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Using Metrics to Determine Research Impact

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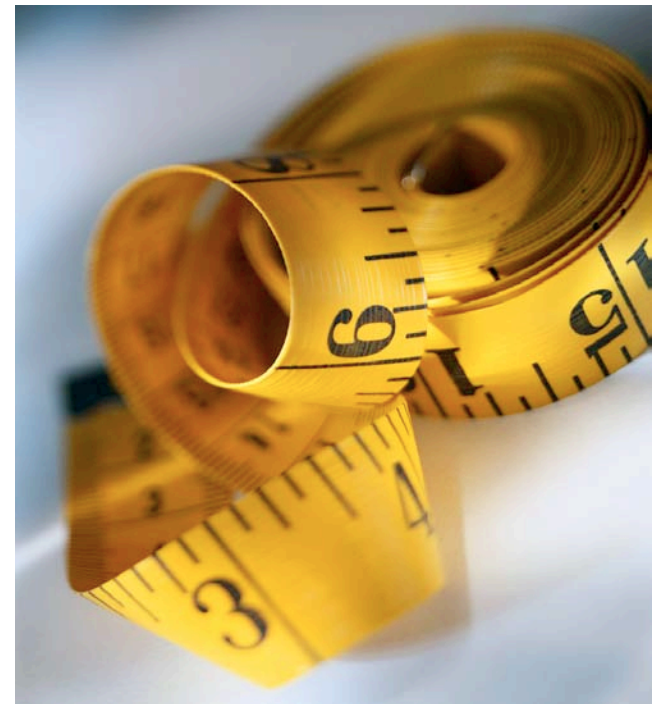
<https://ro.ecu.edu.au/creswk/32>

Using Metrics to Determine Research Impact

Julia Gross, ECU Library

What is bibliometrics?

- Quantitative analysis of research publications based on citations
- Online tracking



Bibliometrics applications

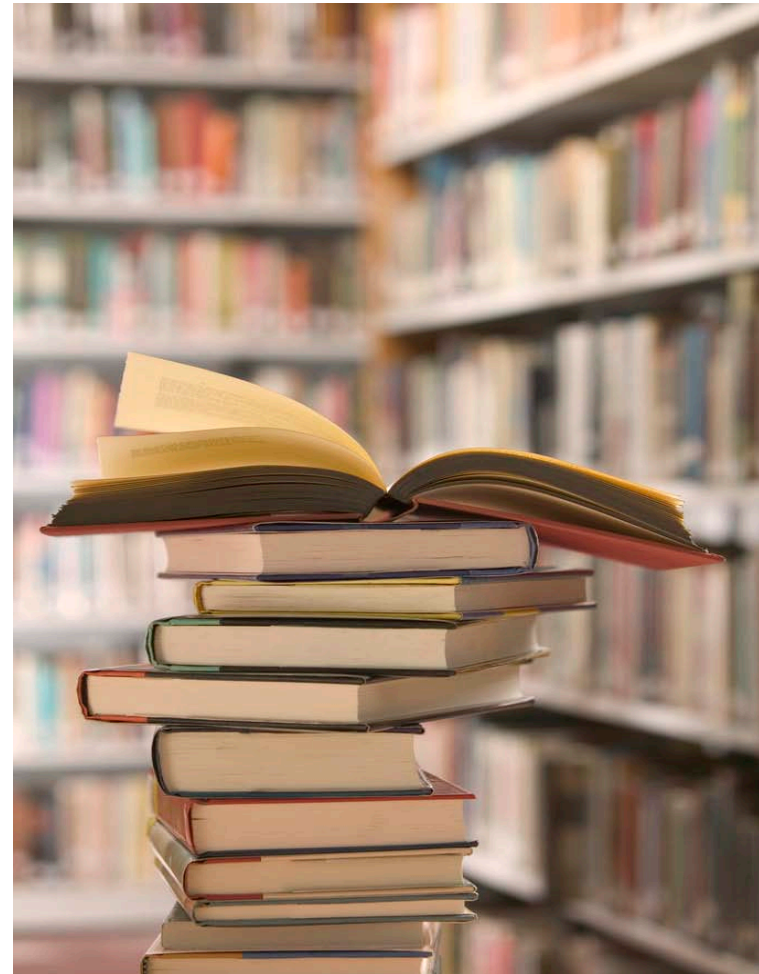
- Review the literature in a discipline
- Map influential researchers in a field
- Measure research quality and impact
- Map collaboration between researchers
- Compare output of individuals, research centres, and institutions (ERA)
- Compare national publication

