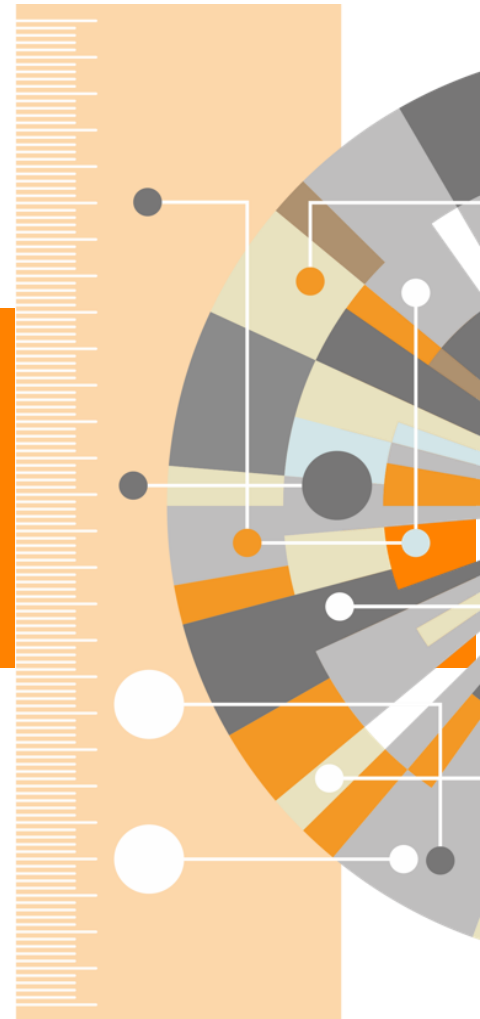## Research Intelligence

Current status of quantitative evaluation of humanities and social science in global

M'hamed el Aisati,
Vice President of Product Management Funding & Content Analytics
Elsevier

Tokyo, 21 June 2019

ELSEVIER

Empowering Knowledge

Agenda

1	**Should metrics be considered for evaluating research performance of Social Sciences (SS) and Art & Humanities (A&H) output?**
2	**What arrays of metrics should be considered?**
3	**What are global performance evaluators doing evaluate SS and A&H?**

Two Golden Rules of using research metrics to give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

This is about benefitting from the strengths of both approaches, not about replacing one with the other

Combining both approaches will get you closer to the whole story

Valuable intelligence is available from the points where these approaches differ in their message

Always use more than one research metric as the quantitative input

A research metric's strengths can complement the weaknesses of others

There are many different ways of being excellent

Using multiple metrics drives desirable changes in behaviour

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Global Representation means global discovery
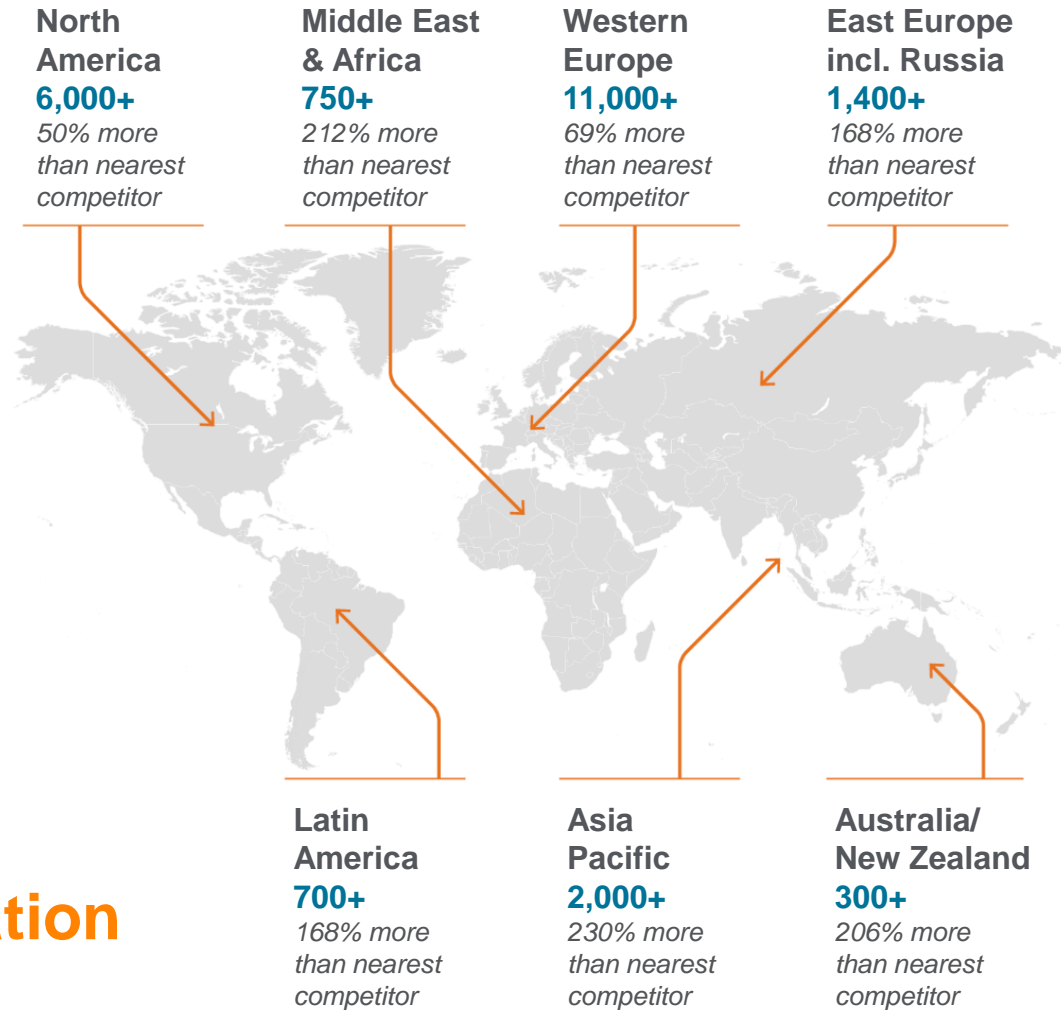## *Across all subjects and content types*

