Letter attached to the submission
Form submission text

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April 24, 2023

Office of The Director
National Institutes of Health
9000 Rockville Pike
Bethesda, Maryland 20892

RE: Crossref Comments in Response to NOT-OD-23-091, "Request for Information on the NIH Plan to Enhance Public Access to the Results of NIH-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 (RFI) on the NIH Plan to Enhance Public Access to the Results of NIH-Supported Research issued on February 21, 2023.

Crossref is a not-for-profit organization that sits at the heart of the global exchange of research information with a mission to make it possible to find, cite, link, assess, and reuse research objects. We do 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 143 million scholarly research objects, and these Crossref DOIs are resolved (clicked and followed) 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 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. Crossref contributed to the creation of ORCID, as we have with ROR.

Crossref welcomes NIH's intent to incorporate guidance on the uses of persistent identifiers and metadata in its Public Access Plan. Our specific comments are focused on issue number 4:

> **4. Early input on considerations to increase findability and transparency of research.**
> *Section IV of the NIH Public Access Plan is a first step in developing the NIH's updated plan for persistent identifiers (PIDs) and metadata, which will be submitted to OSTP by December 31, 2024. NIH seeks suggestions on any specific issues that should be considered in efforts to improve use of PIDs and metadata, including information about experiences institutions and researchers have had with adoption of different identifiers.*

In looking at identifiers and metadata and how to improve their use, we encourage NIH to focus on a number of critical questions: How open are they? How are they funded and how sustainable are they? How are they integrated with the global scholarly research ecosystem? How broadly are they used? What services are available to register, resolve and disseminate the persistent identifiers and metadata? Are there complementary services available that support other goals such as research integrity? How and by whom are they governed? How global/wide-reaching are they? The answers to all of these questions will also answer how truly persistent and trustworthy the operation and services are.

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. 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 - and it's important that NIH grants are connected to this open scholarly infrastructure and the open research ecosystem that it enables across the world.

As the RFI correctly notes of the current situation with NIH grants and their identifiers: *"they are not registered or indexed to ensure uniqueness beyond NIH and they are not retrievable using a standardized communications protocol that would allow for interoperability".*

We are pleased to note that "*NIH is exploring use of the digital object identifier (DOI) system that would overlay existing NIH grant identifiers to resolve these issues".* Crossref would be happy to collaborate with the NIH on connecting NIH grants with the wider open scholarly infrastructure that Crossref provides. As the leading Registration Agency providing DOI services, we represent by far the largest community of stakeholders involved in documenting the progress of science, so updates and future enhancements can be developed and—crucially—adopted at scale.

The Grant DOI program is unique to Crossref and has been ramping up for the last couple of years. We currently have over 76,000 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 NIH registering its grants with us so they too can connect with the global network of research metadata.

We are encouraged by this statement: "*NIH will coordinate this exploration with efforts of other Federal agencies and relevant external/internal impacted communities to assess how to best develop a robust, connected ecosystem where institutions, researchers, research outputs, and funding sources are linked consistent with FAIR principles*".

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 the NIH alongside our work with other agencies on meeting the shared goal of "a robust, connected ecosystem where institutions, researchers, research outputs, and funding sources are linked consistent with FAIR principles". In other words: the Research Nexus.

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

Ed Pentz
Executive Director
Crossref

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1. How to best ensure equity in publication opportunities for NIH-supported investigators.

The NIH Public Access Plan aims to maintain the existing broad discretion for researchers and authors to choose how and where to publish their results. Consistent with current practice, the NIH Public Access Plan allows the submission of final published articles to PubMed Central (PMC) (in cases where a formal agreement is in place) to minimize the compliance burden on NIH-supported researchers and also maintains the flexibility of NIH-supported researchers to submit the final peer-reviewed manuscript. NIH seeks information on additional steps it might consider taking to

ensure that proposed changes to implementation of the NIH Public Access Policy do not create new inequities in publishing opportunities or reinforce existing ones.

>> Researchers should be free to publish their manuscripts in the most appropriate journal that meets the NIH Public Access Plan requirements. By registering its grants with Crossref and getting Crossref Grant DOIs, NIH can ensure that published outputs from NIH-supported researchers are easily connected to the related grant without any additional burden on the researchers. With over 18,000 members from 150 countries and over 100,000 journals, Crossref metadata and DOIs will support connecting the publications of NIH-supported researchers to the global research discovery ecosystem wherever they publish. Our growing membership includes many new formats and models for publishing, with incentives in place such as our new GEM Program (Global Equitable Membership) which enables zero-fee participation in the system by members in the least economically-advantaged parts of the world. Crossref also encourages critical metadata that are used for downstream analysis, such as references, data citation, and increasingly important for assessment - abstracts.

2. Steps for improving equity in access and accessibility of publications.

Removal of the currently allowable 12-month embargo period for NIH-supported publications will improve access to these research products for all. As noted in the NIH Public Access Plan, NIH also plans to continue making articles available in human and machine-readable forms to support automated text processing. NIH will also seek ways to improve the accessibility of publications via assistive devices. NIH welcomes input on other steps that could be taken to improve equity in access to publications by diverse communities of users, including researchers, clinicians and public health officials, students and educators, and other members of the public.

>>Open persistent identifiers and metadata are essential to providing equitable access to publications. Crossref encourages NIH to register Crossref grant DOIs and metadata, including ORCID IDs and ROR IDs. Our open and robust API is open to everyone, used by tens of thousands of systems across the research ecosystem, and is heavily relied upon for text-mining and other machine uses.

3. Methods for monitoring evolving costs and impacts on affected communities.

NIH proposes to actively monitor trends in publication fees and policies to ensure that they remain reasonable and equitable. NIH seeks information on effective approaches for monitoring trends in publication fees and equity in publication opportunities.

>>Open persistent identifiers and metadata are essential to monitoring trends with publication fees and where research outputs from NIH-supported researchers are made available. To enable this, Crossref encourages NIH to register Crossref grant DOIs and metadata, including ORCID IDs and ROR IDs. .

NIH could encourage its grantees to publish in outlets that provide the richest possible metadata and therefore increased evidence and accessibility for the community.

4. Early input on considerations to increase findability and transparency of research.

Section IV of the NIH Public Access Plan is a first step in developing the NIH's updated plan for persistent identifiers (PIDs) and metadata, which will be submitted to OSTP by December 31, 2024. NIH seeks suggestions on any specific issues that should be considered in efforts to improve use of PIDs and metadata, including information about experiences institutions and researchers have had with adoption of different identifiers.

>>In looking at identifiers and metadata and how to improve their use, we encourage NIH to focus on a number of critical questions: How open are they? How are they funded and how sustainable are they? How are they integrated with the global scholarly research ecosystem? How broadly are they used? What services are available to register, resolve and disseminate the persistent identifiers and metadata? Are there complementary services available that support other goals such as research integrity? How and by whom are they governed? How global/wide-reaching are they? The answers to all of these questions will also answer how truly persistent and trustworthy the operation and services are.

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