

BIBLIOMETRICS & RESEARCH IMPACT

LIBRARY TIPS #6 JUNE 2025

Bibliometrics – what is it and why is it important?

* A set of statistical methods to **measure and analyse** the patterns, impact, quality and trends in **scientific and academic production**.

Understand the impact and contribution of research output over time.

Performance comparison and promotion of best practices (Benchmarking).

Useful for decision-making regarding funding and resources allocation in different scientific areas.

Identifiers & Indicators

* **Identifiers** are designed to ensure findable, **interoperable attribution** and to **minimise ambiguity**. They can be assigned to documents (DOI), researchers (ORCID ID), organisations (ROR), or journals (ISSN).



* **Indicators** are quantitative metrics that evaluate data from publications. They are employed to **assess the performance of researchers, journals, scientific fields, institutions, or countries**, providing objective and reproducible data for research evaluation and comparison.



Do you know you can export your Pure outputs to ORCID? (only for Pure users)

NOVA RESEARCH PORTAL



- Log in on Pure and go to *Personal > Personal overview > Edit Profile > Click **Create or Connect your ORCID ID***
- Enter the required information > Click *Register > Accept Pure permission to access your ORCID > Click Save*
- Go back > Click **“Authorise export of content to ORCID”** > Save the record

Manual exportation

All content is re-exported to ORCID, regardless of when it was last updated.

You can choose:

Automatic exportation

Updated daily (only synchronise content modified since the last export).

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Metrics

Document count

of items published

The most basic metric, it counts the number of publications (articles, books, patents, and technical reports, among others) and their respective growth over a given period.

Citation count

of citations accumulated since publication date

Measures the impact of a publication, author or journal. However, it is important to use it with complementary citation-based metrics (e.g. Field-Weighted Citation Impact).

H-index

of articles (h) that have received at least (h) citations over a period of time

Calculated by finding the highest number of publications (h) that have each been cited at least h times. It balances the number of publications with the number of citations they receive.

- e.g. an h-index of 10 means a researcher has published 10 papers with at least 10 citations.

Field-Weighted Citation Impact (FWCI)

of citations received by a document

expected # of citations for similar documents

Measures how a publication's citation impact compares to similar publications in the same field, publication type, and year.

- A score of 1 indicates the publication is cited as expected based on the global average. A score greater than 1 means the publication is cited more frequently than expected (e.g. FWCI of 1.48 signifies it is cited 48% more than the average).

Journal Quartile

ranking system that divides academic journals into four groups (Q1, Q2, Q3, Q4)

Ranks journals within a specific subject category, based on performance and impact metrics (e.g. impact factor or citation counts).

- Q1 represents the top 25% of journals in terms of citations.
- Q4 represents the bottom 25%.

Journal Impact Factor

of citations in a year documents published in the previous 2 years

Calculates the citation frequency of the “average article” of a journal. Based on Web of Science data, this metric is annually released in June following the year of coverage as part of the Journal Citation Reports.



Beyond Traditional Metrics

* **Traditional metrics often exclude valuable contributions that do not fit into standard measures**, such as:

- Social and community impact.
- Diversity, Equity, and Inclusion contributions.
- Open Science practices.
- Interdisciplinary and inter-institutional collaboration.
- Mentorship and community contributions (e.g. peer reviewing).
- Qualitative assessment & peer narratives (e.g. narrative CVs).

* **Alternative metrics (Altmetrics) can complement the traditional metrics helping capture social engagement.**

⚠ However, they should be interpreted carefully and within context (e.g. popularity ≠ quality; high engagement may stem from controversy/ misinformation).



- Usage: clicks, views, downloads...
- Captures: favorites, reference manager saves
- Mentions: posts, news, comments...
- Social media: tweets, likes, shares...



Responsible Use of Metrics

* **Indicators have limitations and should be interpreted in context when assessing research quality:**

- Be careful with metric-based ranking of individuals, avoid single metric to rank researchers. Do not overlook factors like career stage, fields of study and their different publishing/ citing patterns, or collaborative authorship.
- Combine quantitative and qualitative assessments (e.g. peer review, research contributions, mentoring, social impact).
- Bibliometrics often favor older / established areas comparing to recent work that has not accumulated citations yet.

* **Align Metrics with values:**

- Metrics should support openness, rigor, collaboration, and social impact rather than just publication volume.
- Metrics can guide decisions but should not replace human judgment.
- Metrics misuse can lead to unfair or unethical practices (e.g. excessive self-citation, “salami slicing” of research).