28 January 2020
Chloe Kontos, Executive Director
National Science and Technology Council
JCORE@ostp.eop.gov
Re: RFI Response: JCORE (on the American Research Environment)

Dear Ms. Kontos:

The International Association of Scientific, Technical and Medical Publishers (STM) is the leading global trade association for academic and professional publishers. It has more than 150 members in 21 countries who each year collectively publish more than 66% of all journal articles and tens of thousands of monographs and reference works. STM members include non-profit scientific and scholarly societies, commercial publishers, and university presses who work collectively to ensure broad access to and use of the latest scientific and scholarly information.

The majority of our members are small businesses and not-for-profit organizations, who represent tens of thousands of publishing employees, editors, reviewers, authors and 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.

Publishers sit at the interface between researchers and clinicians, their articles and the rest of the world. We work to improve the quality, discoverability and availability of content related to research. We are therefore highly interested in the issues raised in this request from OSTP and the National Science and Technology Council's (NSTC's) Joint Committee on the Research Environment (JCORE).

We welcome all ongoing opportunities – consistent with our commitment to promote sustainable Open Science – for continued dialogue with OSTP and the Administration on how to best to promote openness and sharing in the American Research Environment. We have shared goals for rigor and reproducibility, quality and sustainability, security and equity in STEM for underrepresented groups. We greatly appreciate OSTP's recognition that publishers are a valued partner for addressing these questions and ensuring excellence and growth in the American research environment. We also share JCORE's interest in reducing administrative burdens. These include making sure that the services provided by publishers are recognized with funding or with appropriate flexibility to support the ongoing development of diverse business models that meet the needs of the research community.

Our comments below address JCORE's four principle goals:

- ensure rigor and integrity in research;

- coordinate administrative requirements for Federally-funded research;

- strengthen the security of America's S&T research enterprise; and

- foster safe, inclusive, and equitable research environments.

I.   **Ensure rigor and integrity in research**

1. What actions can Federal agencies take to facilitate the reproducibility, replicability, and quality of research? What incentives currently exist to (1) conduct and report research so that it can be reproduced, replicated, or generalized more readily, and (2) reproduce and replicate or otherwise confirm or generalize publicly reported research findings?

The most important action that Federal agencies can take to facilitate the reproducibility, replicability, and quality of research is to ensure that the systems and services that currently exist and support the quality and integrity of scholarly communication remain strong. These include, but are not limited to, market incentives that encourage the development of high-quality outlets for scholarly communication such as those produced by our members.

In addition, the government should ensure that adequate funding is provided to support the development of tools and outlets for the sharing of research data, the communication of research methods, and other outputs related to research that could enhance reproducibility and replicability (including the time and expertise needed for researchers to appropriately curate and share those research artefacts).

Existing incentives

Publishers continually invest in the systems and infrastructure linked to the reproduction and replication of research. Increasingly, the journals they publish have policies designed to encourage researchers to produce FAIR (Findable, Accessible, Interoperable, Reusable) data, to share data, and to pre-register their research (more below). All of which underpin a future research environment where replication and reproducibility are commonplace.

However, currently there are few explicit incentives in place that encourage the uptake of these tools and policies. Those that do exist are mostly geared towards encouraging open research practices (see the Open Science Publishing Policy Report on Expert Indicators for Engagement with Open Science) and / or advocating research to have a broader impact (such as the European Union's call for Responsible Research and Innovation). While such efforts do relate to the reproducibility, replicability, and quality of research, they are not explicitly geared to do so.

Opportunities

For this reason, we recommend that Federal agencies consider taking the following actions:

A. **Create incentives** to encourage scientists to ensure that their research can be reproduced and/or replicated within the scholarly community. Most importantly, these incentives should be associated with the researcher review and assessment processes. We also encourage Federal agencies to provide funding for researchers to replicate research related to these incentives on a scale appropriate to determine that foundational results are valid, reliable, and extensible.[1] By doing so, these incentives and funding mechanisms will ensure that the researcher receives as much credit for carrying out a replication study as they would for publishing based on their own original research.