Citation analysis - tools

Web of Science

Scopus

Publish or Perish



Web of Science journal coverage

Science Citation Index ~8,300

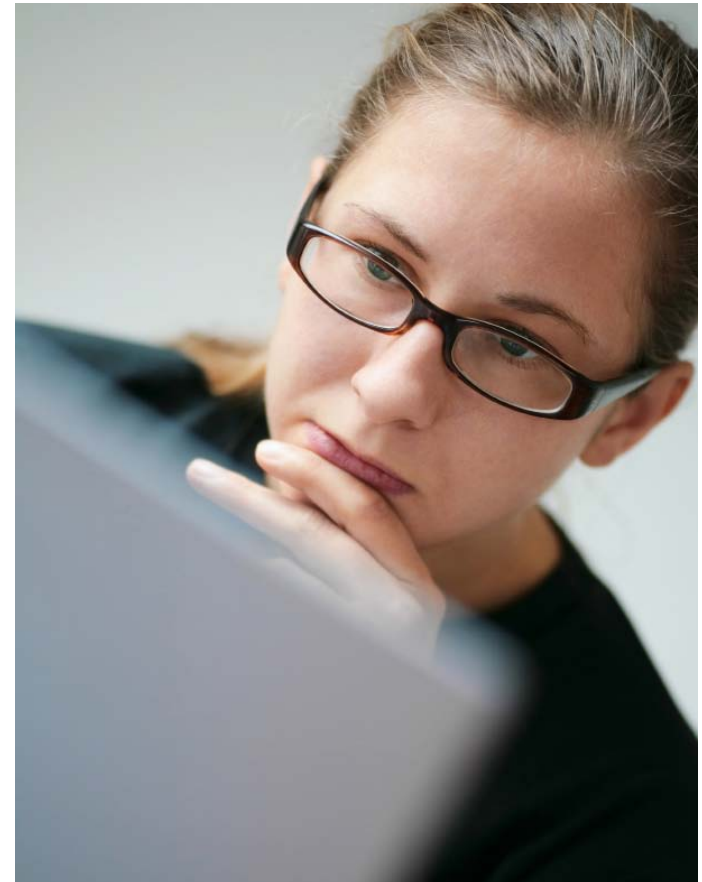
Social Science Citation Index ~4,500

Arts & Humanities Citation Index ~2,300

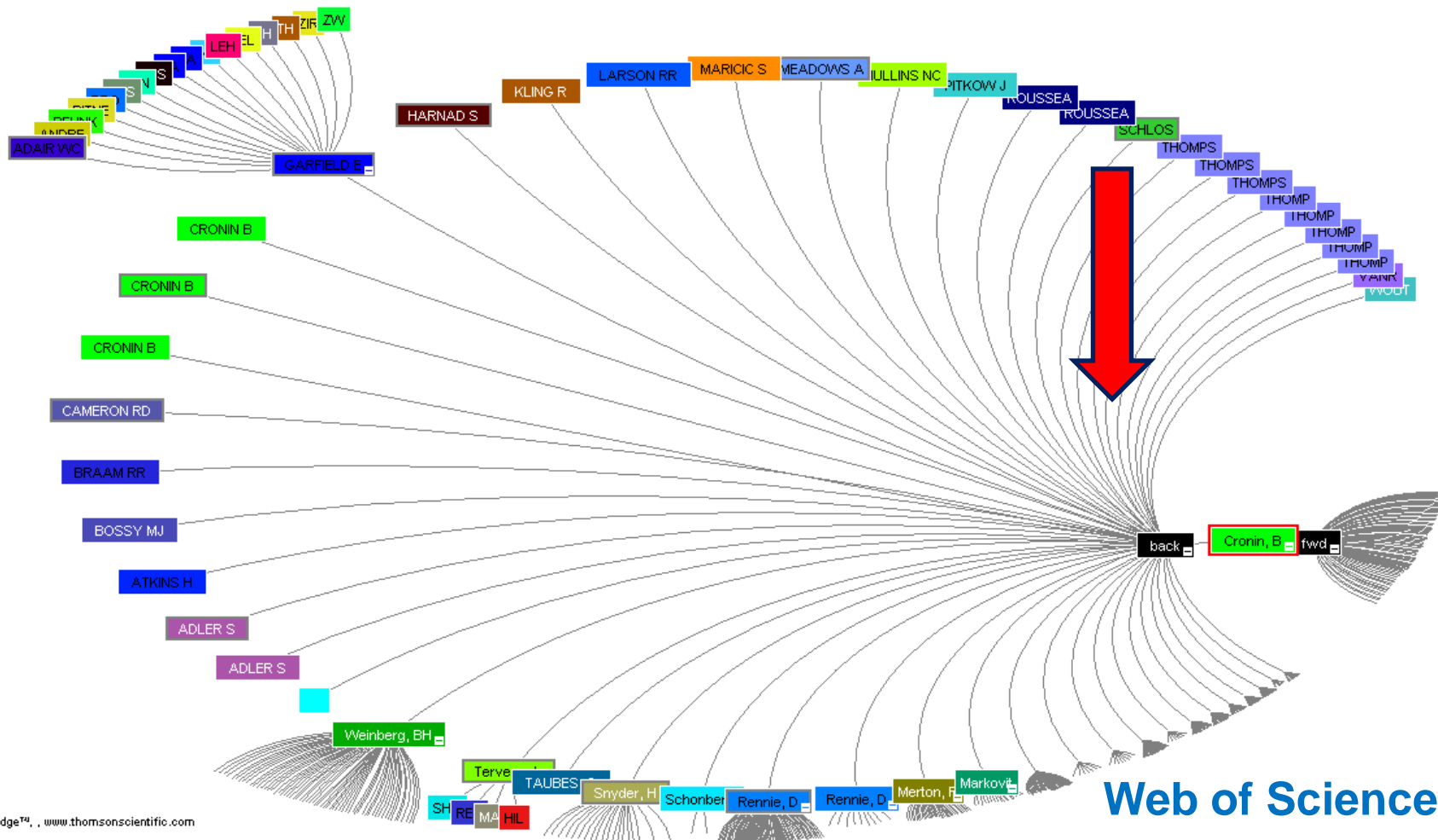


