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The Platformisation of Scholarly Information and how to Fight It

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Abstract

The commercial control of academic publishing and research infrastructure by a few oligopolistic companies has crippled the development of the open access movement and interfered with the ethical principles of information access and privacy. In recent years, vertical integration of publishers and other service providers throughout the research cycle has led to platformisation, characterised by datafication and commodification similar to the practices on social media platforms. Scholarly publications are treated as user-generated contents for data tracking and surveillance, resulting in profitable data products and services for research assessment, benchmarking and reporting. Meanwhile, the bibliodiversity and equal open access are denied by the dominant gold open access model and the privacy of researchers is being compromised by spyware embedded in research infrastructure. This article proposes four actions to challenge the platformisation of scholarly information after a brief overview of the market of academic journals and research assessments and their implications for bibliodiversity, information access, and privacy: (1) Educate researchers about commercial publishers and APCs; (2) Allocate library budget to support scholar-led and library publishing; (3) Engage in the development of public research infrastructures and copyright reform; and (4) Advocate for research assessment reforms.

Keywords: Platformisation; Open access; Open research; Bibliodiversity; Scholarly communication; Research assessment; Rights retention; Copyright reform; Surveillance; Data tracking

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1. Introduction

Platformisation is understood as "the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life" (Poell et al., 2019). For creators (e.g. artists, game developers, musicians), platforms are essential for the hosting and promotion of their works; without platforms, they may not be able to reach a wide audience and earn a living. When some platforms become dominant in a market (e.g. Spotify, YouTube), switching to alternatives can become unviable. Platformisation is mainly characterised by datafication and commodification: platforms generate advertising incomes by tracking personal data, some also sell packaged data to third parties. Many creators, who produce the contents, barely make ends meet as platforms capture much of the revenues and profits (Giblin & Doctorow, 2022). Increasingly, creators develop their work and marketing strategies to align with the algorithms and standards, yielding to the monopolistic powers of the platforms (Nieborg & Poell, 2018). In the last decade, platform studies have mainly focused on the cultural production and platform governance of social media, the data surveillance practices and platformisation of scholarly information have only attracted attention very recently (Deutsche Forschungsgemeinschaft [DFG], 2021; Ma, 2022; Williamson, 2021; Wood, 2015).

Similar to cultural production, the platformisation of scholarly information has two major features: one is the datafication and the commodification of user contents (scholarly publications) and personal data, and the other is the loss of negotiating powers in creating standards, values and norms of knowledge production (Ma, 2022). The datafication and commodification of scholarly publications are similar to the practices of platforms such as Spotify and YouTube: data products and services are derived from the traffic, including citations, downloads, and behavioural data (DFG, 2021). There are two main revenue sources: one based on subscriptions and sales of publications, and the other is data products and services including a wide range of metrics for benchmarking, ranking and reporting, as well as the sale of packaged data (Lamdan, 2023). What distinguishes platformisation of scholarly information from social media platforms is that, first, the data products and services are mostly sold right back to research institutions and universities–that is, the content producers. Data products and services (e.g. Journal Citation Reports, SciVal) are then used to assess the quality and impact of research, meaning

that the data products and services can significantly influence the norms and values of research. Second, the copyright (or exclusive publishing rights) of the contents is often transferred to the publishers, meaning that researchers and research institutions have no control over how their publications are disseminated, or whether they are archived or preserved, whilst the data derived and captured are owned by the platforms.

As some publishers become platform owners, they boost and boast the quantity of scholarly information with minimal concerns about quality. It is because more publication- and citation-based data can be generated if there are more publications and interactions (Ma, 2023; Pooley, 2022). While these companies do not produce the contents of scholarly information or conduct peer review, they generate revenues and profits by selling access (subscriptions or article processing charges (APCs)) and data services and products for their value-added services such as copyediting and typesetting. Ma (2022) argues that information is platformised when platforms transform the ways by which (1) information is produced, curated, and disseminated and (2) personal data are tracked, packaged and sold. The platformisation of scholarly information, however, entails weakened negotiation powers of libraries to obtain and grant access to scholarly information. The platformisation of scholarly information also means that data about research activities are being tracked and collected and then shared with or sold to third parties (Lamdan, 2023).

