

Response to the Office of Science and Technology Policy (OSTP)

Request for Information: National Priorities for Artificial Intelligence

Docket ID: OSTP-TECH-2023-0007

July 7, 2023

Summary

We welcome the chance to respond to this important [request for information](#) from the Office of Science and Technology Policy (OSTP). 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 guidelines on immediate public access to federally funded research. We strongly [welcomed them](#) at the time. As a Gold Open Access publisher, we have made thousands of peer-reviewed articles available online immediately, without embargo. Our starting point – and end point – is ease of discovery.

More broadly, as an open science publisher, Frontiers is above all a knowledge, information, and technology company. We were born digital and open access. We made the founding decision to build our own open science platform and continually to develop, improve, and customize it as we meet the evolving needs of the scientific community.

We think the OSTP has posed critical questions in this request for information about the opportunities, challenges, risks, and benefits of artificial intelligence (AI). General, human-compatible AI could empower us all, but public trust in good science will be key. At Frontiers, we apply our AI tools to help establish that trust.

Our Artificial Intelligence Review Assistant (AIRA) verifies that scientific knowledge is accurately and honestly presented even before our people decide whether to review, endorse, or publish the research paper that contains it. AIRA reads every research manuscript we receive and makes up to 20 checks per second. These checks cover, among other things, language quality, the integrity of figures and images, plagiarism, and conflicts of interest. The results give editors and reviewers another perspective as they decide whether to put a research paper through our rigorous and transparent peer review process.

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, shared globally, and able to be machine-read across large volumes of information, will grow our chances of success.

Leveraging AI to that end is already underway, and more can be done. But it is vital these AI solutions do not create or perpetuate inequity. The governance mechanisms and safeguards being proposed vary widely, and substantial new thinking and public funding will be required to bring that variance down and lift standards for compliance. The public funding of AI infrastructure and oversight must be as efficient, scalable, and as good a value for money as possible.

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. We stand ready to support the OSTP and its partners in the federal government. It is vital we back responsible AI efforts for the good of open science and to meet the public appetite for accountability, transparency, and trust.

Full response

Our detailed responses to the OSTP’s framing (in italics), specific to the RFI subsection “Promoting economic growth and good jobs,” are set out here.

17. What will the principal benefits of AI be for the people of the United States? How can the United States best capture the benefits of AI across the economy, in domains such as education, health, and transportation? How can AI be harnessed to improve consumer access to and reduce costs associated with products and services? How can AI be used to increase competition and lower barriers to entry across the economy?

The Covid emergency taught us that when we trust, open, and share scientific research globally, we can mobilise efficiently, innovate, and save lives. At Frontiers – a fully open access scientific publisher – we have made thousands of peer-reviewed articles available online immediately, without embargo, for licensed use and re-use. Our starting point – and end point – is ease of discovery.

But now we need to do more. We want to see all science open, so that scientists can collaborate better and innovate faster, for fairer and more equitable outcomes in all parts of society, and across all sectors and domains, including education, health, and transportation. That’s our social purpose as a business.

From the perspective of scientific publishing, we see two principal conditions for success if we are to capture the economic benefits of AI, on the one hand, and to improve consumer access to downstream products and services at lower cost, on the other.

First, all parts of society can benefit from full access to scientific breakthroughs, immediately published online at scale, and underpinned by rich, open data that can be machine read across large volumes of information. And on this count, we think scale matters. Tackling the global economic and environmental threats we face will require more than incremental change.

Frontiers has developed a powerful AI Review Assistant ([AIRA](#)) to help drive that outcome, by accelerating the pace at which we can make widely available rigorous, peer-reviewed science. AIRA verifies that scientific knowledge is accurately and honestly presented even before our people decide whether to review, endorse, or publish the research paper that contains it.

AIRA reads every research manuscript we receive and makes up to 20 checks per second. These checks cover, among other things, language quality, the integrity of figures and images, plagiarism, and conflicts of interest. The results give editors and reviewers another perspective as they decide whether to put a research paper through our rigorous and transparent peer review process.