Types of Web of Science searches

- Search (topic, author, publication)
- Author finder
- Cited reference search

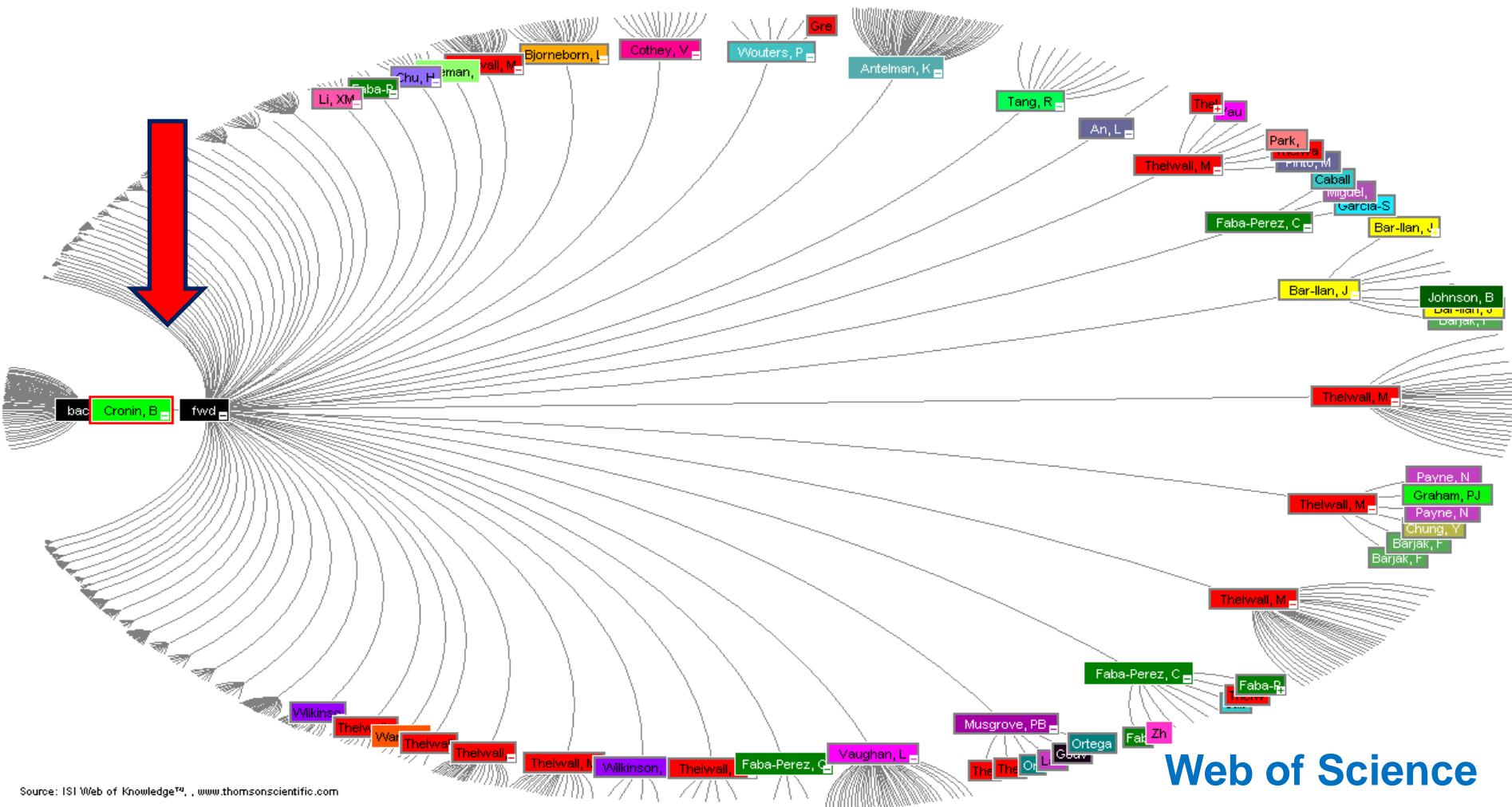


Researcher cites others ...



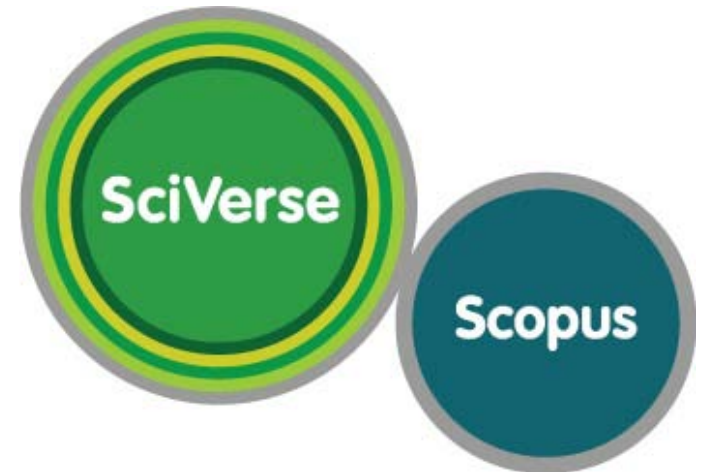
Source: ISI Web of Knowledge™, www.thomsonscientific.com

Researcher is cited by others...



