

1. Is there anything unclear or are there any issues that have not been addressed by the guidance document?

The American Association for the Advancement of Science (AAAS), which currently supports a variety of policies that allow the scientific literature to be fully available, finds the approach proposed by Plan S to create major issues for the scientific publishing community in the following ways:

- **Cap on Article Processing Charges Undercuts Innovation and Quality:** High-quality scientific publishing requires considerable resource investment to identify the papers that have the potential to significantly impact the pace of science; for thorough peer review that includes not only review of technical merit but also confirmation of adherence to editorial policies; and to partner with the scientific community to establish standards that support transparency and reproducibility. Once the community standards are established, editorial resources are required to ensure each research paper published contains all elements needed for other scientists to reproduce and build upon the original research. This and related efforts are resource-intensive, and the demand for quality assurance is only increasing with time. Innovation is needed if publishers are to reduce costs and further improve the processes that promote research integrity and help maintain an accurate record of published scientific content. AAAS is highly committed to these endeavors – a set of quality standards on which thousands of global researchers continue to depend. The implementation guidelines outlined in Plan S have failed to articulate the importance of such innovations, which enhance the quality of scientific journals and the communication of scholarly research writ large. Instead, the Plan S guidance focuses on details that ensure ease of access, reuse, and data and text mining – all desirable outcomes, but only if the research being openly shared meets standards set by the scientific community. Also misguided in the Plan S guidelines is the deemphasis on selectivity by journals. It is AAAS's view and also its extensive experience as a global publisher that scientists across disciplines look to journals as filters for quality and merit. For all these reasons, AAAS views the proposed cap on Article Processing Charges as counterproductive to the community's needs and goals, and as a threat to maintaining an accurate record of published scientific content and protecting its overall integrity.
- **Elimination of Hybrid Journals Impinges on Author Freedom:** Hybrid journals, which Plan S would disallow, support a publishing approach in which any researcher can publish in any journal regardless of geography, status, income, funding, or funding source. This option is critical for early-career scholars and others for whom APC payments represent a major financial obstacle. The elimination of hybrid journals would result in funder-dependent publishing in which author freedom is constrained by a "pay-to-play" approach. AAAS is unwavering in its commitment to academic freedom and author choice, and it is AAAS's view that eliminating a thriving journal model (such as the hybrid model) is out of step with essential goals of open-access proponents: to increase author choice and better serve the diverse needs of all research communities.
- **CC-BY Mandate Impinges on Author Freedom and Disadvantages Authors:** Forcing authors to publish under a particular type of license (CC-BY), as Plan S seeks to do, narrows academic freedom by limiting author publishing choices. It forces authors who must comply with Plan S to select journals that may not reach their intended audiences, when AAAS market research routinely shows that the overwhelming majority of authors consider readership among peers as

a critical element in choosing where to publish. Further, the CC-BY license creates challenges for the author in tracking and adjudicating misuse or manipulation of an original scientific work. In worst cases, this could lead to a scientific work becoming misrepresented. The CC-BY license also disadvantages authors, especially early-career investigators, by destabilizing the citation record; citations that should accrue to the original authors of a paper may be made incorrectly to any derivative versions. The proposal to use CC-BY more broadly is ostensibly to support broader access to the literature. AAAS, like many scientific societies, already supports broad public access to the scientific literature and has adopted numerous related policies. Among these, AAAS supports authors depositing accepted copies of works to institutional repositories through a liberal green open-access policy. AAAS also permits authors to share copies of their works with any peers who ask for a final version, and it supports posting on not-for-profit preprint servers.

Respondents are also permitted to upload a supporting document to the feedback form.

The American Association for the Advancement of Science (AAAS) – the nonprofit publisher of the *Science* family of journals and the largest multidisciplinary science society long committed to communicating science broadly and accurately – offers the following feedback on the [Implementation of Plan S](#). This feedback is aligned with that from other professional societies that provide critical services to the scientific community in maintaining an accurate record of published content and protecting its overall integrity, and that, like AAAS, support broad public access to the scientific literature and have adopted policies that allow it to be fully available. AAAS supports authors depositing accepted copies of their studies in institutional repositories through a liberal green open-access policy, in addition to permitting authors to share copies of their work with peers. AAAS also supports authors depositing research on not-for-profit preprint servers.