B. **Provide support for education and training** within institutions and research conducting organizations, as well as directly to grantees. This professional development should cover methodological training, as well as education around statistical analysis, tools and limitations (including limitations of the p value) and training on open research practices. The UK Pre-registration network has a series of useful primers covering various aspects of "open and reproducible scholarship" that provides an example of this approach.

C. **Use persistent identifiers** and to work with stakeholders to create these where they do not exist, providing funding for their creation and registration. Publishers already invest heavily in creating such persistent identifiers and machine-readable metadata that promotes greater visibility of research and research outputs, as well as greater visibility of institutional and researcher information. Federal agencies could champion the creation of persistent identifiers for grant funding, which would improve the linkage between grants awarded and research outcomes. This element would support the aim of making research replicable, as there would be greater visibility of the various stages of the journey that research and researchers have gone through.

D. **Align policies across Federal agencies** in collaboration with key stakeholders to reduce the complexity and confusion associated with working with multiple agencies.

E. **Increase the use of reporting checklists** and allow the inclusion of methodology annexes on grants.

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[1] A model might be a a pilot launched earlier this year by the Dutch funder NWO that offers funding for replication of 'cornerstone research'.

F. Consider creating an **inventory of external initiatives**, and **identifying key community-based efforts for federal endorsement or support**. Some potential examples include [a manifesto for reproducible science](#) designed to optimize key elements of the scientific process and "[STAR Methods: Structured, Transparent, Accessible Reporting](#)," designed to provide a structure for experimental methods that increases reproducibility.

G. **Incentivise researchers to develop data management plans (DMPs)** that will facilitate the standardisation and reproducibility of data sets and research.

H. **Encourage grantees to follow the FAIR principles** at https://www.force11.org/group/fairgroup/fairprinciples.

2. How can Federal agencies best work with the academic community, professional societies, and the private sector to enhance research quality, reproducibility, and replicability? What are current impediments and how can institutions, other stakeholders, and Federal agencies collaboratively address them?

Opportunities

The academic community, including commercial and society publishers, always puts research quality and integrity at the center of its work. Publishers serve an important role in validating and disseminating research output, ensuring that it is accessible and discoverable, and curating outputs in perpetuity. As independent bodies, and in many cases as the leaders in specific fields, publishers provide trusted information to users, and maintain the high standards of quality and reliability of research outputs. Federal agencies could best work with the academic community by supporting their ongoing efforts in these areas, improving the quality of the review process and research outputs, and collaborating on initiatives that have the potential to improve quality, reproducibility, and replicability. Examples of these ongoing efforts, as well as our recommendations, are listed below.

In addition, publishers are actively working on cross-industry standards, best practices and solutions that have the potential to improve reproducibility and replicability, alongside the integrity of the scholarly record. We welcome engagement with the whole research community, including Federal agencies, to invest in and collaborate on these activities. Examples of such activities include:

- efforts to detect image manipulation through the devotion of dedicated staff time, artificial intelligence tools, and other advanced technologies;

- the creation of standard vocabularies to improve quality and/or portability in peer review processes;

- implementation of tools to enable the investigation and discovery of duplicate submissions, which are distinct but connected to plagiarism detection; and

- initiatives to promote peer review and the validation of shared data, code, and other research artefacts.

Overall, we have several recommendations for Federal agencies to consider when working with the academic community, professional societies, and the private sector to enhance research quality, reproducibility, and replicability. They are as follows:

A. **Support the pre-registration of research** where appropriate and support initiatives such as CRediT, that ensures that all of the contributors to research are credited, including those whose work is related to the curation and management of data.

B. **Build upon existing peer review mechanisms** in partnership with publishers and to support the creation of new models that promote the Federal agencies' goals.

Publishers already make a major contribution to the integrity of research through their significant investments and expertise in organizing and providing the infrastructure for peer review.. This is a significant enterprise; a 2018 study by Publons found that 13.7 million reviews were undertaken in 2016 to support the publication of 2.9 million articles. Publishers also encourage diversity and provide an objective space in which work can be assessed by peers (e.g. by anonymising the names of both authors and reviewers; by developing guidelines around the peer review of articles and data, etc.).

