Diamond Open Access: A Viable Approach to Scholarly Communication

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Abstract

In the last twenty years, the Open Access (OA) movement has significantly altered the landscape of academic publishing, advocating for economic models such as transformative agreements and Article Processing Charges (APCs). However, the APC model has faced criticism due to its associated inequalities and questionable sustainability.

As a result, the Diamond OA model has emerged as a more equitable and inclusive alternative, as it does not impose financial burdens on authors or readers. Instead, it relies on funding from grants and institutional support, thereby fostering bibliodiversity and enhancing accessibility. The viability of this model hinges on the collaborative use of shared resources and infrastructure, along with ongoing backing from research organizations and institutions.

In Italy, despite the increasing prevalence of OA publications, the market continues to be dominated by both large and small commercial publishers. This situation highlights the urgent need for enhanced public support and the implementation of strategies aimed at financing and sustaining Diamond OA journals.

Keywords: Scholarly Communication, Open Access, Diamond Open Access, Global Markets

1. The Evolution of Open Access in Science Communication

Since the publication of the Budapest Open Access Initiative (BOAI)[1] in 2002, the movement for open access to scientific publications has gained momentum globally. The BOAI provided a clear definition of what is meant by "open access" and outlined two main strategies to achieve it: self-archiving in institutional or disciplinary repositories and publication in open access journals. Over the past two decades, the number of open access articles has strongly increased (Korean Council of Science

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Editors, 2022). This increase is closely linked to the parallel development of practice and legislation on rights retention and to the implementation of secondary publication right. These legislative developments and policies aim to ensure that authors retain control over their works, allowing them to store and share their works in open repositories without compromising the original publishing rights. In particular, rights retention strategies allow authors to deposit a copy of their work in an institutional or disciplinary repository with an open license immediately after publication. The secondary publication right, representing an effective right, allows a scientific article to be published again, in open access, a second time, after it has been published a first time, with the aim of reaching a wider audience. These tools not only protect authors' rights, but also promote the dissemination and accessibility of scientific knowledge (Faro et al., 2024).

The emergence of the open access paradigm has led to a radical transformation of the economic model for scientific publications. Much effort has been devoted to incentivizing commercial publishers to convert their service offerings and develop new business models, such as transformative agreements and *Article Processing Charges* (APCs). The scientific literature on the different aspects of open access, including legal, ethical, economic and social aspects, is vast and constantly growing (Guédon, 2009; Suber, 2012; Larivière et al., 2015; Schöpfel 2015; Giglia, 2017; Caso, 2020; Caso & Dore, 2021; Moore 2021) and focuses in particular on the impact of open access on society.

2. A Sustainable Open Access Model

Part of the literature considers the APC-based open access model to be somewhat problematic (Dufour et al., 2023) not only because of the inequalities it creates and reinforces (Ellers et al., 2017; Ross-Hellauer et al., 2022), but also because it has proven to be unsustainable (Morrison et al., 2022) and in conflict with the principles of open access[2]. The same literature supports, rather, a model of scientific publication in which neither authors nor readers have to bear costs: the Diamond OA. It represents the most appropriate and equitable approach for the development of future science communication; in fact, it supports publication initiatives managed and owned by the scientific community, generally characterized by small and medium scale, and by a multilingual and multicultural nature, thus promoting greater inclusiveness and diversity in science communication (Miedema et al., 2020; Shearer & Becerril-García, 2021).

The term Diamond OA is often perhaps reductively and erroneously defined as "journals without APCs", i.e., journals in which authors do not have to pay to publish in open access; it embraces a spectrum of approaches ranging from direct institutional funding to an advertising-based model. The economic sustainability of Diamond OA remains the biggest challenge, as it relies on funding from different sources (universities, non-profit organizations and institutional bodies) rather than traditional business models. Diamond journals emerge, in fact, as archipelagos of publications, often poorly connected and not systematically funded.