Scopus includes content from more than 5,000 publishers and 105 different countries

- 40 different languages covered
- Updated daily
- Multiple regional content types covered (journals, conferences, books, book series)

Number of Journals by subject area

	Journals	Conference	Books
Physical Sciences 12,263	**23,507** Peer-reviewed journals	**106K** Conference events	**613** Book series
Health Sciences 13,819	**301** Trade journals	**8.3M** Conference papers	**38K** Volumes
Social Sciences 10,905	**3,784** Active Gold Open Access journals	Mainly Engineering and Computer Sciences	**1.5M** Items
Life Sciences 6,809	**>8,000** Articles in Press		**219,967** Stand-alone books
	Full metadata, abstracts and cited references		**1.34M** Items
			Focus on Social Sci and A&H

Global Representation means global discovery
Across all subjects and content types

North America
6,000+
50% more than nearest competitor

Middle East & Africa
750+
212% more than nearest competitor

Western Europe
11,000+
69% more than nearest competitor

East Europe incl. Russia
1,400+
168% more than nearest competitor

Latin America
700+
168% more than nearest competitor

Asia Pacific
2,000+
230% more than nearest competitor
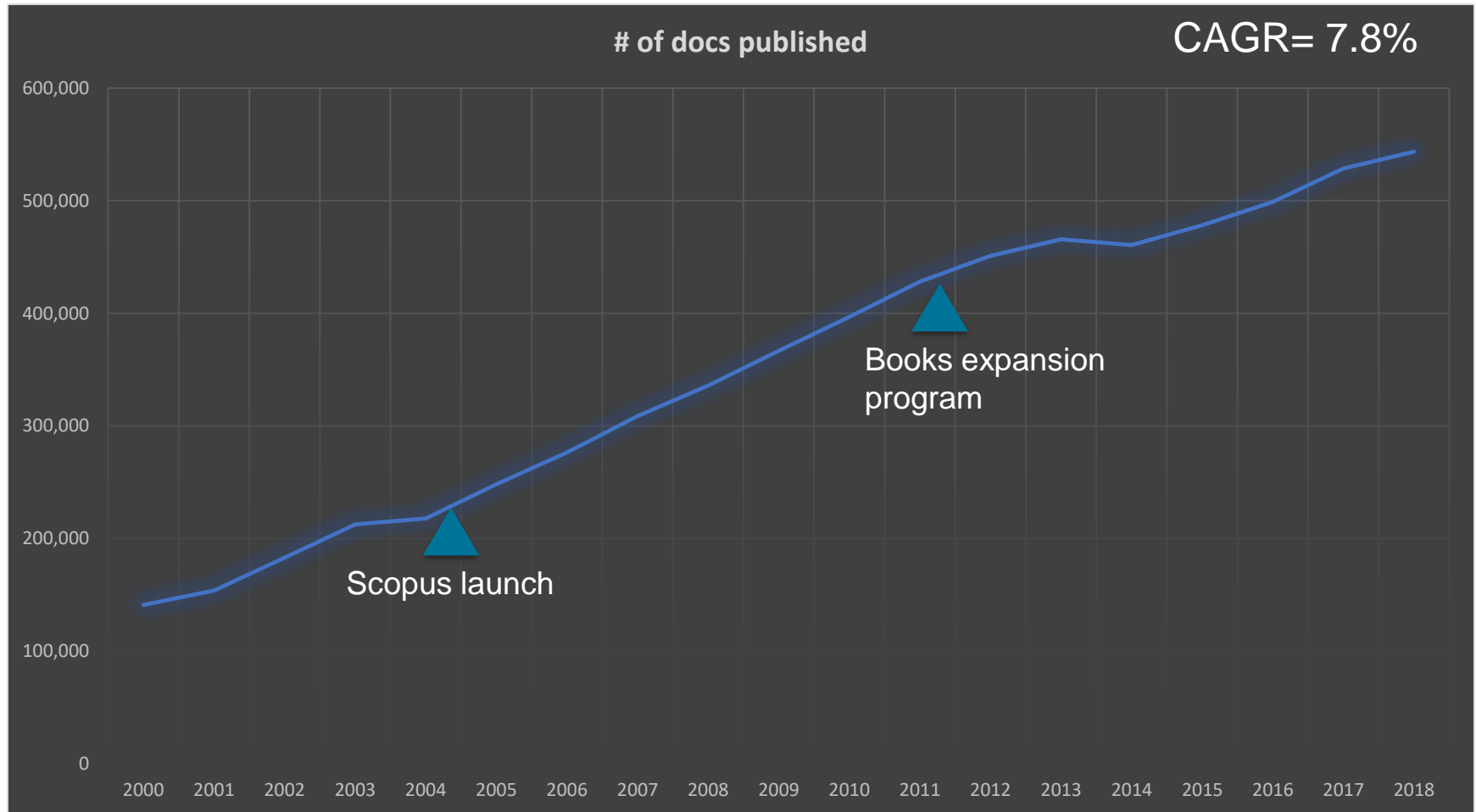
Australia/ New Zealand
300+
206% more than nearest competitor