Consistent with ongoing efforts to improve the quality of peer review, publishers are experimenting with new models of review, including but not limited to: open peer review; post publication peer review, and publication of reviewer reports alongside articles as more elements of the research process are being made available than ever before.[2] Federal agencies' support of initiatives already underway would be welcome and would contribute to enhancing research quality, reproducibility, and replicability. Examples of such initiatives include:

- Preprint servers such as bioarXiv allow for the earliest possible publication of research findings, and allow readers to provide feedback on these outputs before they are finalised and become a fixed version of record;

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[2] See, for example, https://www.elsevier.com/connect/reviewers-update/lifting-the-lid-on-publishing-peer-review-reports-an-interview-with-bahar-mehmani-and-flaminio-squazzoni for a discussion of some of the impacts of these experiments.

- Offering [registered reports](#), in which researchers outline their proposed study, methods and hypothesis. These reports go through peer review before the experiment is undertaken and data is collected. This, and the pre-registration of research more generally, supports the Federal agencies' goals as it allows for comment on, and improvement to, the proposed study design before it is carried out; and

- Supporting the CRediT initiative aimed at ensuring that all of the contributors to research are credited in the final research output, even if they have not acted as authors. This facilitates the reproducibility of research by providing more insight in to the research process, and making this more transparent.

C. Provide incentives to grantees to follow the FAIR principles.

D. Develop best practices and infrastructures around FAIR data, working with publishers and other stakeholders.

To ensure that research is reproducible and replicable the data generated by a research project should to be available in a structured manner that allows for analysis and manipulation. To achieve this, data sharing should follow the FAIR principles developed by FORCE 11. Publishers and other stakeholders are working to implement these principles. STM has designated 2020 as the [Research Data Year](#), reflecting a keen interest in accelerating the sharing, linking and citing of research data - all of which are pivotal to increasing the reproducibility and replicability of science.

Through this dedicated action plan, our goal is to increase the number of journals with data policies, expand the number of journals depositing data links, and grow the volume of citations to datasets; all in line with the FAIR principles. Activities include workshops, webinars & eLearning modules, hands-on support, sharing on best practices based on the FAIR principles, as well as on-site training. STM and its member publishers would welcome collaboration with Federal agencies on efforts publishers have begun in recent years, for example:

- publishing data availability statements in the final published particle that provide readers with information on how to access and interrogate the underlying data, or when and where the data might become available;

- formulating data sharing policies that encourage researchers to make their data openly available, see for example https://authorservices.taylorandfrancis.com/data-sharing-policies/open-and-fair/;

- working with repositories such as Figshare and Dryad to deposit and link to data, raising the visibility of this material and facilitating greater transparency;

- exploring emerging initiatives that are working to harness the power of shared data. One example of such a startup is Code Ocean, a "cloud-based computational reproducibility platform… expected to improve how readers and end users can understand, visualize and reuse the code, but also to enable better software citation via the inclusion of the metadata of linked articles." ;

- connecting research through initiatives such as Datacite, which serves an important function in linking datasets and repositories, championing data citation, and facilitating access to data and Scholix, that aims to "enable an open information ecosystem to understand systematically what data underpins literature and what literature references data."; and

- continuing and expanding participation in the Research Data Alliance, whose aim is to develop and adopt infrastructure that promotes data-sharing and data-driven research, along with funders, librarians and infrastructure providers

Impediments

Despite the best efforts by stakeholders within the research environment, impediments to enhancing research quality, reproducibility, and replicability remain. We have identified several key obstacles below along with suggested approaches on how each might be overcome:

A. Lack of policy alignment between Federal agencies:

It is not unusual for agencies to implement policies that are not aligned and sometimes even in conflict. This creates complexity and confusion and often hinders the goal of transparency and efficiency. We recommend Federal agencies review various approaches to data management and sharing across the government (e.g. the Federal Data Strategy, the draft NIH Policy for Data Management and Sharing and Supplemental Draft Guidance, etc.) and work to make them more consistent. This should be done in collaboration with key stakeholders to develop common principles and policies. Publishers stand ready to engage in such conversations and to assist with the formulation of approaches that support researchers in implementing data sharing requirements.

