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Using Metrics to Determine Research Impact

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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

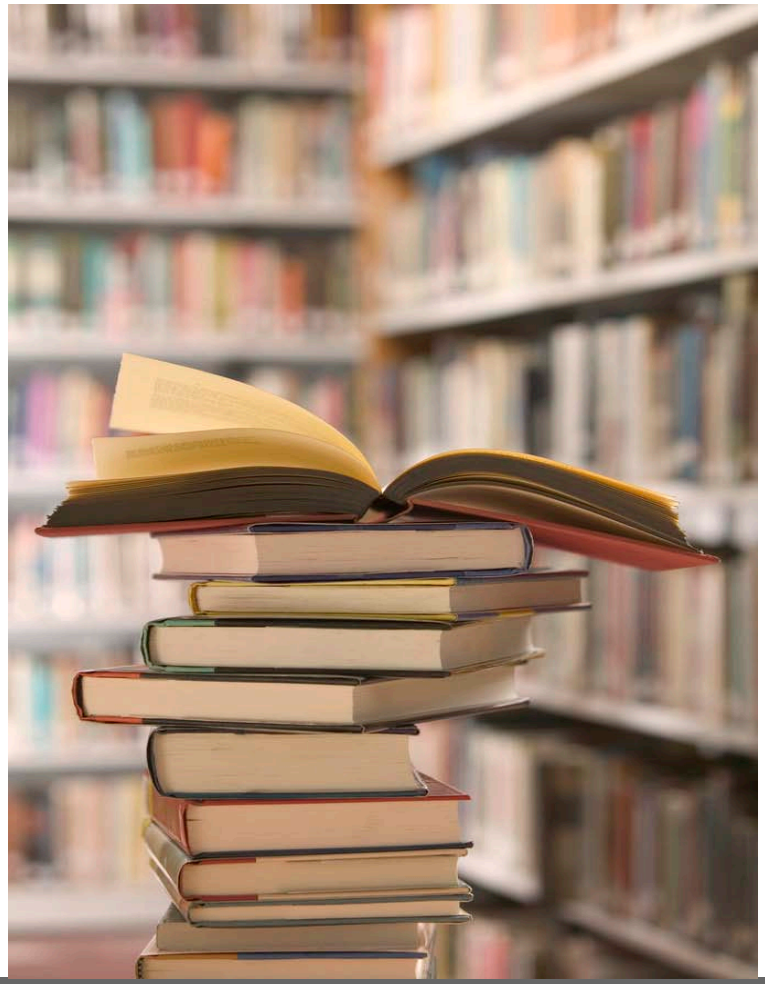
- Review the literature in a discipline
- Map influential researchers in a field
- Measure research quality and impact
- Map collaboration between researchers
- Compare output of individuals, research centres, and institutions (ERA)
- Compare national publication

