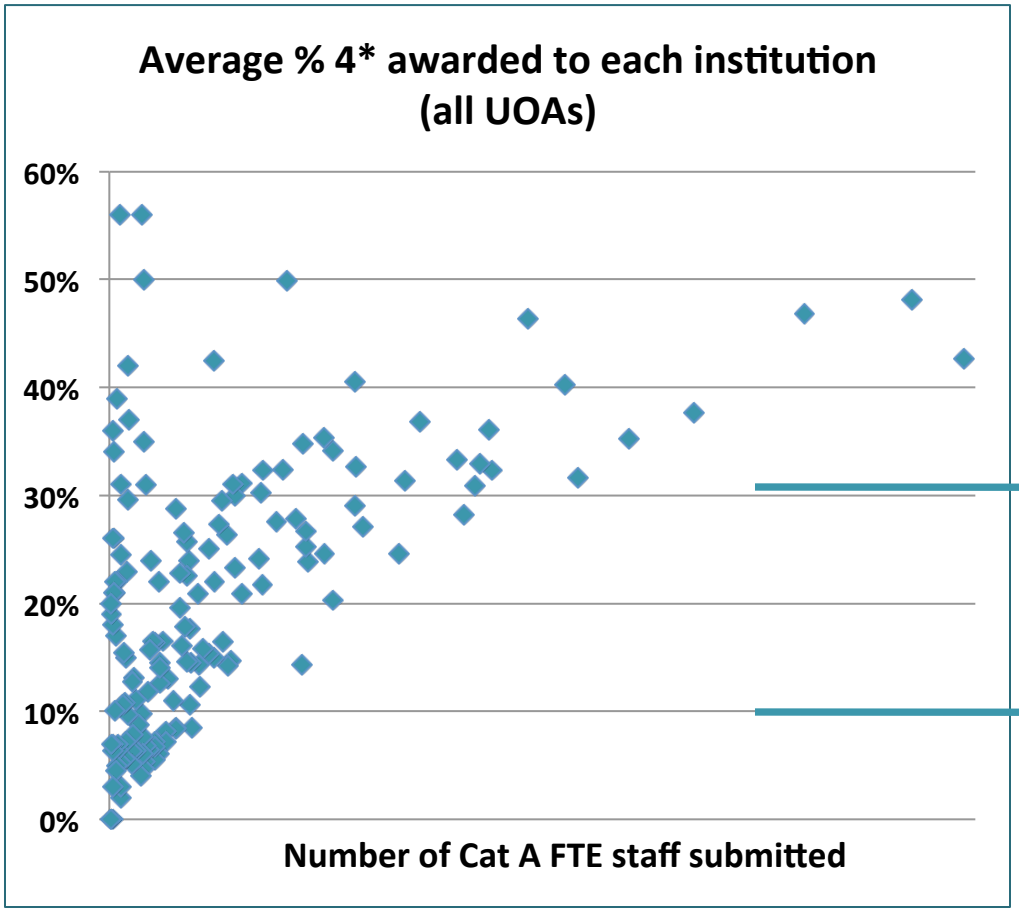
The overall quality profile is weighted 65% for Outputs, 20% for Impacts, 15% Environment

Across the exercise as a whole, output quality was found to have improved significantly since RAE2008

- 22% of outputs were judged world-leading (4*), up from 14% in the 2008 RAE
- 50% were judged internationally excellent (3*), up from 37% in the 2008 RAE
- This is in line with independent evidence about the improved performance of UK research
- International members of each main panel confirmed that the assessment reflected international standards
- Impact is new and cannot be compared with RAE
- Environment was assessed differently so also cannot be compared directly with RAE