Global Representation
(number of titles)

More titles across all subjects compared to nearest competitor

Number of titles

49% more unique titles

60.5% more unique titles

| | in WoS and Scopus | Scopus-unique |

Values shown on bars (Scopus-unique / in WoS and Scopus):
- General: 72 / 38
- Agricultural and Biological Sciences: 1267 / 1327
- Arts and Humanities: 1994 / 2072
- Biochemistry, Genetics and Molecular Biology: 1343 / 1413
- Business, Management and Accounting: 1137 / 468
- Chemical Engineering: 572 / 370
- Chemistry: 462 / 669
- Computer Science: 1012 / 769
- Decision Sciences: 200 / 170
- Earth and Planetary Sciences: 1438 / 640
- Economics, Econometrics and Finance: 627 / 439
- Energy: 393 / 184
- Engineering: 3369 / 1289
- Environmental Science: 1524 / 717
- Immunology and Microbiology: 414 / 383
- Materials Science: 943 / 738
- Mathematics: 647 / 880
- Medicine: 9375 / 3637
- Neuroscience: 305 / 383
- Nursing: 490 / 288
- Pharmacology, Toxicology and Pharmaceutics: 756 / 382
- Physics and Astronomy: 535 / 798
- Psychology: 573 / 708
- Social Sciences: 3980 / 2597
- Veterinary: 103 / 155
- Dentistry: 131 / 90
- Health Professions: 313 / 215

