Quick Reference Cards *for* Research Impact Metrics

Metrics illuminate the impact of your research outputs. Promotion and tenure committees, funders, advisors, research team leaders and potential collaborators are all interested in information about impact. **But where to start?** Your library can advise you on metrics — found on Elsevier products or via other sources — that can help you to:

DECIDE WHERE TO PUBLISH	ADD TO ONLINE PROFILE	ENRICH PROMOTION & TENURE PORTFOLIO	APPLY/REPORT TO FUNDERS[1]	BENCHMARK A COLLECTION OF RESEARCH OUTPUTS (for team leaders)
Impact per Publication	*h*-index	*h*-index	*h*-index	percentile benchmarks
SJR: SCImago Journal Rank	percentile benchmarks	percentile benchmarks	percentile benchmarks	Field-Weighted Citation Impact
SNIP: Source Normalized Impact per Paper	scholarly activity online	scholarly activity online	scholarly activity online	*h*-index (if in the same field)
Journal Impact Factor	scholarly commentary online	scholarly commentary online	scholarly commentary online	Field-Weighted Download Impact[2]
	social activity online	citation count	citation count	
	mass media stories	mass media stories	mass media stories	
			journal metrics (e.g., SNIP, SJR)	

DOCUMENT | AUTHOR | JOURNAL

"Document" in the definitions refers to primary document types such as journal articles, books and conference papers. See Scopus Content Coverage Guide (page 9) for a full list of document types: https://goo.gl/bLYHov

Indicates that the Snowball Metrics group agreed to include as a standardized metric, which is data source and system agnostic. https://www.snowballmetrics.com

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CITATION COUNT
# of citations accrued since publication

A simple measure of attention for a particular article, journal or researcher. As with all citation-based measures, it is important to be aware of citation practices. The paper "Effective Strategies for Increasing Citation Frequency"[3] lists 33 different ways to increase citations.

DOCUMENT COUNT
# of items published by an individual or group of individuals

A researcher using document count should also provide a list of document titles with links. If authors use an ORCID iD – a persistent scholarly identifier – they can draw on numerous sources for document count including Scopus, ResearcherID, CrossRef and PubMed. Register for an ORCID iD at http://orcid.org.

FIELD-WEIGHTED CITATION IMPACT (FWCI)
# of citations received by a document / expected # of citations for similar documents

Similar documents are ones in the same discipline, of the same type (e.g., article, letter, review) and of the same age. An FWCI of 1 means that the output performs just as expected against the global average. More than 1 means that the output is more cited than expected according to the global average; for example, 1.48 means 48% more cited than expected.

h-INDEX
# of articles in the collection (h) that have received at least (h) citations over the whole period

For example, an *h*-index of 8 means that 8 of the collection's articles have each received at least 8 citations. *h*-index is not skewed by a single highly cited paper, nor by a large number of poorly cited documents. This flexible measure can be applied to any collection of citable documents. Related h-type indices emphasize other factors, such as newness or citing outputs' own citation counts.[4]

IMPACT PER PUBLICATION (IPP)
# of citations in present year for journal documents from past 3 years / total # of papers published in past 3 years in that journal

This score can be used for any serially published collection of publications. It is similar to the Journal Impact Factor in the way it is calculated, but allows for more comparison across disciplines, since disciplinary citation practices mean that not all journals will reach their peak citation rate within the Journal Impact Factor's 2-year period.

SCIMAGO JOURNAL RANK (SJR)
average # of weighted citations received in a year / # of documents published in previous 3 years

Citations are weighted – worth more or less – depending on the source they come from. The subject field, quality and reputation of the journal have a direct effect on the value of a citation. Can be applied to journals, book series and conference proceedings. Calculated by Scimago Lab (http://www.scimagojr.com) based on Scopus data.

SOURCE NORMALIZED IMPACT PER PAPER (SNIP)
journal's citation count per paper / citation potential in its subject field

The impact of a single citation will have a higher value in subject areas where citations are less likely, and vice versa. Stability intervals indicate the reliability of the score. Smaller journals tend to have wider stability intervals than larger journals. Calculated by CWTS (http://www.journalindicators.com) based on Scopus data.

JOURNAL IMPACT FACTOR
citations in a year to documents published in previous 2 years / no. of citable items in previous 2 years

Based on Web of Science data, this metric is updated once a year and traditionally released in June following the year of coverage as part of the Journal Citation Reports® JCR also includes a Five-year Impact Factor.

PERCENTILE BENCHMARK (ARTICLES)
compares items of same age, subject area & document type over an 18-month window

The higher the percentile benchmark, the better. This is available in Scopus for citations, and also for Mendeley readership and tweets. Particularly useful for authors as a way to contextualize citation counts for journal articles as an indicator of academic impact.

OUTPUTS IN TOP PERCENTILES
extent to which a research entity's documents are present in the most-cited percentiles of a data universe

Found within SciVal, Outputs in Top Percentiles can be field weighted. It indicates how many articles are in the top 1%, 5%, 10% or 25% of the most-cited documents. Quick way to benchmark groups of researchers.

SCHOLARLY ACTIVITY ONLINE
# of users who added an article into their personal scholarly collaboration network library

The website How Can I Share It? links to publisher sharing policies, voluntary principles for article sharing on scholarly collaboration networks, and places to share that endorse these principles including Mendeley, figshare, SSRN and others. http://www.howcanishareit.com

SCHOLARLY COMMENTARY ONLINE
# of mentions in scientific blogs and/or academic websites

Investigating beyond the count to actual mentions by scholars could uncover possible future research collaborators or opportunities to add to the promotion and tenure portfolio. These mentions can be found in the Scopus Article Metrics Module and within free and subscription altmetric tools and services.

SOCIAL ACTIVITY ONLINE
# of mentions on micro-blogging sites

Micro-blogging sites may include Twitter, Facebook, Google+ and others. Reporting on this attention is becoming more common in academic CVs as a way to supplement traditional citation-based metrics, which may take years to accumulate. They may also be open to gaming.[5]
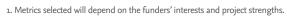
MEDIA MENTIONS
# of mentions in mass or popular media

Media mentions are valued indicators of social impact as they often highlight the potential impact of the research on society. Sources could include an institution's press clipping service or an altmetric provider. Mendeley, Scopus (Article Metrics Module), Pure and SciVal (coming in 2016) also report on mass media.

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1. Metrics selected will depend on the funders' interests and project strengths.
2. Plume, A. & Kamalski, J (March 2014). "Article downloads: An alternative indicator of national research impact and cross-sector knowledge exchange," *Research Trends*, http://www.researchtrends.com/issue-36-march-2014/article-downloads/
3. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2344585
4. See a good explanation at http://www.harzing.com/pop_hindex.htm
5. http://www.altmetric.com/blog/gaming-altmetrics/

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Scopus is the world's largest abstract and citation database of peer-reviewed literature with content from over 5,000 publishers. https://www.scopus.com

IPP, SNIP and SJR are provided free at: https://www.journalmetrics.com

SciVal offers data-based insights into 7,500 research institutions and 220 nations worldwide to visualize research performance, benchmark relative to peers, develop collaborative partnerships and analyze research trends. https://www.scival.com

MENDELEY is a free reference manager and academic social network where you can organize your research, collaborate with others online and discover the latest research. https://www.mendeley.com

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