Second, if AI is to improve consumer access to downstream products and services, at lower cost, we think the scientific publishing industry – in as much as it drives the knowledge economy and innovation – will require a noteworthy injection of competition.

The market dominance of legacy publishers has frustrated that noteworthy change. The worldwide scientific publishing oligopoly in a market estimated to be around US \$27 billion.¹ The five largest paywall publishing houses² have captured more than half of it.³ Moreover, costs and prices in publishing have historically been driven up by complicated, bundled, and opaque legacy business models. These legacy models and their paywall systems have driven inequalities and become unsustainable.

Openly accessible science can and should be delivered by more than one publishing model – publicly and privately owned, commercial and non-profit, community led and institutionally backed. We welcome more competition if it spurs innovation and the amount of rigorous science accessible to all.

18. How can the United States harness AI to improve the productivity and capabilities of American workers, while mitigating harmful impacts on workers?

AI is a central strategy for us at Frontiers, and we developed our AI Review Assistant ([AIRA](#)) in part to expand the productivity and capabilities of our people. 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.

AIRA verifies that scientific knowledge is accurately and honestly presented even before our people decide whether to review, endorse, or publish the research paper that contains it. AIRA reads every research manuscript we receive and makes up to 20 checks per second. These checks cover, among other things, language quality, the integrity of figures and images, plagiarism, and conflicts of interest. The results give editors and reviewers another perspective as they decide whether to put a research paper through our rigorous and transparent peer review process.

On top of quality checks, AIRA helps Frontiers identify expert reviewers whose fields of knowledge can be matched with manuscripts and similar content under consideration for publication.

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](#).

19. What specific measures – such as sector-specific policies, standards, and regulations – are needed to promote innovation, economic growth, competition, job creation, and a beneficial integration of advanced AI systems into everyday life for all Americans? Which specific entities should develop and implement these measures?

Establishing the right national and international governance for AI – across tools, individuals, and businesses – is fraught but critical. Global leadership and cooperation will be key.

As a first step Frontiers has examined its own sector-specific policies and procedures. Publicly this analysis has taken the form of updated author and peer reviewer policies to address the realities of AI-generated data – be it legitimate or prohibited – entering the workstream of scientific publications. And more generally, through our membership in multi-publisher governing bodies such as the Open Access Scholarly Publishing Association (OASPA) and the International Association of Scientific, Technical, and Medical Publishers (better known as STM), we work to ensure our AI policies are standardized and communicated in ways that are clearly understandable to our key stakeholders – researchers, funders, librarians, and individual readers among them.

In the US, we back the recent calls made by Senior Vice President at Platinum Advisors and Former U.S. Ambassador on Information Technology, Daniel Sepulveda. We fully support the following proposals he puts forward in [this white paper](#), ‘The AI Governing Challenge,’ June 2023, namely that:

“Congress should create special select committees on AI in the Senate and House to take on the task of rising to these challenges with the Chairs of key committees represented. The Administration should create an AI Policy Coordinator and permanent office in the White House with direct access to the President.

“Only a handful of firms will have the capital, computing capabilities, and talent necessary to create and deploy powerful AI models. A licensing regime should govern their operations and they should be subject to regular public audits. Before a licensed entity releases any AI tool to the public, it should undergo rigorous safety testing and auditing for protection against specific potential harms. Every company that evaluates and distributes such a tool should have usage policies for its users and partners and effectively enforce those policies.

“Users of powerful AI systems for the delivery of content or services should ensure that they make transparent to end users or consumers that the content consumers are viewing or the service they are receiving was generated using AI in part or in whole. They must make available an appeal process for any AI enabled decision of significant consequence for the individual. No AI tool should enable the violation of people’s privacy or civil rights.

“Agencies should use existing authorities to enforce existing law on creators and users of AI systems. Congress should provide the appropriations necessary for the agencies to acquire the technical expertise necessary to evaluate AI models and tools and their use.”