Citation analysis - tools

Web of Science

Scopus

Publish or Perish

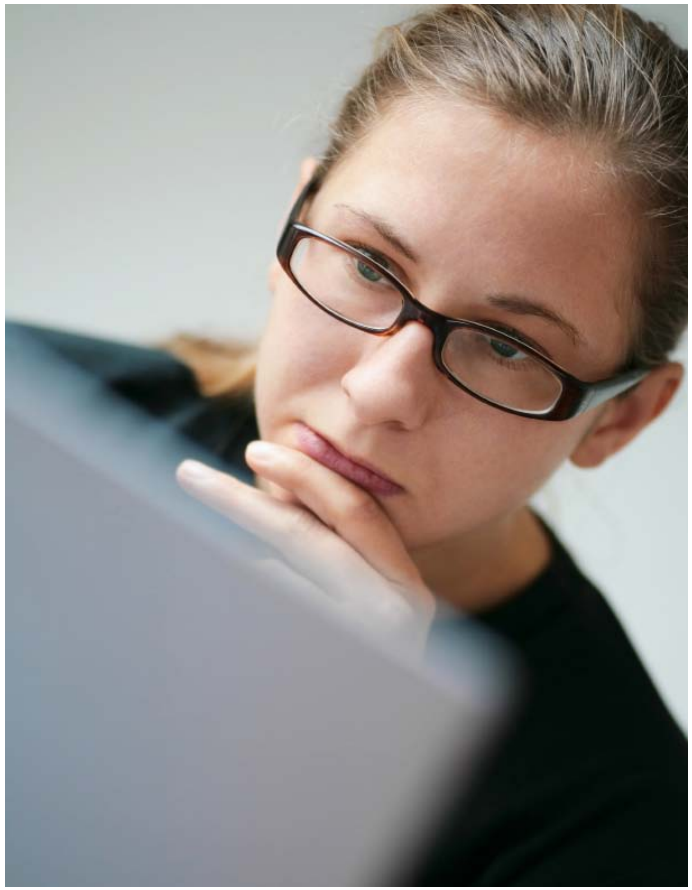


Web of Science journal coverage

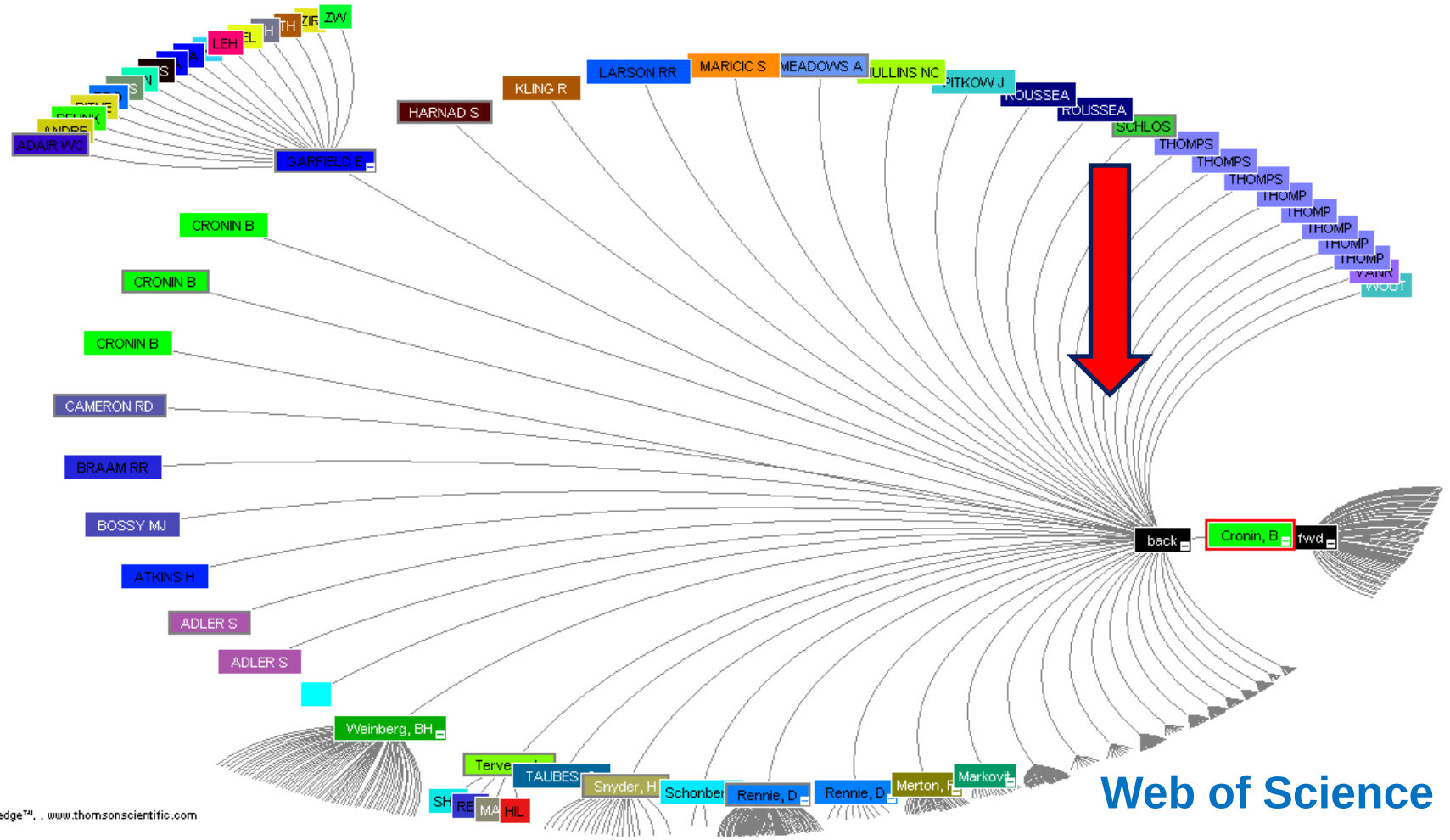
Science Citation Index	~8,300
Social Science Citation Index	~4,500
Arts & Humanities Citation Index	~2,300