At the operational level, the *Open Access Diamond Journals Study* (OADJS), commissioned by cOAlition S[3] and Science Europe[4] to OPERAS (Research Infrastructure supporting open scholarly communication in the social sciences and humanities in the European Research Area)[5] in March 2021 showed for the first time a widespread ecosystem of around 30,000 journals in various disciplines, highlighting the importance of direct non-monetary contributions and the diversity of sources of funding: grants, donations, crowdfunding, shared infrastructure, institutional support, and freemium models (Bosman et al., 2021). Diamond OA journals generally publish fewer articles than APC-based journals (356,000 per year compared to about 453,000). Since 2018, the share of Diamond OA journal articles has decreased, which coincides with the increase in APC-based journal articles. At the territorial level, the journals are distributed as follows: 45% in Europe, 25% in Latin America, 16% in Asia, 5% in the United States/Canada. In Europe, more than half of Diamond OA journals are based in one of the Eastern European countries. Diamond OA journals are mostly small, publish fewer than 25 articles per year, and are more multilingual (multi-lingual publishing) than APC-based journals (38% vs. 14%). Finally, almost all journals have been Diamond OA since the time they became available online.

The study also reveals that there are some main concerns shared by Diamond journals. These are, for example, the lack of technical skills and resources to publish their content in a format that meets the standards specified in Plan S's technical requirements[6]. As a result, a large portion of Diamond OA journals are not included in open access journal indexes or directories, such as the *Directory of Open Access Journals* (DOAJ).[7] Diamond OA journals are published by small and medium-sized publishers, and a large number of Diamond journals are often the publisher's only journal. It has been found that the humanities and social sciences are the disciplines most likely to publish in Diamond OA, and that many of these journals operate independently of the publishers who provide them with the services (Bosman et al., 2021). Finally, it should be noted that publishing activities are mainly based on the voluntary work, because funding is not permanent; These activities are also not sufficiently taken into account, for example, for the evaluation of researchers. In this scenario, the role of universities and research institutions, which have been essential for the expansion of the APC model, is crucial to explore and support the Diamond OA model (Ancion et al., 2022; Yang et al., 2023).

Moving from study to action, the Action Plan for Diamond OA was published in March 2022. The Plan, drafted by Science Europe, cOAlition S, OPERAS, and the French Agence national de la recherche[8] (Ancion et al., 2022) represents a step towards a collective process of strengthening Diamond OA and is aimed at promoting the development of a sustainable infrastructure capable of federating Diamond OA journals that share the same principles, guidelines and quality standards. This will allow Diamond journals to increase their ability to provide innovative, valuable and reliable editorial services.

In particular, the Plan provides a series of priority actions to develop a sustainable academic communication ecosystem and marks a further step in favor of bibliodiversity in all its dimensions. The concept of bibliodiversity in this context is of strategic relevance due to its emphasis on the diversity of authors and works

representing cultures, languages, genres, and all kinds of scientific activities (L. Chan & P. Mounier, 2019). Institutional publishing plays an important role in maintaining bibliodiversity by providing places for research sometimes overlooked by traditional publishers (Ma et al., 2023).

The Plan has been signed to date by over 90 organizations and the countries that have joined immediately and with the most conviction are France, Canada, Belgium, the Netherlands and Croatia which have been very active in the implementation of the Diamond OA platforms for some time. The community is varied: there are universities, learned societies, research organizations, funding bodies, research infrastructures[9].

In this direction and with the support of the Action Plan by the Diamond OA community, the Horizon Europe DIAMAS project - Developing Institutional Open Access Publishing Models to Advance Scholarly Communication (2022-2025) was funded in July 2022[10]. The initiative, which started in September 2022 and will last 3 years, is aimed at creating a sustainable Diamond OA academic communication ecosystem, capable of implementing OA as a standard publishing practice, developing support services and a non-technical infrastructure for OA providers of institutional publishing services.

One of the main achievements of the DIAMAS project is the Diamond OA Standard (DOAS)[11] which establishes quality criteria for Diamond publishing initiatives, although most of the elements apply to any publishing business model[12].

DOAS is based on seven core components of scientific publication outlined in the Action Plan for Diamond Open Access, subsequently revised and modified by the DIAMAS project team: a) Ownership, mission and governance; b) Open science; c) editorial management, editorial quality and research integrity; d) efficiency of technical services; e) visibility, communication, marketing and impact; f) equity, diversity, inclusion and belonging (EDIB), multilingualism and gender equity.

It is intended as a measure of quality to which institutional publishers aspire, with the aim of establishing a common quality standard for publication as a public good, defined and controlled by scientific communities. This does not necessitate that institutional publishers fully adhere to this standard. To support this, two tiers of compliance have been delineated: fundamental elements and aspirational elements, which represent advanced recommendations to further enhance adherence. Notably, this standard underscores the critical importance of clarity, transparency, and the accessibility of information, recommendations, and guidelines, strongly advocating for the prioritization of information dissemination.

