

ORIGINAL ARTICLE

The Evolution and Landscape of Open Access: A Multi-Platform Bibliometric Analysis (1973–2022)

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Alpana Saha, G. Mahesh. The Evolution and Landscape of Open Access: A Multi-Platform Bibliometric Analysis (1973–2022). Ind J Lib Inf Sci 2026; 20 (2): 137–143.

ABSTRACT

Purpose: This study conducts a comprehensive bibliometric analysis to map the evolution, thematic focus, and geographical dissemination of the global Open Access (OA) movement.

Methods: A bibliometric analysis was performed using data from the Factiva database (1973 to mid-2022), encompassing over 20,000 publications from academic journals, news media, magazines, and trade publications.

Results: Analysis reveals a dominant and growing engagement with OA in academic literature, led by publishers like IEEE and Springer Nature, with primary thematic focus on engineering, library science, and scholarly publishing. English is the predominant language (>95% of publications), indicating a significant linguistic imbalance. Geographically, contributions are concentrated in the United States and the United Kingdom, though rising output from India, China, and Nigeria suggests gradual diversification. A comparative period analysis (pre-COVID 2017-2019 vs. 2018-2022) shows a marked acceleration in OA discussions post-2018, with emerging themes including altmetrics, Plan S, and COVID-19.

Conclusion: While OA has achieved mainstream status in scholarly communication, persistent inequities in language and geographical representation highlight the need for targeted interventions to foster a truly global and inclusive knowledge commons.

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➤ Received: 06-02-2026 ➤ Accepted: 09-03-2026



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KEYWORDS

• Open Access • Bibliometrics • Scholarly communication • Publication trends
Factiva • COVID-19 impact • Scientometrics • Knowledge dissemination

INTRODUCTION

The Open Access (OA) movement, advocating for the free, immediate, and online availability of research outputs, has been one of the most transformative forces in modern scholarly communication. Originating from ideals of equity and the democratization of knowledge, OA has evolved from a niche advocacy topic in the late 20th century to a central pillar of global research policy and practice (Budzinski & Grebel, 2022). Its growth has been catalyzed by the digital revolution, rising journal subscription costs, and mandates from funding bodies worldwide (Laakso *et al.*, 2011). While bibliometric studies have tracked OA's growth through journal launches and article output (Piwowar *et al.*, 2018), a holistic understanding requires examining how OA is *communicated about* across the entire media ecosystem—from specialized academic journals to mainstream news.

This study fills this gap by conducting a macro-level bibliometric analysis of OA-related discourse from 1973 to 2022, sourced from the multidisciplinary Factiva database. Unlike analyses confined to scholarly indexes, this approach captures the penetration of OA ideas into news media, trade publications, and magazines, reflecting its broader societal impact. We pose the following research questions: (1) How has the volume and platform distribution of OA discourse evolved? (2) What are the dominant subjects and which publishers lead the conversation? (3) What are the linguistic and geographical patterns of this discourse? (4) How have recent global events, like the COVID-19 pandemic, influenced OA communication? By answering these questions, this paper aims to provide a panoramic view of the OA movement's footprint, identifying both its achievements and persistent inequities.

LITERATURE REVIEW

Bibliometric studies have extensively documented the quantitative growth of OA. Laakso *et al.* (2011) pioneered the tracking of OA journal growth, identifying a sharp

increase post-2000. Subsequent research by Piwowar *et al.* (2018) estimated that as of 2015, approximately 28% of scholarly literature was openly accessible, with a notable citation advantage for OA articles. Studies have also examined disciplinary adoption rates, finding strong uptake in biomedical sciences and physics (Bosman & Kramer, 2018).

The role of publishers has been another key focus. Major commercial publishers (Elsevier, Springer Nature, Wiley) have developed hybrid and full OA models, while dedicated OA publishers like PLOS and MDPI have emerged as significant players (Solomon & Björk, 2012). The leadership of professional societies, particularly in engineering (e.g., IEEE), in adopting OA models has also been noted.