B. Lack of incentives to ensure reproducibility and awareness of its benefits:

Researchers are often not aware of the benefits of ensuring that their research is reproducible and typically not given incentives to ensure reproducibility. As noted earlier in our submission, training and awareness raising will be important to creating a culture where reproducibility and replicability are second nature. Providing researchers with incentives to do so is probably the most critical priority. Training also needs to be developed and provided alongside those incentives.

C. Inflexible and premature approaches to technological developments:

Technology is developing faster than our understanding of its limitations and how best to apply it. Artificial Intelligence (AI) is one example. Although new tools and services are being created daily, the legal and social frameworks which ensure that they are used and applied appropriately are often missing. Where frameworks exist, different approaches are often taken in different regions. Federal agencies should be mindful of the differing pace of technological and policy developments around the globe, and take care to avoid moving too quickly by mandating premature or inflexible approaches. We recommend that OSTP consider requesting research by experts (e.g. the National Academies) to better understand the legal and social implications of technological developments and inform policy development, as well as engage the wider community via requests for public comment.

3. How do we ensure that researchers, including students, are aware of the ethical principles of integrity that are fundamental to research?

Many institutions and publishers offer training and resources directly related to ethical standards to researchers (including students), peer reviewers and editors. In addition, most publishers have developed guidance and training for researchers on how to publish their research in a responsible way. These guidelines typically cover practices related to replicability and reproducibility, such as ensuring that data produced adheres to the FAIR principles. Most publishers ask authors to disclose any conflicts of interest when submitting their research outputs for consideration and to confirm that they have followed the appropriate ethical guidelines. Typically, this happens after the research has been carried out.

To support the efforts that institutions and publishers have already put in place, Federal agencies should consider the following recommendations:

A. **provide support for training and education around the responsible conduct of research (RCR).** This includes managing conflicts of interest, ensuring ethical practices have been adhered to, etc. The Helsinki declaration has been a powerful vehicle in ensuring adherence to ethical standards in medical fields and Federal agencies may wish to expand the remit of the declaration, or to adopt its principles in future grant agreements;

B. **include reporting guidelines** (aimed at standardizing reporting on different study designs and advocating best practice) in grant awards. These guidelines can be a means to encourage ethical conduct in research; and

C. **support the development of tools, standards and best practice** that promote the responsible conduct of research.

Publishers and service invest heavily in tools that help to highlight cases of plagiarism, image manipulation, and potential misconduct. These include tools such as Crossref's Ithenticate service which checks the contents of a research output against a global database of content and highlights where text has been copied from another source. STM will be promoting the responsible conduct of research during 2020 and welcomes additional dialogue on how we can work with Federal agencies to advance responsible research conduct.

D. **Support the** Think. Check. Submit. Initiative and seek other opportunities to ensure that research is communicated with integrity in reputable outlets.

The growth of Open Access has led to a rise in journals that publish research without proper peer review (so called 'predatory' journals). These journals compromise the integrity of the scientific record. Publishers, working with the Committee on Publication Ethics (COPE), industry bodies, and advocacy groups developed the Think. Check. Submit. Initiative, offering guidance to researchers around how to choose a reliable publication outlet for their research.

During STM week in December 2019, two large text and data mining tool and software producers (seeking to monetize or otherwise make available extraction technologies applicable to large sets of OA publications) concurred that predatory publications have a detrimental effect and that ways to control or mitigate this growing phenomenon should be found[3]. This indicates that ensuring the integrity of the research record – a critical service provided by STM publishers – is of importance not just to the scholarly enterprise, but to the future development of advanced technologies, including artificial intelligence.

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[3] Q/A STM week, Innovations Seminar, TDM session

4. What incentives can Federal agencies provide to encourage reporting of null or negative research findings? How can agencies best work with publishers to facilitate reporting of null or negative results and refutations, constraints on reporting experimental methods, failure to fully report caveats and limitations of published research, and other issues that compromise reproducibility and replicability?

