

Enriching a Library Portal (*EconBiz*) with Altmetrics

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Abstract

In this thesis, the opportunities for introducing altmetrics in library information systems are explored. We discuss studies looking at altmetrics data for Business and Economics literature. The focus of the thesis is to highlight the relevant altmetric indicators for journals in a specified discipline, their aggregation level and visualization modes. The most important findings are discussed and we present some preliminary suggestions for future integration of altmetrics data in library information systems.

Keywords: social media; altmetrics; library information systems

1 Motivation

Social media-based bibliometric indicators, so called *altmetrics*, can add an alternative filtering layer to library collections especially to libraries with scholarly focus. Altmetrics can help economic researcher evaluate the impact of the articles they want to read or journals where they want to publish (Nuredini & Peters, 2015, 2016) for free and in a very short time period. However, there is still room for investigating the list of relevant indicators by deeming to understand how they should be presented in library collections. Moreover, questions like what type of aggregation of altmetrics data is ade-

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quate should be answered (aggregation on provider level or indicator level). *Altmetric.com* for example aggregates altmetric indicators from various sources in an altmetric score.¹ This methodology avoids users' information overflow when listing many indicators scores separately.

Specifically, the aim of this proposal is to answer the following research question: *RQ. To what extent can altmetric information enrich libraries with a specified focus?* Additionally, the proper modes of visualizations for presenting altmetric indicators for journals in *EconBiz*² will be examined. *EconBiz* is an online portal with a focus on Economic and Business Studies literature. Visualization modes or filters will act as a proxy to help users filter publications based on the accurate altmetric scores on journal level. Adding answers to the research question mentioned above, two studies in this field have been made so far. However, more future studies should be done to complete the investigation.

2 Introduction

Technology is present everywhere and its vitality is indisputably affecting the nature of libraries. By embracing new technology, libraries are no more places with card files and books, they are fueled with digital revolution, research and especially with a new influence from social media services. With respect to the introduction of social media in libraries, they are increasingly interested in new measures which can help in research assessment, showcase the performance of institution's scholarly output, and increase authors' awareness of their research impact (NISO, 2016) that might complement the ability of traditional measures. New measures known as altmetrics use sources from the social web such as *Twitter*, *Facebook*, news or reference management tools to quantify the impact of scholarly publications on social media users (Priem et al., 2010). Concerning the benefits of altmetric indicators, information infrastructure providers and libraries have increasingly become interested in using altmetrics data to facilitate filtering of publications, pro-

1 <https://help.altmetric.com/support/solutions/articles/6000060969-how-is-the-altmetric-attention-score-calculated->

2 www.econbiz.de

viding context information to publications, and help patrons - as well as library staff – in assessing the relevance of publications. Moreover, publishing houses and aggregators of altmetric data popularize social media indicators by attaching them to their products and along with it promoting those articles or other research outputs. By now, social media indicators are close to being ubiquitous in scholarly communication environments. This perceived prevalence of altmetrics and its usage as a scientometric tool, oftentimes sold as easy to understand and easy to implement (e.g., by bookmarklets³), can blur the pitfalls of such approach. Hence, especially independent and non-profit institutions like libraries need to know, for example, which aspects can be implemented in a reasonable way, where sufficient data is available for valid analyses, what altmetrics window (analogous to the citation window) should be used, and which altmetrics aggregator is the best choice for the goals set. It is an ongoing debate what altmetrics show, exactly. Nevertheless, different studies found that altmetrics are the complements of the traditional indicators for research evaluation (Bar-Ilan et al., 2012); and Loach and Evans (2015) suggest that altmetrics reflect a different type of impact. Haustein (2016) highlights that any metric whether it is citation or social media based, has to be wisely chosen depending on the assessment aim. Bornmann (2014) argues that altmetrics offer four benefits in impact measurement. First, altmetrics offer broader access to the opinions of a wider audience for research articles besides citation metrics used only by scientific authors. Similarly, they do not only allow evaluation of scholarly publications but can also be applied to a diversity of products such as presentation slides, algorithms, software applications etc. Additionally, altmetrics can speed up impact evaluations of publications by showing online attraction just a few days or weeks after their publication date. And lastly, by not relying on a single provider of citation counts but the web APIs of widely used social media platforms free access to the altmetrics data is possible which facilitates its analysis and interpretation. All these benefits are ignored by most of the traditional indicators.