The platformisation of scholarly information should be of utmost concerns for research libraries for two main reasons: firstly, the ethical principles concerning information access, as well as privacy and confidentiality of librarians and information professionals (American Library Association [ALA], 2021a; CILIP, 2018; International Federation of Library Associations and Institutions [IFLA], 2012) are breached; secondly, the open access movement can be sabotaged when commercial platforms take control of what and how scholarly information is organised, disseminated and accessed. The following section will provide a brief overview of the market of academic journals and research assessments and their implications for bibliodiversity, information access, and privacy, followed by four actions to fight the platformisation of scholarly information: (1) Educate researchers about commercial publishers and APCs; (2) Allocate library budget to support scholar-led and library publishing; (3) Engage in the development of public research infrastructures and copyright reform; and (4) Advocate for research assessment reforms.

1.1. The Market of Academic Journals

The majority of academic journals are published by commercial publishers. Over the decades, some (not all) publishers have increased subscription fees and/or APCs at rates much higher than inflation, and some track and spy on research activities (DFG, 2021; Wood, 2015). The Big Deals publishers, Elsevier, Springer Nature, Wiley, Taylor & Francis and American Chemistry Society (ACS), each publishes over 2000 journals (Fyfe et al., 2017) and together they occupy over 50% of the market share (Morais et al., 2019; Stoy et al., 2019). Together, their subscription costs exceed 75% of total expenditures on journal publications in Europe, with the median price per article range from €1,344 to €2,658 (Table 1). In 2021, the Association of Scientific, Technical and Medical Publishers reported that the estimated growth of new scholarly journals is 2–3% annually and the global market is expected to reach the value of $28 billion by 2023 (Bhosale, 2022).

The gold open access (GOA) option in hybrid journals introduces extra revenue streams for academic publishers. Fully open access (OA) journals are less expensive than hybrid journals, averaging around 59% of hybrid average APCs in 2022 (Pollock, 2022). The bigger publishers are charging higher APCs when some smaller journals are charging no fees (Table 2). Seventeen journals were in the range of $10–44.7 million revenue between 2015–2020. Table 3 shows the nine publishers with the highest APC revenues. It is estimated that more than two-thirds of all revenue (68%) goes to 6% of journals that are charging more than $2,000 per article (Crawford, 2021).

There is no question that academic publishing is a big business for a small number of publishers whether in terms of subscription fees or APCs. Until recent years, the business model had been to expand the catalogues to

Table 1: Price per article median value.

Publisher	Median	Average
Elsevier	€2,642	€3,476
Springer Nature	€1,344	€1,689
Wiley	€2,658	€2,577
Taylor & Francis	€1,509	€1,509
ACS	€2,570	€3,067

(Source: Morais et al., 2019).

Table 2: Average price per article (APC) of OA journals by publisher size.

Publisher	Journals	Articles	% No-fee	$/article
Largest: 600+	299	405,094	8%	$2,070
Large: 150–599	989	212,389	22%	$1,328
Medium: 60–149	2,980	204,847	55%	$537
Small: 20–59	7,962	210,220	75%	$204
Smallest: 0–19	2,968	28,706	82%	$125

(Source CC BY: Crawford, 2021).

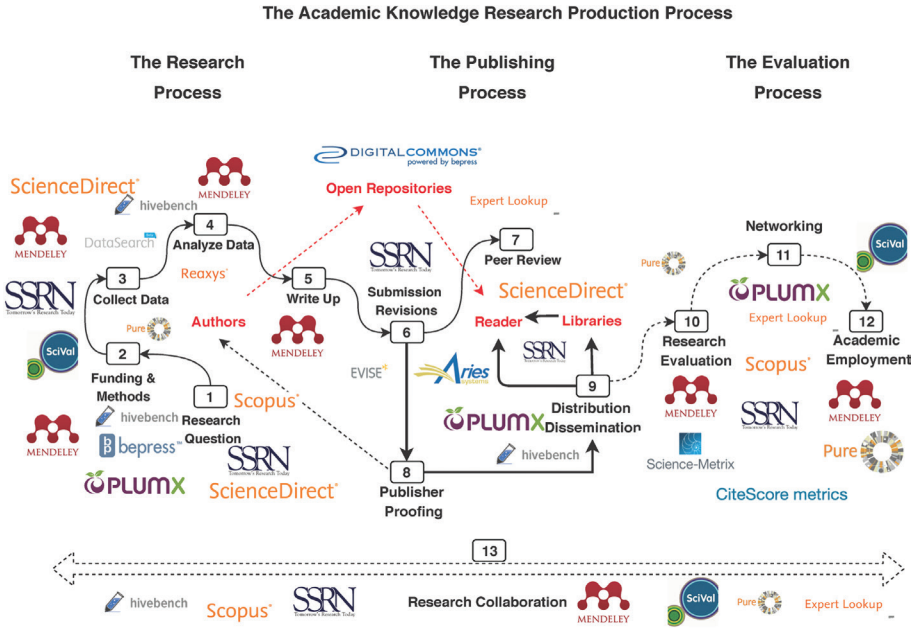
Table 3: Publishers with highest APC revenue 2015–2020.