The *Science* family of journals performs a critical and distinctive role within scientific scholarly communications – one on which thousands of global researchers depend to publish, promote, protect, and ensure access (in perpetuity) to their research results. Rigorous standards of review at the journals include not only review of technical merit, but also confirmation of adherence to editorial policies regarding conflict of interest disclosures, Institutional Review Board approvals, and authorship requirements. Editorial policies require that data supporting each research paper be deposited for future work including replication efforts. In addition to publishing the gold open-access journal *Science Advances*, to holding liberal green open-access policies at *Science*, *Science Translational Medicine*, *Science Signaling*, *Science Immunology* and *Science Robotics*, and to making all content free to access 12 months after publication, AAAS is engaged in open-access pilot studies. AAAS also participates in programs that allow free or low-cost immediate access to content for institutions in low- and middle-income economies. Through publication of *Science Careers*, *News from Science*, *Perspectives*, *Policy Forums*, and *Editorials*, *Science* gives a voice to scientists around the world – facilitating dialogue on issues that matter to scientists as professionals, to scientists seeking to engage with the public, and between groups of scientists. Finally, the material published in all six family journals is communicated with a network of more than 12,000 reporters each week, leading to broad and accessible media coverage of research.

The high-quality scientific publishing and broad strategic outreach characterized by the *Science* family journals requires significant resource investment. Among other steps, journal editorial staff work to ensure each research paper published contains all elements needed for other scientists to reproduce and build upon the original research. This and related efforts are resource-intensive, and only increasing with time. Innovation is needed if publishers are to reduce costs and further improve the processes that

help to maintain an accurate record of published scientific content. AAAS is highly committed to such endeavors, including identifying the papers that will have high value to our readers; thorough peer review and guidance during the revision process; setting standards that support transparency and reproducibility; enhancing presentation; and communicating with the public. The implementation guidelines outlined in Plan S have failed to articulate the importance of such innovations, which together enhance the quality of scientific journals in which authors can publish. Instead, the Plan S guidance focuses on details that ensure ease of access, reuse, and data and text mining – all desirable outcomes, but only after research articles meet standards set by the scientific community. Maintaining an accurate record of published scientific content and protecting its overall integrity is critical. Also misguided in the Plan S guidelines is the deemphasis on selectivity by journals; it is AAAS's view and its experience as a global publisher that scientists across disciplines look to journals as filters for quality and merit.

AAAS is unwavering in its commitment not only to significant resource investment in publishing, but also to academic freedom and author choice. Forcing authors to publish under a particular type of license, as Plan S seeks to do, narrows academic freedom by limiting author publishing choices; it forces authors to select journals that may not reach their intended audiences. It is AAAS's view that this is out of step with essential goals of open-access proponents: to increase author choice and encourage innovation in scholarly communications. The model proposed by cOAlition S does not currently serve the diverse needs of all researchers and research communities.

At AAAS, we do not think full open access publishing as outlined in Plan S is feasible if scientific publishing is to continue to be characterized by the high-quality standards represented in the *Science* family of journals. AAAS market research continues to show that the overwhelming majority of authors consider a journal's reputation, strength of peer review process, and readership among peers – hallmarks of our publishing approach – as the critical elements in choosing where to publish. As a leading publisher of scientific research and as a membership society, AAAS operates globally, listening to authors, to government agencies and foundations that fund these authors, to universities that employ and support these authors, to librarians who evaluate which research to deliver to their institutions, to reporters who communicate science, and to the public eager to learn about the latest scientific findings. We are endeavouring to employ a sustainable business model that satisfies author, funder, institutional, and reader needs across the globe. The model thus far reflected in Plan S is not that model. Rather, it threatens to do more than harm than good, especially with respect to scientific societies that publish journals that provide a critical service to the scientific community in maintaining an accurate record of published content and protecting its overall integrity.

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