Scopus

- Citation database
- Subject coverage
 - Scientific
 - Technical
 - Medical
 - Social sciences
 - Arts & Humanities



Types of Scopus searches

- Document search
- Author search
- Affiliation search
- Advanced search



Scopus – Analyse results tool

Analyze results | [Back to results](#)

Date range

2006



to

2012

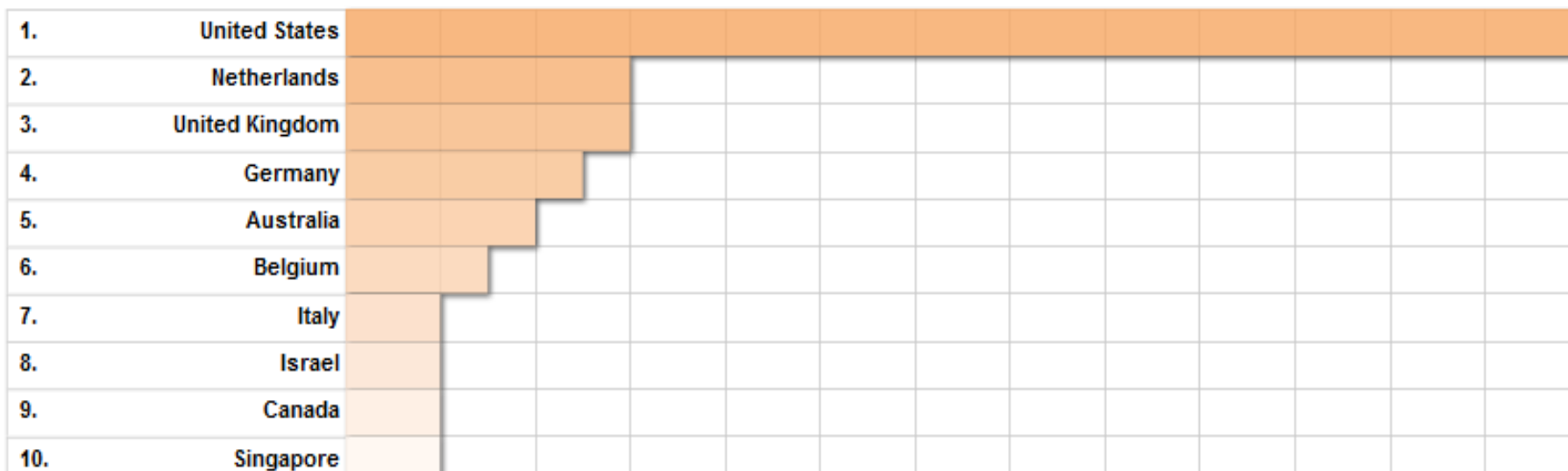


Analyze

Document results 69

[Year](#) | [Source title](#) | [Author name](#) | [Affiliation name](#) | **Country** | [Document type](#) | [Subject area](#)

Country This chart shows the total number of documents for this query by Country.



Scopus – author evaluator tool

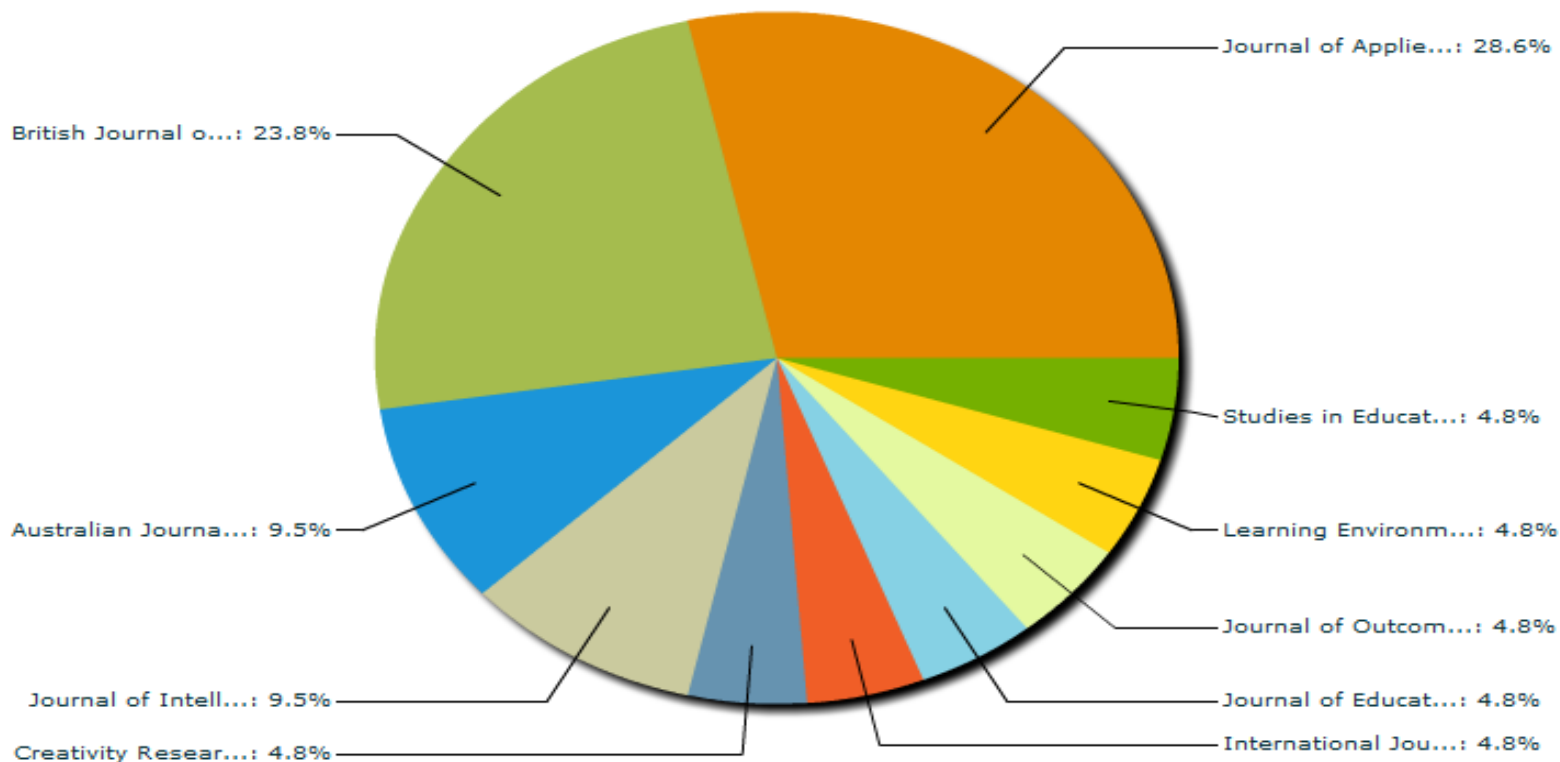
Documents (22)