SS&AH publication coverage evolution

# of docs published

CAGR= 7.8%

Scopus launch

Books expansion program

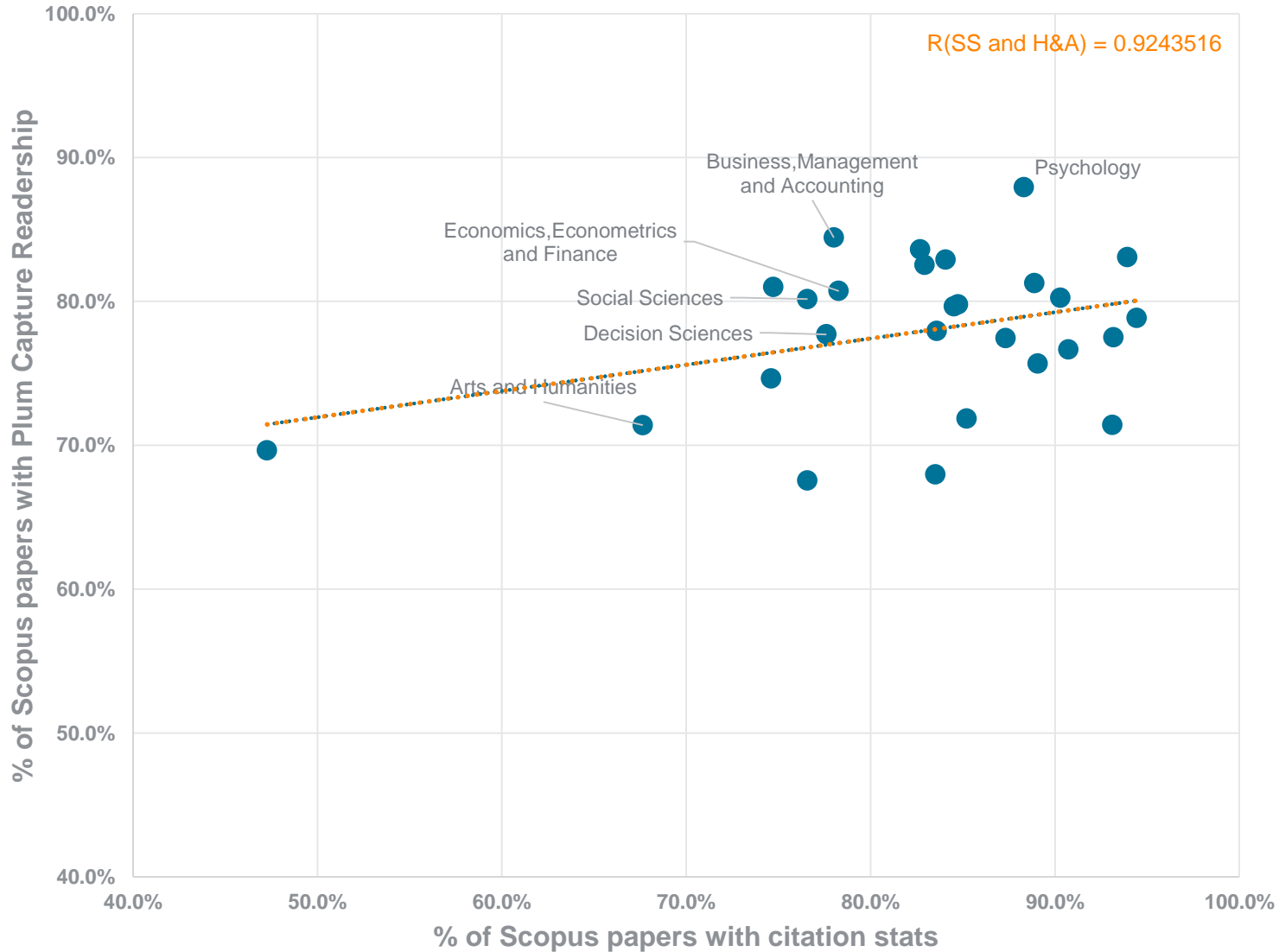# Titles reviewed per subject area: SS&AH have the highest acceptance rate
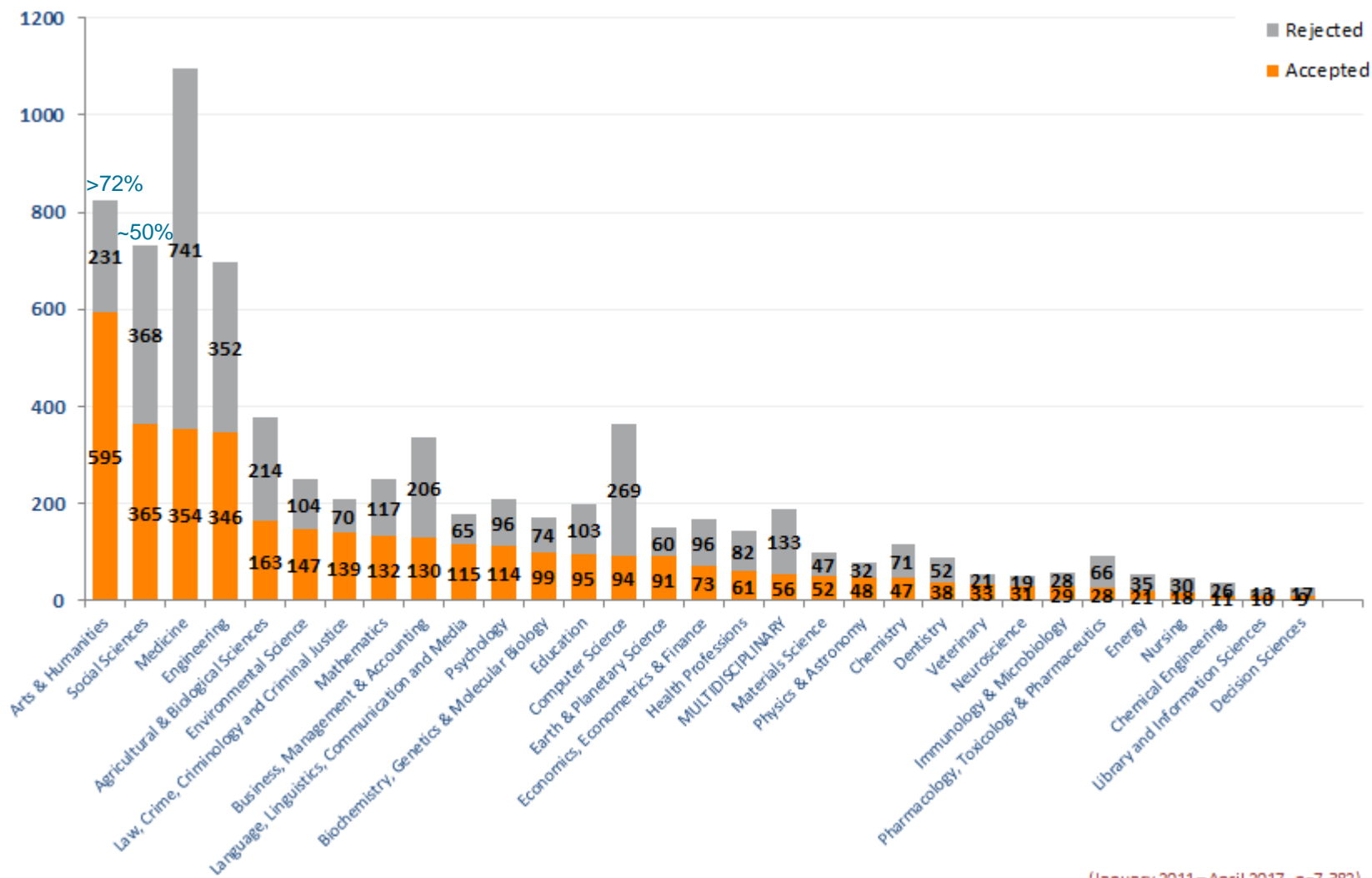
(January 2011 – April 2017 , n=7,382)

