

Plan S: estimating future developments

Johan Rooryck

cOAlition S, Strasbourg, France

Introduction

In this brief paper, I will present Plan S and cOAlition S (<https://www.coalition-s.org/>). cOAlition S is a consortium of 27 organizations worldwide. It includes national funders in Europe—from Austria to the United Kingdom—but also the European Commission, as well as several charitable foundations from the United States and the United Kingdom, such as the Bill & Melinda Gates Foundation and the Wellcome Trust. cOAlition S also has a global dimension, with support from the World Health Organization, the Jordanian Higher Council for Science and Technology, the National Science and Technology Council from Zambia, and the South African Medical Research Council. Jointly, these research funding agencies invest about 40 billion dollars in research funds annually, with an output of about 150,000 published articles a year based on that research support. I would like to explain the goals of Plan S, its implementation process, the routes to compliance to open access (OA), and some of our tools, services, and projects.

Why Was Plan S Devised?

cOAlition S funders want all research articles that are the result of their research funding to be fully accessible and reusable on publication with a CC-BY license. In this way, they hope to accelerate the transition to full and immediate OA. This single goal is articulated in the 10 principles that we ask cOAlition S members to implement in their policies.

Many cOAlition S funders have supported hybrid OA in the past. Hybrid OA refers to journals that use a mixed model of publication, in which some of the papers are only accessible via subscription and other papers are published in OA. This model has been around for more than 15 or 20 years, but it is very clear that it has stagnated and failed to provide the rapid transition to OA publishing that is needed. Most hybrid journals have plateaued at around 20% of articles in OA. Even more tellingly, as Table 1 shows, very few journals have completely transitioned to full OA at the major publishers.

Many other problems are also associated with hybrid OA, which we have detailed in the form of six arguments below [1]:

1. Hybrid has not facilitated a transition to OA.
2. The research community pays twice (double dipping).
3. Hybrid journals are more expensive than fully OA journals.

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Correspondence to Johan Rooryck
johan.rooryck@coalition-s.org

ORCID

Johan Rooryck
<https://orcid.org/0000-0001-7214-7405>

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Table 1. Number of subscription and open access journals at three large publishers

Publisher	Current no. of subscription journals (title)	No. of subscription titles converted to open access
Elsevier	Approximately 2,400	69
Wiley	Approximately 1,600	23
Springer Nature	Approximately 1,900	19

4. Hybrid journals provide a poor quality of service.
5. Hybrid journals crowd out new, full OA publishing models.
6. Reader access: a hybrid journal is a “random OA” journal.

This is why the cOAlition S funders have decided that their funds can no longer be used to publish in hybrid journals, unless these journals are under a transformative arrangement that accelerates the transition to full and immediate OA. In addition, there are still too many subscription-based journals, and the transition to OA means we have to get rid of the subscription system. We want all research articles to be fully accessible and reusable with a CC-BY license. About two million articles are published each year. More researchers, using more different technologies, must be able to have immediate access to these articles to discover new knowledge. We have seen how important it was during the first years of the COVID-19 pandemic that all articles were accessible. Similarly, we need full and immediate OA to face other societal challenges, such as climate change. This is an urgent issue that we need to address as quickly as possible, and our demand for full and immediate OA is based on strong principles.

Plan S: Strong Principles

First, we want OA to articles to be immediate and without embargo periods as soon as an article is published.

Second, all publications must carry a CC-BY license so that researchers retain their intellectual rights.

Third, the funders do not endorse nor will they pay for a hybrid model of publication except as a transitional arrangement with a defined endpoint. Therefore, it is not that we prohibit hybrid journals outright, but we want to provide incentives for hybrid journals to become fully OA journals.

Fourth, we also want the pricing contract and publication fees to be transparent and in line with the services that are provided.

Fifth, we also ask that funders commit to contributing to the payment of OA publication fees if they are fair and transparent. More precisely, we do not want individual researchers to pay for article processing charges (APCs). This means that cOAlition S grants can be used to pay for (non-hybrid jour-

nal) APCs, but these fees should not be paid out of pocket by researchers.

Sixth, to create a more level playing field between journals, we have committed to assessing research outputs based on their intrinsic value rather than on the prestige attached to the venue of publication or the prestige of quantitative metrics. This is something that will gather momentum in the next few years since the European Commission [2] has launched a large-scale project to reform research assessment. cOAlition S is also reevaluating the assessment procedures for awarding grants along the lines of the Declaration on Research Assessment (DORA; <https://sfedora.org/>). As a result of such efforts, funders will give less weight to publishing in high-prestige journals than it is now, and metrics will also play a lesser role.

