Request for Information on the NIH Plan to Enhance Public Access to the Results of NIH-Supported Research

April 24, 2023

Summary

We welcome the chance to respond to this important request for information from the National Institutes of Health (NIH). Frontiers is a leading research publisher and open science platform. It is the third most-cited and sixth largest in the world. The science we publish is peer-reviewed, globally shared, and free to read.

Our mission is to make all science open – so that we can collaborate better and innovate faster, for fairer and more equitable outcomes in all parts of society. That is our social purpose as a business.

So, we fully support the August 2022 OSTP (Office of Science and Technology Policy) guidelines. We strongly welcomed them at the time. And we think the NIH has posed critical questions in this request for information, not least about the findability and transparency of research.

As a Gold Open Access (OA) publisher, we have made thousands of peer-reviewed articles available online immediately, without embargo. Our starting point – and end point – is ease of discovery.

We face global, existential threats. From health emergencies to climate change, we see and feel them now. We can manage and reverse these threats, to live healthy lives on a healthy planet. But that will require political will, global collaboration, and scientific breakthrough at a scale not yet seen.

On all those counts, success will depend on the widespread sharing of the latest scientific knowledge. All of it. We think scale matters. Tackling these threats will require more than incremental change. Good research published at scale and shared globally, with machine readability across large volumes of information, will accelerate scientific discovery and grow our chances of success.

In simple terms, an article that cannot be found, cannot be shared, and cannot be cited also cannot spur collaboration and breakthrough. Publishing in a Gold OA journal unlocks discoverability. The articles and underlying data are transferred to a repository such as PubMed Central or stored in commercial or other non-profit databases. The metadata come in XML files and other machine-readable formats to meet FAIR data standards of findability, accessibility, interoperability, and reuse. And that data includes persistent identifiers (PIDs) such as that of ORCID for author identification, a Digital Object Identifier (DOI) for the article itself, and tags to the relevant grant funding or research institution.

The new federal guidelines seek public access but do not specify delivery models. We agree that openly accessible science can – and should – be delivered by more than one publishing model. We welcome competition if it spurs innovation and the amount of rigorous science accessible to all.

But in judging those delivery models, federal agencies must make a robust and transparent assessment to compare them for efficiency, scalability, and public value for money – guided by the objective of discoverability that underpins public access.

For example, public access known as "Green Open Access (Green OA)" clearly removes some barriers and does not create or perpetuate inequity. But the mechanisms for finding, reading, and sharing Green OA files vary widely. Substantial new funding will be required just to bring that variance down and lift standards for discoverability, with new investment in infrastructure for metadata enrichment. Those institutions unable to fund that investment are likely to face the continued cost pressure of paywall subscriptions that might only minimally ease search and discovery.

So, it is vital that the funding of public access is as efficient, scalable, and as good a value for money as possible, and in our view, Gold OA publishing is the most effective way of securing that outcome. It offers a simple, transparent, and competitive way to unlock the benefits of fully accessible science and does so more effectively than the Green OA option.

As such we believe that the NIH, if it chooses to allow for compliance through either a Green OA or Gold OA model, should express a preference for compliance through Gold OA.

We think it is possible to achieve the fullest possible access to our collective knowledge – for fairer outcomes in all parts of society – in a business model that is cost-effective, commercially sustainable, and underpinned by private sector innovation. That is possible only in a Gold OA model.

We stand ready to support the NIH and its partners in the federal government. It is vital we back this effort for open science and meet the public appetite for accountability, transparency, and trust.

Full response

Our detailed responses to the NIH's framing (in italics) are set out here.

1. How to best ensure equity in publication opportunities for NIH-supported investigators.

<u>On public repositories</u>, we believe the NIH Public Access Plan rightly encourages and prioritizes the widest possible choices for researchers as they relate to publishing venue, as well as the principles of academic freedom. We think the Plan strikes the right balance by making PubMed Central (PMC) a convenient and compliant repository for research without privileging or mandating it.