Excellence was found in diverse submissions and institutions across the UK

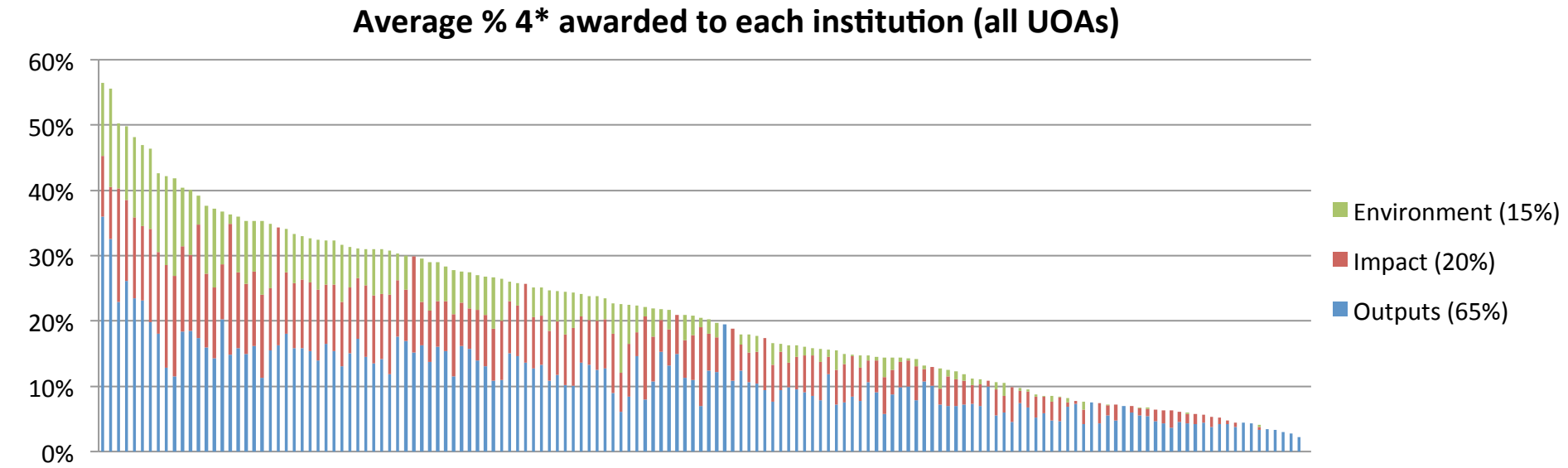
- Submissions from the 154 institutions ranged from 3 staff in a single subject to over 2,500 staff in 32 subjects