h Index (6)

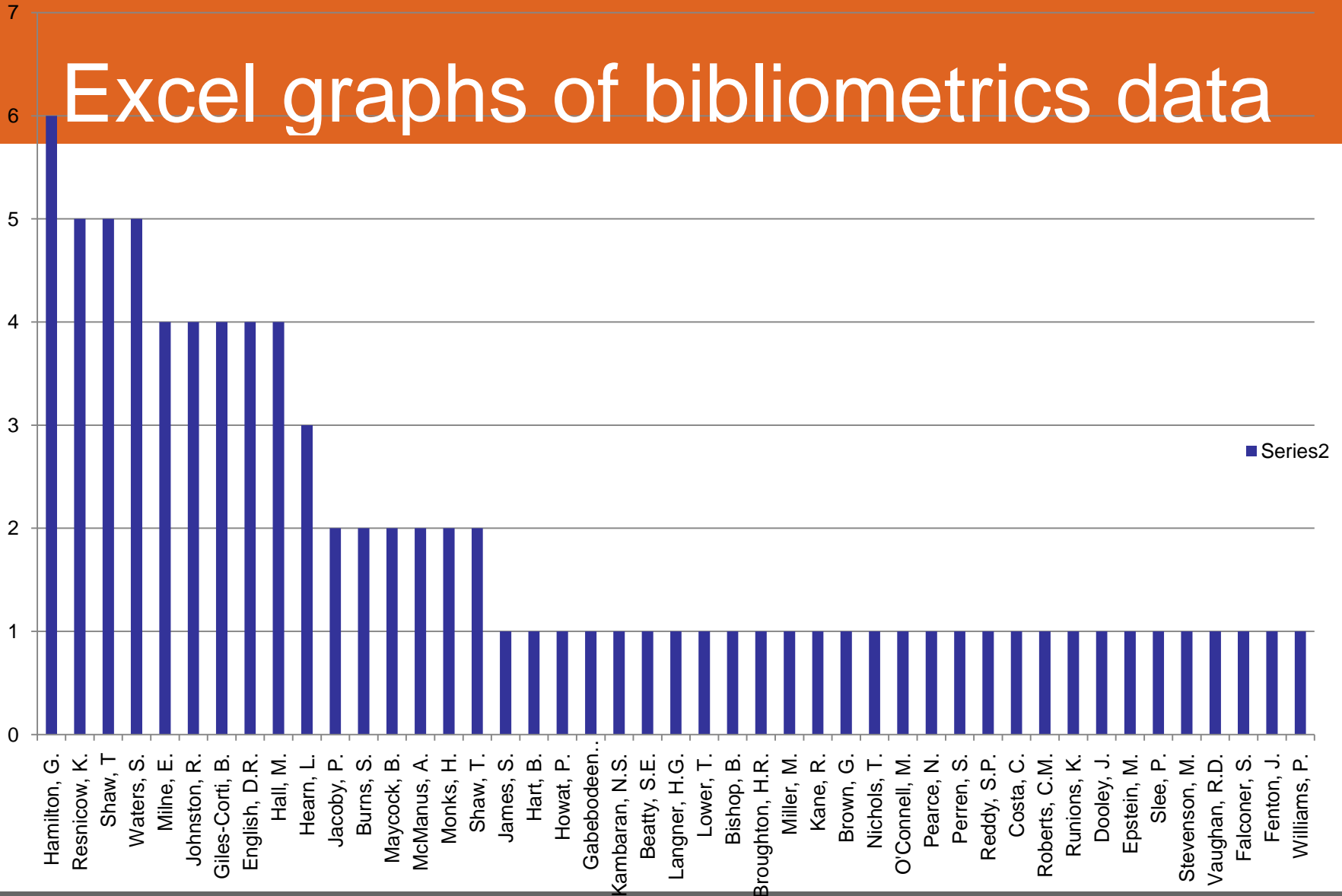
Citations (111)

