



12th Convention PLANNER 2024

(Paper Presentation)

“Research Evolution in Altmetrics: A Thematic Analysis”

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Introduction

➤ **Altmetrics or Alternative Metrics**

- Altmetrics is the study of impact measurement based on the activity of scholarly articles in the online environment (**Priem et al., 2010**).
- Altmetrics has been developed to evaluate the impact of an article through social networking sites and other Web 2.0 tools.

➤ **Text Mining**

- With the growing number of academic papers, data-mining and text-mining have become popular.
- *Text-mining is the practice of applying a variety of strategies to extract valuable knowledge from diverse textual resources.*

Introduction

➤ **Text-mining in Bibliometrics**

- The field of bibliometrics, which examines the behaviour of scientific publications, uses similar methods to evaluate entire texts as well as textual fragments like titles, abstracts, and keywords.
- The keywords in a research article are very rich bibliographic data that authors believe are most relevant to their writings.

➤ **Aim of this study**

- The present study mainly aims to analyse the author keywords of the documents published in the field of Altmetrics.

Objectives

- To find the most frequently used keywords in the field of Altmetrics published until 2023.
- To know the year-wise trend of the keywords.
- To examine the keywords through co-occurrence network and thematic analysis.

Methodology

❑ Selection of Database

- SCOPUS

❑ Search Query

- “TITLE-ABS-KEY (altmetrics) AND PUBYEAR > 2011 AND PUBYEAR < 2024 AND (LIMIT-TO (LANGUAGE, "English"))”

❑ Extraction of Data

- CSV format

❑ Data Analysis Tools

- Microsoft Office Excel 2021
- Biblioshiny

Scope and Limitations

- The Scope of the study extends to the documents published in the field of Altmetrics till 2023.
- The study is limited to the documents indexed in the SCOPUS database.
- This is an quantitative study based on the author keywords, the actual themes of some documents may be different from the author keywords used in the documents.

Data analysis and Interpretation

Table 1: Basic Information about the documents on Altmetrics

Main Information about the Documents	
Timespan	2012:2023
Sources (Journals, Books, etc)	508
Documents	1287
Annual Growth Rate %	27.44
Document Average Age	5.03
Average citations per document	17.28
References	35875
Document Contents	
Author's Keywords	2237
Author	
Authors	2453
Authors of single-authored docs	199
Authors Collaboration	
Single-authored documents	283
Co-Authors per document	2.96
International co-authorships %	21.52