Implementation Process of Plan S

We do not believe in a single silver bullet that will magically provide OA to research publications overnight. We have developed a pragmatic approach involving integrated policies at all levels of OA. Therefore, we basically support all colors and minerals of OA—diamond, gold, and green OA. We also seek alignment and coordination with other organizations, such as university libraries, university associations, and organizations like the Confederation of Open Access Repositories, with whom we collaborate productively to achieve that goal. We are, of course, also in contact with publishers and publisher organizations about our policy, which impacts them considerably. It is very important to monitor the effects of Plan S on early-career researchers because they are concerned about how cOAlition S policies will affect their future career opportunities. We find that young career researchers are extremely positive toward Plan S.

Three Routes to Compliance

Researchers who have received funding from cOAlition S research agencies are allowed to publish in any journal of their choice. However, certain conditions apply that are in line with the Plan S principles and implementation. We have developed three routes that our funded researchers can use to publish in a way that is compliant with the OA mandate that is a condition of their grant agreement.

Route 1. OA journals and platforms

cOAlition S-funded authors can publish in OA journals or platforms that are indexed by the Directory of Open Access Journals (DOAJ; <https://doaj.org/>). cOAlition S funders are committed to financially contribute to the publication fees of funded authors in these journals, for example, by allowing

their grants to be used for that purpose.

Route 2. The repository route and the rights retention strategy

The second route is more complex. cOAlition S wants to enable researchers to publish in subscription journals, while at the same time making sure that they are compliant with the immediate OA mandate of their grant agreement. Under Plan S, authors are allowed to publish in a subscription journal if they make the author-accepted manuscript (AAM) of their paper available in a repository immediately on publication. Our rights retention strategy assists authors in doing that. Authors who wish to publish in a subscription journal have to inform the publisher at submission that they have applied a CC-BY license to the AAM arising from their submission. That prior CC-BY license then allows the author to share the AAM in a repository when the paper is published in a pay-walled journal.

Publishers do not like this and want to apply a 6- to 12-month embargo to those articles. However, cOAlition S has informed 150 publishers that our funded authors will apply a prior CC-BY license to the AAM arising from their submissions in the future. This was to make them aware that cOAlition S-funded researchers are subject to this policy. Publishers are, of course, free to desk-reject submissions that apply a CC-BY license to the AAM. Still, no publishers have actively informed us that they will do so. Publication in a subscription journal is of course not financially supported by cOAlition S because subscription journals are paid for by subscriptions from university libraries.

For authors, the effort involved in the rights retention strategy is minimal. We only ask them to add a brief CC-BY license statement as a note to their article or to the letter accompanying their submission. The advantages of this statement, by contrast, are immense: once the CC-BY license is applied to that article, it is inviolable, as it is inherent in that paper. This strategy therefore allows authors to deposit the CC-BY-licensed AAM in an OA repository. It also allows the publishers to still have rights to the version of record.

For authors, there are many other advantages to applying a CC-BY license. It means that they can freely reuse all the material in their CC-BY-licensed article without asking for copyright permission from the publisher. Since the CC-BY license is applied to the AAM arising from the submission before any publication agreement is signed with the publisher, that CC-BY license takes legal precedence over any conflicting language in the later publication agreement with the publisher. This is how the rights retention strategy circumvents any embargo the publisher might wish to impose via their publication agreement.

Route 3. Journals under a transformative arrangement

The third route is what we call the transformative arrangement route. This route recognizes journals that are progressively changing from subscription to OA via transformative deals. cOAlition S authors can publish in these journals if their institution participates in such a transformative arrangement.

Transformative arrangements refer to publishing models where the publisher is committed to transitioning subscrip-