Sources | **Document Types** | Years | Subject Areas | Co-Authors (13)

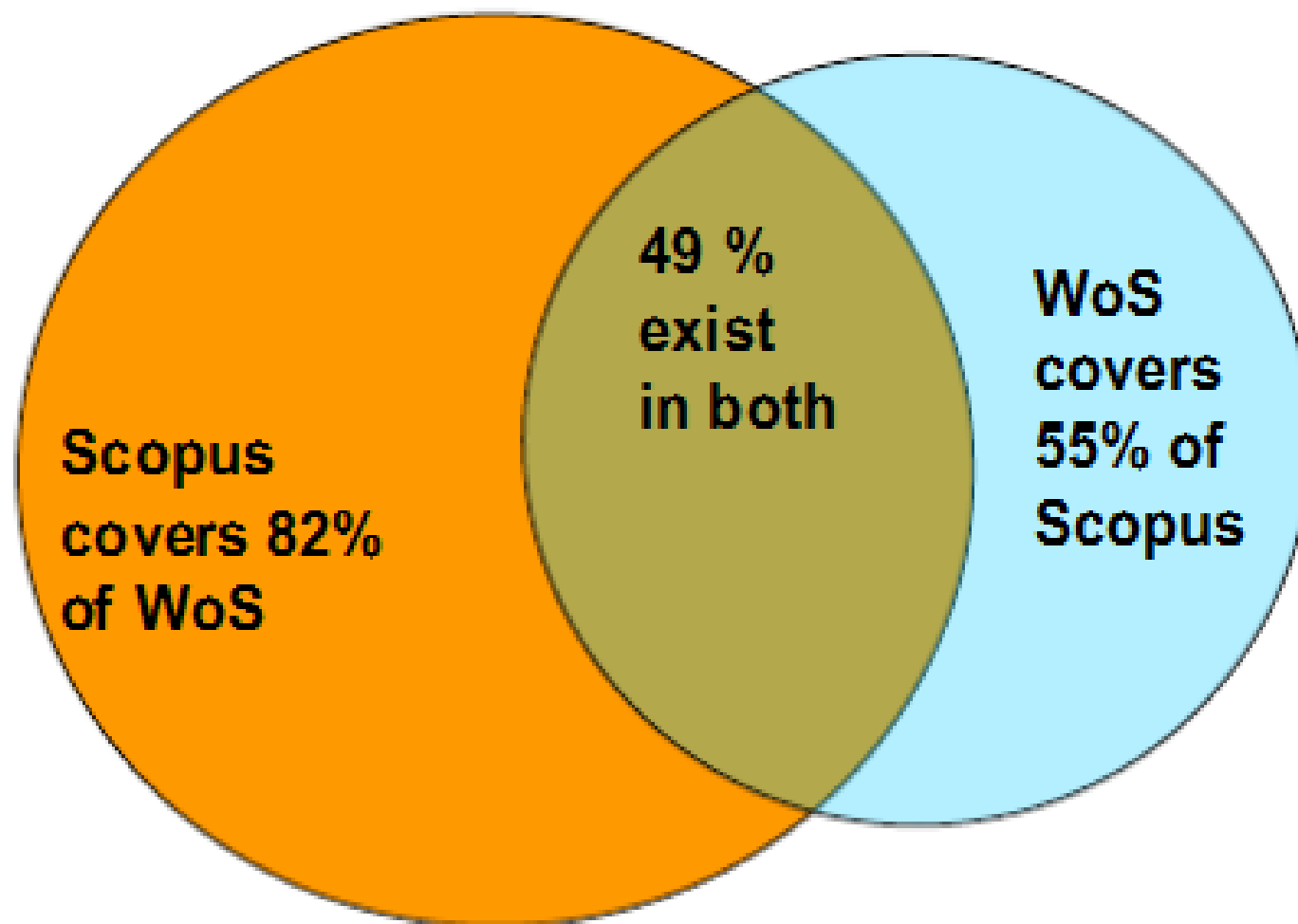
Sources This chart shows a breakdown of the authors documents by document type.



Excel graphs of bibliometrics data



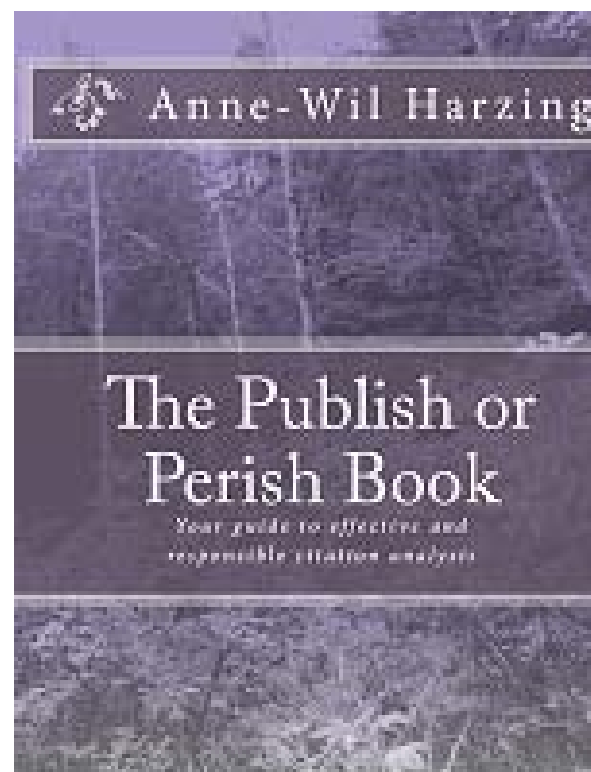
Scopus Web of Science overlap



Publish or Perish (Google Scholar)