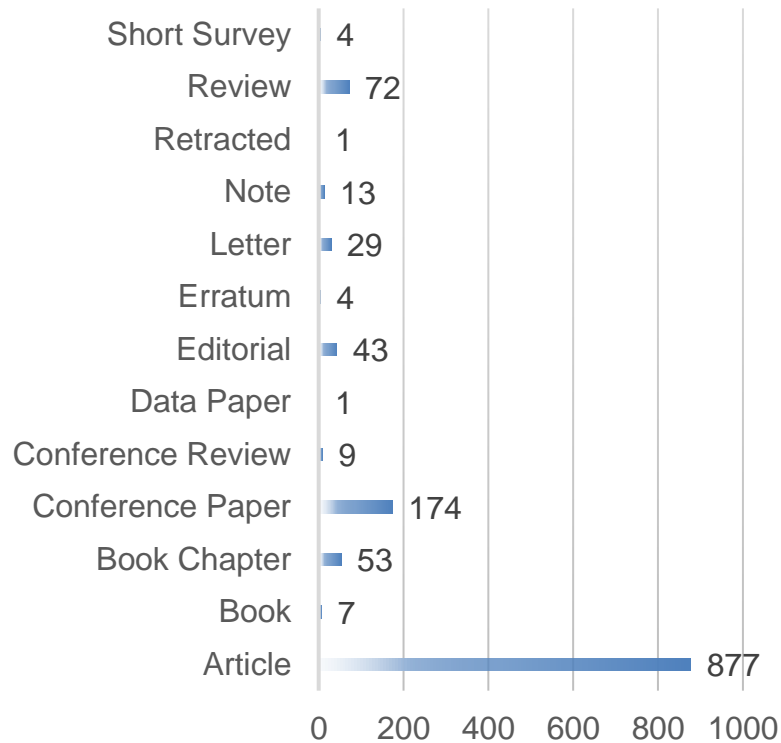


Figure-1: Distribution of type of documents published on Altmetrics

Data analysis and Interpretation

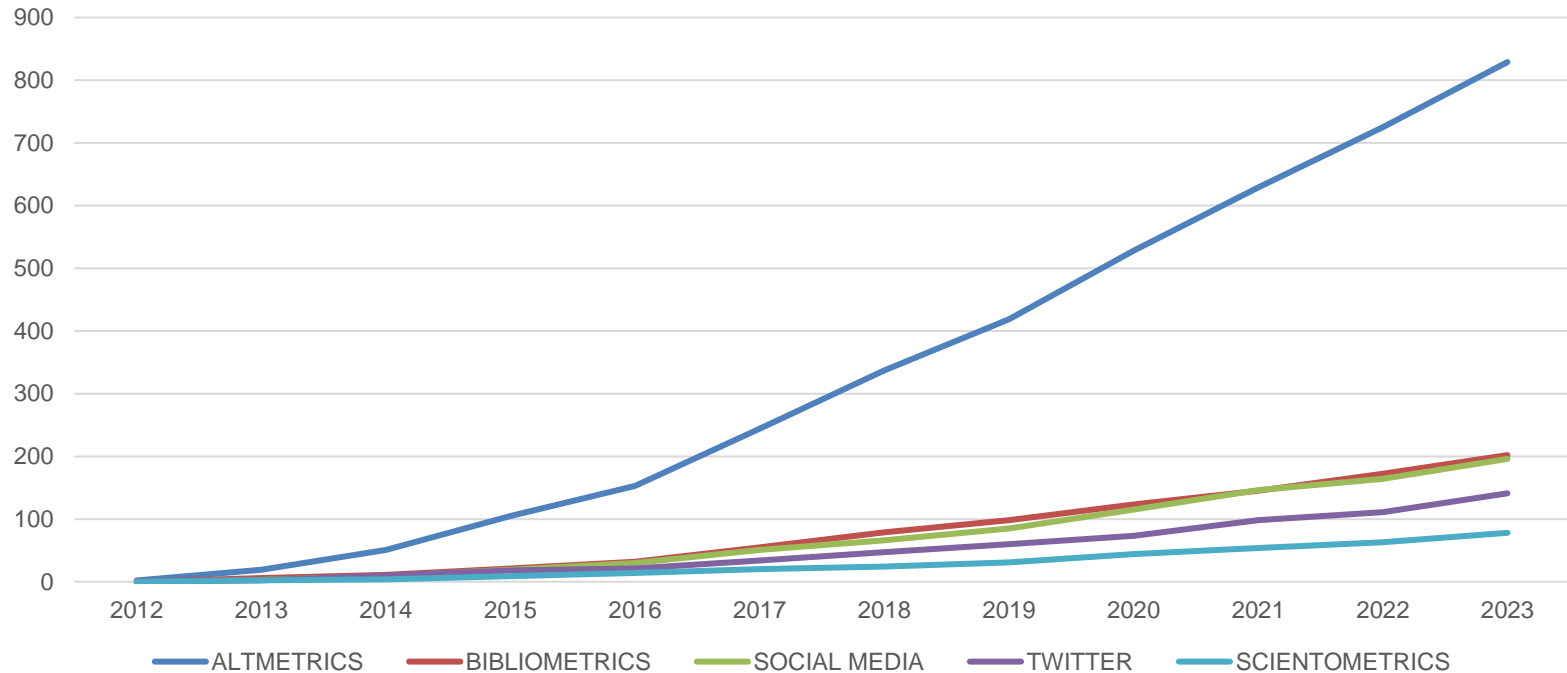


Figure 4: Cumulative occurrences of the top 5 keywords over the years