How differently are SS and A&H papers read and cited?
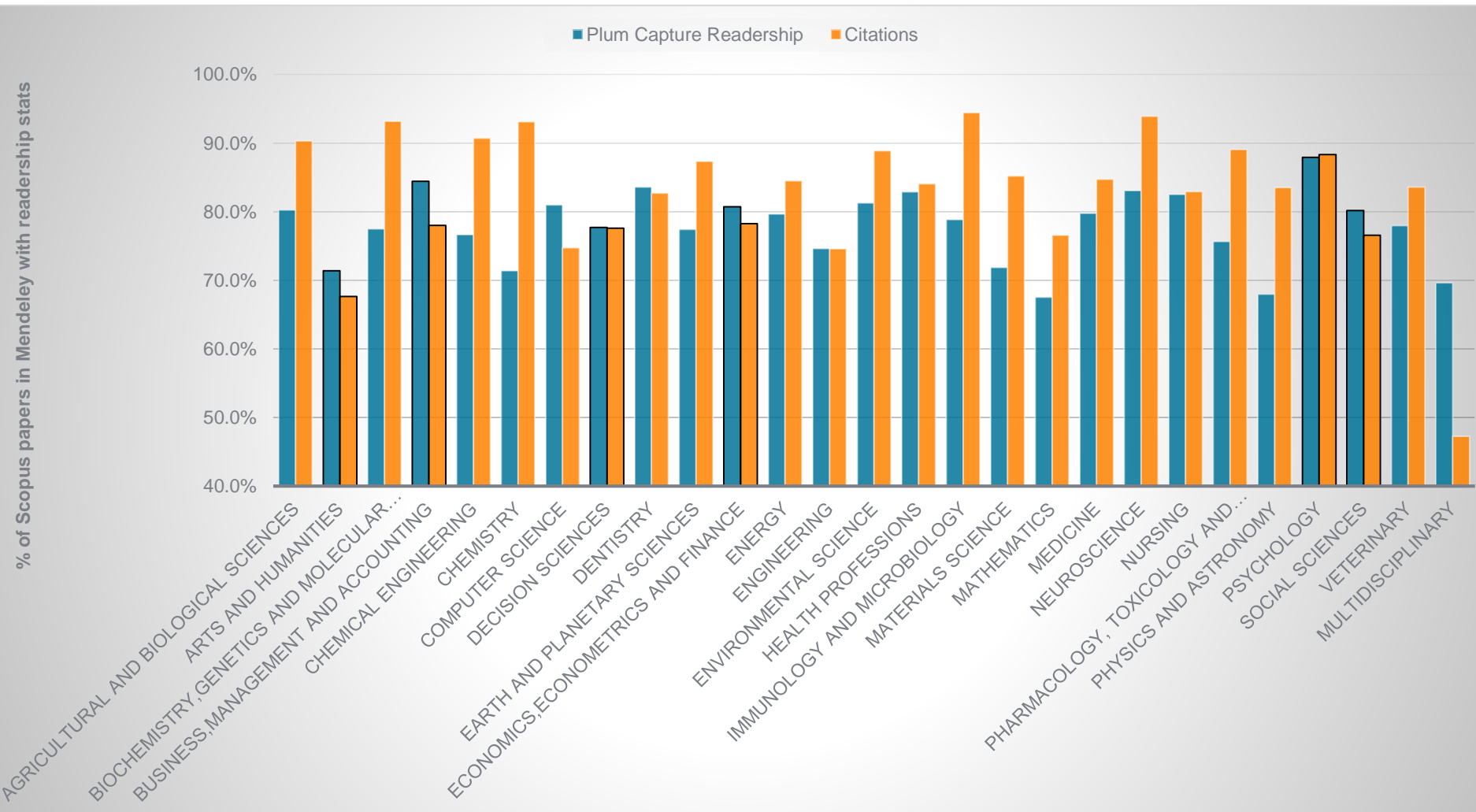
Correlation between Plum Capture Readership and Citations