Types of Web of Science searches

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



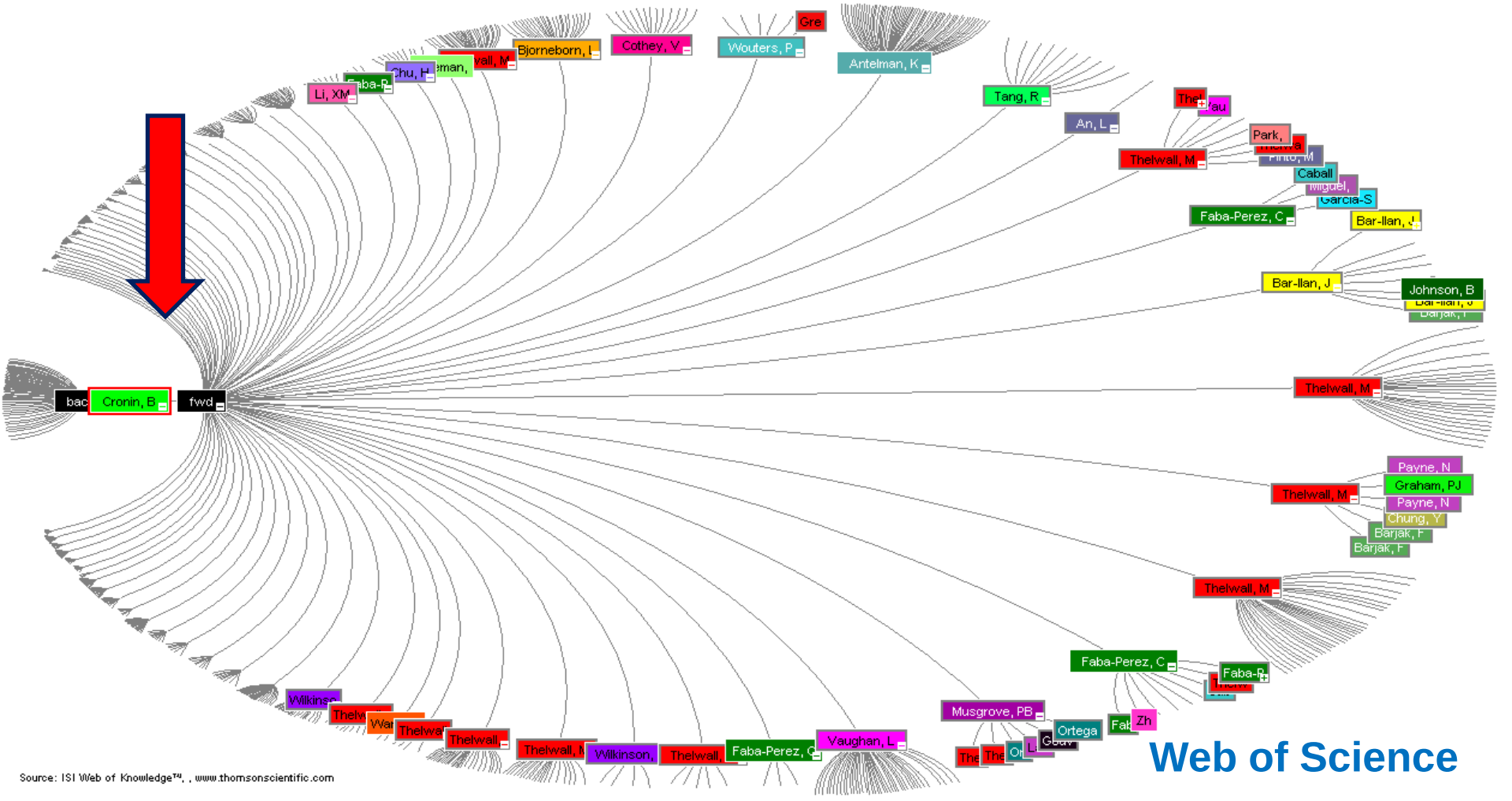
Researcher cites others …



Web of Science

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

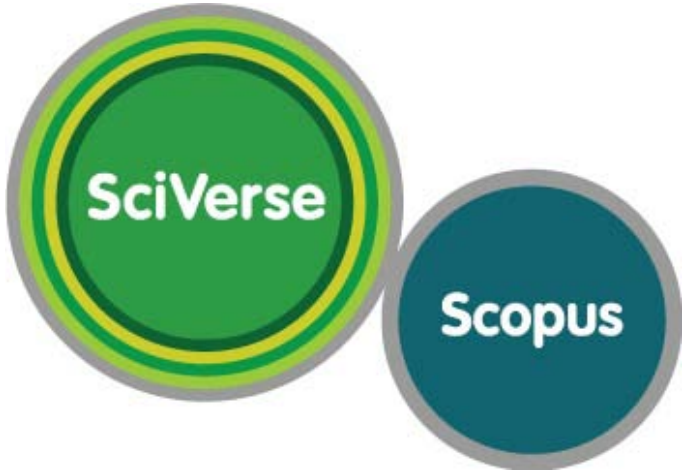
Researcher is cited by others…



Web of Science

Scopus