However, critical scholarship highlights systemic inequities. The so-called “APC (Article Processing Charge) model” has been criticized for creating new barriers for researchers in the Global South (Bohannon, 2013). Furthermore, the dominance of English in OA publishing perpetuates linguistic inequality and marginalizes non-Anglophone research (Ramirez, 2020). Most existing bibliometric analyses rely on data from Web of Science or Scopus, which, while excellent for tracking formal science, under-represent discourse in non-academic platforms and non-English languages. This study builds upon this foundation by utilizing Factiva's broad source coverage to analyze OA as a *societal discourse*, not merely a publication model.

METHODOLOGY

This study employs a descriptive bibliometric design. Data were harvested from the Dow Jones Factiva database, a global news and information aggregator covering over 33,000 sources including newspapers, journals, magazines, trade publications, and reports from nearly 200 countries. A systematic search was conducted in mid-2022 using the search term “open access” in the title or major subjects.

The search was not limited by language or document type and covered the period from the database's inception (1973) to the search date.

The retrieved dataset consisted of 21,164 unique items. Each record included metadata fields for source type (e.g., academic journal, news), subject terms, publisher name, publication language, geographic focus, and data provider. Data cleaning involved consolidating variant spellings of publisher names (e.g., "IEEE" and "Institute of Electrical and Electronics Engineers").

Analysis was conducted in three phases:

1. **Full-period analysis (1973–2022):** Descriptive statistics were generated for all variables to establish long-term trends.
2. **Recent sub-analysis (2018–2022):** A subset of 4,708 items was analyzed to identify emerging themes and shifts.
3. **Pre-COVID sub-analysis (2017–2019):** This subset (3,005 items) was compared against the recent period to isolate trends potentially accelerated by the pandemic.

Quantitative data were visualized using tables and bar charts created with standard spreadsheet software. The analysis is primarily quantitative, identifying patterns and magnitudes, with qualitative interpretation of the observed trends in the discussion.

RESULTS

1. Publication Platforms and Volume (1973–2022)

The analysis reveals OA as a subject of sustained and growing discourse. As shown in Table 1, academic journals are the primary platform, responsible for over half (55.6%) of all publications. This underscores OA's deep embeddedness within the scholarly communication system it seeks to reform. Magazines (19.1%) and News (10.7%) constitute the second and third largest categories, indicating significant penetration into public and professional awareness beyond academia. The long tail of other platforms, including conference materials and reports, shows the topic's relevance across professional and technical contexts.

Table 1: Distribution of Open Access Discourse by Platform (1973–2022)

Platform	Number of Publications	Percentage
Academic Journals	11,768	55.6%
Magazines	4,036	19.1%
News	2,255	10.7%
Trade Publications	1,677	7.9%
Conference Materials	858	4.1%
Reviews	246	1.2%
Reports	227	1.1%
Books	25	0.1%
Other (Combined)	72	0.3%
Total	21,164	100%

2. Thematic Focus of OA Discourse

The subject tags assigned to publications reveal the multidisciplinary yet technically anchored nature of OA discourse. The core concept "open access publishing" (2,333) leads, followed closely by the general term "open access" (2,209). The prominence of "institute of electrical & electronics engineers" (781) and associated technical subjects ("components, circuits, devices," "signal processing") reflects IEEE's dual role as a major publisher and a focal point for OA discussions within engineering. Library and information science ("bibliography, library science," "access to information") is the second major thematic cluster, highlighting the central role librarians have played as advocates and implementers (Table 2).