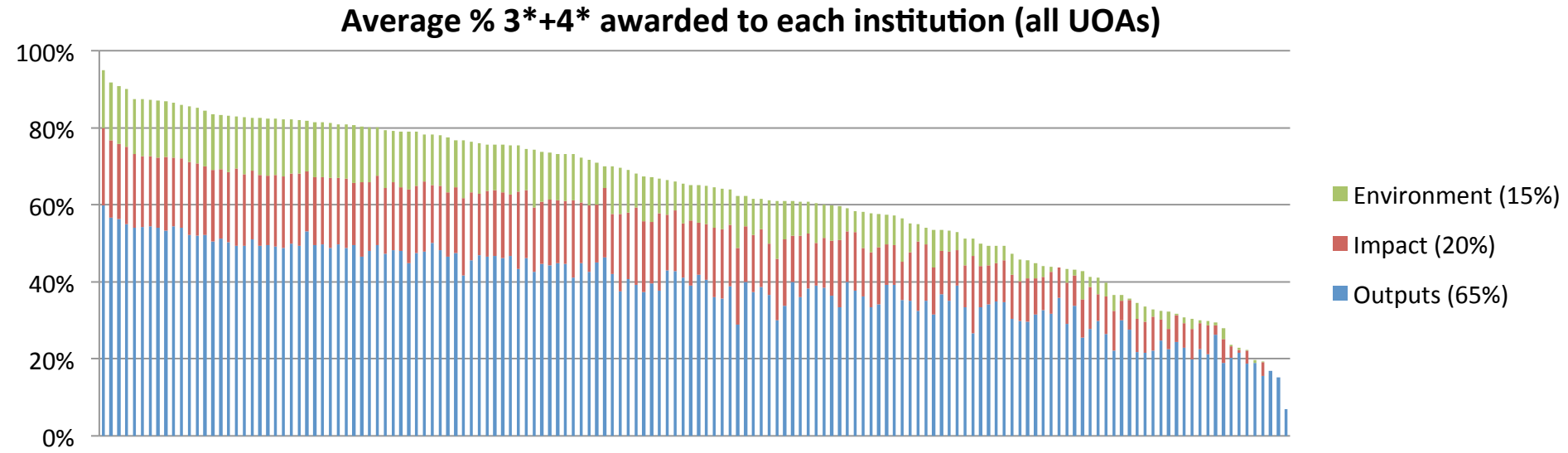


The top quarter have at least 30 per cent of their work graded as world-leading (4*).

Three-quarters have at least 10 per cent of their work graded as world-leading (4*).

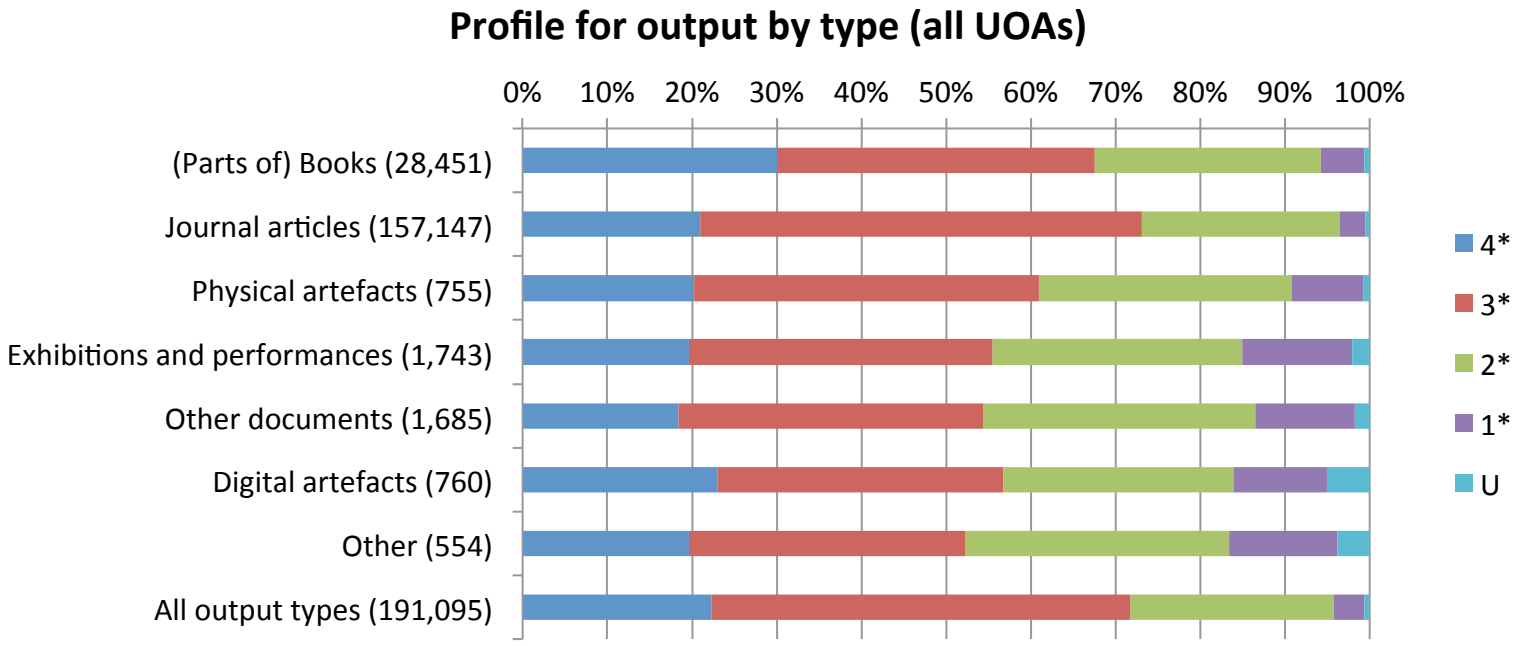
Differentiation between institutions resulted from all three elements





