

May 4, 2020

Dr. Lisa Nichols
Assistant Director for Academic Engagement
Office of Science and Technology Policy
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500 USA
Via email: publicaccess@ostp.eop.gov
Re. RFI Response: Public Access

Dear Dr. Nichols:

Thank you for inviting comment on how best to achieve public access to the research articles and data stemming from U.S. government funding. Immediate, free online access to the results of federally funded research in the life sciences and biomedicine is critical to accelerating scientific discovery and the benefits it brings to the American people and economy. While this has always been true, the COVID-19 pandemic has clearly demonstrated the importance of having new results available immediately, without paywalls that impede access, and the need for these results to be rapidly peer-reviewed with the highest editorial standards. While COVID-19 is a unique challenge, the same logic applies to all of the other scientific challenges we face.

We write on behalf of eLife Sciences Publications, Ltd, a 501(c)3 non-profit and publisher of a leading, digital-first open-access journal for the life sciences and biomedicine. eLife was founded in 2011 through a collaboration of the Howard Hughes Medical Institute (USA), the Max Planck Society (Germany) and Wellcome (UK) to improve science publishing and deliver open access to the most important results. We are also supported by the Knut and Alice Wallenberg Foundation (Sweden). Our mission is to help scientists accelerate discovery by operating a platform for research communication that encourages and recognises responsible behaviours. We pursue improvements in publishing, technology and research culture to achieve our aims. You can learn more about eLife on our website: <https://elifesciences.org/about>.

Below, we address each of the questions raised in the Request for Information.

1 – What current limitations exist to the effective communication of research outputs (publications, data, and code) and how might communications evolve to accelerate public access while advancing the quality of scientific research?

Today, progress in science and medicine is handicapped by restrictions that bar researchers, clinicians and others from leveraging the latest insights in further research, patient treatment, translational work, and innovative business. Legal barriers restrict the effective re-use of relevant findings by other researchers. Technical barriers inhibit access and discovery for search engines connecting findings with key readers. And financial barriers prevent access to the latest results for research, education, patient care, and business. Given the immense benefits scientific research brings to the health and well-being of people in the US, and the critical role it plays in driving our economy, it is fair to say that access barriers that slow research are killing people and damaging our economy.

At eLife, we believe there should be no barriers to the immediate, open online sharing of research articles, data or code. We believe research communication must evolve so that new findings are made immediately available, peer review is organised in the open, and discovery tools are fully enabled to help connect readers to all relevant material.

Peer review is key to assessing the quality, relevance and potential importance of individual works. We envisage a future in which the act of publishing results to make them openly accessible immediately is separate from peer review and curation. In this future, new findings are available to be peer-reviewed by multiple scientific communities at one time – further refining the collective assessment of their quality.

The first step in realising an evolution of research communications that truly serves science and medicine today is a strong national policy requiring free and immediate access to federally funded research.

2 – What can Federal agencies do to make taxpayer-funded research results, including peer-reviewed author manuscripts, data, and code funded by the Federal Government, freely and publicly accessible in a way that minimizes delay, maximizes access, and enhances usability? How can the Federal Government engage with other sectors to achieve these goals?

We strongly encourage U.S. Federal agencies to implement a strong national policy to ensure immediate, widespread, barrier-free access to the full results of publicly funded scientific research. This policy should require:

- All final peer-reviewed articles resulting from taxpayer-funded research be made freely available online immediately upon publication in a peer-reviewed journal;
- Access to the underlying data and tools needed to validate the results of these papers (e.g. software or code);
- All data be made available under findable, accessible, interoperable and reusable (FAIR) terms and conditions;
- Articles be made available in formats that support text and data mining and computational analysis;
- Articles carry an open license or be attributed to the public domain.

Each of these things is essential to enabling the degree of access and interaction necessary for science and medicine to achieve the pace we should expect in the modern world.

We encourage Federal agencies to work with native open-access publishing organisations, including institutional repositories, to facilitate author education, engagement and compliance as well as mass deposit. eLife is available to assist at any point.

3 - How would American science leadership and American competitiveness benefit from immediate access to these resources? What are potential challenges and effective approaches for overcoming them?

American scientific leadership has driven our economy and place in the world for over a century. It has been built on a spirit of openness and collaboration that has allowed our scientists and entrepreneurs to work together. American scientific leadership is now threatened by the inability of many scientists - especially those not working at the best-funded private universities and those working in the innovative small companies that drive our economy - to access the latest scientific research. The United States is poised to lead a new scientific revolution based on data. But not if the data are locked behind paywalls. 'AI readiness' is a national priority, and a national policy ensuring public access to publicly funded research articles, data and code is the first step in providing the fuel needed for artificial intelligence and machine-learning tools to achieve their potential. The recent development of the Covid-19 Primer (www.covid19primer.com) is an example of a US-based innovation that uses

machine learning combined with open access to provide scientists with the most up to date information in the most urgent of challenges.

Federally funded research outputs therefore must be made available in open and machine-readable formats to generate breakthroughs in AI and related technologies¹.

It's also true that U.S. leadership and competitive position are constrained so long as our scientists routinely cannot access critical research articles and data. Other countries are out-pacing us as they adopt immediate open-access policies to accelerate their research programs.

COVID-19, again, is a stark reminder of the critical importance and urgency of immediate online sharing of research reports, data and code to enable rapid checking, confirming and building upon new results. The importance of making this research open has been underlined by the decision by many subscription-based publishing houses to make coronavirus-related research openly available for the duration of the pandemic. Even the publishing industry acknowledges that open research is more useful than paywalled research. The U.S. should be at the forefront of working to a future where all research is available to everyone, beginning with a strong national policy for immediate open access to the results of publicly funded research.

Dr. Nichols, thank you again for the opportunity to comment. If eLife can help as you continue your assessment, please don't hesitate to contact us.

Sincerely,

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¹ As MIT professor and author Alex Pentland has laid out, success in innovation comes foremost from discussing one's ideas widely, to improve them and adapt them to real world problems, rather than developing such ideas in secret without broad feedback. Reference: Alex Pentland, Social Physics – How social networks can make us smarter. Random House, 2015, 320 pp