Publisher	Articles	Revenue	$/article
Holtzbrinck (Springer-Nature)	144,141	$363,493,070	$2,521.79
MDPI	162,923	$335,285,783	$2,064.08
Wiley	48,516	$109,287,404	$2,252.61
Elsevier	69,176	$101,677,561	$1,469.84
Taylor & Francis	20,134	$39,966,258	$1,985.01
PLOS	20,246	$38,543,925	$1,887.00
IEEE	19,623	$35,025,350	$1,784.91
Oxford	12,146	$32,251,184	$2,655.29
Sage	14,096	$23,901,257	$1,695.61
Total	511,181	$1,080,431,792	$2,113.60

(Source CC BY: Crawford, 2021).

increase revenues and profits, which is a cause of the serials crisis. However, some of these companies are not just publishers: they also provide products and services embedded in the research infrastructure and expand their business through vertical integration with a focus on data businesses (Andrews, 2020). The Innovations in Scholarly Communication: Changing Research Workflows diagram created by Jeroen Bosman and Bianca Kramer[1] shows that Elsevier's products, including Mendeley, Scopus, SSRN, CellPress, SciVal, PlumX Metrics are used in the research process, discovery, analysis, writing, publication, outreach and assessment[2] (see also Figure 1). Researchers and research institutions are dependent on these commercial publishers and their products. These companies exploit the need for information access and take advantage of metrics-based research assessments. To a certain extent, the business of scholarship is becoming a solely data-driven commodified business, resembling that of the giant internet companies which extract data and profits through monopolising the infrastructure.

Fig. 1: Elsevier Presence Throughout the Research Lifecycle (Chen et al., 2019 CC BY).



1.2. The Choke Point: Research Assessments

Research assessments are necessary for academic recruitment, tenure and promotion, and acquiring funding at the individual level, on the one hand, and the allocation of research budgets (e.g. block grants) and strategic planning at the institutional level, on the other. In principle, the criteria for research assessments should be aligned with the values, missions, and norms of the scholarly community and are set to assure the quality and impact of scholarly work (see, for example, Larivière & Sugimoto, 2019). Nevertheless, they are currently heavily dependent on publication- and citation-based metrics despite their limitations and misuses. Journal impact factor (JIF), CiteScore, h-index, field-weighted citation impact (FWCI), and source-normalised impact per paper (SNIP) are some of the most used metrics in research assessments such as university rankings and national research assessment exercises. At the same time, they can also be used in decisions related to redundancy and closing of subject areas and departments in universities. For instance,

forty-seven researchers at the University of Liverpool were notified that their jobs were at risk in January 2021 and the criteria used for redundancy include grant income targets and Scopus's FWCI (Else, 2021).

University rankings, journal rankings and lists of highly cited researchers are created using metrics.

Researchers are hence pushed to publish in publications indexed in major indexing services, Web of Science or Scopus, meaning that they are less likely to submit articles to journals without a track record of citations. The trust in citations and citation-based metrics entails that the legitimacy of knowledge is held in the hands of commercial indexes largely consisting of English language journals in Western countries, with a strong focus on STEM. At the same time, metrics are also embedded in search algorithms of Google Scholar and other indexing services, which perpetuates the importance of citations and citation-based metrics.