Data analysis and Interpretation

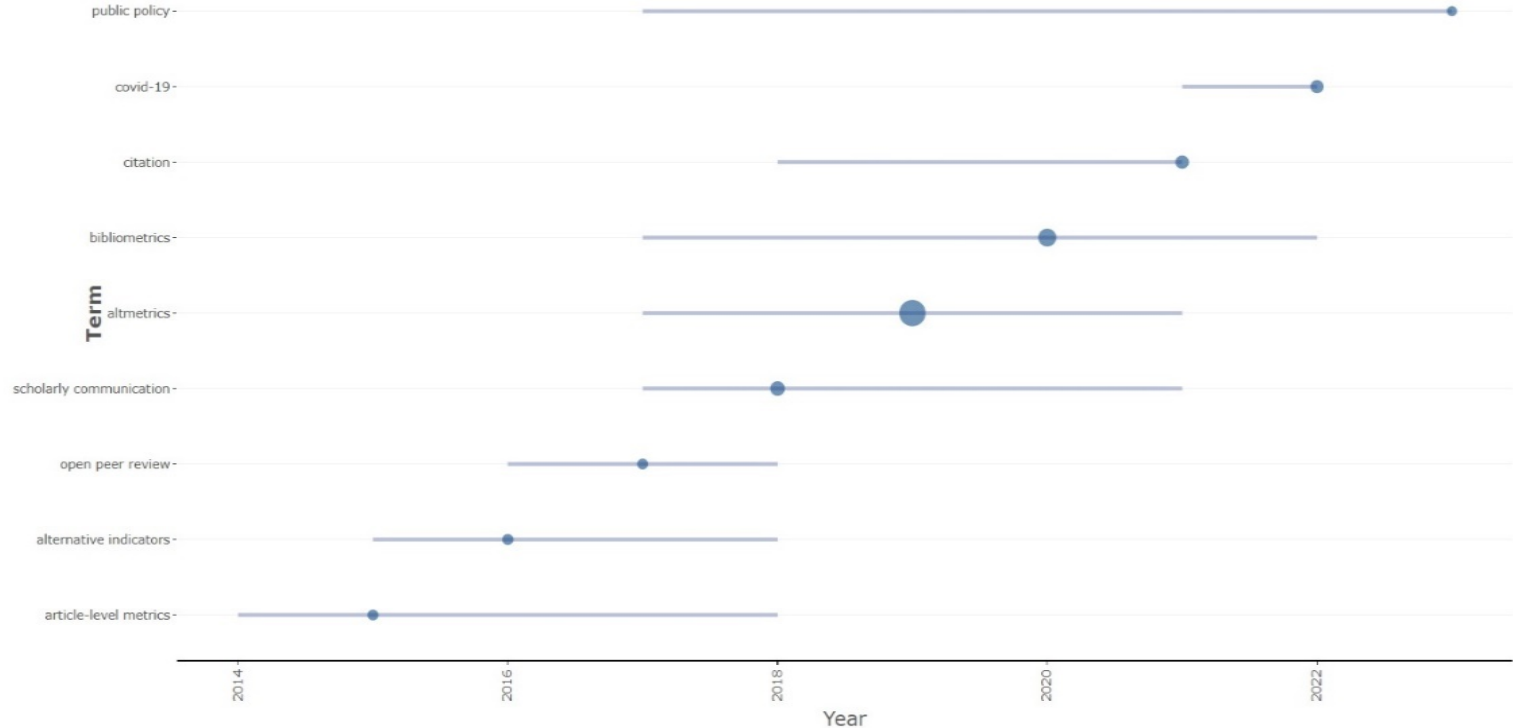


Figure 5: Year-wise top keyword used in the literature of Altmetrics

Data analysis and Interpretation

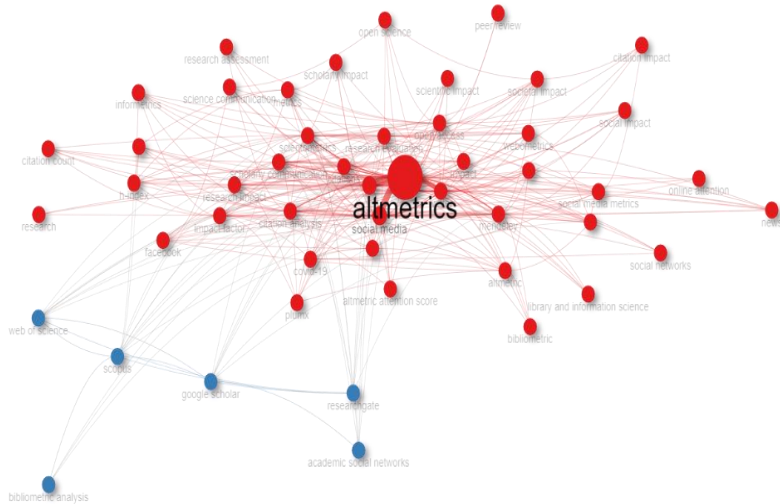


Figure 6: Keyword Co-occurrence Network

Sl. no.	Keyword	Betweenness	Closeness
1	altmetrics	764.68	0.02
2	social media	48.90	0.02
3	bibliometrics	28.77	0.02
4	twitter	23.18	0.02
5	mendeley	5.34	0.01
6	scientometrics	3.51	0.01
7	impact factor	2.29	0.01
8	citation analysis	2.28	0.01
9	research evaluation	2.22	0.01
10	open access	2.17	0.01