Excellence was found in all types of research

- Interdisciplinary research (where flagged as such by HEIs) was found to be of equally high quality
- Work of the highest quality was present in all forms of outputs



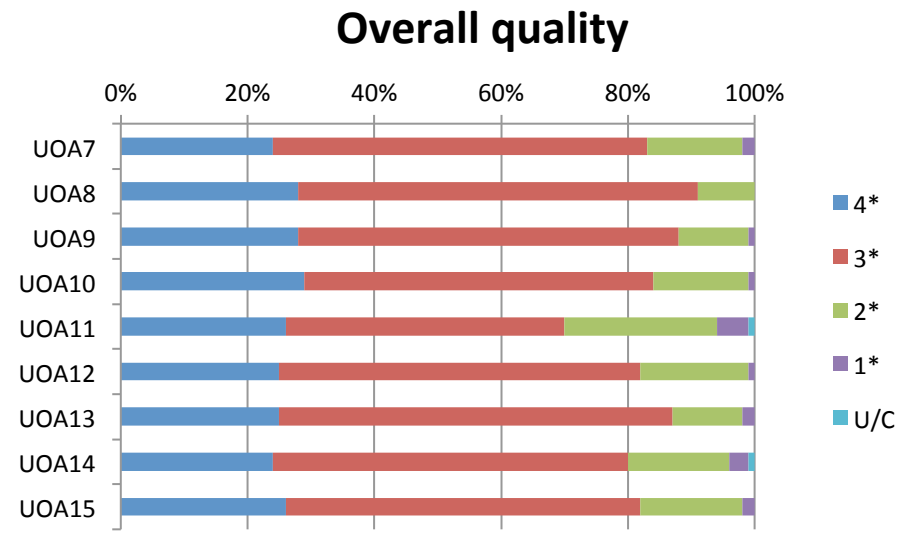
For the first time, REF has demonstrated the impact of UK research

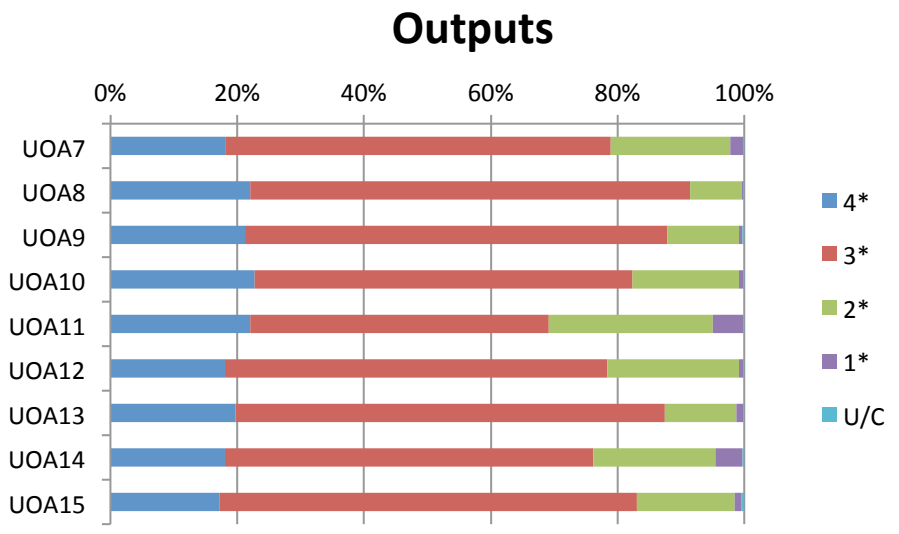
- Across the exercise, over 250 research users judged the impacts, jointly with academic panel members.
- Across the exercise, **44%** of impacts were judged outstanding (4*) and a further **40%** were judged very considerable (3*).
- Impressive impacts were found from research in all subjects.
- REF shows many ways in which research has fuelled economic prosperity, influenced public policy and services, enhanced communities and civic society, enriched cultural life, improved health and wellbeing, and tackled environmental challenges.