Further, the stronghold of metrics in research assessment exercises reinforces the power of platforms involving data providers and commercial publishers, while stifling the growth of alternative publishers including non-profit, scholar-led, and library publishers. Laakso et al. (2021) have shown that journals affiliated with academic institutions or scholarly societies or those published social sciences and humanities research represent a larger share of vanished open access journals, partly because they struggled to attract submissions and subscriptions for they were not indexed on WoS or Scopus–the presumptive authority of research quality and knowledge.

It is evident that the misuses of metrics in research assessments have negatively influenced research culture and knowledge production (Wellcome, 2020). More broadly, metrics can perpetuate systemic and structural inequalities in knowledge production (Ma, 2022) and reinforces the power over knowledge production in the so-called scientific periphery (Beigel, 2021). The responsible metrics movement[3] attempts to avert the effects and reinforces the importance of peer review in evaluating the quality and impact of research outputs. Less has been discussed, however, is metrics (data products) in the context of platformisation, especially the power and control seized by the few monopolistic publishers and data providers. The use of metrics in comparing and benchmarking individual achievement to university performance becomes the choke point in the further development

of open research infrastructure, while consolidating the market share and power of platforms.

1.3. The Loss of Bibliodiversity, Information Access and Privacy

To a large extent, platforms such as Scopus and Web of Science wield power over what is considered as knowledge (or information) by including and excluding journals and publishers (Ma, 2023). Their authority and legitimacy are granted by research assessments–the very fact that researchers in many parts of the world are evaluated based on publications indexed on these platforms. Publications not indexed on these platforms are deemed lower quality, and sometimes even predatory (Mills et al., 2021). However, these perceptions can be misguided by the dominance of English language publications and the overemphasis of citations and citation-based metrics. In fact, the platformisation of scholarly information will further lead to the loss of bibliodiversity[4] and create a monoculture (see, for example, Demeter & Toth, 2020) because these indexing criteria are essentially adverse to bibliodiversity and multilingualism in knowledge production. There are also systemic biases that lead to rejection of research findings in non-Western countries. As a researcher of indigenous African food crops recalled, her publications were rejected by traditional journals "[N]ot because the research was not good, but because they regarded the crops I was writing about as weeds."[5]

Platformisation does not only interfere with the norms, values, and diversity of research, it also affects information access. The open access movement is primarily concerned with scholarly information and the reason is a simple one: if research is publicly funded, then scholarly information should be publicly accessible. The ideal of open access can be traced to scientific internationalism as "a result of progressive and egalitarian commitments to the universality of knowledge and its service to the common good" in the late 19th and early 20th century (Wang, 2022, p. 57). Currently, the dominance of the gold open access model, especially those with the highest APCs in traditional journals is hindering access to works by authors who cannot pay. At the same time, universities, libraries, researchers, and the general public should be dumbfounded that publicly funded research should become the property of private companies who charge access or subscription fees when it is not supported by APCs due to the fact that most publishing contracts require the transfer of copyright or granting of exclusive licence to publish.

Further, if the platforms cease operation due to business decisions, there is no guarantee that all scholarly information can be accessed continuously. Although there are safeguards measures such as LOCKSS,[6] it is absurd that publicly funded research outputs are not centrally preserved and that research communities, libraries, and the general public have little power to restore access. Wiley's removal of 1,300 ebooks from academic libraries in Autumn 2022 should be a cautionary tale (Library Association of Ireland, 2022). It is deeply frustrating that the fruits of research are bestowed upon platforms when they have no interest in upholding the values and mission of research or libraries but to maximise profits. Information access should be guaranteed when the labor of research, writing, and peer review are provided by public funds.

Last, the right to privacy and confidentiality has been held in libraries to encourage all members of the community and society to access information without the fear of surveillance or repercussions. Data collection and tracking by platforms fundamentally violate privacy and confidentiality; in fact, these data can be leaked or sold to third parties including government agencies and departments. Although libraries are not collecting or sharing these data, they should actively oppose to these practices. For instance, ALA (2021b) has issued a resolution in response to data surveillance by vendors, including the clause "in every circumstance the library user's information is protected from misuse and unauthorised disclosure, and ensuring that the library itself does not misuse or exploit the library user's information." Platformisation, however, can undermine the privacy of all those who access information when there are no alternatives to their products and services.