Table 2: Top 10 Keywords based on betweenness and closeness in the network

Data analysis and Interpretation

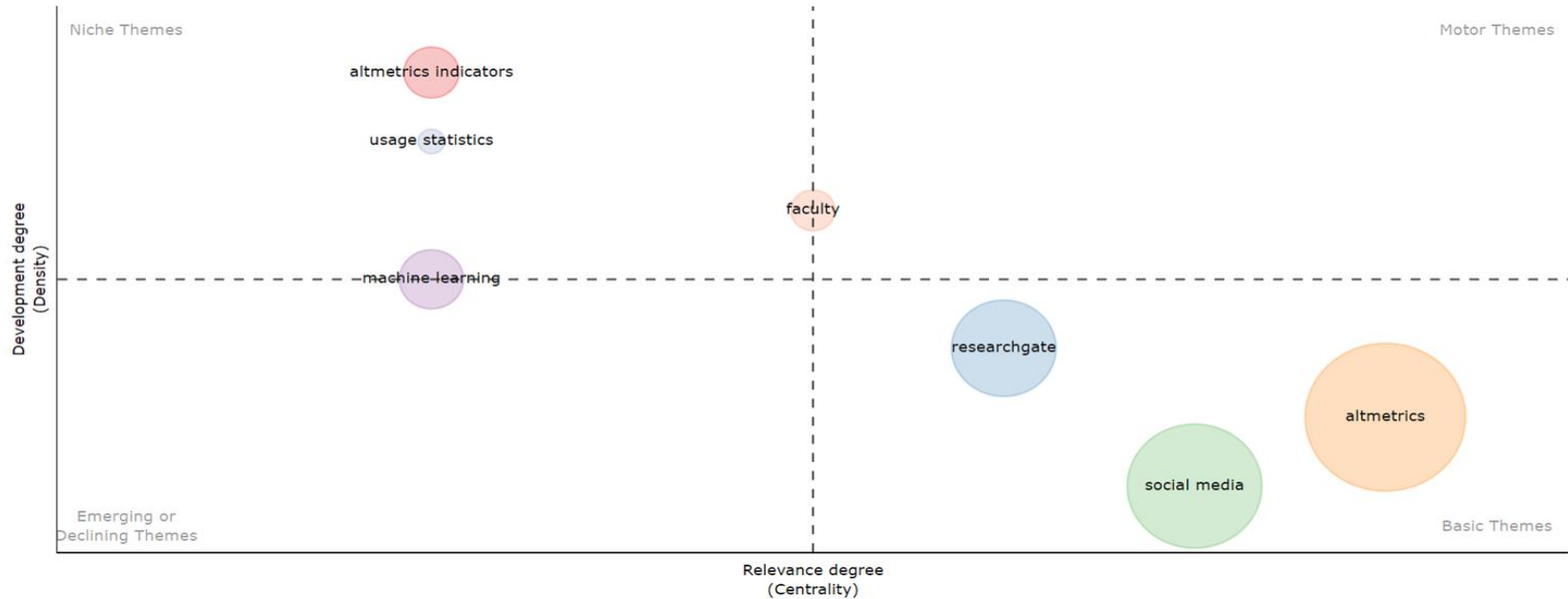


Figure 7: Thematic map on keywords of Altmetrics

Data analysis and Interpretation

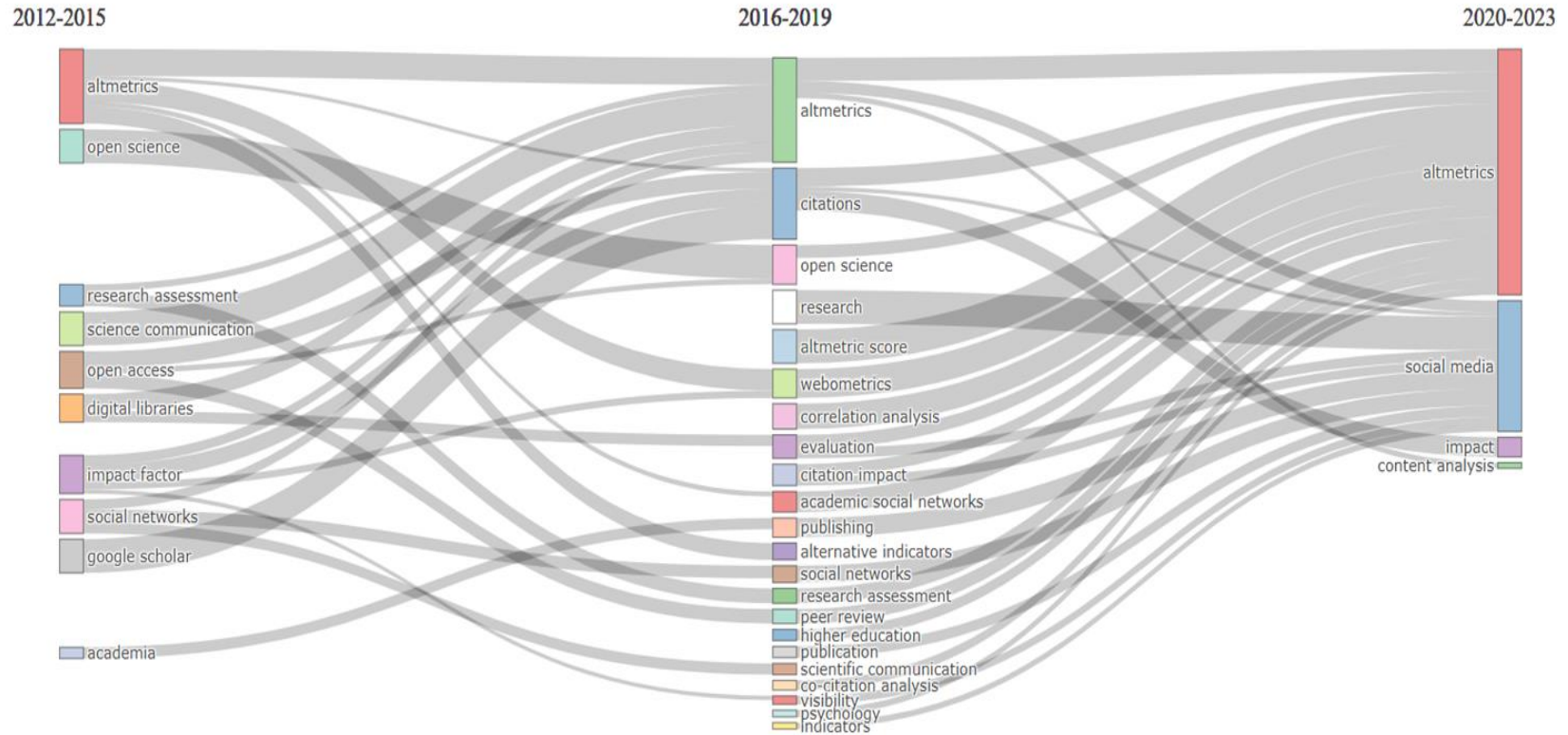


Figure 8: Thematic evolution of the keywords in Altmetrics

Findings & Conclusion

- ❑ The study identified 2237 unique keywords across 1287 published documents in the field of Altmetrics.
- ❑ The most frequently used keyword was “altmetrics” appearing 830 times, followed by “bibliometrics” (202 occurrences), “social media” (196 occurrences), “Twitter” (141 occurrences), and “scientometrics” (78 occurrences).
- ❑ This finding is consistent with the studies of **Amiri et al. (2023)** and **Nath and Jana (2021)**.
- ❑ However, **Paul and Dutta (2024)** found “Human/Humans” as the second most common keyword in Altmetrics, possibly due to analysing all keywords rather than just author keywords.
- ❑ Articles published in the years 2015, 2016, and 2017 predominantly used the keywords “article-level metrics”, “alternative indicators”, and “open peer review”, respectively.

Findings & Conclusion

- ❑ More recent publications from 2021, 2022, and 2023 have focused on keywords such as “citation”, “COVID-19”, and “public policy”.
- ❑ Among the altmetric data sources, “Twitter” and “Mendeley” were the most frequently used keywords compared to other altmetric data sources.
- ❑ The keyword co-occurrence network analysis produced two distinct clusters: the larger cluster mainly comprised of the keywords “altmetrics”, “social media”, “bibliometrics”, “Twitter”, and “Mendeley”.