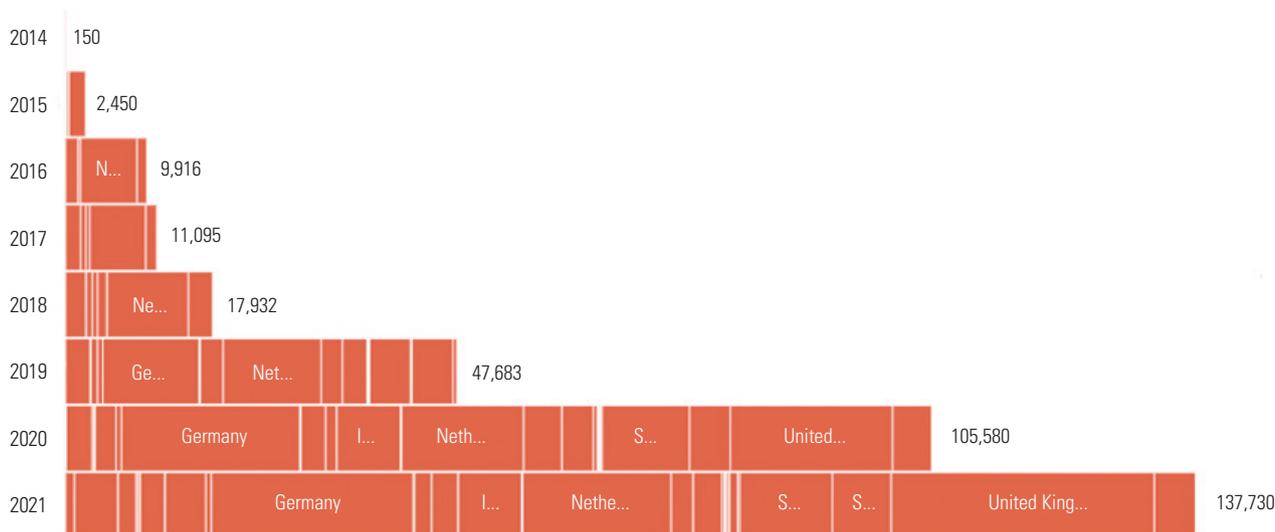


Fig. 1. The increase in open access articles made available by transformative agreements (source: ESAC Transformative Agreement Registry [cited 2021 Jun 18]. <https://esac-initiative.org/about/transformative-agreements/agreement-registry>).

tion and hybrid journals to OA, and library consortia pay not just for reading rights, but also for publishing rights of their researchers in those journals. Fig. 1 shows that transformative agreements are making an enormous contribution to providing OA content. Many publishers are currently taking advantage of transformative agreements to transition their journals to OA. Such agreements are typically negotiated by library consortia, but in some countries, the cOAlition S funder can either contribute to them or be involved in the negotiations leading to them. Journals thus become gradually more OA as more library consortia join in these deals. cOAlition S [3] also supports new publishing models, such as its transformative journals model, which requires publishers to transition their journals in a determined time frame of about 3 to 4 years, while demanding key performance indicators that must be met every year. Fourteen publishers and 2,240 journals have enrolled in this program.

Making It Easy: The Journal Checker Tool

Researchers may find it hard to know exactly how their preferred journals are compliant with cOAlition S policies. It is difficult for researchers to know whether a journal is a gold OA journal, whether it is under a transformative agreement in their region, or whether it is still a subscription journal. For this reason, we decided to help researchers navigate the complexity of OA routes to compliance by developing a Journal Checker Tool (JCT; <https://journalcheckertool.org>). The JCT is a simple search engine that allows a cOAlition S-funded researcher to choose a journal that is compliant with cOAlition S policies. Typing in the triple combination of journal, funder, and institution will allow authors to see how they can publish in the journal of choice as a researcher (Fig. 2). The results allow researchers to see whether the journal in question is compliant with the conditions of the cOAlition S funder’s grant agreement.



Fig. 2. Combination search in the Journal Checker Tool. Author’s screenshot based on <https://journalcheckertool.org/>.

Transparency of Prices and Services

Plan S Principle 5 requires that the structure of publication fees in OA publishing must be made transparent. This is why we have adopted two transparency frameworks. We have selected a provider to build that service. cOAlition S has adopted a phased approach to invite publishers to participate in the Journal Comparison Service (JCS); first, we ask them to sign the JCS Publisher/European Social Fund (ESF) Agreement, and then they can supply their 2021 price and service data by October 31, 2022. If publishers do not participate, the JCT will signal that the journal is not transparent regarding pricing. cOAlition S will actively engage with library consortia to adopt price transparency as a contractual condition in transformative agreements. Publishers who do not provide price transparency may eventually not be eligible for payment by cOAlition S funders.

The JCS is a secure service that enables libraries, library consortia, and funders to better understand whether prices are commensurate with the publication services delivered. Publishers provide information in a standard format, including information about the publication frequency, the peer review process, times from submission to acceptance, the range of list prices for APCs and subscriptions, and more. For reasons of competition law, publishers should not be able to see each other’s price information, and the service will therefore be only accessible to selected users (libraries, consortia, and funders). However, at least these stakeholders will be able to gain insights into the nature and structure of those prices, which are often not tied to the quality of services but to the reputation of the journal. Reputation is not something that cOAlition S funders are willing to pay for. We hope that this price comparison will exert downward pressure on prices and create a more open market.