The implementation of DOAS is supported by a self-assessment tool (*Self-assessment tool for Diamond OA*),[13] a web service through which each publisher can independently verify their degree of compliance with this standard, assessing their strengths and weaknesses. Only publishers using the service have access to the evaluation results. Therefore, DOAS represents both a technical guide and a practical tool for assessing quality in scientific publications.

3. An Overview of the Scholarly Publishing in Italy

The scholarly publishing system in Italy stands out for its fragmentation, constituting a complex and highly relevant market (Bianco & Delle Donne, 2022). Italy allocates over 80 million euros annually to subscriptions for scientific journals (Mangiaracina & Morroni, 2018). This sector is predominantly controlled by five major publishers, including Elsevier and Wiley, which collectively produce approximately 80% of scientific articles (De Simone et al., 2023). Numerous publishers operate via local or national subsidiaries, tailored to the specific requirements and preferences of the Italian market. Furthermore, international publishers frequently engage in partnerships or co-publishing agreements with local entities to enhance their distribution and reach within Italy.

The penetration level of leading international publishers varies across different sectors and disciplines. In fields such as hard sciences and economics, these publishers have secured a substantial presence, characterized by widely circulated and reputable publications that emphasize rapid publication and quantitative metrics. This dominance is often supported by collaborations with Italian research institutions, universities, and scientific societies. Conversely, in disciplines like social sciences and humanities, particularly law and literature, there is a stronger presence of local or national publishers who prioritize the promotion of Italian culture and heritage. In these domains, publications in Italian are more prevalent, with significant contributions from university presses.

In recent years, as is evident, the panorama of scientific publication in Italy is also undergoing a transition towards open access. Authors are increasingly looking to publish their work through OA channels, and publishers have adopted the hybrid OA model alongside traditional subscription-based systems. This strategic shift responds to the growing demand for OA publishing by authors: this has led to a significant increase in the publication of OA journals, with the emergence and maturation of fully open access platforms. Numerous Italian university presses have developed platforms that offer OA journals and, occasionally, academic monographs and teaching manuals.

Currently, in Italy there are 100 publishers indexed in DOAJ, with 525 journals, of which 59 with the DOAJ seal. In addition, a considerable number of journals (462) are classified as Diamond OA journals. Fifteen university presses in Italy adopt the Diamond OA model, in particular for authors affiliated with their respective institutions. In addition, institutional or disciplinary repositories play an important role in supporting scientific communication: overall, 146 Italian repositories are listed in OpenDOAR[14], while 52 are registered on re3data[15].

On the basis of these few numbers, it is possible to see that the panorama of scientific publication in Italy is characterized by a complex intertwining between the interest and growing desire to publish in OA and the strong interests of commercial publishers who dominate the market, offering Gold and hybrid OA models that require financial contributions from authors or their institutions. On the other hand, university presses favor the Diamond OA model. However, the lack of dedicated public funding limits its scope, although discussions on alternative funding models are ongoing. National initiatives such as the 2022 *National Plan for Open Science*[16] promote OA, but the lack of direct incentives in national research assessments and funding allocations discourages its adoption.

To create a more balanced panorama of scientific publication in Italy as well, it would be appropriate to adopt diversified strategies. First, it would be helpful to implement a national funding mechanism for Diamond OA institutional publishers. This would provide them with the resources they need to operate and expand their reach, ensuring greater economic sustainability. Second, establishing a centralized technical infrastructure to support Diamond OA publishing would facilitate the management and dissemination of OA content by institutional publishers. This would allow for better organization and accessibility of publications. In addition, integrating OA publication metrics into national research evaluations and funding allocation processes could incentivize scholars to publish in open access.

4. Conclusion

The richness of the Diamond OA publication is characterized by its diversity: from the broad disciplines it serves in multiple languages to the types of organizations and networks involved in development, management, or maintenance. The local, regional, and national interests that drive it are supported by the context of the country's publishing system and OA's national priorities, policies, policies, and practices. In France and Croatia, large Diamond publishing platforms have been developed through a collaborative approach. Most publishers in Croatia operate on a non-profit basis, and Diamond OA journals predominate. Learned societies are a significant driving force among Diamond OA publishers in Poland and in Finland. The institutional publishing landscape in the UK has seen, over the last decade, the entry of new university presses and scholar-led publishers offering Diamond OA publications and related services. However, some large, well-established commercial publishers in certain countries, such as Germany, have yet to switch from Gold or hybrid to Diamond publishing.

