

Submitted to hq-publicaccess@mail.nasa.gov

August 17, 2023

National Aeronautics and Space Administration
Mary W. Jackson NASA Headquarters
300 E. Street SW, Suite 5R30
Washington, DC 20546

RE: Crossref Comments in Response to “Request for Information: NASA Public Access Plan for Increasing Access to the Results of NASA-Supported Research”

To Whom It May Concern:

I’m writing on behalf of Crossref, as its Executive Director, in response to the Request for Information: NASA Public Access Plan for Increasing Access to the Results of NASA-Supported Research” issued on May 18, 2023.

Crossref is a non-profit organization that for more than twenty years has enabled and promoted the use of persistent identifiers to enable researchers to find, cite, link, assess, and reuse research objects.

We have done this by developing and maintaining open scholarly infrastructure, following the [Principles of Open Scholarly Infrastructure \(POSI\)](#) and the FAIR principles (Findability, Accessibility, Interoperability, and Reuse), that support open research. The service we are best known for is enabling the registration and dissemination of open metadata and persistent identifiers (DOIs - Digital Object Identifiers) for many objects and resources related to scholarly research: journal articles, books, book chapters, preprints, datasets, standards, grants, and many other artifacts. We have over 18,000 members

(including universities, libraries, government agencies, government and private funders, museums, scientific societies, and publishers) from 150 countries worldwide, who have so far created metadata for over 144 million scholarly research objects, and these Crossref DOIs are resolved (clicked by humans and followed by machines) over 1 billion times per month. We provide additional services that enable the community to make connections between objects or to assess their trustworthiness, and our fully open metadata and API enable anyone interested in research to incorporate it into their own systems. We also maintain dedicated feeds to key partners such as ORCID, with over 3 million authors having now granted us permission to programmatically add works information to their ORCID records, and CHORUS. Crossref was a founding member of ORCID, and founded and governs ROR (the open organization registry) along with DataCite and the California Digital Library.

Crossref welcomes NASA's Public Access Plan and fully supports its mission and objectives, particularly *"increased access to scientific data, and enhanced tracking of research products through persistent identifiers (PIDs) and metadata"*.

In particular, Crossref supports and is willing to engage with NASA on the objectives with respect to metadata and identifiers mentioned in the following section:

4. Input on considerations to increase findability and transparency of research. NASA seeks suggestions on any specific issues that should be considered in efforts to improve use of PIDs (such as ORCID) and metadata, including information about experiences institutions and researchers have had with adoption of different identifiers.

Crossref is the main DOI Registration Agency assigning persistent identifiers and metadata for scholarly outputs, including journal articles, books, book chapters, preprints, datasets, standards, grants, and many other artifacts. Crossref also maintains the Open Funder Registry of persistent identifiers for all types of funders globally. The Crossref metadata includes ORCID IDs for authors and DataCite DOIs for data and software citation and plays an important role in maintaining the scholarly record that can be used by funders to assess research outputs.

Crossref metadata is made openly available without any reuse restrictions via a public REST API and is integrated into thousands of scholarly information systems and services, including Pubmed and Pubmed Central, and CHORUS. Crossref's open metadata includes basic bibliographic metadata, DOIs, abstracts, references, funding and licensing information, corrections and retractions and other open identifiers such as ORCID IDs for researchers, DataCite DOIs for research data and ROR IDs for organizations. This enables a connected, discoverable scholarly record - what we call the [research nexus](#).

Crossref is ready to work collaboratively with NASA and other open scholarly infrastructure organizations on better integration between all the relevant systems to ensure that NASA awards and grants and the outputs associated with them are fully connected with the global research nexus.

One issue not mentioned in the document is NASA grants and awards being assigned globally recognized persistent identifiers with standardized metadata. To address this point, Crossref recommends that NASA assign Crossref Grant DOIs to its grants and awards in order to connect them to the open scholarly infrastructure and the open research ecosystem that it enables across the world.

The Grant DOI program is unique to Crossref and has been ramping up for the last couple of years. We currently have over 80,000 registered grants, including 8,700 from the US Department of Energy's Office of Scientific and Technical Information (DOE-OSTI), with other US federal agencies actively exploring membership and grant registration.. Crossref is ready to fully support NASA registering its grants with us so they too can connect with the global network of research metadata.

Assigning Crossref Grant DOIs to NASA awards and grants will facilitate and streamline the acknowledgement of funding sources and will make it easier for authors and awardees to comply with requirements of the Public Access Plan. For example, an author can provide a Grant DOI during the article submission process and this will enable the publication to pull in the ORCID for the authors, the RORs for the funder and their institution, which means the author doesn't need to rekey all this metadata.

In response to the OSTP memo in November 2022, Crossref [outlined in detail](#) how funding agencies can meet OSTP (and Open Science) guidance using existing open infrastructure, which includes Crossref, and also ORCID, ROR, and DataCite.

We look forward to working with NASA alongside our work with other agencies on meeting the shared goals of the OSTP memo.

Ensuring free, immediate, and equitable access to persistent identifiers and metadata that captures the scholarly record is an essential part of meeting the goals of the NASA Public Access Plan and the OSTP memo and supporting Open Science globally.

Ed Pentz
Executive Director
Crossref