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Arrays of metrics for each entity in the research ecosystem

Figure 1: The Snowball Metrics Landscape

	Research Inputs	Research Processes	Research Outputs and Outcomes
Research	**Research applications Research awards** · Price / overhead recovery · Philanthropy	**Research income** · Space utilisation · Staff recruitment · Start / end date slippage	**Publications & citations Collaboration (co-authorship) Esteem measures** · Socio-economic impact
Enterprise Activities/ Economic Development	**Industrial income** · Industry engagement	· Industry research income	**Patenting Licensing income Spin-out generation / income** · KTPs numbers · Consultancy income
Post-Graduate Education	**PGR volumes** · PGT volumes · International PGT volumes · UG to PG conversion rates	**Post-Graduate experience** · Facilities	**Completion rates** · Alumni / destination of leavers · Skills development (impact)
Denominators · "Slice and dice" · Normalize for size	**(Number of) People** · Researcher, authors · Principal / co-investigators · Academic staff by category · Research assistants · PGR Students · UG / PGT Students · Post-doctoral staff · Support staff	**Organizations** · Institution · Faculty / department · Cost Centre · Groups / clusters · Funders by type · Centres / institutes	**Themes / Schemes** · Standard grants · Strategic initiatives (Calls) · Grand Challenges · Subject areas · Keywords

Example: Top 10 most used metrics in SciVal

Top 10 most used metrics in Benchmarking
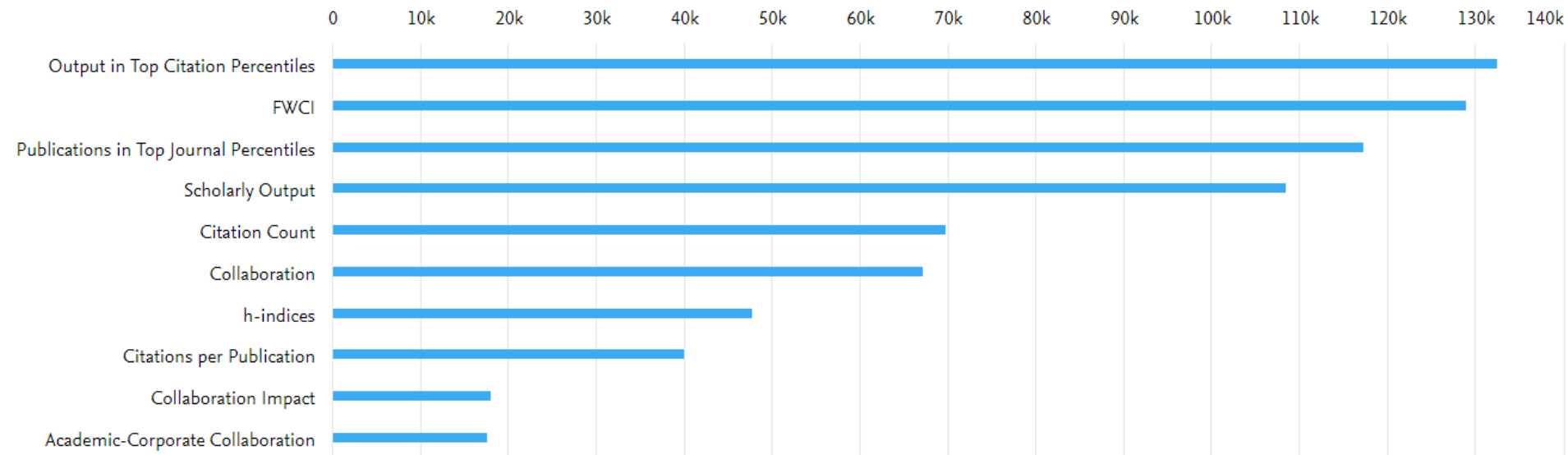
Evaluating research performance through citations: the FWCI

Field-weighted citation impact is an indicator of mean citation impact, and compares the actual number of citations received by an article with the expected number of citations for articles of the same document type (article, review or conference proceeding paper), publication year and subject field*.

The Field-Weighted Citation Impact (FWCI) for a set of *N* publications is defined as:

$$\text{FWCI} \equiv \frac{1}{N} \sum_{i=1}^{N} \frac{c_i}{e_i}$$

c_i = citations received by publication *i*
e_i = expected number of citations received by all similar publications in the publication year plus following 3 years

*: Where the article is classified in two or more subject fields, the harmonic mean of the actual and expected citation rates is used.