Preregistration of research is becoming more widespread as a practice, with many journals now publishing and linking to registered reports. Where applicable, this practice encourages responsible research conduct by reducing the risk of cognitive bias such as hypothesising after results are known (HARK) and other such behaviours which can distort findings. Preliminary research suggests that this is having an effect on the bias towards publishing positive results. Where there is sensitivity around making pre-registration public, researchers have used embargo periods.

Where appropriate, we recommend that the agencies encourage grantees to pre-register their research, under embargo if necessary, with incentives linked to this activity.

Also, in today's research environment, many funders encourage researchers to think about the impact of their work on the broader society. While this effort is well intentioned, it has some unintended harmful consequences. Among those is the perception that fundamental research, with no immediate short-term benefit, does not have this "broader impact" and that negative results or non-novel outputs do not contribute to the advancement of science.

We recommend that Federal agencies consider giving credit to research that is methodologically sound, even if it reports negative results, and take steps to clarify the value of such research even as they call on grantees to showcase the potential 'impact' of their research outputs in grant applications.

5. How can the U.S. government best align its efforts to foster research rigor, reproducibility, and replicability with those of international partners?

Conferences, roundtables and open consultations are an effective way to seek input on a range of issues. Publishers operate globally and are well-placed to support these efforts and suggest opportunities for alignment. As such, we recommend that US government and agencies interact with publishers, and ensure publishers are included as stakeholders on projects such as National Academies studies.

II.   Coordinate administrative requirements for Federally-funded research

Publishers share the NSTC's concerns about the increasing burdens of administrative requirements on Federally-funded researchers, and want to help reduce the burdens for all stakeholders. Our investments in persistent identifiers, including initiatives through Crossref, ORCID, the Research Organization Registry (ROR), and others, help to streamline processes even as requirements increase. The opportunities to coordinate administrative requirements are not limited to conflict of interest regulations, but extend to those on public access, grant reporting, and other administrative requirements. STM's members seek to align their own processes with those of Federal agencies, and would welcome additional dialogue on how best to support researchers in making sure such requirements are united, especially as publishers, institutions, and Federal agencies begin to put in place more robust requirements or guidance on data sharing.

We welcome NSTC's efforts to identify and assess opportunities to coordinate agency policies and requirements related to Federal grant processes. We would be willing to discuss where it might be productive to align these policies with publisher processes to reduce administrative burdens on researchers. We share NSTC's interest in persistent digital identifiers and researcher profile databases. STM agrees that these have the potential to reduce administrative burdens, whilst at the same time providing additional analysis of the research ecosystem, including agency investments. We caution against the creation of new and government-focused infrastructure, when communities are already organizing to create such tools. A crucial element of the success of efforts to reduce burdens is that they be interoperable and aligned with community standards. Publishers are already engaging with a great variety of these initiatives, and welcome continued collaboration.

There is an opportunity to reduce the administrative burden of complying with conflict of interest regulations by supporting training and education around the responsible conduct of research (RCR), including managing conflicts of interest and ensuring ethical practices have been followed. The more the requirements in this area are well understood, the more the burdens of complying with them would be reduced.

Publishers have valuable expertise in providing training, resources, and guidance to researchers at the publication stage regarding conflicts that might be of use to Federal agencies. Many publishers have implemented their own disclosure requirements, which may or may not be aligned with individual Federal agency financial conflict of interest (FCOI) regulations and policies. Having clear and uniform definitions and requirements would be helpful to socialize and align disclosure processes across the research ecosystem, including within journal policies. Publishers welcome additional conversations about how we can work with Federal agencies to align reporting on conflicts of interest and minimize the administrative burden.

In addition, there are opportunities to use tools to assist with identifying and avoiding conflict of interest. For example, Elsevier's Expert Lookup can be used to search for experts in specific fields to identify potential conflicts of interest around co-authorship and funding streams.

Where there are requirements that require access to articles reporting on agency-funded research or data collected pursuant to a grant, these should be flexible and use existing standards and processes in order to minimize administrative burdens. There are opportunities for Federal agencies to work more collaboratively with publishers to ensure that high-quality peer-reviewed articles are widely available and accessible, while improving the operation of the scholarly communication ecosystem.

