

July 7, 2023

Nik Marda
Chief of Staff, Tech Division
Office of Science and Technology Policy
1650 Pennsylvania Avenue NW
Washington, DC 20502

RE: STM Response to Request for Information on National Priorities for Artificial Intelligence (88 FR 34194, Docket OSTP-TECH-2023-0007)

Dear Mr. Marda:

[STM](#), the International Association of Scientific, Technical and Medical Publishers welcomes the opportunity to provide input to the development of a National AI Strategy. We look forward to working with the White House and other federal stakeholders to support the development of ethical, trustworthy, and human-centric AI that delivers innovation and minimizes the risks to society and human rights. For the scholarly publishing community, primary amongst our priorities are preventing misinformation, respecting intellectual property, and supporting accurate, transparent, and reliable research and discovery processes.

STM and its member publishers understand that AI has the potential to radically change the way we work, learn, do research, and deal with information, and introduces both risks and rewards that we hope a National AI Strategy can help America navigate and mitigate. STM and its members are actively considering how AI can be developed and utilized in an ethical, accountable, and trustworthy manner. Publishers are driving innovation in this space as well as contributing to AI in at least two key ways: to support research, research communication, and research integrity as well as by providing high-quality, validated inputs for machine learning that improve the integrity and quality of AI tools.

AI is already being used in scholarly publishing to improve the efficiency of research and discovery, to enhance research integrity, and to identify promising areas of new research. It is being deployed internally by publishers to improve the management of articles and peer review, detect potential research misconduct, and improve research recommendations. It is being used externally to support researcher efficiency and help identify promising avenues of study. Additionally, the future potential applications in this area are limitless. For example, applications of AI may go beyond testing hypotheses against vast amounts of data to also creating new ones, developing new theories, and exploring new connections.

Of equal importance, scholarly publishers are engaged with AI as key providers of high-quality content, context and data that are used as inputs for machine learning and as training sets and information for AI. Relevant, high-quality input and training data for AI developers and systems form the bedrock

ingredient for high-quality, trustworthy, and ethical outputs. Providing this corpus of information in requested digital formats is a core expertise of publishers. By validating, normalizing, tagging and enriching content, delivering material in robust, interoperable, and globally consistent formats, and creating domain-specific ontologies, publishers ensure that information is a trustworthy high-quality input source with tremendous potential for use by AI systems across a broad range of applications. Regardless of the purpose of an AI tool, the accuracy of the scientific record maintained by science and academic publishers helps to ensure that machine learning has both depth and accuracy.

The use of AI is not without risk, however. Within the scholarly publishing sector, publishers are already facing challenges to the scholarly record from bad actors using AI. STM and its members are working to address the threats of AI lowering the threshold for the infiltration of inaccurate information in the scholarly record, through the introduction of fake papers, bad data, or manipulated images; or through inappropriate intervention in the peer review process. More broadly, AI has the potential to lead to the release of rampant misinformation and to erode intellectual property rights that are critical to making available high-quality, trusted information.

Being aware of the need to consider issues related to trustworthy and responsible AI, STM published a White Paper in May 2021¹ outlining best practice principles for an ethical, trustworthy, and human-centric AI that discusses both the potential of AI tools and systems and also their risks. We also refer you to an STM submission to the US Patent and Trademark Office in 2020² on the need for intellectual property protection in the context of AI innovation, as well as our recent submission to the NTIA request for information.³

Fundamentally, we believe that the following topline philosophies are critical for any AI policy framework that seeks to balance the opportunities and risks inherent in these technologies. The policy must:

- Respect and reinforce existing intellectual property protections to ensure the continued development and availability of high-quality, vetted information and content. It should make a clear distinction between raw data, structured data and copyrighted works and require the use of licensing for copyrighted content which in turn supports accountability and transparent provenance about key information such as training materials used by AI systems.