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



Types of Scopus searches

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

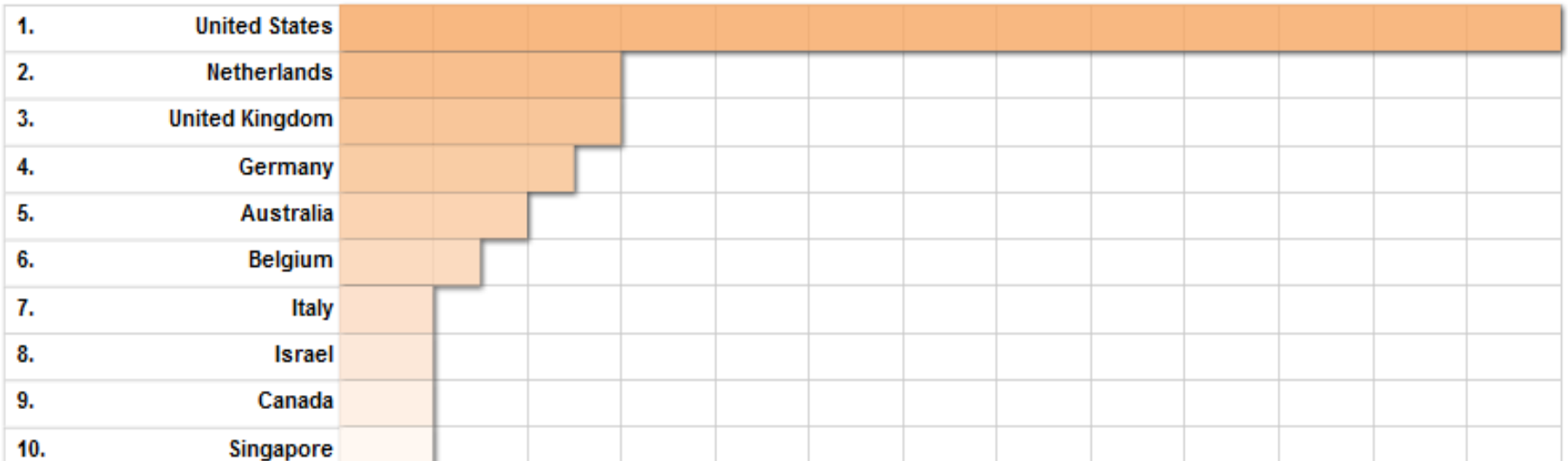
Scopus – Analyse results tool

Analyze results | Back to results

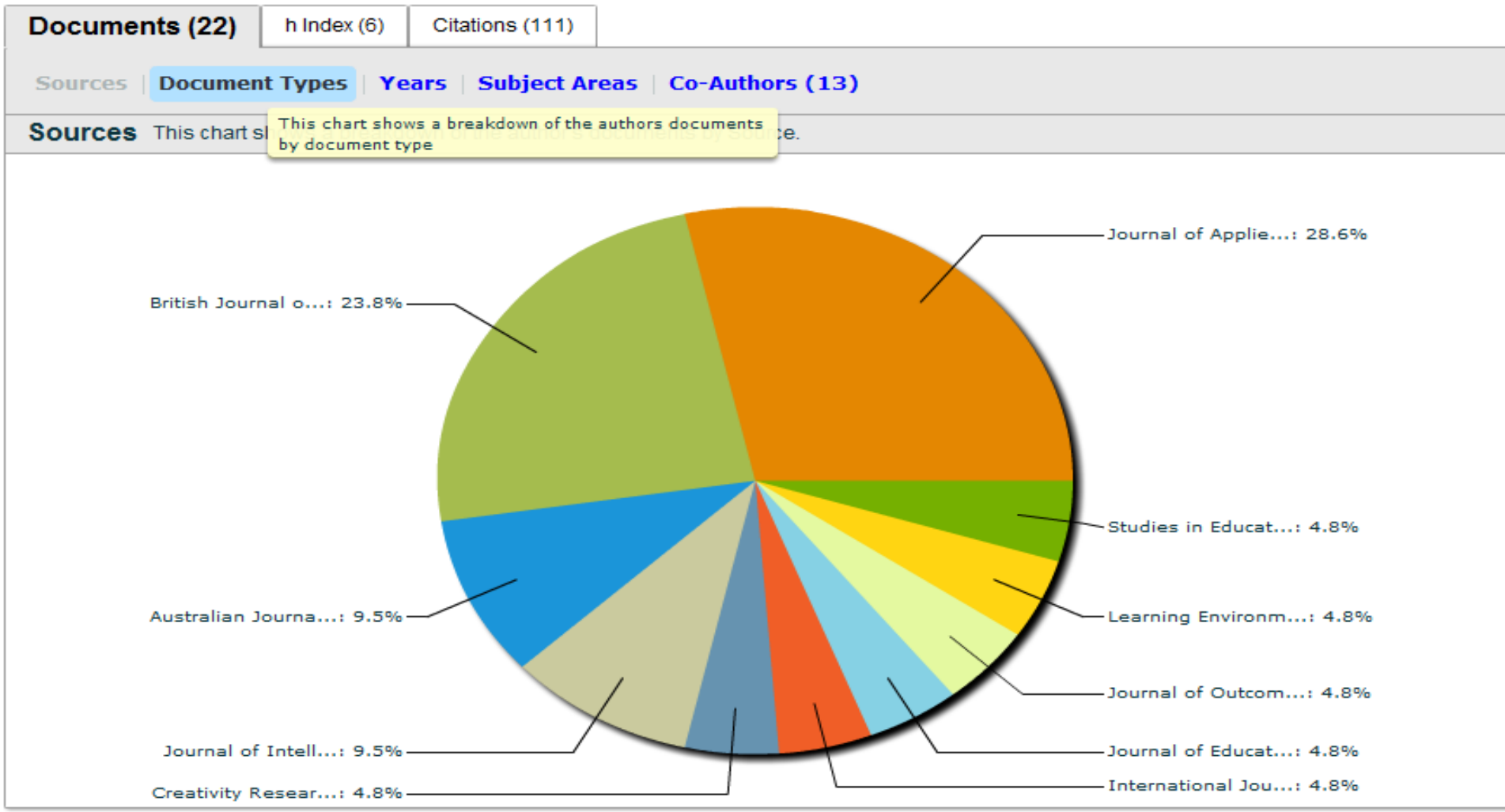
Date range 2006 to 2012 Analyze Document results 69