The goals, in addition to supporting the wide availability of material for the research community, should include minimizing administrative burdens on researchers, avoiding the fragmentation of the scholarly record and identifiers thereof, and avoiding unnecessary investment in infrastructure that can be provided through more cost-effectively means. Current practices often require duplicative investments in time and resources to offer access to materials that are already freely available online, and include byzantine processes for researchers that they sometimes confuse with the publishing process itself.

There are collaborative solutions developed by publishers and other stakeholders, which identify funders (e.g. Crossref funder IDs), disambiguate researchers (e.g. ORCID), and can provide access to the full text of articles (e.g. CHORUS). Federal agencies should seek to integrate themselves more into the scholarly communication community to capitalize on the opportunities to minimize burdensome administrative requirements on researchers. Publishers stand ready to work with Federal agencies to support such collaborative approaches.

III.   Strengthen the security of America's S&T research enterprise

STM and our member publishers share NSTC's concerns about the integrity of the research process, particularly as it relates to the scholarly record. We continually invest in research ethics education, the disclosure of financial support, protection of intellectual property, and preventing the gaming of peer-review.

International coordination and collaboration is a touchstone of the research enterprise, and America's leadership in discovery and innovation depends on continued cooperation with researchers around the world. However, ethical standards and understanding is not as strong in some parts of the world as others, nor as responsive to technological change. STM has invested in education and outreach to researchers and institutions globally to ensure that ethical requirements and standards are understood. We support our members in their efforts to promote ethical conduct. Similarly, The Committee on Publication Ethics (COPE, https://publicationethics.org/) is a key partner in promoting guidelines and practices to help journals partner in an effort to promote research integrity and security.

STM regularly partners with other organisations to improve the tracking and provenance of research, disclosure of conflicts of interest, verification standards relating to plagiarism, manipulation of image or image recognition data or data presentation. As noted earlier, we are also working to improve peer review through the development of a common dictionary for transparent peer review processes. Similarly, we also support peer review for data and supplemental materials, as well as investigating other potential threats to the integrity of the research system, such as duplicate submissions. Our aim in all of these areas is to improve research integrity by helping to introduce these as a common approach, across publishers. We have significant expertise in the these and other key areas of standards and technology development and would be happy to engage with Federal agencies to support them.

1. How can the U.S. Government work with organizations that perform research to manage and mitigate the risk of misappropriation of taxpayer or other funds through unethical behaviors in the research enterprise?

Publishers have achieved significant success in promoting ethical behavior through education and the sharing of guidance to research communities on avoiding problems. For example, flowcharts and guidance created by the Committee on Publication Ethics (https://publicationethics.org/guidance) provide step-by-step instructions for publishers to address concerns about unethical behavior. Similar guidance could be created for use by organizations that perform research as well as for individual researchers.

Publishers already manage systems for the disclosure of affiliations and financial support, and would be willing to collaborate with federal agencies to align requirements for such disclosure. Federal agencies could leverage existing and developing systems (e.g. the Research Organization Registry/ROR) for identifying researcher affiliations, and can use existing systems for validation of voluntary disclosure of researcher support.

2. How can the U.S. government best partner across the research enterprise to enhance research security?

A critical part of research security is ensuring the integrity of the scholarly record and accurate identification of individuals engaged in the research enterprise. Through investments in, and support of, persistent identifiers for researchers and research institutions, publishers are taking a first and necessary step to promote research security and reduce the potential for the gaming of the research process. Federal agencies should support efforts like ORCID and ROR to ensure the quality and integrity of these identification systems. Where agencies create their own identifiers, they should work to ensure they are secure and interoperable with other systems.