Capturing other metrics to better tell the story of Research

9.4 BILLION
Total number of interactions with research in PlumX

USAGE
(clicks, downloads, views, library holdings, video plays)

CAPTURES
(bookmarks, code forks, favorites, readers, watchers)

MENTIONS
(blog posts, comments, reviews, Wikipedia links)

SOCIAL MEDIA
(+1s, likes, shares, tweets)

CITATIONS
(citation indexes, patent citations, **clinical & policy citations**)

Innovation in Research Metrics : Clinical and Policy "citations"

Sedentary time in adults and the association with diabetes, cardiovascular disease and death: systematic review and meta-analysis.

Citation data: Diabetologia, ISSN: 1432-0428, Vol: 55, Issue: 11, Page: 2895-905
Publication Year: 2012

USAGE ⌄	239	CAPTURES ⌄	349	MENTIONS ⌄	4	SOCIAL MEDIA ⌄	311	CITATIONS ⌄	303
Abstract Views ⊙	152	Readers ⊙	318	Blog Mentions ⊙	2	Shares, Likes & Comments ⌄	159	Citation Indexes ⊙	301
Link-outs ⊙	39	Exports-Saves ⊙	31	Links ⊙	1	Tweets ⊙	151	Clinical Citations ⊙	2
Clicks ⊙	32			News Mentions ⊙	1	+1s ⊙	1	Policy Citations ⊙	3
HTML Views ⊙	15								
PDF Views ⊙	1								

REVIEW SUMMARY	TWEETS	BLOG MENTIONS	NEWS MENTIONS	WIKIPEDIA	DYNAMED PLUS TOPICS	**POLICY CITATIONS**

This review has 3 Policy Citations.

WHO South-East Asia Journal of Public Health
·Published: April 29, 2016
Topic: Domestic & Global Health
Read More 🗗

Aboriginal and Torres Strait Islander health performance framework 2014 report: New South Wales
Topic: Domestic & Global Health
Read More 🗗

Let's get Scotland Walking - The National walking Strategy
Published: 2004
Read More 🗗

Societal Impact – Clinical Citations

Societal Impact – Policy Citations

Visualizing Impact: Plum Print

- Embeddable widget
  - Article Pages
  - Search Results
  - Institutional Repository Pages
  - CRIS/RIMS Pages
- Includes the 5 categories of metrics
- Circles dynamically change size based on metrics in each category
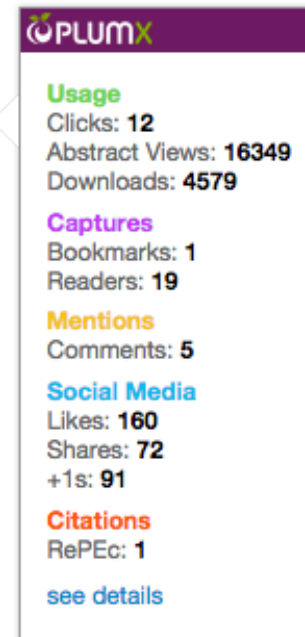
PLUMX

Usage
Clicks: **12**
Abstract Views: **16349**
Downloads: **4579**

Captures
Bookmarks: **1**
Readers: **19**

Mentions
Comments: **5**

Social Media
Likes: **160**
Shares: **72**
+1s: **91**

Citations
RePEc: **1**

see details

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The Excellence of Research for Australia (ERA) Clusters

Cluster 1	Physical, Chemical & Earth Sciences
Cluster 2	Humanities and Creative Arts
Cluster 3	Engineering and Environmental Sciences
Cluster 4	Social, Behavioural and Economic Sciences
Cluster 5	Mathematics, Information and Communication Sciences
Cluster 6	Biological Sciences and Biotechnology
Cluster 7	Biomedical and Clinical Research
Cluster 8	Public and Allied Health, and Health Sciences