Table 2: Top 15 Subject Areas in OA Discourse (1973–2022)

Rank	Subject Area	Publications
1	Open Access Publishing	2,333
2	Open Access	2,209
3	Publishing	1,114
4	Institute of Electrical & Electronics Engineers	781
5	Bibliography, Library Science, Information Resources	637
6	Access to Information	619
7	Electronic Publishing	615
8	Scholarly Publishing	506
9	Communication, Networking & Broadcast Technologies	498
10	Components, Circuits, Devices and Systems	478

3. The Publisher Landscape

The publisher analysis reveals a diverse ecosystem (Figure 1). IEEE is the unequivocal leader with 3,589 publications, a finding consistent with its vast publishing output in engineering and computing. A second tier includes specialized information publishers (Information Today Inc.) and large commercial

academic publishers (Springer Nature, Wiley-Blackwell, Taylor & Francis). Notably, the dataset includes major media outlets (The Guardian, Financial Times Ltd.) and society publishers (British Medical Journal), demonstrating cross-sector engagement with the OA topic.

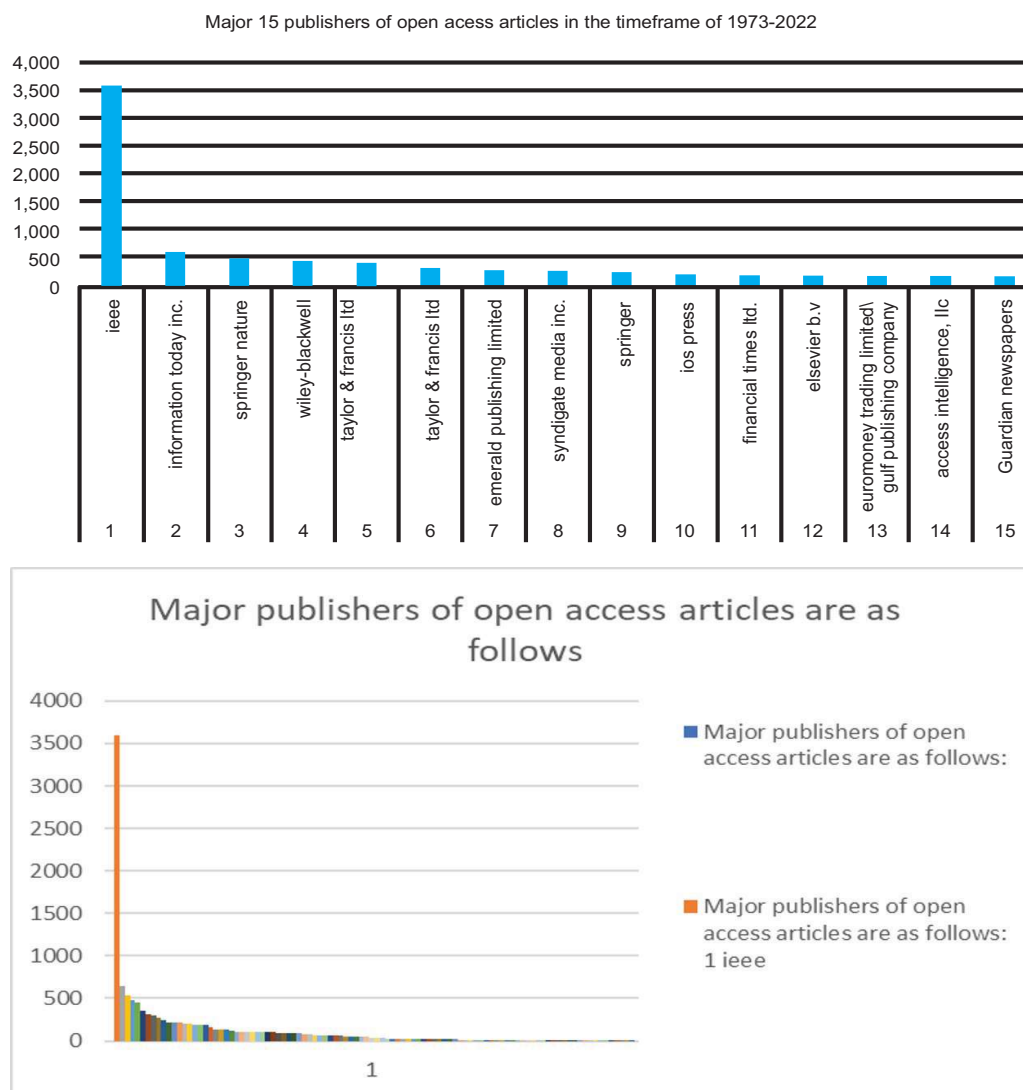


Figure 1: Leading Publishers of OA Discourse (Top 15, 1973-2022)

4. Linguistic and Geographical Imbalance

A striking finding is the extreme dominance of the English language, constituting 96.3% (20,379) of all publications. German (261) and Spanish (180) are distant seconds. This linguistic concentration suggests that global debates about OA are primarily occurring in one language, potentially excluding valuable perspectives.

Geographically, discourse is heavily centered

on the United States (2,380 publications) and the United Kingdom (566) (Table 3). India (142) and China (94) emerge as the leading contributors from the Global South, though their output is an order of magnitude lower than the Anglo-American leaders. This pattern mirrors global research output inequalities but is even more pronounced in the *discourse about* OA itself.

Table 3: Geographical Distribution of OA Discourse (Top 15 Countries/Regions, 1973-2022)

Rank	Country/Region	Publications
1	United States	2,380
2	United Kingdom	566
3	India	142
4	China	94
5	Australia	79
6	Germany	78
7	Canada	77
8	France	47
9	Spain	41
10	Philippines	38

5. Evolution of Discourse: Pre-COVID (2017-2019) vs. Recent (2018-2022)

Comparing the pre-COVID era (2017-2019)

with the broader recent period (2018-2022) reveals dynamic shifts. The proportion of academic journal articles remained consistently high (~70% in both subsets), confirming the stability of this primary channel.