Year | Source title | Author name | Affiliation name | Country | Document type | Subject area

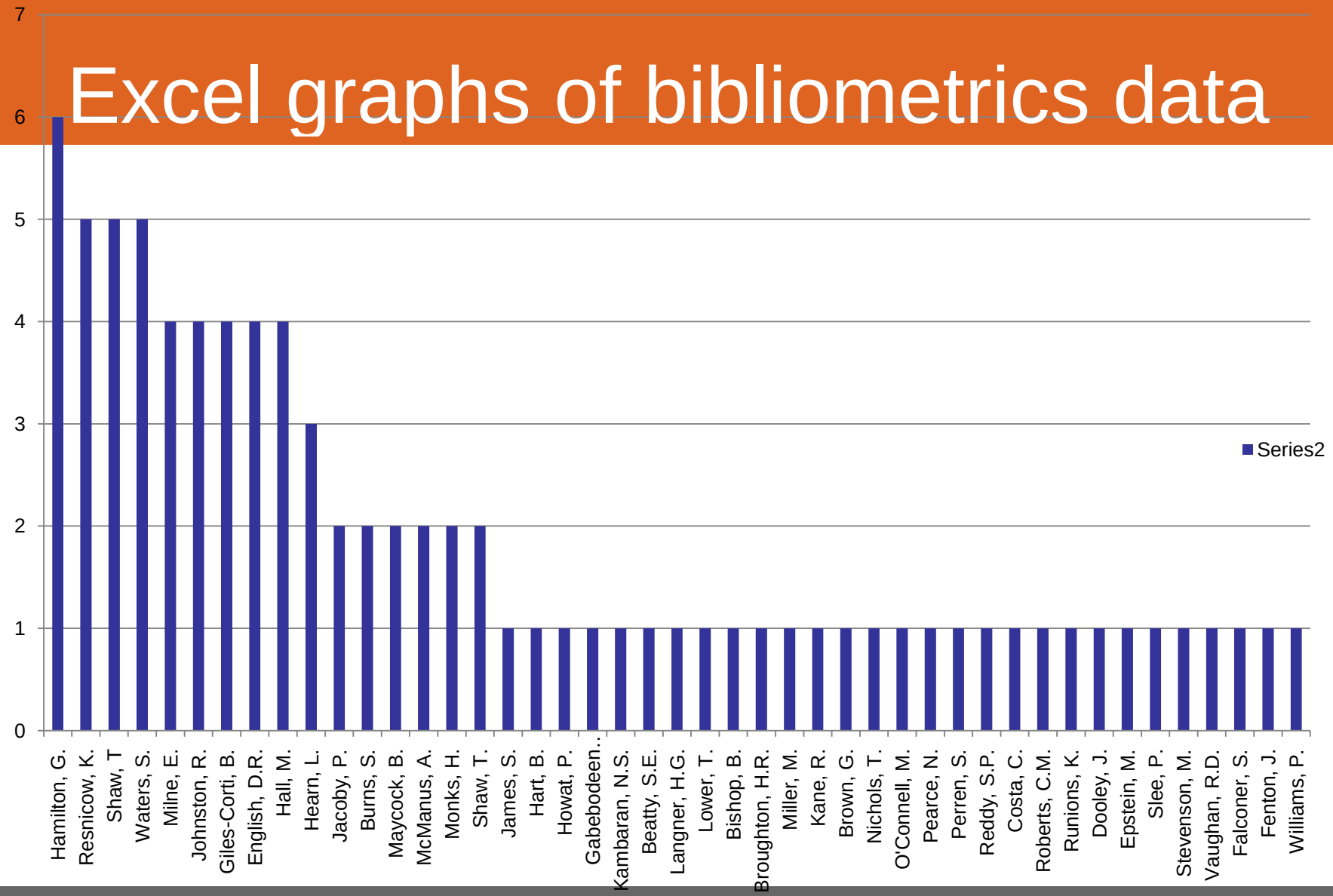
Country This chart shows the total number of documents for this query by Country.



