

11-1-2007

Scientometrics from past to present: part two

Research Trends Editorial Board

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Recommended Citation

Research Trends Editorial Board (2007) "Scientometrics from past to present: part two," *Research Trends*: Vol. 1 : Iss. 2 , Article 2.

Available at: <https://www.researchtrends.com/researchtrends/vol1/iss2/2>

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The value of bibliometric measures



Scientometrics from past to present: part two

The first part of this article covered the early interests of scholars in law and psychology at the beginning of the 19th century. Since that time, scientometrics has matured and developed into a respected and recognized field in its own right.

In the 1980s, new technology was applied to bibliometric research, including citation mapping techniques from CWTS at the University of Leiden, and specialist research solutions from the Institute for Scientific Information, led by Eugene Garfield and Henry Small. The first major award for the scientometric field, the Derek John De Solla Price Award of the journal *Scientometrics*, was first awarded in 1984 to Eugene Garfield. Several of the key contributors to *Scientometrics* received this award throughout the 1980s: Michael Moravcsik, Tibor Braun, Vasily Nalimov, Henry Small, Francis Narin, Bertram Brookes and Jan Vlachý. The 1990s saw the birth of the first society for the scientometric community: the International Society for Scientometrics and Informetrics (ISSI). The De Solla Price Award is now presented biannually at the ISSI meeting.

The Web and web-based tools

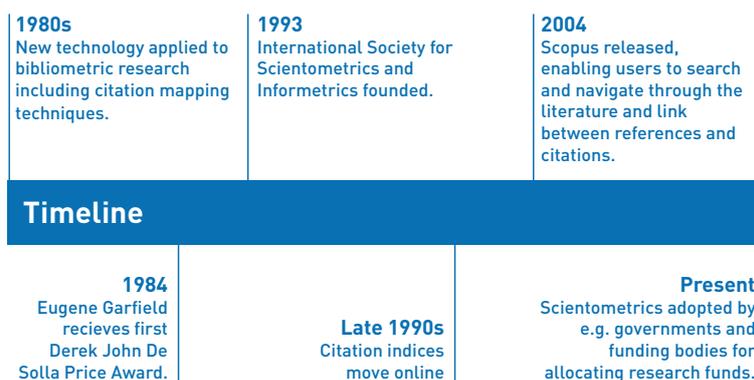
The Impact Factor continued to grow in significance within the scientific world. Many researchers started to use the metric in grant, funding and tenure applications. In the late 1990s Thomson Scientific launched a web-based version of the citation indices, allowing users to search across citation databases on the Internet. Indeed, the Internet has become a vital tool for investigation and has given rise to several new citation measures that were previously impossible. These include article download counts and Google's PageRank, a numerical value that represents the importance of a page on the Web. New areas such as webometrics have also developed to look at the quality of Web pages and links within them. Web usage and weblog analysis are sophisticated new techniques that allow researchers to understand how the Web is used for analysis.

In 2004 Scopus was released as a new tool to search and navigate through the literature and link between references and citations. This abstract and citation database of peer-reviewed literature, patents and Web sources has also introduced additional tools that increase the speed and accuracy of research evaluation. One of these is the Author Identifier that automatically matches and de-duplicates author names, with a 99% accuracy rate. Attention is increasingly turning from rating the performance of journals to also rating individual authors. The h-index, a simple metric developed in 2005 by Professor J. Hirsch and adopted by Scopus and Web of Science is one way to do this, while the Scopus Citation Tracker allows users to track who is being cited, how often and by whom. This can also help identify research trends. Other key indicators that have been developed include the Eigenfactor, the Y factor and the **g-index**.

Wider relevance of scientometrics

A new journal for the scientometrics field was launched in 2006. The *Journal of Informetrics*, edited by Professor Leo Egghe, is an additional forum to disseminate scientometric research findings, alongside established journals such as *Scientometrics*, *Journal of the American Society for Information Science & Technology* and the *Journal of Information Science*.

While the development of a new journal in the field illustrates the growth and proliferation of research within the scientometrics community, it is also important to recognize the science's wider relevance and application. Scientometrics has been used in creating thesauri and exploring the grammatical and syntactical structures of texts. Governments and policymakers are also increasingly adopting scientometrics, for example in the UK Research Assessment Exercise and the Australian Research Quality Framework, as a means of allocating research funds or to ensure the decisions they make are based on unbiased, credible research.



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