The key difference lies in the emergence of new, specific subject tags in the recent period that were absent or minimal before 2018. These include “**digital object identifiers**” (109), reflecting a focus on infrastructure and permanence; “**altmetrics**” (57) and “**citation analysis**” (34), indicating a maturation of impact assessment debates beyond the Impact Factor; “**open science**” (58), showing the conceptual expansion of OA into a broader movement; “**Plan S**” (28), marking the impact of major policy initiatives; and directly, “**COVID-19**” (35), demonstrating how the pandemic served as a catalyst for OA discussions, particularly in medicine and public health.

Table 4: Emergent Subject Themes in Recent OA Discourse (2018-2022)

Emergent Theme	Publications (2018-2022)	Significance
Digital Object Identifiers (DOI)	109	Emphasis on persistent linking, infrastructure, and citability
Altmetrics	57	Shift towards alternative, web-native measures of research impact
Open Science	58	Conceptual broadening beyond journal articles to data, code, and protocols
Plan S	28	Influence of a major, consortium-based funding policy on global discourse
COVID-19	35	Pandemic as a real-time case study for OA's utility in crisis response
Article Processing Charge (APC)	43	Sustained focus on the economic models and equity challenges of OA

Geographically, the recent period shows a slight but meaningful diversification. While the U.S. and U.K. still lead, India's share increased significantly, and countries like Nigeria (14), Pakistan (11), and Colombia (9) appear more prominently in the top rankings, suggesting a widening, if still nascent, geographical engagement.

DISCUSSION

The findings paint a detailed picture of the OA movement's communication landscape. The overwhelming dominance of **academic journals** as the platform for discussion is paradoxical: the very system under critique remains the primary forum for the critique. This could indicate successful "capture" of the discourse by academia, or simply reflect where the most detailed technical and policy analyses occur. The significant volume in **magazines and news** (nearly 30% combined) is encouraging,

suggesting OA has transcended specialist circles to become a topic of professional and public interest, essential for driving policy change (Tennant *et al.*, 2016).