2. How can Librarians Challenge the Platformisation of Scholarly Information?

2.1. Educate Researchers about Commercial Publishers and APCs

Most researchers are not aware of the business models of commercial publishers, nor do they know about the budgetary issues faced by academic libraries. The majority cannot tell the differences between the green, gold and diamond models of open access and, in truth, they usually do not bother until there are compliance issues due to funding mandates or when the open access quota has been used up under a transformative agreement.

For decades, the so-called 'publish or perish' academic culture and eventually the push for high citations and high impact have left little room for researchers to consider the epistemic and ethical aspects of academic publishing. For many, the first rule of thumb is to produce as many publications as possible and to publish in high impact journals in order to attract citations. These practices are hinged on the use of metrics in research assessment. Researchers tend to pay little, if any, attention to the academic publishing market and their practices.

The very fact that some publishers are making gigantic profits is not well acknowledged amongst researchers. It is also very unlikely that they are informed about the surveillance activities embedded in products and services throughout the research lifecycle (see, for example, Fried, 2022). When researchers try to survive in a highly competitive academic job market, they do not register the reality that the chase after high impact publications has implications for inequalities in global knowledge production and the loss of bibliodiversity. Most also do not know about librarians' contributions in facilitating information access and negotiating subscription or read-and-publish (i.e., transformative or transitional) contracts.

Scholarly communication and related roles in academic libraries aim to provide advice and guidance on research data management, research impact and some also include bibliometric services. By and large, these activities are to support researchers at various stages of the research process with considerations of research assessment frameworks and institutional development plans. Transformative (or transitional) agreements have been negotiated with the best interests of researchers in mind. However, it is apparent that the platformisation of scholarly information is affecting research culture, research integrity and, most importantly, the authority as to what is knowledge or information. It is hence of utmost importance that librarians educate senior university management and researchers about commercial publishers and APCs.

2.2. Allocate Library Budget to Support Scholar-Led and Library Publishing and Open Infrastructure

For libraries, transformative agreements have been negotiated in good faith to support open access. Librarians understand the need for researchers to

increase visibility and citations; and they are also keen to promote the benefits of open access. However, the open access movement seems to have taken a wrong turn with the increasing dominance of the gold open access model, especially considering the increases in APCs over the last few years. There is a danger that transformative agreements will exacerbate the so-called serials crisis–the gold open access model does not alleviate the pressure on library budgets when libraries feel obligated to support researchers to read and publish articles in traditional, paywalled journals. Meanwhile, publishers outside of the big deals may lose subscriptions required for their survival, similar to the situation where local businesses become unviable due to the monopolisation of big companies. The more libraries succumb to the pressure and control by the big deals publishers, the less negotiation powers can be retained for a balanced and healthy knowledge production and scholarly communication ecosystem.

In the world of academic publishing, libraries can play a role in leveraging the powers by allocating a portion of their budget to support open access programmes *other than* transformative agreements or APC support. The 2.5% commitment initiative proposes that academic libraries commit to invest 2.5% of their total library budget to support a common open infrastructure (Lewis, 2017), which involve the following (Lewis et al., 2018):

1) Open infrastructure projects and organisations such as DSpace, Fedora, Omeka, Open Journal Systems (OJS), the Digital Preservation Network, LOCKSS, the Directory of Open Access Journals (DOAJ), CrossRef, and advocacy organisations like SPARC or Confederation of Open Access Repositories.
2) Hardware, software and staff that support institutional repositories, including funds to external organisation that support locally installed systems or host repositories.
3) Platforms that support open content such as ArXiv and Hathitrust.