¹ STM, "AI Ethics in Scholarly Communication: STM Best Practice Principles for Ethical, Trustworthy, and Human-centric AI," April 2021. https://www.stm-assoc.org/2021_04_29_STM_AI_White_Paper_April2021.pdf

² "STM SUBMISSION TO UNITED STATES PATENT AND TRADEMARK OFFICE, DEPARTMENT OF COMMERCE REQUEST FOR COMMENTS, 84 FR 58141, pp 58141-58142: INTELLECTUAL PROPERTY (IP) PROTECTION FOR ARTIFICIAL INTELLIGENCE (AI) INNOVATION," January 10, 2019. https://www.uspto.gov/sites/default/files/documents/International%20Association%20of%20Scientifi_RFC-84-FR-58141.pdf

³ STM Response to National Telecommunications and Information Administration (NTIA) hereby requests comments on Artificial Intelligence ("AI") system accountability measures and policies (Docket No. 230407-0093) <https://www.stm-assoc.org/wp-content/uploads/NTIA-AI-Accountability-response-June-2023.pdf>

- Leverage and build upon existing efforts, including those of STM and our members, to promote high-quality, accurate information and prevent the introduction of misinformation. This will require engagement with stakeholders and consideration of how the introduction of AI changes the playing field.
- Encourage, and where possible, require public transparency and provenance of training data and content to enable users to understand and trace back results to their sources and for users and rightsholders to understand what sources were used in training the system. In the scholarly sector, this could include requirements that an AI system and its outputs be placed into a chain of evidence such that results can be more easily reproduced.
- Clarify that accountability lies in all providers and contributors of AI solutions, including generative AI models, and throughout the whole life cycle of the AI. Providers should keep all records, documentation, and associated metadata for the duration of the existence of the AI system to support AI accountability throughout the value chain.
- Work to support and fund efforts to protect the integrity of research and education, which may be particularly vulnerable to misinformation or misinterpretation of AI outputs. In particular, a government policy should support the development and implementation of defensive mechanisms to identify products (whether quantitative, visual, or textual) created by AI. In the scholarly sector, these would include fake (synthetic) or manipulated image and data detection, identification of paper mills,⁴ and the prevention of the use of inaccurate versions of content or illegally sourced content.

In support of these points, STM offers additional responses to some of the specific questions raised in the RFI, which are detailed below. STM and its members stand ready to work with OSTP and other federal stakeholders to further support policy development to enhance the benefits of AI while reducing the risks of misinformation and other negative outcomes.

1. What specific measures—such as standards, regulations, investments, and improved trust and safety practices—are needed to ensure that AI systems are designed, developed, and deployed in a manner that protects people’s rights and safety? Which specific entities should develop and implement these measures?

Provision of quality and accurate information

As we have seen with the growth of the popular use of generative AI, AI tools, and particularly large language models, these applications may not always provide accurate information in response to prompts. Based on their design, they are prone to provide responses that “sound” accurate, but may not be based on actual, real-world facts. This presents significant risks to people’s safety and the accuracy of the information that may be relied upon for decision-making and problem solving.

⁴ See, for example, the STM-COPE Report on Paper Mills, which discusses the issue and makes recommendations. <https://doi.org/10.24318/jtbG8IHL>

The potential for AI to produce inaccurate information is exacerbated where bad, inaccurate, or false information is used as inputs or in the training sets, rather than the best, high-quality information available. STM and its members are committed to improving the integrity of information and preventing the introduction of information that is inaccurate, unethical, or is unable to be reproduced, including for the use of AI.

To address these issues, STM recommends that the US policy framework consider:

- Standards that encourage or certify when AI tools are using the best quality information. For scholarly information, this would be the [Version of Record](#) which contains the latest peer-reviewed information and is preserved with integrity to include any corrections, to promote accuracy and reduce the risk of erroneous outputs;
- Audits and monitoring of the outputs of AI for accuracy and lack of bias, in coordination with the private sector and developing tools; and
- Public education on the appropriate use of and risks of use of this information, including the potential for misinformation from tools that appear to be reliable but is, in fact, unreliable.