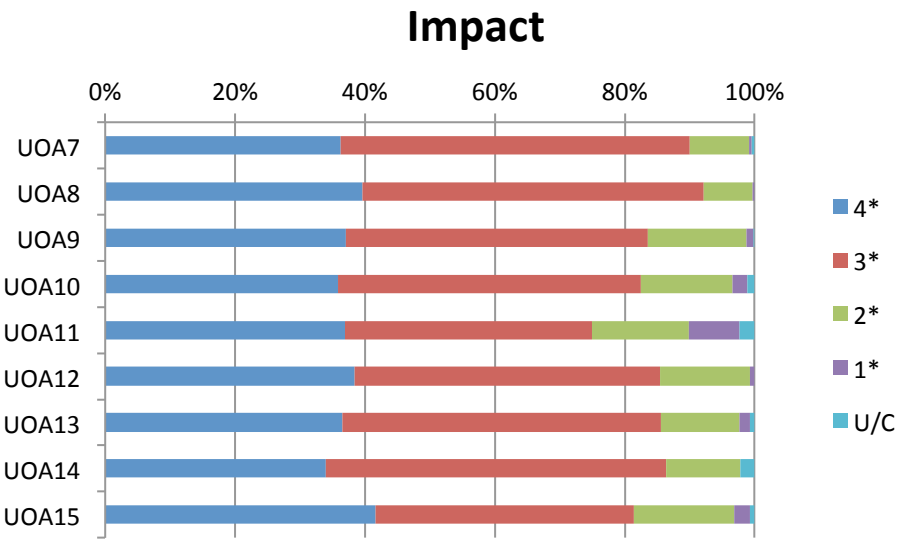
Main Panel B submissions

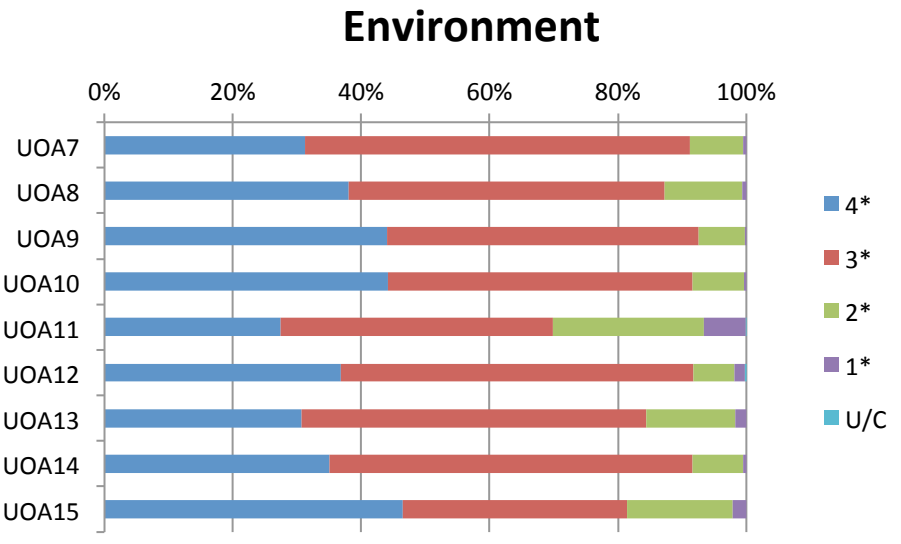
		Number of submissions	Cat A FTE staff	% change in Cat A FTE	Number of outputs	Impact case studies
Main Panel B	2014	403	13,347	+9.1%	49,317	1,667
	2008	485	12,234		50,669	-
UOA 7	2014	45	1,381	+17.1%	5,250	175
	2008	42	1,179		5,091	-
UOA 8	2014	37	1,229	+6.8%	4,698	152
	2008	33	1,151		4,930	-
UOA 9	2014	41	1,705	+1.1%	6,446	203
	2008	42	1,686		7,156	-
UOA 10	2014	53	1,931	+0.4%	6,995	236
	2008	115	1,923		7,707	-
UOA 11	2014	89	2,045	+11.2%	7,665	280
	2008	81	1,839		7,491	-
UOA 12	2014	25	1,153	-9.5%	4,154	138
	2008	43	1,274		5,222	-
UOA 13	2014	37	1,071	-11.9%	4,028	141
	2008	54	1,216		4,965	-
UOA 14	2014	14	391	-23.8%	1,384	51
	2008	23	513		2,066	-
UOA 15	2014	62	2,447	+68.3%	8,697	291
	2008	52	1,454		6,041	-