Diamond Publishing

Diamond OA is perhaps the ideal way of disseminating research. It is free for authors and for readers. There are rarely per unit payments. It is often seen in non-commercial, community-owned, academic-owned, or scholar-led journal publishing. In 2020, cOAlition S and Science Europe commissioned a study on diamond OA publishing that provided a number of findings, recommendations, and a data set [4]. The study produced survey findings from 1,629 journals, and estimated that there are between 17,000 and 29,000 diamond OA journals in the world, 11,500 of which are in DOAJ. Mostly these are small journals: 60.6% in the social sciences and humanities, 17.1% in medicine, but also 22.2% in the sciences. They publish 44% of OA journal articles and comprise 8% to

9% of the total publishing volume. These journals represent an archipelago of small to mid-size journals in the world that are very important to their communities. They may be somewhat isolated and not as visible as the journals of large commercial publishers. Often these are national journals or journals with a smaller audience, and they are frequently strong in multilingualism.

The study formulated recommendations to support these journals, stating that these should be more efficiently organized, coordinated, and funded to realize their potential. Spurred by this study, ANR (French National Research Agency), cOAlition S, OPERAS (European Research Infrastructure for the development of open scholarly communication in the social sciences and humanities), and Science Europe developed a Diamond Action Plan that was presented on March 2, 2022 at Open Science European Conference (OSEC) in Paris, and made public on March 2 for endorsement by organizations and individuals [5]. This is a plan to align and develop common resources for the entire diamond OA ecosystem, including journals and platforms, while respecting their cultural, multilingual, and disciplinary diversity. Over 100 organizations have signed up for the Diamond Action Plan to work together in a community.

The Diamond Action Plan will initially be taken forward by the €3-million HORIZON-WIDERA-2021-ERA-01-43 grant (Capacity-building for institutional open-access publishing across Europe) awarded to the DIAMAS (Developing Institutional open Access publishing Models to Advance Scholarly communication) consortium that grew out of the OA diamond study. The purpose of this project is to comprehensively map diamond OA publishing across Europe, inventorying service mechanisms, funding processes, and gaps. Activities will be developed to improve the coordination, quality, and services of diamond OA publishing. Shared standards and good practices, high-quality journal policies and procedures, and sustainable funding models will be explored. Finally, actionable recommendations will be formulated for strategies and policies to be adopted by research institutions to support their diamond OA publishing activities in a coordinated way across Europe.

What is the Road Ahead for Scholarly Publishing?

Although scholarly publishing is increasingly consolidated around the big five academic publishers, this consolidation is matched by an increasing realization by its users—libraries, researchers, readers, and funders—that it is unaffordable, inequitable, and unsustainable. APCs are sky-high and they are also very unfair toward researchers from developing countries, who simply cannot afford them. There is a risk that the

unsustainable subscription model will be replaced by an equally unsustainable OA publishing model: instead of paying unaffordable subscriptions for journals, we might end up paying for unaffordable APCs. However, I believe the response to this situation is exactly what cOAlition S is trying to do. cOAlition S wants to make sure that prices and services are made transparent, that transformative agreements are open contracts, and that consortia collaborate much more to drive down the prices publishers charge. We also have to look for APC-free solutions, such as the PLoS community action publishing model (<https://plos.org/publish/community-action-publishing-for-authors/>) or diamond OA journals, as a solution to the problem of inequitable access. Researchers in the Southern Hemisphere, for instance, have difficulties paying for high APCs (between \$2,000 and \$3,000 on average) for journals that are mostly published in the Northern Hemisphere. We also see that funders are increasingly setting up their own publication platforms: Wellcome Open Research (<https://wellcomeopenresearch.org/>), Gates Open Research (<https://gatesopenresearch.org/>), and Open Research Europe (<https://open-research-europe.ec.europa.eu>).

I believe that these platforms will gain importance in the next few years, especially as the prestige of journals will no longer be recognized in research assessment. Researchers will be taking control of the publication process through preprint services and journal-independent peer review services, such as Peer Community (<https://peercommunityin.org/>). I think we should aim for a rapid transition to full OA publishing, with a mix of healthily competing commercial and institutional publishing service providers.

Conclusion

The academic community must achieve more control over academic publishing, with sharply delineated roles and responsibilities for academic journal communities on the one hand, and publishing services providers on the other. I think we will see more fragmentation of publishing services, with journal-independent preprint services, independent peer review, and independent preservation services. We will also hopefully be moving towards a more equitable publishing system with more transparent and equitable payments. We should strive towards a globally equitable payment system that is differentiated as a function of the size and income of institutions' leadership, the proportion between the readership and authorship, and regional purchasing power parity.

Conflict of Interest

Johan Rooryck is an executive director of cOAlition S. Other-

wise, no potential conflict of interest relevant to this article was reported.

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