

Frontiers' feedback on Guidance on the Implementation of Plan S

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About Frontiers

Frontiers is an award-winning digital Open Science platform on a mission to make research results openly available to the world, thereby accelerating scientific and technical innovation, social progress and economic growth. Frontiers currently publishes 64 online open-access journals representing around 600 academic specialties; to date these journals have published just over 100,000 peer-reviewed articles.

Introduction

The challenges in disseminating scientific research results in the 21st century

The scientific research cycle is confronted with many challenges, as research funding, researcher populations, article outputs and scientific data are all increasing exponentially. Each year around 2.5 million articles are published, requiring registration, validation (i.e. via peer review), dissemination and preservation.

In 2016, the European Union committed to a target for full and immediate Open Access for scientific peer-reviewed publications to be the default by 2020 based on its potential to increase the quality, impact and benefits of science and ultimately contribute to growth and competitiveness of Europe¹. More recently, the European Commission DG Research & Innovation has declared Open Science the 'modus operandi' of the proposed Horizon Europe R&I program².

Central to Open Access are the FAIR principles³, which stipulate that articles and data must be findable, accessible, interoperable and reusable in order to optimise their reuse by individuals and machines. These principles must be considered within the larger context of a more fully open and collaborative research ecosystem, in which data, protocols, and all other outputs of the scientific endeavour can be effectively included for reuse by anyone.

Realising this ecosystem is a complex endeavour requiring co-ordinated actions by many stakeholders, including researchers, universities, scientific societies, research funders, policymakers and publishers. Moreover, the specific needs of each stakeholder community (including, for example, different academic fields) must be recognised and accommodated.

On a positive note, digital technologies have made it possible to monitor and measure the reuse of scientific knowledge, thus providing richer, more open and pragmatic impact indicators that go beyond conventional journal-level associations.

Open Science Works

At Frontiers we believe that Open Access publishing – and the principles of Open Science more generally – provide the strongest and most effective framework for confronting these challenges by bringing the full benefits of digital technology to supporting the international research community and to the dissemination of knowledge. An open-science infrastructure can be financed through a transparent marketplace for publishing services, engineered both to foster competition among service providers – thus driving innovation – and to be inclusive, taking into consideration the situation of all international academic communities.

Plan S

Launched in September 2018, [Plan S](#) is an Open Access publishing initiative supported by cOAlition S, an international consortium of research funders. Plan S requires that, from 2020, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms.

Frontiers offers the following feedback on the [Guidance on the Implementation of Plan S](#), published by [cOAlition S](#).

Plan S Aim and Scope

Frontiers supports the aim of Plan S for full and immediate Open Access to publications from publicly funded research. We believe Plan S is an important and potentially game-changing step forward toward the achievement of the EU's goal to transition to full and immediate Open Access from 2020 onwards, based on its potential to increase the quality, impact and benefits of science and ultimately contribute to growth and competitiveness of Europe⁴.

Plan S Compliance

We welcome the following aspects of the implementation guidance:

- **Open availability of articles immediately upon publication without any embargo period** – this is vital to ensure that all communities can immediately benefit from the results of publicly funded research
- Permanent access under **an open license** allowing for re-use for any purpose (as detailed in Section 8), subject to proper attribution of authorship – this provision is vital to ensure that the full benefit results can be realised through dissemination and research methods such as text and data mining.
- **Multiple compliant publication routes:**
 - We support the provision in Plan S for researchers to publish in compliant Open Access **journals** or on compliant Open Access **platforms**.
 - We recognise the value of the deposition of scholarly articles in compliant Open Access **repositories**, as a compliant route, under specified conditions (deposition of final version immediately on publication under an open license). We welcome the purpose of some of the specific Plan S requirements to make repositories more machine accessible and readable. Currently many of the existing repositories are still suboptimal in those aspects and hence limited in the current contribution they make to Open Access.
 - In a transition period, Plan S allows for Open Access publication in subscription journals ('hybrid Open Access') under transformative agreements as means to achieve compliance with Plan S. We, among others^{5 6}, do not believe the **hybrid** model to be compatible with full and immediate Open Access. We understand the Plan S approach to hybrid as a pragmatic interim approach under transformative agreements (as defined in Section 11). We agree that the effect of transformative agreements should be reviewed in 2023 at the latest, and we would recommend that a **deadline** for publication venues to convert to full Open Access be specified.