Citation analysis of
Google Scholar data
Software download

HARZING.COM



Google Scholar

The screenshot shows the Google Scholar interface. At the top, the Google logo is on the left, and a search bar contains the text "google scholar bibliometrics". A blue search button is to the right. Below the search bar, a white box with a black border contains the text "cited by" in red, with a large red arrow pointing down to the "Cited by 63" link in the first search result. The search results are listed on the right, and a sidebar on the left contains filters for articles, legal documents, time ranges, and sorting options.

Google

google scholar bibliometrics

“cited by”

Articles [New era in citation and bibliometric analyses: Web of Science, Scopus, and Google Scholar](#) [PDF] from arxiv.org
[Leho, K Yang - Arxiv preprint cs/0612132, 2006 - arxiv.org](#)
Abstract: Academic institutions, federal agencies, publishers, editors, authors, and librarians increasingly rely on citation analysis for making hiring, promotion, tenure, funding, and/or reviewer and journal evaluation and selection decisions. The Institute for Scientific ...
[Cited by 63](#) [Related articles](#) [All 9 versions](#)

Legal documents

Any time
Since 2012
Since 2011
Since 2008
Custom range...

Sort by relevance
Sort by date

include patents
 include citations

Create alert

[Google Scholar: The new generation of citation indexes](#) [PDF] from rclis.org
[A Noruzi - Libri, 2005 - eprints.rclis.org](#)
... about the history and role of citation indexing, see the works published by Dr. Eugene Garfield who has opened many doors for research and applications in informetrics, scientometrics and **bibliometrics**. The principal rationale and advantage for **Google Scholar** is that it will ...
[Cited by 138](#) [Related articles](#) [BL Direct](#) [All 44 versions](#)

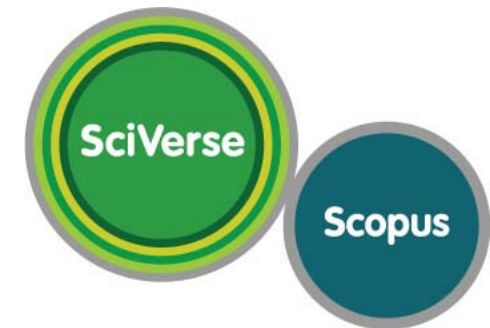
[Convergent validity of bibliometric Google Scholar data in the field of chemistry--Citation counts for papers that were accepted by Angewandte Chemie International ...](#) [PDF] from lutz-bornmann.de
[L Bornmann, W Marx, H Schier, E Rahm, A Thor... - Journal of ..., 2009 - Elsevier](#)
Examining a comprehensive set of papers (n= 1837) that were accepted for publication by the journal Angewandte Chemie International Edition (one of the prime chemistry journals in the world) or rejected by the journal but then published elsewhere, this study tested the ...
[Cited by 40](#) [Related articles](#) [All 20 versions](#)

Why use Publish or Perish?

- Better than using Google Scholar on its own
- Broad multidisciplinary coverage
- Includes results across many major databases
- Better for social sciences, arts and humanities
- Produces research performance metrics
- Download results to Excel

Which database to use?

- Scopus
- Web of Science
- Publish or Perish



HARZING.COM

A photograph of a modern library interior. The room features tall, light-colored wooden bookshelves filled with books, arranged in a grid pattern. The shelves are illuminated from within, casting a warm, golden glow. The floor is highly reflective, mirroring the lights and the structure of the shelves. The overall atmosphere is quiet and scholarly.

Journal metrics

Journal metrics, measuring journal impact

- Journal Citation Reports (JCR)
 - Science Edition
 - Social Sciences Edition
- Impact factors
- Highly cited journals in a discipline
- Leading journals in a discipline
- Discipline specific

JCR impact factors in Nanotechnology

ISI Web of KnowledgeSM

Journal Citation Reports[®]

e.g. in Nanoscience and Nanotechnology ...

WELCOME HELP

Journal Summary List

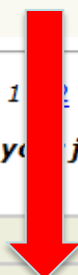
Journals from: **subject categories NANOSCIENCE & NANOTECHNOLOGY** [VIEW CATEGORY SUMMARY LIST](#)

Sorted by: **Impact Factor** [SORT AGAIN](#)

Journals 1 - 20 (of 66)