The **thematic focus** reveals OA's dual nature: it is simultaneously a **technical-infrastructure** issue (evident in the engineering and library science clusters) and a **socio-political** one (evident in subjects like copyright, economics, and government policy). The strong showing of IEEE-related subjects underscores how OA adoption within large, discipline-specific publishing ecosystems can generate substantial internal discourse.

The **publisher landscape** analysis supports the notion of a hybrid OA world. Leadership by IEEE (a society publisher) and **commercial giants** (Springer, Wiley) shows that established players have successfully adapted to and now lead the OA conversation, a finding aligned with Solomon & Björk's (2012) observations.

The presence of **The Guardian** and **Financial Times** in the top publishers list is critical; it signifies that OA is framed not just as an academic concern but as a matter of public spending, innovation, and accountability.

However, the results also expose the movement's profound **inequities**. The near-total **hegemony of English** (96.3%) is perhaps the most severe finding. If the goal of OA is to democratize knowledge, a discourse conducted almost exclusively in English inherently excludes vast scholarly communities and public debates in other languages (Ramirez, 2020). This creates a paradox where the conversation about global knowledge equity is itself linguistically inequitable.

Similarly, the **geographical concentration** in the U.S. and U.K. mirrors the well-documented Matthew Effect in science production. The rising output from India and China is a positive trend, reflecting their growing research power. However, the minimal representation from Africa, Latin America, and the Middle East in the top ranks indicates that the discourse remains shaped by a Northern perspective. The emerging visibility of Nigeria is a promising sign, potentially linked to the growth of indigenous OA journals and platforms.

The **temporal analysis** reveals an evolving agenda. The emergence of "**altmetrics**," "**DOIs**," and "**open science**" points to a discourse moving beyond basic advocacy for free access towards sophisticated discussions on **research evaluation, infrastructure, and practice** (Bosman & Kramer, 2018). The appearance of "**Plan S**" confirms the powerful role of coordinated funder policy in setting the international agenda. Most notably, the **COVID-19** tag exemplifies the "proof of concept" power of crises. The pandemic acted as a forcing function, making the practical benefits of immediate OA blindingly obvious to policymakers and the public, thereby accelerating existing trends (Besançon *et al.*, 2021).

CONCLUSION AND IMPLICATIONS

This study demonstrates that Open Access has matured from a fringe idea to a central, sustained topic of global discourse across academic, professional, and public platforms. The conversation is technically sophisticated,

engaged by major publishers, and increasingly touching on broader themes of open science and research evaluation.

However, two major challenges threaten the movement's inclusive ideals:

1. **Linguistic Exclusion:** The overwhelming dominance of English risks turning OA into an Anglo-Saxon project.
2. **Geographical Imbalance:** While improving, the discourse is still disproportionately driven by a small number of high-income countries.

To address these, we propose:

- **For funders and publishers:** Actively support and promote OA discourse in non-English languages, including translations of key policy documents and funding for non-English OA publications and media outreach.
- **For scholarly communities:** Intentionally create and amplify spaces (conferences, journals, social media) for OA discussions from the Global South.
- **For researchers:** Conduct more nuanced bibliometric studies that use non-Anglocentric databases to capture a truly global picture of OA.

The COVID-19 pandemic has shown that rapid, open sharing of knowledge is a global public good. Ensuring the discourse about how to build that system is itself open, inclusive, and geographically diverse is the next critical frontier for the OA movement.

7. Limitations and Future Research

This study is limited by its source database. While Factiva is broad, it has its own coverage biases, potentially under-representing certain regions or languages. The search term "open access," while standard, may miss related concepts discussed with different terminology. Future research could employ multilingual search terms, incorporate data from regional databases (e.g., CNKI for China, SciELO for Latin America), and use content analysis to trace the framing of OA (e.g., as an ethical imperative vs. a business model) in different platforms over time.

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