Protection for Intellectual Property

Intellectual property is a foundational principle for the United States, with rights enshrined in the constitution. Copyright protection and enforcement is essential to drive the innovation and creativity that the US has historically delivered. IP protection and enforcement should not be sacrificed in the search for future innovation. Currently, AI developers often use content protected by intellectual property without regard to the copyright holder or consideration of license terms. This is a problem not only for copyright holders, but for the quality and integrity of the AI tools and their outputs.

Publishers are key providers of high-quality, curated, and vetted content that powers and enables the accuracy of AI. IP protections enable and encourage our members to ensure that information is provided in interoperable formats with quality and integrity, tagged and enhanced with metadata that makes it more useful for both human users and AI tools. The ability to continue this work, and the potential for innovation powered by copyright, is undermined where IP protections are not respected.

STM recommends that a federal policy require:

- Transparency and accountability for AI tools in the use of IP, particularly clear public provenance for the inputs that are used for AI.
- The use of licensing agreements for any content used to train AI that is protected by IP.
- Clear terms and conditions for the use of AI, especially generative AI, so that users do not inadvertently undermine IP.

Any US government entity charged with oversight of AI issues should include IP protection and enforcement as part of its mission, including requirements for audit mechanisms that ensure content inputted to machine learning and generative AI models are authorized for use, and remunerated, where

appropriate. This is consistent with developing international practice, as in the European Union's proposed AI Act, which would require developers to publish summaries of copyright materials used for training generative AI models.

An appropriate licensing regime should also allow authors or other rightsholders to determine under what conditions and for what purposes their works can be used for training or other purposes. With the current massive uptake of generative AI tools, creators and other rightsholders are seeing their works used for purposes other than what they intended, and even seeing the output of generative AI mimicking or competing with their copyrighted works. The national priorities for AI should consider interaction with other federal policies, particularly those with respect to open government or public access to research, where various open licensing mandates are being considered. Creators and rightsholders should be given the ability to exercise their rights to prevent the misuse of their works by AI. Licenses such as CC BY NC ND provide a balance between providing openness and ensuring researchers' and rightsholders' rights are respected.

9. What are the opportunities for AI to enhance equity and how can these be fostered? For example, what are the potential benefits for AI in enabling broadened prosperity, expanding economic and educational opportunity, increasing access to services, and advancing civil rights?

Overall, equity can be enhanced and fostered by policies that encourage, certify, and ensure the use of high-quality and unbiased information as inputs to AI and the involvement of humans in the process of assessment and oversight of AI.

Ensuring good inputs / preventing bias

One key consideration for AI with respect to equity is the use of diverse and unbiased inputs for developing and training AI tools. Similarly, there is a potential for developers, either by design or negligence, to "cherry pick" information that could be used as inputs for an AI and that would create bias or inaccurate information due to the missing sources of information. Fostering, encouraging, or requiring visibility into information sources would enable users and auditors to better tackle bias, to ascertain that a model was trained on information collected with the consent of those involved, and to ensure legal and regulatory compliance. In the long term, this will lead to higher quality and more trustworthy AI systems, especially by encouraging the use of the highest quality final version of any article, that is, the "Version of Record." Use of the trusted and maintained Version of Record will support accountability, trust, and accuracy and reduce the potential for erroneous output that could undermine science, public health, and the public debate.

Civil rights that include access to good information

Misinformation can undermine democratic processes and create or reinforce discrimination and inequity. Oversaturation of the information space by AI tools may result in wasted time and reduced productivity. Inequities could be introduced where those with the time and resources can sift through to identify good information and tools, while less resourced individuals or organizations are consigned to sifting through misinformation. A government policy framework that assesses and audits AI for high-quality inputs, available under license, could help support society's right to high-quality information.

Publishers have historically been essential to fighting misinformation and ensuring that high-quality and accurate information helps inform public discourse; policies that protect publishers' intellectual property and ability to maintain sustainable business models would further ensure their ability to do so.

Keeping people at the center of technology

Whilst embracing AI technologies to enhance operational efficiency and drive new discoveries, publishers remain steadfast in upholding the principle of rigorous human oversight, which is crucial in ensuring the highest standards of quality and integrity and safeguarding against misinformation. Human intelligence and involvement are critical to discerning the validity of conclusions, so there should be no AI 'black box' in the chain of scholarly discovery.