In addition, the government should work to educate researchers about the security risks of using illicit or unverified tools and resources in their laboratories and institutions. Publishers invest significantly in the security of their systems to ensure the integrity of the work they publish and the safety of the authors, reviewers, and researchers who use their tools. Publishers are concerned that cyber intrusions are increasingly becoming a fact of life within the research ecosystem, and that bad actors can use these tools to gain access to research or other proprietary and confidential information of researchers, staff and students in compromised systems. An example of such an activity is Sci-Hub, which pirates scholarly content by compromising the security of research libraries and institutions, and could be used to undermine the research security of both those who provide credentials and those who wittingly or unwittingly access its illegal content.

3. What other practices should organizations that perform research adopt and follow to help protect the security and integrity of the research enterprise?

International research cooperation is critical to advancing discovery and innovation, and participation in international collaborations is a fundamental part of American leadership in science and scholarship. Any risks inherent in international cooperation can be mitigated through disclosure of conflicts and strong intellectual property protection. Intellectual property protection has been a central driver of American innovation, and its continued and vigorous defense is critical to protect the security and integrity of the research enterprise.

While additional protection mechanisms may need to be considered by Federal agencies to preserve a level playing field for American innovators, STM supports the following principles for an Open Science and Open Data policy framework: the research enterprise should be as open as possible and remain as proprietary as needed. Research security can be advanced by ensuring intellectual property rights for creative works related to research – whether or not the research is funded by a Federal agency – and policies and licensing conditions that are flexible and adaptable are best to protect the rights of American creators and innovators.

Research-performing organizations must also ensure the security of their information systems and educate their personal about the security risk of cyber intrusions. Such risks are not limited to direct espionage attempts, but sometimes appear in other guises. Sci-Hub has compromised the security of research institutions by obtaining access credentials from researchers (either willingly or unwittingly). This allows the foreign criminals who operate Sci-Hub access not only to licensed materials that it then pirates, but also to proprietary and confidential information of researchers, staff, and students at compromised institutions, potentially including sensitive and/or unpublished research. Warnings about these risks should be a central pillar of research security.

IV.   Foster safe, inclusive, and equitable research environments

Publishers are committed to supporting safe and inclusive research environments with equity for underrepresented groups. Like Federal agencies, we do so through guidelines and examples in our own organizations and practices. Listed below are some initiatives that publishers have developed or supported which could guide the development of further policies and practices for researchers. We welcome additional dialog with OSTP and Federal agencies to find productive areas for collaboration in support of an environment where all researchers are welcomed and able to thrive.

- The Transforming Institutions by Gendering contents and Gaining Equality in Research (or TRIGGER) initiative based at the University of London aims to understand the under-representation of women in Science, Technology, Engineering, Mathematics, and Medicine (STEMM) subjects. The project also provides recommendations for fostering organizational change. We suggest that the agencies consider supporting this initiative.

- The U.K. Publishers Association carried out a survey on diversity in the publishing industry which highlighted the need to increase the numbers of staff from less represented groups. They have developed a three-point action plan focused on efforts to promote ethnic, socio-economic, and regional diversity, and also including more support for, and awareness raising around mental health.

- Many publishers have set up initiatives to promote diversity and to support and connect colleagues who identify as LGBTQI+, come from diverse cultural, ethnic, and socioeconomic backgrounds or are differently abled. These initiatives allow colleagues to raise awareness of issues and provide them with a global platform to share their stories and experiences. Examples developed in the publishing sector include, for example, the AllInforma Rainbow.

- The Committee on Publication Ethics (COPE) recently released a study which includes findings on inclusion and diversity in social sciences, arts and humanities . This advocates the creation of more guidelines around professional standards, to support researchers with authorship challenges, mentoring and education.

- To ensure that the research environment is welcoming, training for and awareness of harassment needs to be encouraged throughout the research ecosystem. An example of how this can be done is provided by a guide for dealing with online harassment that was developed by the publisher Taylor & Francis with the Science Media Centre. It provides advice to researchers who undergo harassment, and makes them aware that they are not alone.

- The SAGER guidelines aim to ensure that study designs for research and the reporting of such research accurately reflects gender of study participants.

Publishers stand ready to work with NSTC, OSTP, and Federal agencies on all of these issues going forward, and welcome additional opportunities to engage and collaborate.

Very truly yours,

Ian Moss

CEO