<u>On the fairness of the article processing charge (APC)</u>, we believe it is both fair and effective as it is a fee for a service. But although it is the most efficient and transparent method, it is worth noting this charge is not the only way to finance

Gold Open Access (Gold OA) publishing. Indeed, we recognize that in some cases, it is not the preferred or most sustainable price structure for researchers, funders, libraries, and research institutions. And while we, like others in the publishing industry, think the APC model is a good one, we are continually in touch with institutional partners to find solutions that meet their needs. And we are seeking new models to help authors cover the fair and actual cost of publishing, to make scientific knowledge accessible to the widest possible audience.

Within an APC framework, we have expanded our portfolio of institutional models to meet the tailored needs of our customers (recognizing, for example, the distinct needs of research-intensive "publish" organizations as well as high consumption "read" institutions and societies). Our success indicates a range of pricing options can meet the needs of a range of customers and institutions.

On the additional steps the NIH might take to ensure new inequities are not created, or existing ones reinforced, we believe the NIH should encourage researchers to publish in the Gold OA model – on the basis that the public funding of public access is efficient, scalable, and delivers value for money.

In our view, Gold OA publishing is the most effective way of securing that outcome. It offers a simple, transparent, and competitive way to unlock the benefits of fully accessible science; and it enables researchers, agencies, universities, libraries, and repositories to fulfil both the NIH Public Access Policy and the OSTP guidance.

Publishing in a Gold OA journal immediately facilitates the transfer of articles to a repository, with metadata in machine-readable formats. In this model, there are no embargoes and no superfluous or costly bundled services that are common in "hybrid" or "transformative" subscription options offered by legacy commercial publishers.

On public value for money, new federal guidelines seek public access but do not specify delivery models. We agree that openly accessible science can – and should – be delivered by more than one publishing model. We welcome competition if it spurs innovation and the amount of rigorous science accessible to all.

But in judging those delivery models, federal agencies must make a robust and transparent assessment and a comparison for efficiency, scalability, and public value for money – guided by the objective of discoverability that underpins public access.

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the continued cost pressure of paywall subscriptions that might only minimally ease search and discovery.

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2. Steps for improving equity in access and accessibility of publications.

On the 12-month embargo, we strongly welcome the NIH's decision to end it on publications. We believe that so-called Transformative Agreements (TAs) were worthwhile in their conception as a means of smoothing the transition to fully open access science, but in their execution have not effectively led to transformation and have instead become a blunt instrument.

TAs lack transparency, have complex bundles of often unnecessary services making it all but impossible to judge value for money, and come with no contractual commitment to a move to full open access (Green, Gold, or otherwise) within a binding deadline.

Most of these TAs are large scale "read and publish" or hybrid deals. Publishers will often allow authors' work to appear in hybrid journals without being charged (if their institutions pay), while at the same time maintaining the amount of science they publish behind paywalls.

We believe TAs help subsidize the market dominance of legacy publishers by controlling the pace of transition to fully open access science. The worldwide scientific publishing oligopoly is a market estimated to be around US $27 billion.[1] The five largest paywall publishing houses[2] have captured more than half of it.[3]

On the basis the NIH seeks equity in access as well as transparency in costs, backed by financial sustainability, we believe Gold OA publishers can deliver.

On automated text processing, assistive devices, and other inclusionary measures, we fully support the NIH's position. We consistently invest in measures that improve the accessibility of our publications. Many such requirements were mandated by the Coalition S initiative, which Frontiers fully supported, and which saw wide-ranging and progressive open access policies adopted in the United Kingdom and across Europe.

We firmly back public policies that promote equity of opportunity, the ability both to read and to publish research, and the scientific rigor, academic freedom, institutional values, and personal and professional recognition that underpin success.

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[1] By revenues. In 2021. Outsell Inc., Segment View: Scientific, Technical and Medical, 2021 (cited in STM Global Brief 2021 – Economics & Market Size).
[2] Elsevier, Wiley, Springer Nature, Taylor & Francis, and SAGE.
[3] Livres Hebdo/Publishers Weekly 2021 ranking of top global publishers.

We are committed to increasing research access, knowledge resources, and educational opportunities for all, especially for those groups, nations, and individuals who are historically marginalized, underrepresented, or disadvantaged.

On institutional success, we work to build communities and tackle the inadequacies and inequities often characterizing research dissemination. The shift toward open access represents an opportunity to expand access to knowledge in a significant way across academic institutions of all stripes, as well as to small businesses and the public.

