

# Request for Information: NASA Public Access Plan for Increasing Access to the Results of NASA-Supported Research

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Q.1 How best to ensure equity in publication opportunities....

Response:

In addition to the avenues outlined already in the question, an additional way to serve researchers and especially early career researchers might be to emulate the process CERN has in place. At CERN they have a pooled fund that is used to pay any upfront publication fees for the handful of elite legacy science publishers. This still results in the author's work being put behind a paywall and thus inaccessible to many in the developing world. But it at least supports the researcher in getting their work published. In addition, it would be interesting to see whether a combined effort between NASA and CERN might invest enough negotiating power with these legacy publishers to be able to stipulate that the author of the research retains copyright to their work, as opposed to having to relinquish their copyright to the publication in specified instances.

Q.2 ...*seek ways to improve the accessibility of publications by diverse communities of users.*;

Response:

As a software developer of a scientific publishing platform, one of the elements we are iterating on is what is referred to as 'Account Abstraction.' The platform I have developed, *Frontier Registry*, is on-chain (blockchain) publishing. Every action on-chain requires a transaction fee. Often the transaction fee is minimal but, nonetheless, it must be settled for the process to finalize. You can equate this with the subscription fees of a legacy publisher. Example, in Nature when there is an article you'd like to read, you usually have to subscribe first. This is an effective blockade for many people whether in developing countries or not. With Account Abstraction, we can program in a method to sponsor/ pay for any such fees. So the publishing protocol ([Frontier Registry](#)) can program in that a certain user with a certain demographic identity does not have to pay to access a designated pool of research. Or that the 'access fee' is paid by the protocol.

*Q.3 NASA seeks information on effective approaches for monitoring trends in publication fees and equity in publication opportunities.*

Response:

If you are interested in monitoring trends, please have a look at what we have built and are currently iterating on. This publishing protocol leverages distributed ledger technology to address these bottlenecks in scientific publishing and STEM information sharing.

INFO: <https://frontier-registry.carrd.co/>

Alpha Protocol: <https://frontier-dapp.netlify.app/>

*Q.4 ...suggestions on any specific issues that should be considered in efforts to improve use of PIDs...*

Response:

Our answer to PIDs and DOIs are the actual transaction hashes that are automatically assigned whenever you publish research material on-chain through Frontier Registry.

So rather than a centrally stored repository of identifiers to important research data sets and publications, each artifact is stored on a decentralized, networked storage system. And each transaction hash (PID/DOI) is stewarded by its author through immutable attribution since the transaction hash points directly to the author's blockchain identity (aka 'wallet' or string of unique, long number sequences). But it is also publicly findable since it is maintained transparently and openly on the blockchain, easily verifiable by checking its provenance on etherscan.io for example.

Furthermore, it burdens researchers with added capacity building to have to learn how to assign a DOI to their work. At the CERN/ NASA summit in July I heard the participants say repeatedly that research software must be easy to use for researchers. Overburdening these professionals with subpar UX/UI is not doing scientific research and researchers any service.

*Q.5 ...Sites like GitHub and Zenodo offer ways to distribute and manage software. NASA is seeking suggestions on improving the archiving, sharing, and maintenance of software for reuse.*

Response:

This is a good prompt. And it is one that points directly to the irony that Github, arguably the world's largest repository of open source code, is owned by Microsoft, one of the biggest proprietary software companies in the world.

I find this question engaging because I believe there must be a way whereby developers who are releasing their code as open source, must also be able to claim attribution and a sustainable revenue stream from their work. I fully support Open Science and open source, but I also fully support equitably compensated efforts and sustainable work flows. I don't have any answers for you here, but I can offer [this article](#): *Open Source Software, Big Tech's New Trough?*