Main Panel B average profiles









Further information

www.ref.ac.uk includes:

- The results and submissions
- Summary data and analysis
- Panel overview reports

- Confidential feedback on submissions was provided to institutions in January

- Evaluations of the REF are currently being carried out by the funding bodies, with reports due in March

REF 2014: a personal view

- It's very expensive!
  - and a lot of work for a lot of folk
  - SP11 members each assessed over 1,000 "outputs"
- It isn't perfect
  - with the best will in the world…
  - …it is impossible to eliminate unconscious bias from peer review processes
- The results are statistically fairly robust…
  - mean, variance, etc
- …but too much hinges on the the tail
  - all the money goes to 4*
  - where the statistics are least reliable

Things to worry about

- Subject bias
  - e.g. cryptography vs HCI
- Institution bias
  - e.g. (UK) post- vs pre- 1992

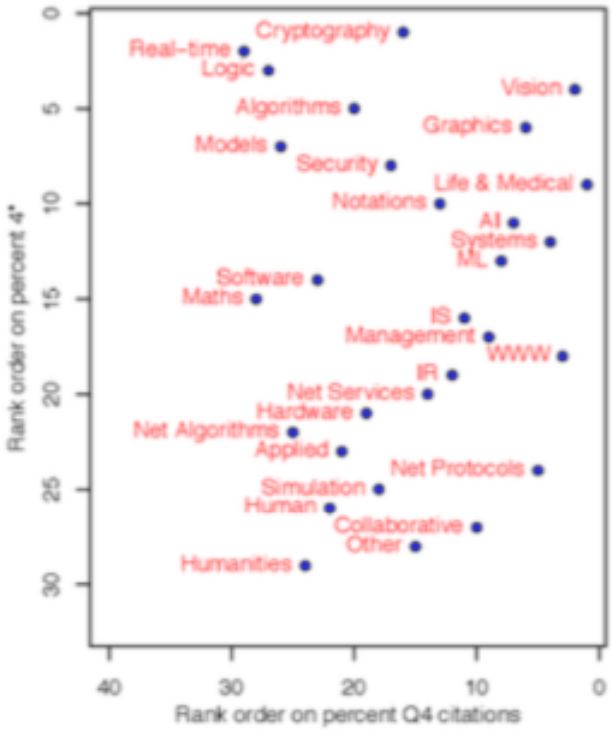


Figure 2. REF 4* vs citation ranks

Citations and Sub-Area Bias in the UK Research Assessment Process

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ABSTRACT

This paper presents a citation-based analysis of selected results of REF2014, the periodic UK research assessment process. Data for the Computer Science and Informatics sub-panel includes ACM topic sub-area information, allowing a level of analysis hitherto impossible. While every effort is made during the REF process to be fair, the results suggest systematic latent bias may have emerged between sub-areas. Furthermore this may have had a systematic effect benefiting some institutions relative to others, and potentially also introducing gender bias. Metric-based analysis could in future be used as part of the human-assessment process to uncover and help eradicate latent bias.

Several authors have provided post hoc analysis of previous research assessment exercises, showing broad correlations between metric-based measures and the overall grades of departments [1, 3, 4, 5, 12]. There is also broad agreement that at a suitably large level of aggregation citation-based metrics provide a useful validation or check; indeed HEFCE are using them to help ensure that differences between subject sub-panels are defensible. This paper therefore assumes that citation-metrics can be used as a valid measure of quality between *large enough* units in computing.

The REF process works on an edge between transparency and openness about process, whilst preserving the confidentiality of