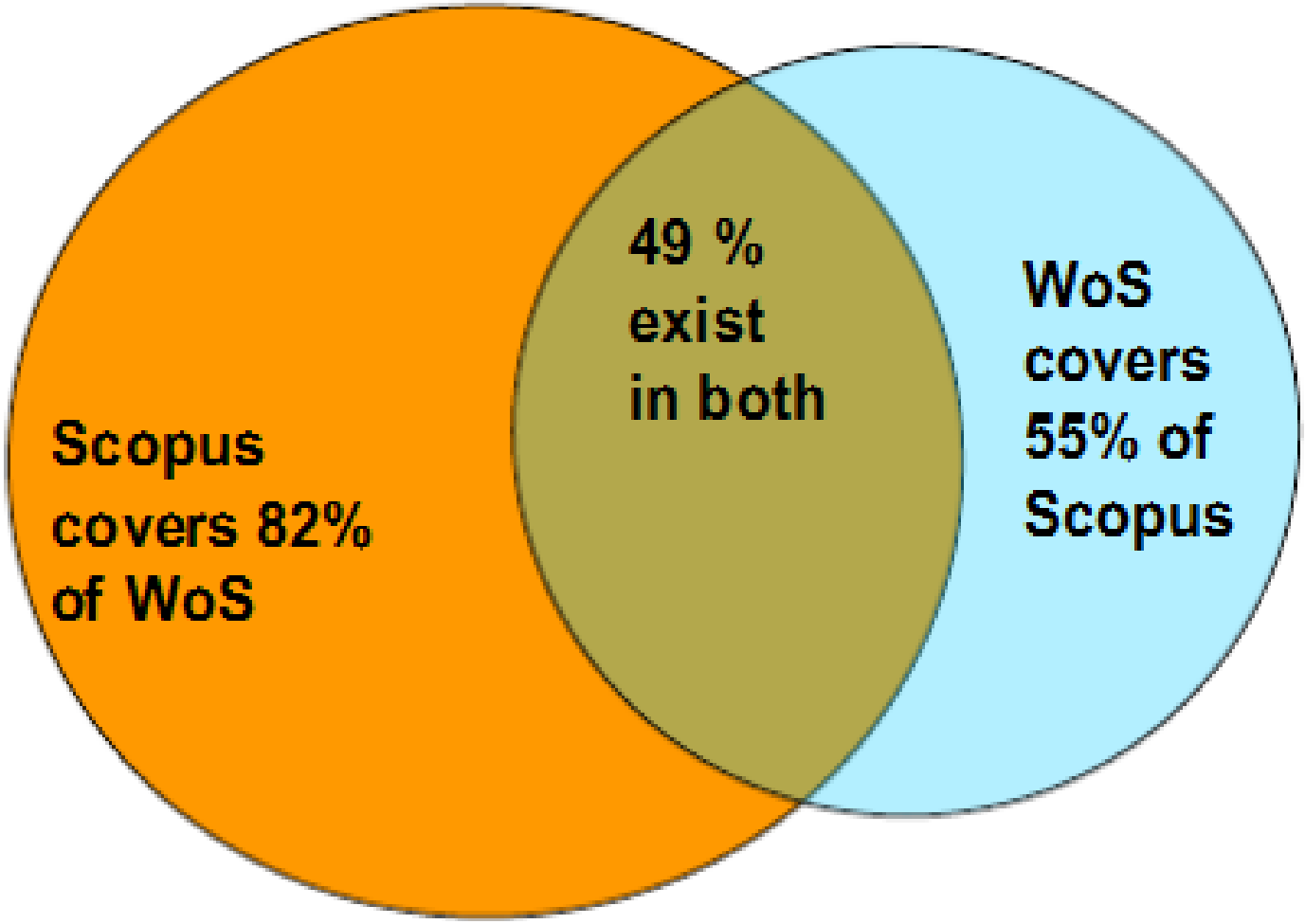
Scopus – author evaluator tool



Excel graphs of bibliometrics data



Scopus Web of Science overlap



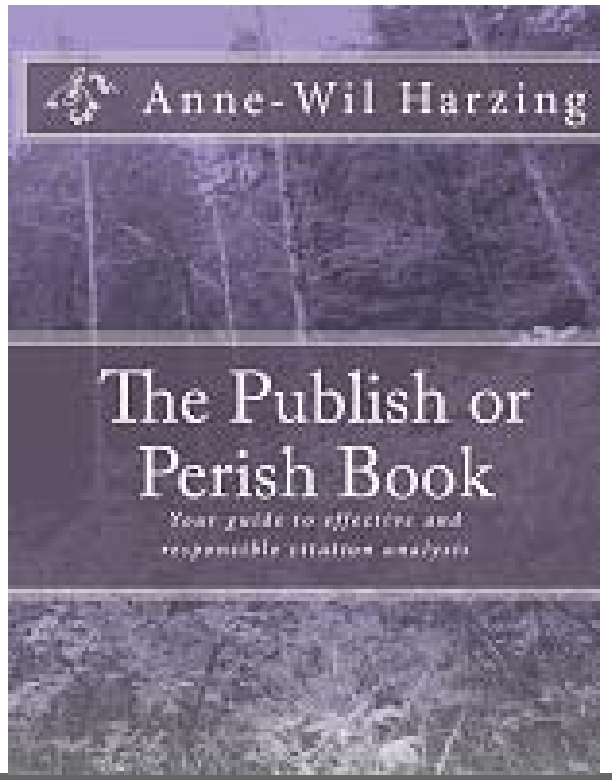
Publish or Perish (Google Scholar)

Citation analysis of

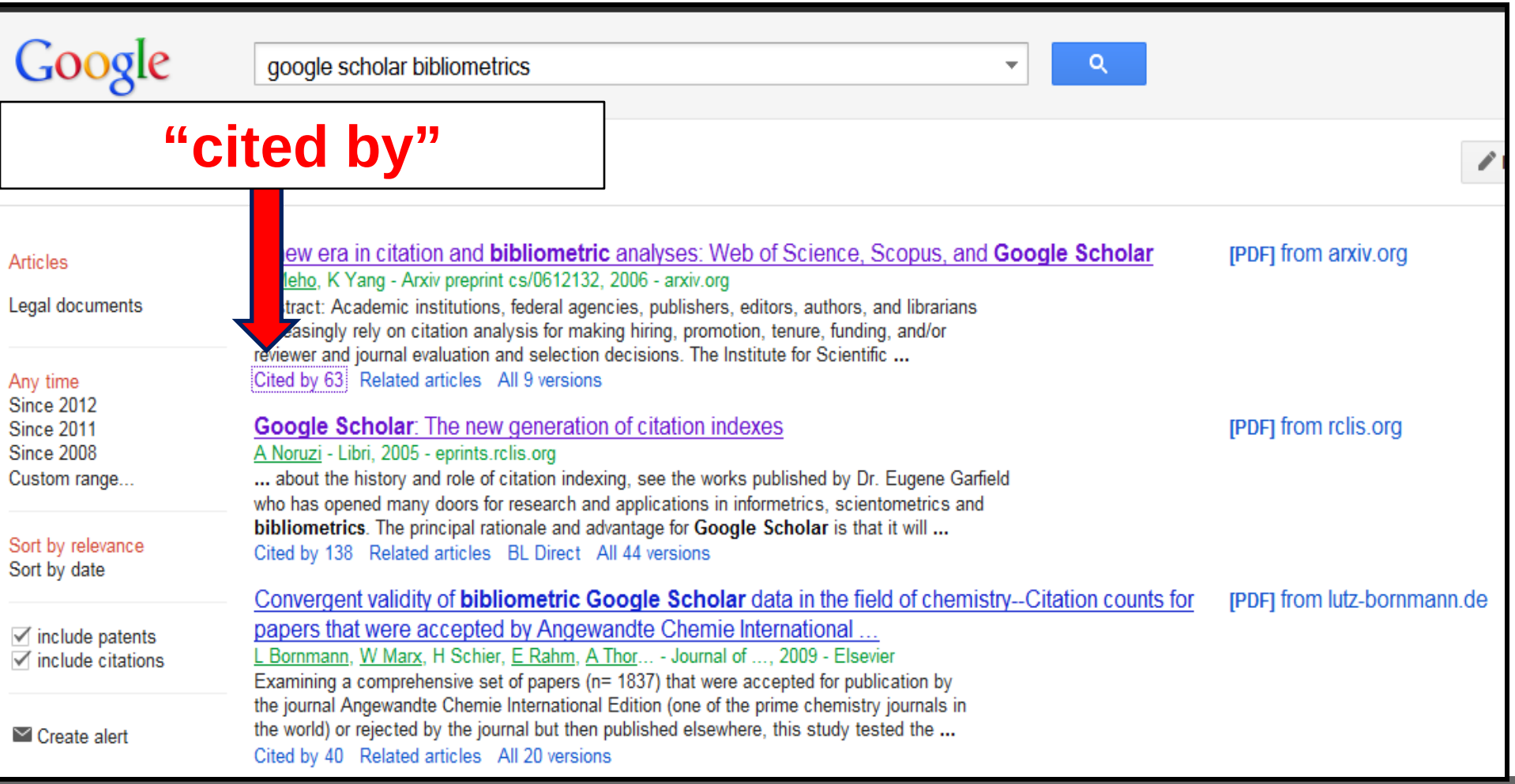
Google Scholar data

Software download

HARZING.COM



Google Scholar



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


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 Knowledge℠

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)