- ❑ The smaller cluster consisted of only six keywords: “Google Scholar”, “Scopus”, “Web of Science”, “ResearchGate”, “academic social networks”, and “bibliometric analysis”. These results bear some resemblance to the research conducted by **Amiri et al. (2023)** and **Barman and Borah (2023)**.

Findings & Conclusion

- ❑ Thematic analysis revealed that the majority of the identified themes fall into basic and niche categories.
- ❑ Basic themes such as “altmetrics” and “social media” represent the core concepts that form the backbone of the field, while niche themes like “altmetrics indicators” and “machine learning” suggest emerging areas of specialised research interest.
- ❑ The thematic evolution analysis identified five primary themes from the first period (2012–2015) converged into the main theme of “altmetrics”. Similarly, themes from the second period (2016–2019), also converged into the main theme of “altmetrics”.
- ❑ The convergence of diverse themes into the main theme of “altmetrics” indicates a maturation and consolidation of the field.

Findings & Conclusion

- ❑ This study represents one of the first in-depth keyword analyses in the field of Altmetrics.
- ❑ Knowledge gained from keyword analysis in the field of Altmetrics can inform future research directions, enabling scholars to align their work with current trends and societal needs.
- ❑ Future research should explore other fields to gain a comprehensive understanding of their respective research landscapes.

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