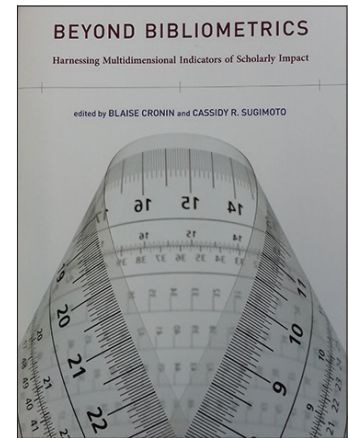# Beyond bibliometrics: Harnessing multidimensional indicators of scholarly impact

Edited By   : Blaise Cronin and Cassidy R. Sugimoto
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The book consists of five parts with in total 21 chapters. The editors as well as the authors of each chapter are well-known scientists in the field of bibliometrics or in a very closely related area of research. Part I (with two chapters) of the book describes the history of bibliometrics while the second part (with four chapters) presents critiques. Part III (with seven chapters) discusses methods and tools. Alternative metrics are introduced in part IV (with six chapters). Finally, part V (with two chapters) presents perspectives, and the book is finished with a comprehensive Index. Most chapters are well-sourced, as the substantial lists of references after the chapters show. The main emphasis of the book is on parts III and IV. Another review of this book was published in Information Research,[1] which is mainly concerned with parts I, II, and IV of the book. Here, the focus will be on parts III and IV.

Part III begins with chapter 7 in which Katherine W. McCain discusses the notion of obliteration by incorporation. The phenomenon that older papers are often not cited because their findings moved into the canon of scientific knowledge and are part of textbook knowledge is displayed. Methodological issues with studying this phenomenon are explained by means of several examples. Jevin D. West and Daril A. Vilhena,

who are part of the developer and data scientist team of eigenfactor.org, present network approaches to scholarly evaluation and compare network-based metrics to traditional (nonnetwork-based) metrics. One of the illustrative examples is the comparison between counting citations and eigenfactor score. Furthermore, the limitations of using citations as a measure of impact are discussed. Loet Leydesdorff presents possibilities for static and animated visualization of scientific results. Lutz Bornmann *et al.* contributed a very interesting chapter about bibliometric standards for research evaluation. As some of the authors of this chapter are my closest colleagues, I will refrain from discussing it. The concept of research strength identification using market shares is presented by Kevin W. Boyack and Richard Klavans in chapter 12. I agree with their conclusion that this method to identify research strengths might be an interesting supplement to traditional approaches, but should not substitute them. The method starts with a co-citation analysis on the article level for a certain publication year. Afterwards, segments and clusters are identified where a specific research institute has a high publication share. In the next step, these clusters of publications are linked to form market shares. The market share definitions might be different for different research institutes. Thus, this introduces a bias to the market share definition with respect to the research institute of interest. This co-citation analysis finds shares of papers which cite similar papers, but there is no guarantee that the resulting market share is about the same research topic. Therefore, I am not really surprised to see that the results of the market share analysis and traditional approaches differ. Furthermore, it is rather problematic to assign names to

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the market shares. Additional shortcomings are discussed in the chapter.

Jason Priem, who is one of the authors of the altmetrics manifesto (http://altmetrics.org/manifesto/) contributed the chapter about altmetrics. The different sources of altmetrics are presented, and the uses, recommendations, limitations, and future research of altmetrics are discussed. Kayvan Kousha and Mike Thelwall discuss the value of web impact metrics for research assessment. The problems of gathering and using web citations, URL citations, and hyperlink citations are presented as well as a possibility to combine them to hybrid approaches. Problems and benefits of Google Scholar and Google Books are analyzed as well as download counts and social web impact metrics. I agree with Kousha and Thelwall that "the logical conclusion seems to be to use multiple separate indicators to fashion a narrative of a scientist's contributions rather than use a stand-alone statistic," although in my opinion web impact metrics are not ready yet to be used in research assessment. More research is necessary before altmetrics may be used to decide about the merit of a junior researcher or a research institute. Stefanie Haustein discusses readership metrics also in comparison with full-text download numbers: "Full-text access can range from taking a quick look at an article's title or abstract to reading it carefully; in some cases, full-text access can even involve distributing an article to colleagues or putting it on a reading list of a university course." Correlations of readership metrics are discussed as well as limitations.

In conclusion, the book is very useful as a textbook and as a guide to the literature. As no book can contain every facet of a topic, each chapter provides an extensive list of references so that the reader can easily get more detailed information regarding a special aspect. This book is a must-have on my desk and probably on everyone else's desk who is involved with bibliometrics.

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REFERENCE

1. Wilson TD. Review of: Cronin, Blaise and Sugimoto, Cassidy R, editors. Beyond Bibliometrics: Harnessing Multidimensional Indicators at Scholarly Impact. Cambridge, MA: MIT Press; 2014. Information Research, 19 (3), Review no. R512. Available from: http://informationr.net/ir/reviews/revs512.html. [Last retrieved on 2015 Apr 8].