Publication costs and supporting quality OA journals and platforms

Frontiers agrees with cOAlition S principle that it is important that a **diversity of open access business models** – including non-APC based outlets – exists and is supported. The more routes towards immediate and full open access are made available to researchers, the better it is for successfully opening scientific knowledge for the benefit of humanity.

- **Transparency**

We welcome the inclusion of **transparency** on Open Access publication costs and fees as one of the criteria that define Plan S compliance of journals and platforms. We strongly believe that transparency in pricing is essential as we move to a more **functional marketplace** for editorial services, for example to allow for the self-regulation for APCs and service levels associated with them, and we support the Plan S intention to “contribute to establishing a fair and reasonable APC level, including equitable waiver policies, that reflects the costs involved in the quality assurance, editing, and publishing process and how that adds value to the publication”.

Frontiers [published](#) its **APC-based expenditures** because we stand firmly behind our APC policy, which we believe strikes a balance that is sustainable and inclusive, allowing us to both build innovative tools and to ensure that every author — regardless of funding situation or field of research — will have access to high-quality Open Access publishing services.

In addition, we advocate that **all agreements between publishers and institutions** should be fully **transparent and openly available**. This would allow any institution or national consortium to compare “deals” and prizes, and puts pressure on publishers to account for services provided, and prevents unfair or singular pricing strategies. Two landmark national agreements referred to above between Frontiers and [Austria](#) as well as [Sweden](#) were published in this transparent and open way.

- **Innovation**

We would further emphasize the importance of investment in **innovation**. Many of the challenges facing the effective dissemination and reuse of scientific research results will only be addressed through continued investment in innovation. This further goes hand in hand with the need to establish a transparent and functional marketplace for publishing services, as this will drive competition among publishers to continually improve services to the benefit of the entire community.

Over the 10 years of Frontiers’ existence, 100% of APC income has been reinvested in the company with the mission of making science open and bringing high-quality impactful journals to many academic communities. APC revenue pays for the people who run our editorial programs and build our innovative customised Open Access technology. Of note, on average, 17% of our expenditure (from APC revenue) is earmarked towards innovative IT development.

- **Inclusivity**

Frontiers operates on an **APC spectrum designed to be sustainable and inclusive**.

- Our APCs are based on five categories of [publishing fees](#), which consider and vary according to article type, journal maturity and differences in the level of research funding and open-access funding available in various disciplines. This means that more mature and richer community journals support and subsidize new journals and communities in which research funding is lower or Open Access is less well established (and hence lack funding), **enabling all research communities to benefit from Open Science**.

- Any authors and institutions with insufficient funding, from anywhere in the world, are eligible for a full or partial **fee waiver**. This ensures that all articles worthy of publication (subject to peer review) can benefit from open dissemination.

The APC model is, in our experience, an effective and flexible business model that allows for stable, universal, inclusive, high-quality publishing services that cater at scale for the diversity of international research communities we serve.

At present, we are not aware of another business model with comparable capabilities at scale. Nevertheless, we acknowledge the importance of a diversity of models, and encourage experimentation with new models to tailor services to the varied needs and expectations of diverse research communities and constituencies.

- **Quality**

Our experience shows that this type of APC model works.

According to an analysis of data from the [SCImago](#) database, among the world's 20 largest publishers in 2017, three **purely OA publishers** (PLOS, Frontiers, MDPI) are within the top 10 of the **highest average citations per paper** ⁷.

More broadly, this analysis, with other recently published studies ^{8 9} confirms that Open Access does not compromise – and may even improve – the **quality and impact of publications**, while supporting the aim of Plan S for a transition to full immediate Open Access.

- **OA costs and fees**

We welcome the decision of cOAlition S to commission an **independent study on Open Access publication costs and fees** (as well as gap analysis study to identify fields and disciplines where there is a need to increase the share of Open Access journals/platforms).