A lot of research has been done that studies altmetrics from a multidisciplinary perspective such as in Costas et al. (2014), Alhoori et al. (2014) but also a very small number of studies about altmetrics and its implications in Economic and Business Studies journals. In Nuredini and Peters (2015) it has been mentioned that economic researchers deal with many alternative publications formats and they find it difficult to decide what is important for them

3 <https://www.altmetric.com/products/free-tools/bookmarklet>

to read or where research findings should be present. Thus, altmetric data in the field of Economics and Business Studies have been collected to exploit the importance of altmetric indicators and add a further layer to traditional research evaluation in this field.

3 Results

With two studies done so far (Nuredini and Peters, 2015, 2016) we found out the relevant altmetric indicators for Economics and Business Studies Journals based on two the altmetric data providers *Mendeley*⁴ and *Altmetric.com*⁵.

From our data analysis, we showed that *Mendeley* can be suggested as a relevant source for journals in Economic and Business Studies because of the high coverage of journal articles found. According to Wouters et al. (2015) *Mendeley* readership counts appear to be the most promising altmetric indicator because of two reasons: 1) easy use of automatic data collection and 2) huge coverage of articles of different fields. Fairclough and Thelwall (2015) have similar findings and claim that *Mendeley* reader counts are free and may be useful for those who can't access citation databases. *Mendeley* user readership information can act as a support to choose the right articles for reading (Nuredini & Peters, 2015). Based on several studies it can be concluded that *Mendeley* covers readers (users) which fall in the category of younger researchers i.e., Bachelor, Master, PhD students (Fairclough & Thelwall, 2015; Nuredini & Peters, 2015).

Additionally, our observation with *Altmetric.com* shows that altmetric data scores make more sense for recently published articles because they appear to be mentioned more often online than earlier articles (Nuredini & Peters, 2016). Alhoori and Furuta (2014) acknowledge that altmetrics have the potential to predict delayed citation-based metrics. Likewise, we have learned that altmetric data scores are not fully related with citation counts. Moreover, altmetrics and citation counts indicate a positive but low correlation on article level which is confirmed by Alhoori and Furuta as well. On the other hand, journal level altmetrics have a moderate correlation with citation

4 <https://www.mendeley.com/>

5 <https://www.altmetric.com/>

counts and H-index values but weak correlations with other citation based metrics (ibid.). The correlation between impact factor (IF) and Altmetric Score on journal level is low but positive (Spearman $r = 0.314$ and Pearson $p = 0.169$) – hence we can conclude that articles from highly cited journals are not receiving substantial attention online. Out of 8 altmetric sources provided by *Altmetric.com* our study results confirm that 4 of them (*Twitter*, *Blogs*, *News* and *Facebook*) are the places where paper of economists are mostly found there making them good candidates as relevant altmetric indicators. Additional findings from our study show that articles got the highest coverage in *Twitter* with 88% whereas Hamerfelt (2014) confirms comparable results by stating *Twitter* as a source with highest coverage of 20% for his data set in the humanities. He also suggests that *Twitter* might be an alternative indicator for measuring the impact of books because of the wider audience in this platform whereas *Mendeley* covers more scholarly publication formats.

From our analysis we can see that for articles in Economic and Business Studies altmetrics data is still rather sparse, although availability has increased for more recent articles. Therefore, higher aggregation levels such as journal level, may overcome the sparsity of altmetrics data. By doing so, it will be ensured that for every record altmetric information could be displayed which lowers, or even avoids, user frustration. This statement might hold for *Altmetric.com* sources. Altmetric indicators would be an alternative to traditional bibliometric methods which will help analyzing and measuring the impact of research also for Economic and Business Studies journals (Nuredini & Peters, 2016; Hamerfelt, 2014). Altmetric indicators so far have been explored for 30 journal articles in these fields only. In future studies we would like to explore all journals listed in the *Handelsblatt* ranking⁶ in both fields of Economics and Business Studies, with more than 1000 journals.

These journals will be queried in *Mendeley* and *Altmetric.com* for altmetric information and we want to determine the best altmetric aggregation for these sources. After finding the relevant altmetric information for the different aggregation levels, the next step will be to find out what data can be visualized and attach this visualization model to the *EconBiz* data collections.

6 <http://tool.handelsblatt.com/tabelle/?id=33&so=1a&pc=25&po=1225>

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