In this panorama characterized by the increase of Diamond OA, the public funding of journals deserves particular attention at a global level. As subscription revenues decline and ultimately disappear, journals must seek alternative funding sources or establish partnerships with international commercial publishers to attain financial stability. In this context, public funding is likely to be utilized; however, it will flow through large multinational corporations, resulting in a more costly process compared to direct government subsidies. A well-designed public funding system can ensure the existence and diversity of scientific publication channels, relevant to specific audiences rather than a general global audience (Laakso & Multas, 2023).

The Diamond OA model clearly highlights the need and importance of overcoming APCs through the adoption of direct funding mechanisms. This transition aims to alleviate the financial burden on researchers and their funders. The political, ethical and practical implications of this step are certainly profound and underline the complexity and challenges that accompany the introduction of a funding mechanism to support Diamond OA journals.

These will certainly benefit from the sharing of common resources such as, for example, editorial policies and technical infrastructures. Sharing common resources creates sustainability and trust for all stakeholders to make services and operations

more accessible, interoperable and simplified. In this direction, it is necessary to strengthen the skills to create tools for Diamond OA publishing available in a unified access hub. One of the objective of the already mentioned DIAMAS project is specifically dedicated to develop a Common Access Point that houses and connects to an array of resources, including training materials, policies and guidelines for journals[17]. This must be done by involving and reaching out to all stakeholders and by providing technical, financial and training services.

A critical aspect pertains to sustainability, which is arguably the most challenging yet crucial to achieve. It involves establishing a legal, ethical, and political framework that acknowledges and legally safeguards the ownership and governance of Diamond OA journals and associated platforms. This framework should ensure that the operational costs of Diamond publishing are supported by a consortium of institutional stakeholders who share these expenses among themselves.

There is therefore a need for empirical research and consultations with funding bodies to assess the feasibility and practical implementation of such mechanisms. A step-by-step approach, with defined criteria for admission to direct funding of journals, is recommended to ensure a balance between financial sustainability and the promotion of open access at no cost to authors and readers.

The challenges related to the implementation of a direct funding system are certainly many and it is crucial to establish strict resource management procedures and preserve editorial independence to avoid manipulation in the scientific publication process. In addition, it is essential to continuously monitor the social and economic impact of these mechanisms to ensure that Diamond OA effectively contributes to the reduction of inequalities in academia and promotes high-quality and accessible scientific research.

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Notes

[1] https://www.budapestopenaccessinitiative.org/

[2] *The Budapest Open Access Initiative: 20th Anniversary Recommendations*, https://www.budapestopenaccessinitiative.org/boai20/

[3] https://coalition-s.org

[4] https://scienceeurope.org

[5] OPERAS - Open Scholarly Communication in the European Research Area for Social Sciences and Humanities, https://operas-eu.org/

[6] Plan S is the initiative born in 2018 from the international collaboration of research funding institutions (cOAlition S) and supported by the European Research Council, which aims to accelerate the transition to the Open Access model of academic publications. cOAlition S provides a guide with information and technical requirements to implement Plan S, in particular for Open Access repositories.

[7] https://doaj.org/

[8] The Plan was discussed and revised by international experts at the workshop on 3 February 2022 ahead of the Open Science European Conference in Paris where it was presented for the first time.

[9] *Action Plan for Diamond Open Access, List of endorsing organisations*, https://www.scienceeurope.org/our-resources/action-plan-for-diamond-open-access/

[10] https://diamasproject.eu/

[11] https://doi.org/10.58121/z15s-jy03

[12] DOAS is based on the *Extensible Quality Standard in Institutional Publishing* (EQSIP), developed by the DIAMAS project. This standard was developed through the analysis of 70 papers and discussed in two iterations, with contributions from over 300 people from the Diamond publishing community across Europe.

[13] https://diamas.fecyt.es/

[14] https://v2.sherpa.ac.uk/opendoar/

[15] https://www.re3data.org/

[16] Piano Nazionale per la Scienza Aperta (*National Plan for Open Science*), adopted pursuant to Ministerial Decree No. 268 of 28 February 2022. The Plan is part of the *National Research Programme 2021-2027*.

[17] https://diamasproject.eu/objectives/building-capacity-through-knowledge-sharing/