A rigorous and independent study of this type will be important to shed light and clarity on the reality of the APCs based market. We **stand ready to provide data** on costs / fees or other input sought by these studies.

Furthermore, we would recommend that this study, look at **all income sources required for the per-article pricing**. Specifically, some financial models for open access operate on APCs only, while others are based on APCs subsidised by subscription income or foundation support; “platinum / diamond” open access publishers should also be encouraged to communicate transparently about their per-article cost structure (even if their financial model does not cover these costs by subscription or article charges).

Technical guidance and requirements

In our capacity of ‘Gold’ (APC-based) Open Access publisher, we can offer further specific feedback with respect to the criteria for compliant Open Access journals and platforms.

- **Licensing and rights**

We fully support that the license on publications **should by default be CC-BY**, as it allows for maximizing the benefit to society of publicly funded research, including reuse, and we agree that NC attributions should be excluded, as they would unduly limit the impact of publicly funded research

onto society, for example by hampering reuse at innovative startups or in the context of public-private partnerships.

We have followed the on-going discussions in some social sciences and humanities communities, which calls on the inclusion of CC-BY ND license, to prevent issues to arise in the context of translations of work or misrepresentation of meaning by a third party. Initial adoption of the CC-BY conditions have been questioned by each community as open access channels become more widespread. We call on the Committee to **carefully assess the need for this exception**; with the rise of “digital humanities” the exclusion of the content for text-and-data mining would significantly limit interoperability and reuse of the content, and at Frontiers we have not seen this to be an issue in our smaller, but rapidly growing, social science and humanities program.

- **Supporting journals/platforms to be compliant**

Frontiers supports the mandatory basic (Section 9.1) and quality criteria (Section 9.2) for Plan S compliant Open Access journals and platforms, together with the recommended additional criteria (Section 9.3) and the requirements for the deposition of content in repositories (Section 10).

We would make the following comments on these criteria:

- The compliance criteria cover various aspects of publishing, some requiring a certain level of publishing competence, technological expertise and infrastructure, and funding/resourcing. A recent study concluded that few journals are fully Plan S compliant and that as suggested the criteria could favour larger publishers of APC-journals, versus smaller publishers of non-APC journals¹⁰, even though Plan S acknowledges the importance of diversity in publishing models.
- It is not completely surprising that few journals are fully compliant at present, since Plan S is not yet in operation and the Implementation Guidance has only recently been published. As we understand it, Plan S aims to encourage publishers to provide compliant routes, to the benefit of open science. To this end, we would suggest that cOAlition S should consider how it can provide **further guidance and support to assist all types of journals/platforms to become compliant** (if they so wish) as soon as practically possible so as to be as inclusive as possible within the specifications of the Plan.
- We note that two cOAlition S members (Wellcome and UK Research and Innovation), in partnership with the Association of Learned & Professional Society Publishers, have commissioned the consultancy Information Power (IP) to explore a range of potential strategies and business models through which learned societies can transition to Open Access and adapt and thrive under Plan S. As does the Wellcome Trust, we ‘recognise the value learned societies play in supporting researchers and contributing to a vibrant research ecosystem’, and we agree that **learned societies need to be supported in the effective transition towards Plan S compliance**. Frontiers as a publishing services provider is further willing to work with learned societies to aid them in the successful transition toward full and immediate OA publishing.

- **Waiver policy**

We believe the Plan’s basic criterion that the “journal/platform must provide automatic APC waivers for authors from low-income countries and discounts for authors from middle-income countries” **should be broadened**. Ideally, mechanisms of financial support should be available to include all communities or institutions regardless of simple national categorization. In our experience, researchers from any country (**including high-income countries**) may lack sufficient funds and qualify

for full or partial waivers: in 2017, 12% of all total or partial waivers by Frontiers were granted to requests from the USA; 44% were granted to European authors.

Furthermore, it is important to emphasize the need for a **clear separation between funding requests and editorial decisions**; waiver requests should be considered independently from the outcomes of an independent and rigorous peer-review process.

Conclusion

Supporting the transition to full and immediate open access in scholarly publishing is at the core of Frontiers' mission and values. We support Plan S and offer our assistance to cOAlitionS in the further development and implementation of the Plan S guidance.

References

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