The long-term goal of the 2.5% commitment is to divert and repurpose library budgets for the common open infrastructure which would be feasible for libraries with larger budgets. Similarly, the preparedness model for the future of open scholarship (Goudarzi et al., 2021) calls for the examination of 'local first' and 'build vs. buy' decisions in terms of time and resourcing, as well as effects on staffing and interoperability of shared systems. There are existing examples where library budgets are allocated to support scholar-led

and library publishing that support diamond open access monographs, journals, and open educational resources. KU Leuven, for example, has diverted less than 1% of the entire operating budget to support open scholarship initiatives, including contributions to diamond OA programmes, as well as the running of the mission-driven university press (Verbeke & Mesotten, 2022). The Library Publishing Coalition has put together useful resources and training materials on their website.[7]

The independent expert report commissioned by the European Commission (Johnson, 2022) shows a clear willingness to deliver a non-profit publishing service, Open Research Europe (ORE). The development requires considerations of organisational and financial models, involving social value proposition, size and sale, operating model, legal form, governance, and financing. A common open infrastructure is a long-term investment starting with allocating library budget to scholar-led and library publishing and support for non-profit open infrastructure initiatives.

2.3. Engage in the Development of Public Research Infrastructures and Copyright Reform

The development of public research infrastructures is not simply about moving scholar works from one platform to another. The complexity is rooted in the long history of scholarly and scientific publishing and scholarly communication (Blair, 2010; Csiszar, 2018). Publishers have long held their important position and functions in the knowledge production system. The invention of the internet and the oligopoly of publishers, however, have called for changes in the development of the research infrastructure. For example, what would be fair contributions to publishers for their services? Are academic journals still necessary when articles can be published on an open platform (see Brembs et al., 2021)? The development of public research infrastructures does not necessarily entail the demise of publishers with appropriate copyright reform. Fundamentally, there are considerations about, first, the ownership of knowledge: whether knowledge should be regarded as a public good when it is publicly funded; second, the ownership of personal data currently being harvested by some publishers and data companies.

Recently, there have been strong advocates for public access to research. The White House Office of Science and Technology Policy (OSTP) released

a statement on 25 August 2022 that there should be no delay or barrier for research findings to be made available to the public.[8] The Action Plan for Diamond Open Access published by Science Europe[9] advocates for an ecosystem that respects the cultural, multilingual, and disciplinary diversity of scholarly publications. These directives recognise the very nature of publicly funded research as a public good. However, there is still a lack of understanding of digital tracking and data mining on commercial platforms. The dangers of further platformisation of scholarly information using machine learning techniques demand more attention and awareness in the development of public research infrastructure. Public research infrastructures would value privacy and do not need to collect users' data at all.

The development of public research infrastructures also demands changes in copyright laws. ALLEA (All European Academies) has issued a statement that supports rights retention and further changes in copyright law, indicating developments in EU countries including the 2019 Directive on Copyright in the Digital Single Market and the Secondary Publication Rights.[10] It is also possible to reconsider the intellectual property rights of publicly funded research as a public good or public resource, meaning that the ownership–copyright–should not be held by commercial or private entities. Lamdan (2023) suggests that, at the bottom line, the first-sale doctrine can be applied to digital resources, meaning that "library-like online platforms can lend materials, and law should also ensure that digital information purchasers can enjoy at least some of the intellectual property rights that physical ownership conveys" (p. 140).

2.4. Advocate for Research Assessment Reforms

Librarians can play an active role in advocating for responsible metrics and research assessment reform. On the one hand, they can educate university management and researchers about the appropriate uses of metrics and the role of metrics in the platformisation of scholarly information. On the other hand, librarians can highlight the tension between research assessment and open research. For instance, the Science Europe Open Science Conference 2022[11] has a strong focus on research assessment reform with the aim of encouraging and supporting open research.

The appropriate and responsible uses of metrics are important for research culture and research integrity. A positive research culture is collaborative

and supportive. Healthy competition can lead to innovation and productivity. However, the overuses and misuses of metrics-based research assessment are not conducive to research culture. In the recent Wellcome Report (2020) on research culture, nearly 60% of the respondents disagreed that metrics had a positive impact on research culture but a hypercompetitive environment. Studies have shown clear evidence that researchers are motivated and rewarded to chase after the number of publications and citations and they sometimes forgo interesting and complex research ideas (Ma & Ladisch, 2019; Müller & de Rijcke, 2017). The stronghold of metrics-based research assessment is a part of the business models of publishers turned data analytics companies. Advocating responsible uses of metrics are not only essential for supporting a collaborative and positive research culture, but also an antidote to the 'data cartels' (Lamdan, 2023).

