

Title: The Open Science Framework: Connecting and Supporting the Research Workflow

Session Type

Presentation

Abstract (<200 words)

The non-profit Center for Open Science (COS) seeks to connect and streamline the research workflow through use of its web application, The Open Science Framework (OSF) (<https://osf.io>). Free and open source, the OSF manages the entire research lifecycle: planning, execution, reporting, archiving, and discovery. The OSF is part version control system, part collaboration tool, and part project management software, and facilitates transparency in scientific research. The OSF integrates private and public workflow by assigning every researcher, every project and every component a unique, persistent identifier, and individual privacy options. The researcher maintains access control over which parts remain private and which become public - but is incentivized to share data and materials openly. The OSF streamlines workflows by connecting tools researchers already use — examples include Dropbox, FigShare, and Dataverse — allowing resources housed in different services to be displayed in one central location. This talk will highlight the ways the OSF enables open science, streamlines research workflows, and facilitates collaboration.

Conference Themes

Select the conference theme(s) your proposal best addresses:

Supporting Open Scholarship, Open Science, and Cultural Heritage

Keywords

open science management, data sharing platform, research management tool

Audience

The audience for this talk is data producers and those who advise data producers on technical solutions. Developers may also be interested in the open source nature of the OSF.

Background

How does your submission address the conference themes or the overarching topic of open repositories?

This submission addresses the conference theme of “Supporting Open Scholarship, Open Science, and Cultural Heritage,” by demonstrating how the free, open source Open Science Framework facilitates open scholarship and open science. The main functions of the OSF are in managing and streamlining scholarly and scientific workflows and providing a platform for

openly communicating scientific knowledge. The OSF, maintained by the non-profit Center for Open Science, provides for persistent data storage and integrates with repositories, making compliance with funder mandates easy for the researcher. The OSF connects with the Harvard Dataverse via API connection currently, with further connections to repositories planned and under development.

Presentation content

Tell us what you will (and won't) cover in the presentation. Why will your topic be of interest to the intended audience? Include figures and images if they will help reviewers evaluate the proposal content. 2-4 pages.

Researchers are busy. Data and materials management and general project management are tasks that consume time; tools for managing the 'housekeeping' tasks of research can have a big impact on a researcher's efficiency and output. Built with the researcher in mind, the Open Science Framework is a free, open source tool for managing a researcher's entire scientific workflow, while facilitating open science practices.

Open scholarship and open science rely on infrastructure for both execution of the research and archiving its products upon completion. In this talk, we will explore how the OSF helps organize the research workflow during planning and execution, and integrates with repositories for further dissemination of the research product. The OSF is a web application built and supported by the non-profit Center for Open Science (COS). The Center for Open Science is dedicated to improving openness, integrity, and reproducibility of scientific research; the OSF is its flagship product.

The OSF represents a research coordination center: a hub that connects many services a research uses, allows for customized access controls to manage many collaborators, and maintains an accurate record of the project via a history log and built-in version control.

The OSF is built for researchers who are already on board with the open science movement, but also those who are hesitant to share their data and materials publicly. The philosophy behind the OSF is to meet researchers where they are, while providing an easy means for opening up their research if it's desired or the time is right. Any project hosted on the OSF is private to collaborators by default, but making the materials open to the public is accomplished with a simple click of a button.

The OSF streamlines the workflow: add-on connections with services that researchers already use, like Dropbox, Github, and Dataverse, offer enhance efficiency and allow many pieces of one project (data, code, etc.) to be viewed in one place. The OSF makes version control effortless - never again will a researcher ask "is this the most current version of the paper?" Every time a new version of a file is uploaded to the OSF, the previous versions are maintained so that a user can always go back to an old revision. Logging of actions ensures each collaborator knows what steps the others are completing. Each project, contributor, and file on the OSF is given a persistent unique identifier, making all research products citable. Privacy and sharing settings for projects and components of projects ensure that everyone

has access to what they need when they need it -- or make projects public to share research with the world. Whatever the research application, the OSF has features to make day-to-day tasks easier and work more organized.

Other features of the OSF incentivize researchers to open up their data and materials. In addition to the globally unique identifiers that make all materials citable and ensuring researchers get credit for their work, authors can also access statistics detailing the number of views and downloads of their materials. The OSF also applies the idea of “forks,” commonly used in open source software development, to scientific research. A user can create a fork of another project, to indicate that the new work builds on the forked project or was inspired by the forked project. A fork serves as a functional citation; as the network of forks grows, the interconnectedness of a body of research becomes apparent.

Actively developed, the OSF is continually evolving. COS engages with scientists, funders, societies, and data management groups to forge partnerships and build features to further connect and support the research lifecycle. As an open source tool, anyone can contribute to the development of the OSF.

This presentation will discuss the features of the OSF, and ways it can improve a researcher’s workflow. It will include a demo of the service and concrete examples of how real researchers are using the OSF today. It will also include discussion of where the product is going: how feedback from the community can inform feature development and how partnerships with other services and repositories can improve functionality. Discussion of how the OSF can be used to meet funder mandates around data preservation and availability will be included. The presentation will be concrete and actionable; it will not be a higher level discussion of the issues.

Conclusion

There are tools for streamlining scientific workflows; one of these is the Open Science Framework. The OSF supports open scholarship and open science. This tool is free to use and open source; it supports open science practices but also private workflows. It incentivizes and facilitates the transition to open practices. Connecting pieces of the research lifecycle, including repositories, increases efficiency.

References

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