ERA - Different measurement criteria

Volume and Activity	Ranked Outlets	Citation Analysis	Peer Review	Esteem Measures	Research Income	Applied measures
- Staffing Profile - Research Outputs	- Ranked Journals - Ranked Conferences	- Relative Citation Impact (RCI) against world and Australian benchmarks - RCI Classes - Centile Profile	- Peer review	- Editor of prestigious works of reference - Recipient of, Category 1 Fellowship or Australia Council Grant or Fellowship - Membership of, statutory committee and Learned Academy	- Category 1-4	- Commercialisation Income - Plant Breeder's Rights - NHMRC Endorsed Guidelines - Registered Designs
- Journal articles and listed conferences are apportioned against the FoR codes of the ERA Journal and Conference Lists. - All other outputs and eligible researchers can be assigned and apportioned to up to 3 four-digit FoR codes of the institution's choice. - Staff must be employed on the census date to count towards 'FTE'.	- All disciplines use Ranked Journals as an indicator; only some FoRs use Ranked Conferences. - Where Ranked Conferences is applicable, institutions must apportion against the FoR codes of the ERA Conference list. - Where an output of a listed conference does not belong to the listed FoR, institutions can submit the output as a non-listed conference and assign up to three FoRs of their choice.	- Only applies to journal articles. - Low volume threshold is 50 apportioned indexed journal articles. - The citation supplier for 2010 is Scopus. - The citation census date is 1 March 2010.	- Applies to a range of outputs including journal articles, books, book chapters, creative outputs, etc. - Low volume threshold is 30 apportioned outputs (any type). - Institutions nominate 20% of total output for a FoR for peer review.	- Institutions can select up to 3 four-digit FoRs (apportioned) for each individual esteem measure. - Esteem must be linked to a listed staff of the institution. - Individuals researcher cannot be identified through the esteem measures.	- Institutions can select as many four-digit FoRs (apportioned) for each income item submitted. - Number of grants is collected for Category 1 income only. - FTE is used as a denominator for all Categories. - Category 3 income is disaggregated into the 3 subcategories (Australian, International A and B).	- Institutions can select up to 3 four-digit FoRs (apportioned) for each applied measure submitted, except for commercialisation income where there are no limit on the number of four-digit FoR codes submitted. - Applied measures are linked to the institution, not the individual.

11 Unit of Assessments (UoAs) opted to use bibliometrics for the Research Excellence Framework (REF) 2014

REF 2021 PANEL	UOA	SCOPUS COVERAGE OF REF 2014 (%)	SCOPUS ARTICLES + CONF. PAPERS, 2014-CURRENT	
			GLOBAL	UK
A	1. Clinical Medicine	99.8%	1.9M	125K
A	2. Public Health, Health Services and Primary Care	99.0%	1.5M	105K
A	3. Allied Health Professions, Dentistry, Nursing and Pharmacy	98.5%	552K	33K
A	4. Psychology, Psychiatry and Neuroscience	99.4%	587K	59K
A	5. Biological Sciences	99.8%	1.6M	107K
A	6. Agriculture, Veterinary and Food Science	99.2%	672K	34K
B	7. Earth Systems and Environmental Sciences	99.4%	1.3M	90K
B	8. Chemistry	99.6%	1.7M	71K
B	9. Physics	99.7%	2.3M	125K
B	11. Computer Science and Informatics	96.2%	1.8M	91K
C	16. Economics and Econometrics	99.1%	192K	18K
	Overall across 11 UOAs (citation-eligible outputs)	**99.1%**	**9.5M**	**579K**

REF 2014 - Contextual data

For Panels
Contextual Data (11 sub panels using citations)
• Number of citations received by papers in the top 1%, 5%, 10% and 25% of cited papers (percentiles) • Average (mean) number of times that papers have been cited • Period 2008-2012 • Provided at level of each Unit of Assessment (UoA) • And provided at level of each ASJC included in each UoA • Provided right after closure of submission period Dec. 2013
Comparative Data (Main panels A & B)

• Provide a set of indicators to help inform these main panels' deliberations about the overall output sub-profiles at UOA level
• For: UK, USA, Germany, France, Japan, Canada
• At UoA level
• Period 2008-2012
• Indicators will be:
    • The average field normalised citation score for papers from each country
    • The proportion of each country's outputs that are in the top 1%, 5%, 10% and 25% of the world's outputs in each of these categories
    • The number of outputs produced by each country

SS and A&H in university rankings (1/3)

Example (THE WUR):
Which ranking indicators are driving Japan current ranking performance?

Ranking indicators	All subjects (89 universities)			Clinical and Health research (26 universities)			Social Sciences (6 universities)		
	Median	Percentage of universities with score above median	Percentage of universities with score below median	Median	Percentage of universities with score above median	Percentage of universities with score below median	Median	Percentage of universities with score above median	Percentage of universities with score below median
Teaching	24.9	31.50%	68.50%	24.5	57.70%	42.30%	27.1	66.70%	33.30%
Research	18.9	20.20%	79.80%	21.9	50%	50%	26.6	50%	50%
Citations	47	5.60%	94.40%	62.7	7.70%	92.30%	68.4	33.30%	66.70%
Industry	38.4	47.20%	43.8	40.6	69.20%	30.80%	39.8	16.70%	83.30%
International Outlook	43.7	1.10%	98.60%	49.3	0%	100%	51.5	66.70%	33.30%

Importance of books in assessment and rankings

Article, Review, Conference Papers, Books and Book Chapters

Contribution of Research to the UN Sustainable Development Goals (SDGs) also evaluated through metrics

Research Intelligence

Questions?
m.aisati@elsevier.com