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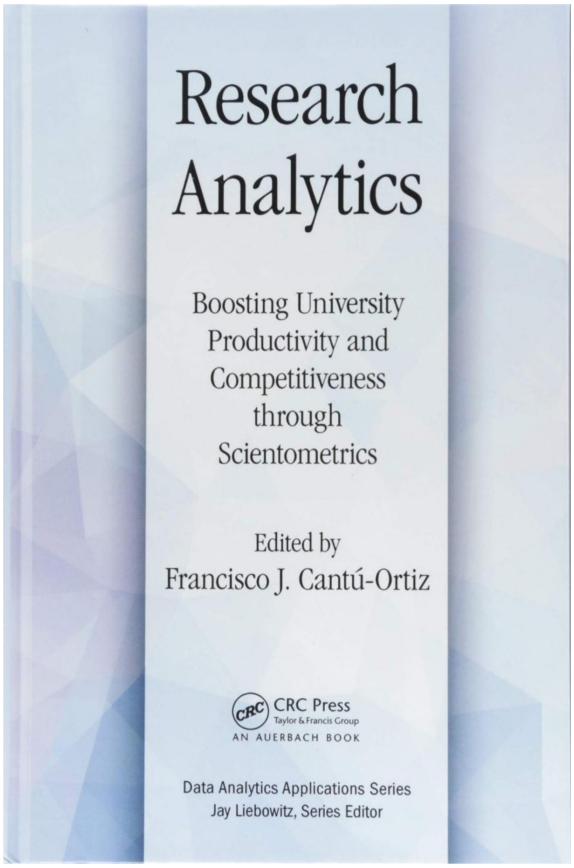
Book Review

An Ardent Venture to Evaluate University-Level Research Productivity through the Lens of Scientometrics



Research Analytics: Boosting University Productivity and Competitiveness through Scientometrics,

Edited By

Francisco J. Cantu-Ortiz. Taylor & Francis, Florida, USA, 2018, xxiv + 264pages, Hardback, ISBN: 9781498785426.

It is a ubiquitous fact that today's main research output is, besides many others, nothing but data. The data born today is chiefly digital. The rate of data creation is swift, enormous and mounting exponentially. For instance, the raw image files of the single human genome have around 30 terabytes size. The R & D as well as higher learning institutions like universities nowadays, every two days generate as much data as was produced since the BC period until 2000. As Forbes magazine remarked, by 2020, the amount of digital information available will have grown from around 5 Zettabytes today to 50 Zettabytes. According to Quora, Indian R&D and higher learning institutions create 20 TB data every day. Besides, the proliferation of all sorts of data is resulted by individuals, companies, governments and all kinds of known objects and events happening everywhere in daily life — the steep exponential growth results deluge of data in all disciplines in no time. The scientific knowledge today stands on the shoulder of the big data boom that is today's giant.

This book envisages the giant from different viewpoints. It is divided into three sections. The first part introduces scientometrics or bibliometrics. The second part introduces and discussed the Scientometric databases, including Web of

Science, Scopus and Google Scholar as well as institutional repositories. The third section examines the application of Scientometrics to world-class universities and the role that Scientometrics can play in competition among them. The data growth in science is chiefly accomplished by the number of scientific papers published. The continuous growth of the number of academicians and researchers yields bulk outlets of documents. The pulls of authors, institutions and papers are indexed in Indexing and Abstracting and Citation Databases. The bibliometric databases are developed accordingly. Chapter 1 describes the scope and categories of data analytics, bibliometrics and scientometrics. The world-class university and respective rankings are briefly introduced. Chapter 2 describes Web of Science since its inception by Garfield in 1964 as Science Citation Index that signalled the foundation of applied bibliometrics. The theoretical bibliometrics, however, dates back to 1925 with Lotka's Law followed by Bradford's Law in 1934.

The concept of bibliometrics, however, was imbibed in Derek De Solla Price' milestone work entitled Little Science, Big Science and Science Since Babylon. All these references are included here other than Lotka. In 2005,[1] Hjørland discussed on ambiguities in the concept of "subject" in Bradford's approach. The limitations of the concept of "Subject" in Bradford's approach was discussed in Sengupta's Law.[2] Besides, there are other theoretical approaches like Garfield's Law of Concentration, Zipf's Law, Pareto's Distribution, Mandelbrot's Approach *et al*. that collectively build up the shape of the subject 'Scientometrics' or 'Bibliometrics'. No such reference is appended here, that perhaps figured out the historical part complete and comprehensive. It seems the 'Reference' part of Chapter 1 and Chapter 2 is too short compared to the long history and volume of the subject 'Scientometrics' or 'Bibliometrics'. The introduction to scientometrics part needs bit more elaboration. The entire period since Garfield to Clarivate Analytics including Thompson Reuters are briefly covered.

Chapter 3 provides an introduction with scope and coverage to Scopus database launched by Elsevier in 2004, which covers more than 67 Million items today from more than 22,500 serial titles, 96,000 conferences and 1,36,000 books from over 7,500 publishers worldwide. Chapter 4 describes the general features of the Google Scholar search engine launched by Google in 2004, from the context of document categories, subject disciplines and coverage. The role of Google Scholar (GS), an open-access bibliometric tool, as an aid to citation analysis of scholarly literature is analysed here. The GS citations and metrics are very useful data based on GS database and several other scientometric indicators like h-index, i-10 index, Publisher Scholar Metrics, Proceedings Scholar Metrics, Journal Scholar Metrics, Scholar Mirror, etc. Chapter 5 outlines the main platforms used by the 2,824 institutional repositories listed in Open DOAR. Chapter 6 describes different methodologies to carry out the academic ranking process of Global universities. The trend analysis of selected countries and regions from 2004 to 2016 is presented here. It focussed on the methodologies used behind these rankings. The chapters 7 to 12 scrutinized specific rankings that include:

- QS World University Rankings (Chapter 7)
- Times Higher Education World University Rankings (Chapter 8)
- Scimago Institutions Rankings (Chapter 9)
- The Webometrics Ranking (Chapter 10)
- Ranking based on U-Multirank (Chapter 11)
- Quantitative Analysis of U.S. News & World Report University Rankings (Chapter 12)

The citation databases are mines of data to collect and collate and then to hand over to Scientometric experts who analyze the toil of individuals, institutions, journals, countries and even regions of the world. This is a practical handbook for the scientometricians and an effective guidebook to assist students, faculty members, university authorities, government, industry and stakeholders in general. It highlights the major Bibliometric databases, but PubMed (the online database of MEDLARS) is not included here that is very important citation cum bibliographic database for biosciences, medical science and agricultural science. The key research indicators and the main players in university rankings and the methodologies and approaches that they employ in producing ranking tables are discussed. The book concludes with a discussion of university performance in the age of research analytics.

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