Relatedly, there are many research integrity issues related to the hypercompetitive research culture. The chase after publications and citations can lead to honest mistakes that result in research publications of lower quality and sometimes retraction. There have also been reports of fraudulent research, fabricated data and images, and citation cartels (Biagioli & Lippman, 2020). Retraction Watch[12] and PubPeer[13] are examples of watchdog organisations. The increasing instances of misconduct and malpractices have raised concerns about research integrity as negative consequences of research assessments.

The criteria of research assessments have significant implications for the market of information and open research. Predatory journals take advantage of the overemphasis of the number of publications in research careers. Similarly, established commercial publishers increase subscription fees and APCs at will, notwithstanding they do not pay for the labour of the production of contents, nor do they compensate for the work of peer review. Research assessment reform can push for recognition in publications in diamond open access and green open access journals with no embargo period. This change is not only beneficial for research culture, it can also lead to reallocation and repurposing of budgets to support a diverse publishing environment including scholar-led and library publishing, institutional repositories. Advocating for research assessment reform is necessary to avert the power and control of the big deals and data analytics companies. DORA,[14] for example, provides toolkits and tips for implementing responsible metrics.

3. Conclusion: Support Bibliodiversity and a Healthy Knowledge Production Ecosystem

Since the launch of the Budapest Open Access Initiative in 2002, the open access movement has gained momentum. Preprint servers in biomedical research, especially during the Covid-19 pandemic, are essential for scientific collaboration and has resulted in the rapid development of vaccines and cures. Open access was once not possible because of the limitations of print materials confined in physical locations; however it is still not commonly practised with the common use of the Internet today. Over the years, different open access models have been proposed: green, gold, diamond (or platinum) and the open access movement has somewhat taken a wrong turn towards the gold route, reinforcing the market share of a few commercial publishers because researchers are locked in to publish in prestigious journals, and libraries are locked in to provide access by either subscription or transformative agreements.

There is an urgent need for researchers, librarians, university management, funders and the general public to understand the very fact that some (not all) publishers-turned-platforms do not treat knowledge as a public good, nor do they have ethical concerns for open access or data privacy. Rather, they create technologies of control to create a hypercompetitive environment with the purpose of increasing the volume of publications. It is because the higher the number of publications, the more data can be collected for data products and consultancy services that can be sold right back to research institutions. Meanwhile, they deny those who are less privileged in the knowledge production ecosystem, particularly researchers who are not affiliated with resourceful research institutions. The open access movement cannot succeed when platforms hold power and control over not only scholarly information, but also data about researchers and research activities. The fight for the ethical principles of information access and privacy and against platformisation of scholarly information is critical and pressing.

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Notes

[1] https://101innovations.wordpress.com/workflows.

[2] For an overview of products and services throughout the research process, see https://101innovations.files.wordpress.com/2018/04/compliance-tools-workflow_cropped.png.

[3] see, for example, DORA (https://sfdora.org), The Leiden Manifesto (http://www.leidenmanifesto.org).

[4] Bibliodiversity is a complex self-sustaining system of storytelling, writing, publishing and the other kinds of production of oral and written literature. The writers and producers are comparable to the inhabitants of an ecosystem. Bibliodiversity contributes to a thriving life of culture and a healthy eco-social system. Quoted in Chan, Leslie, Connecting the Knowledge Commons: From Projects to Sustainable Infrastructure, Open Edition Press (2019).

[5] https://360info.org/how-africa-is-overcoming-knowledge-colonialism.

[6] LOCKSS stands for "Lots of Copies Keep Stuff Safe". See https://www.lockss.org.

[7] https://librarypublishing.org.

[8] https://www.whitehouse.gov/ostp/news-updates/2022/08/25/ostp-issues-guidance-to-make-federally-funded-research-freely-available-without-delay.

[9] https://www.scienceeurope.org/our-resources/action-plan-for-diamond-open-access.

[10] https://allea.org/allea-advocates-for-eu-wide-secondary-publication-rights-and-better-negotiation-of-future-big-deals.

[11] https://www.scienceeurope.org/events/open-science-conference-2022.

[12] https://retractionwatch.com.

[13] https://pubpeer.com.

[14] https://sfdora.org.