It is possible that AI may help in supporting this human oversight. For example, publishers are already using AI tools to flag potential research integrity issues, which then can be further investigated by humans. As AI gets more sophisticated, humans will need more and more support by bespoke, tested, transparent and trustworthy systems (both AI and other technologies) to assist them in exercising this rigorous oversight, especially in peer review of scientific manuscripts.

10. What are the unique considerations for understanding the impacts of AI systems on underserved communities and particular groups, such as minors and people with disabilities? Are there additional considerations and safeguards that are important for preventing barriers to using these systems and protecting the rights and safety of these groups?

Publishers have invested significantly in ensuring equitable access to the content we produce and make available, for example in forms and formats that are accessible to people with disabilities. AI tools are being explored by some of STM's members to support enhanced products and services to such groups and could potentially be applied more broadly to support accessibility of content, under license as appropriate. The government should support and not disrupt the careful development of such tools already underway.

12. What additional considerations or measures are needed to assure that AI mitigates algorithmic discrimination, advances equal opportunity, and promotes positive outcomes for all, especially when developed and used in specific domains (e.g., in health and human services, in hiring and employment practices, in transportation)?

The expertise of STM and its members is in scholarly communication

Trust is at the center of what STM and its members do, as our tagline "advancing trusted research" attests. STM's members are at the forefront of digital innovation, providing stored and organized information, tagging and enriching content, and creating ontologies. To prevent misinformation or disinformation, it is critical that high-quality and vetted inputs are used by AI tools.

To promote positive outcomes in the context of scholarly publishing, STM recommends:

- An audit mechanism to validate that AIs operating on scientific content do not substantially alter their meaning and are able to provide a balanced summary of possibly different viewpoints in

the scholarly literature. It should not be the role of an AI to say ‘who is right’ in an academic debate, but to provide information based on state-of-the-art research, based on licensed use of the Version of Record, and reflecting any corrections or retractions.

- An accounting with respect to provenance. At a minimum, this would be a thorough, publicly available list of references and inputs that enables users or rightsholders to identify what materials were used to train the AI system, or potentially something more sophisticated. The purpose would be to enable users or auditors to track back assertions generated by AIs to the original literature inputs.

16. What steps can the United States take to ensure that all individuals are equipped to interact with AI systems in their professional, personal, and civic lives?

From STM’s perspective, the most critical things that the US policy could do to empower individuals to responsibly interact with AI tools are the following, which have already been mentioned:

- Enhance IP protections and responsibilities for AI tools and their developers.
- Require provenance for inputs, including content used in training.
- Promote digital literacy so that individuals understand the appropriate use and limitations of AI tools.

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?

As discussed in the introduction to this document, AI has the potential to greatly improve scholarly research and discovery, as well as to efficiently apply the latest innovations to economic development. Publishers are playing a leading role in this use of AI, as well as in supporting, through the provision and licensing of high-quality content, the further development of knowledge tools. The best way that the US can capture these benefits is to work with publishers in further development of policy and regulation.

26. How can the Federal Government work with the private sector to ensure that procured AI systems include protections to safeguard people's rights and safety?

Significant work is already underway in the private sector, including by STM and its members, to harness the opportunities of AI as well as to address its risks. We welcome the opportunity to work with OSTP and the federal government to address AI challenges and advance standards and best practices for AI governance. We encourage OSTP to engage with established and nascent efforts in the private sector to make the most of opportunities for public-private partnership.

For example, STM is developing the STM Integrity Hub⁵ to address challenges to the integrity of scholarly communication from human actors as well as AI tools. Through a combination of shared data and experiences, and by harnessing technological innovation, the STM Integrity Hub offers a holistic approach to detect research-integrity-offending manuscripts. Through the STM Integrity Hub, publishers effectively and efficiently respond to the increasing and alarming volume of materials entering scholarly communications that violate accepted research integrity, including materials potentially produced as outputs from AI tools. These materials are potentially very harmful to society, as they can lead to wrong, damaging, or uninformed decisions or outcomes (think, for example, about healthcare). More specifically, the STM Integrity Hub will provide a cloud-based environment for publishers to check submitted articles for research integrity issues, consistent with applicable laws and industry best practice and fully respecting the laws and ethics of data privacy and competition/anti-trust laws. In this environment, publishers can collaborate with other parties to develop and operate screening tools, including those using sophisticated AI for the benefit of the entire scholarly ecosystem.