We urge the NIH to draw on its influence to see that library, research, and educational institutions commit to investing in open access so that all parties can source sufficient funding for publishing. Several equitable open publishing models are readily available. It cannot be right if colleges and universities are encouraged to maintain robust publications budgets for subscriptions and then asked to make cuts to open access.

We believe there is enough funding in the system to make the transition to open access complete. But that funding can only be unlocked with public sector, policymaker, and buyer leadership, on the basis we look beyond legacy publishing models that have been responsible for a decades-long cost explosion in scholarly publishing.[4] With the right policies and incentives, agencies can help drive the value of taxpayer-funded investment and spur innovation.

3. Methods for monitoring evolving costs and impacts on affected communities.

On financial costs, we welcome the NIH's interest in the commercial drivers of scholarly publishing, particularly in matters of access or equity.

Since our inception as a born-digital publisher, we have positioned ourselves as a researcher-centric organization focused on quality, speed, collaboration, and innovation. The governing principle of all scholarly publishing should be that the researchers have the most freedom possible to focus on their research. And so, all publishers compete to lower administrative and process-based burdens.

While the dissemination of research requires a complex ecosystem, we believe a wide-scale shift to open access would allow libraries and research institutions to free substantial resources now tied up in (paywalled) subscriptions, and to apply those resources to researchers' publishing costs.

A strong signal or directive from the NIH that research institutions should commit these freed-up funds – as well as grant money ringfenced for publication – to the widespread and immediate sharing of research would have a profound and positive impact on the drive to fully open access science.

[4] See for example: University of Missouri analysis; University of California San Francisco analysis; Guardian analysis.

On the perceived relative fairness of pricing regimes, and as we say in response to Question 1, it is worth noting the article processing charge (APC) is not the only way to finance Gold Open Access (Gold OA) publishing. Indeed, we recognize that in some cases, it is not the preferred or most sustainable price structure for researchers, funders, libraries, and research institutions. And while we, like others in the publishing industry, think the APC model is a good one, we are continually in touch with institutional partners to find solutions that meet their needs. And we are seeking new models to help authors cover the fair and actual cost of publishing, to make scientific knowledge accessible to the widest possible audience.

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The publishing industry at large is experimenting with pricing models and introducing new ones in its drive to innovate. Though the nomenclature varies – advance annual payment, fixed fee, flat fee, multi-payer, Subscribe 2 Open, waivers – all of these seek to offer more cost-efficient and sustainable alternatives to libraries' subscription expenditure.

4. Early input on considerations to increase findability and transparency of research.

On data sharing, we fully back the NIH's effort through its Public Access Plan to spur a better and more consistent use of persistent identifiers (PIDs) and metadata. In driving this effort, the NIH is providing critical leadership in the scholarly publishing ecosystem.

Moreover, we welcome the NIH's focus on the findability and transparency of research. Open data drives scientific and technological innovation and spurs collaboration; is critical to driving efficiency and scaling innovation; and in uniform standards can be verified, reproduced, and built upon.

If data is transparent and open to scrutiny and evaluation, it follows that trust and confidence in science are more likely to be sustainable. The infrastructure for open data is readily available and an increasingly frequent resource; what's more, many large-scale repositories already exist to make data open. Examples include Figshare, a commercial, field-agnostic repository; field-specific, non-profit databases like the society-supported FlowRepository for cytometry data and the commercial Protein Data Bank; and federally backed databases like NIH's data repositories.

On data repositories, substantial funding will be required for operation and upgrades. And in the absence of funding committed to scaling up PMC, Frontiers would back a federated approach that focuses on shared standards and access across multiple repositories. By way of illustration, we deposit the full text or

metadata of our 230-plus journals in more than 20 repositories when we publish articles.

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Moreover, the metadata from Gold OA journals come in XML files and other machine-readable formats to meet FAIR data standards of findability, accessibility, interoperability, and reuse. The metadata includes PIDs such as that of ORCID for author identification, a Digital Object Identifier (DOI) for the article itself, and tags to the relevant grant funding or research institution. And compliance with JATS DTD for XML and other PMC-recommended tagging enables an even more efficient search and discovery experience.

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