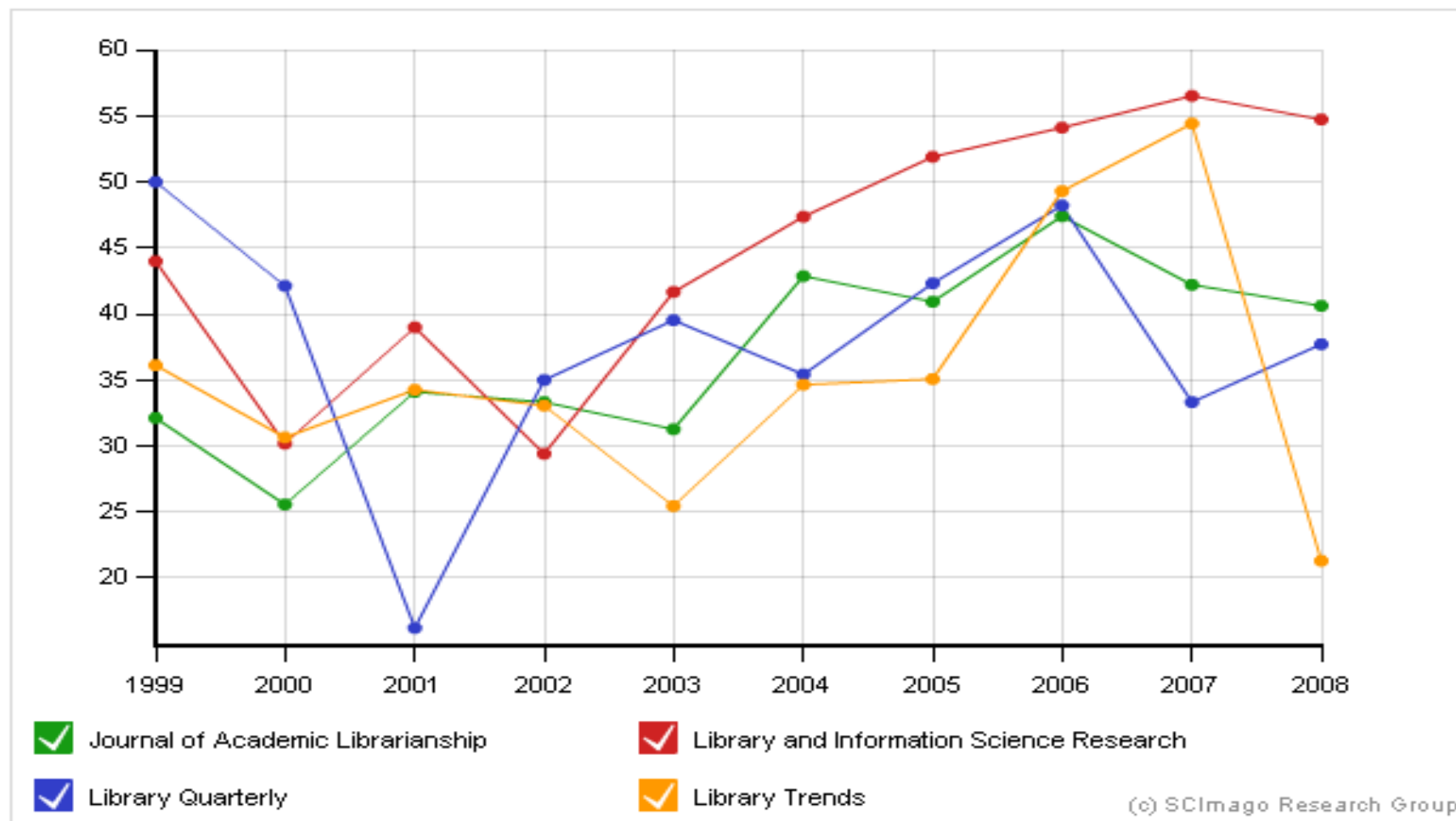
Navigation icons: [1] [2] [3] [4]

Ranking is based on your journal and sort selections.



Mark	Rank	Abbreviated Journal Title <i>(linked to journal information)</i>	ISSN	JCR Data i						Eigenfactor Score
				Total Cites	Impact Factor	5-Year Impact Factor	Immediacy Index	Articles	Cited Half-life	
<input type="checkbox"/>	1	NAT NANOTECHNOL	1748-3387	16581	27.270	33.781	5.496	117	3.1	0.128
<input type="checkbox"/>	2	NANO TODAY	1748-0132	2170	15.355	16.078	2.324	37	2.8	0.012
<input type="checkbox"/>	3	ADV MATER	0935-9648	79860	13.877	12.813	2.155	789	5.0	0.262
<input type="checkbox"/>	4	NANO LETT	1530-6984	75287	13.198	13.843	2.082	955	4.2	0.345
<input type="checkbox"/>	5	ACS NANO	1936-0851	22409	10.774	11.171	1.631	1141	2.0	0.120
<input type="checkbox"/>	6	ADV FUNCT MATER	1616-301X	28503	10.179	9.920	1.514	533	4.0	0.112

Comparing journals on Scopus





Future developments...

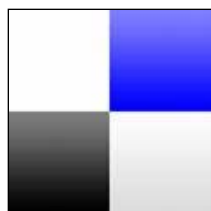


Altmetrics to determine research impact

- Altmetrics manifesto
- New ways to measure impact
- New metrics based on analysing the social web
- Scholarship is changing
- Scholars use the Web: blogs, Twitter, social media

Altmetrics new tools – Web 2.0

- Reference managers
- Social media
- Social bookmarking
- Mendeley, Zotero
- Blogs, Twitter
- Delicious



Bibliometrics — handle with care!

- Disciplinary differences
- Citation impact vs Impact of research
- Assumption that
 - Cited articles have been read/used
- But we also have
 - Time-lag
 - Self citing
 - Diplomatic citing/non-citing

Any questions?