The Federal Government is already working in a variety of ways to engage with the private sector to mitigate AI risks, and STM and its members appreciate the opportunity to continue to engage. In particular, we support and look forward to engaging with NIST in the implementation of the AI Risk Management Framework, and many of our members have signed up to join the newly announced NIST Generative AI Public Working Group to collaborate on shared solutions and standards.

In our sector of scholarly communication, accountability in research and science is a responsibility shared by all key stakeholders, including researchers, funders, policy makers, and publishers. We recommend that the federal government work with publishers and other stakeholders and rely on existing standards and practices where possible to support the development and employment of responsible AI.

29. Do you have any other comments that you would like to provide to inform the National AI Strategy that are not covered by the questions above?

STM encourages OSTP and other federal policymakers to proceed carefully with any embrace of AI and to carefully balance the needs of existing communities and industries as the US seeks to encourage new technologies and lead in AI. Generative AI has already demonstrated worrisome issues with respect for intellectual property,⁶ discrimination and equity, and accuracy that could have profound impacts on the US society and economy. Rather than “moving fast and breaking things,” as a common technology adage goes, we should take the time to get protections right in the AI sphere and ensure that what works in the information and technology space now is not broken.

⁵ <https://www.stm-assoc.org/stm-integrity-hub/>

⁶ See, for example, Pascal Hetzscholdt’s blog on AI answers to questions about respecting copyright (E.g., “AI and copyright” <https://p4sc4l.substack.com/p/ai-and-copyright-revisited-training> and “Are AI tools...circumvent[ing] paywalls” <https://p4sc4l.substack.com/p/are-ai-services-making-use-of-sites>) of AI and public reports on unpermitted and undesired uses of copyrighted works by AI (e.g. “Generative AI Has A Copyright Problem,” Harvard Business Review, <https://hbr.org/2023/04/generative-ai-has-an-intellectual-property-problem>, accessed July 3, 2023).

With appropriate oversight, standards, and regulation, AI is poised to be a benefit to society, if it can be trusted and trustworthy. Trust is at the center of what STM and its members do, as our tagline “advancing trusted research” attests, and therefore STM’s members are perfectly positioned to help enable trusted and trustworthy AI. The work that our members do to support digital innovation, from the community’s early embrace and stewardship of digital forms of content, tagging and enriching it, creating ontologies, and even using AI to improve it, can be key enablers of a quality AI future. Appropriately harnessing the vetted, validated, tagged, and cataloged content provided by publishers, under license in a transparent and accountable manner, will support trust and highlight the benefits of AI. With our long experience with digital technologies, STM and its members stand ready to engage with the federal government in support of trust and integrity in these technologies.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Caroline Sutton", written over a light blue horizontal line.

Dr. Caroline Sutton
CEO
STM

About STM

At STM we support our members in their mission to advance trusted research worldwide. Our more than 140 members collectively publish 66% of all journal articles and tens of thousands of monographs and reference works. As academic and professional publishers, learned societies, university presses, start-ups and established players, we work together to serve society by developing standards and technology to ensure research is of high quality, trustworthy and easy to access. We promote the contribution that publishers make to innovation, openness and the sharing of knowledge and embrace change to support the growth and sustainability of the research ecosystem. As a common good, we provide data and analysis for all involved in the global activity of research.

The majority of our members are small businesses and not-for-profit organizations, who represent tens of thousands of publishing employees, editors, reviewers, researchers, authors, readers, and other professionals across the United States and world who regularly contribute to the advancement of science, learning, culture and innovation throughout the nation. They comprise the bulk of a \$25 billion publishing industry that contributes significantly to the U.S. economy and enhances the U.S. balance of trade.