

Scientific Metrics

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Agenda

- 1 Introduction
- 2 Bibliometrics
 - Impact factor
- 3 Researcher's metrics

The original purpose of scientific publishing was to enable the global sharing of scientific results, ideas, and discussions within the academic society for more effective scientific achievements.

Influence of a publication is used for :

- allocation of funding resources
- industrial and economic growth priorities
- education policies,
- the hiring of personnel academics

Bibliographic Databases

What is a bibliographic database?

bibliographic databases are the main sources of publication metadata and citation metrics

A bibliographic database provides an index of journal articles from multiple journals and includes citations, abstracts, and often a link to the full text.

Frequently used biomedical databases include

Web of Science

Scopus

Google Scholar

The Medline database

Scientific Metrics Types

Journal-level metrics are used to determine the impact a journal has on the scientific community

Article-level metrics (ALMs) are used to quantify the impact of published articles-how published papers are being discussed and shared.

Author-level metrics assess the impact an author makes on the scientific community or field of the study.

Assessing the quality and impact of research outputs is necessary

Every Metric has its limitations

No easy way exists to measure scientific performance

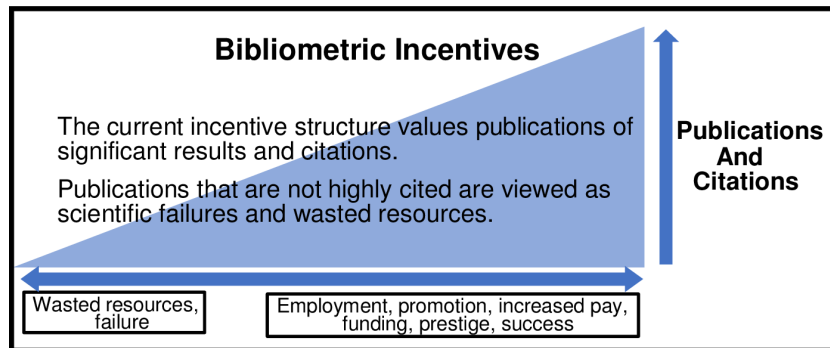


Figure 1: Bibliometric incentives model. ¹

¹<https://doi.org/10.1371/journal.pone.0195321.g001>

What is Impact Factor ?

The Impact Factor is the average number of citations received by articles in a journal within a two-year window

$$IF(x) = \frac{Citations(x)}{Publications(x-2) + Publications(x-1)}$$

Note

Note that 2020 impact factors are reported in 2021; they cannot be calculated until all of the 2020 publications have been processed by the indexing agency.

Impact factor limitations

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Altmetric Attention Score

Altmetric Attention Score tracks online shares and conversations relating to a piece of published research.

It is calculated using data collected around research articles such as mentions on social media, news outlets, blogs, patents, etc.

The Colors of the Donut

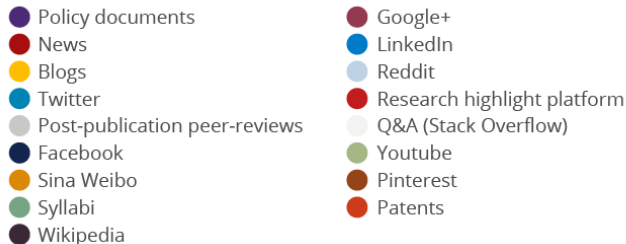


Figure 2: The colors of different sources of attention

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