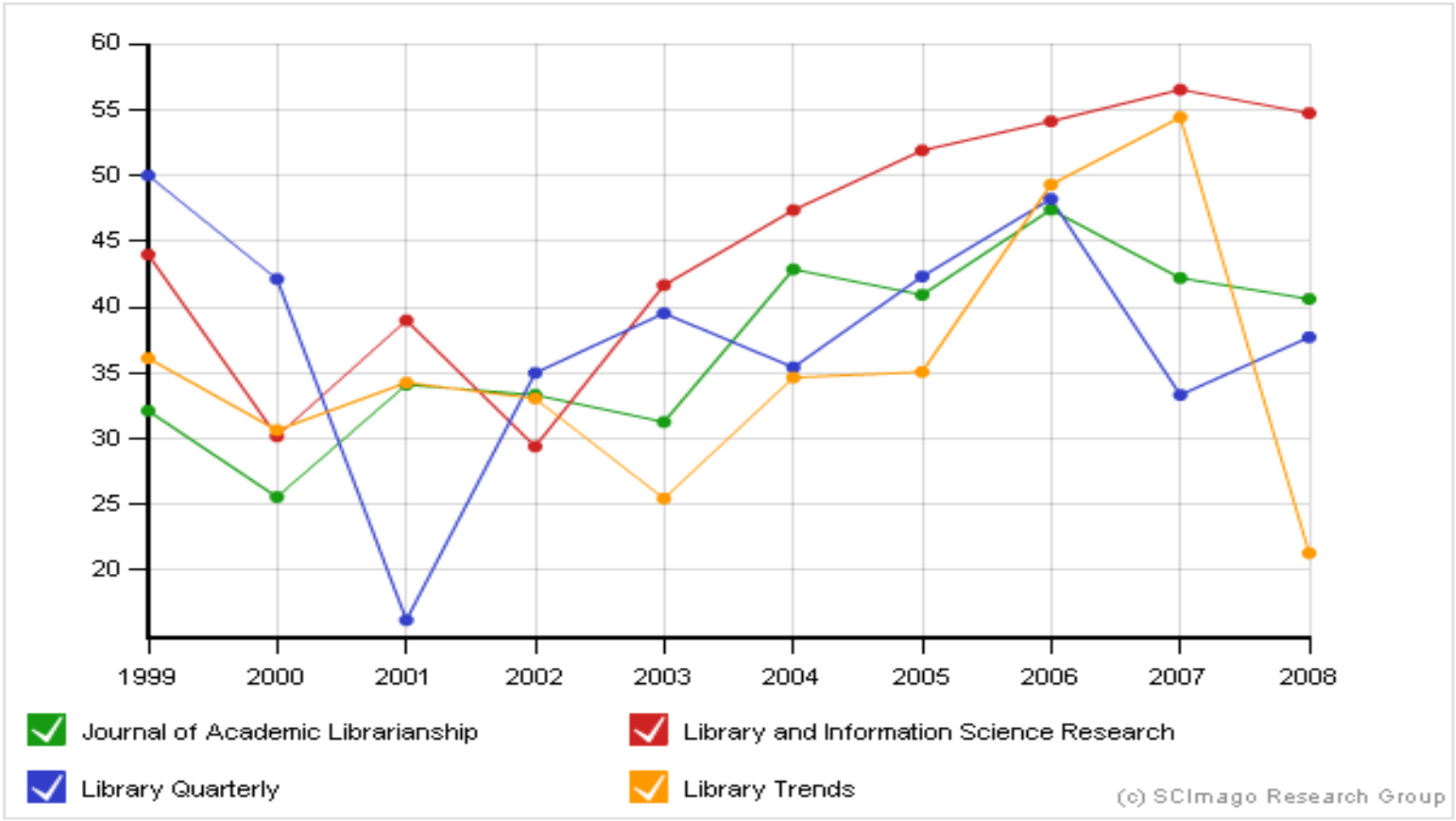
[1 | 2 | 3 | 4]

MARK ALL | UPDATE MARKED LIST

Ranking is based on your journal and sort selections.

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

Comparing journals on Scopus



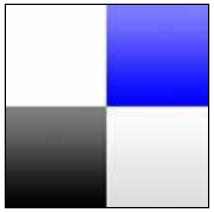
Future developments…

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?