



CENTER FOR  
OPEN SCIENCE

# COS TRUST: Ensuring Openness, Integrity, and Reproducibility in Research

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# Fostering Open and Transparent Research

The Center for Open Science's (COS) mission is to increase openness, integrity, and reproducibility of research. We envision a future scholarly community in which the process, content, and outcomes of research are openly accessible by default. All scholarly content is preserved and connected, and transparency is an aspirational good for scholarly services. All stakeholders are included and respected in the research lifecycle and share the pursuit of truth as the primary incentive and motivation for scholarship. Achieving the mission requires culture change in the incentives that drive researchers' behavior, the infrastructure that supports research, and the business models that dominate scholarly communication.

COS provides an [open access platform](#), the [Open Science Framework \(OSF\)](#) as a tool to enable transparent connections between researchers, and persistent identifiers for their contributions as well as their affiliations. We have a dedicated team that collaborates broadly to build a durable and high-fidelity open-source software platform. We are motivated by values that guide our work. These principles emphasize our commitment to being a respectful, reliable, inclusive, and accountable partner of the research community. We respect the privacy and information-sharing needs of the individuals who have accounts or content on the OSF, and who control whether their information or content is shared and with whom. As a non-profit organization, we are not incentivized to profit from information entrusted to us. We are governed by a volunteer board that represents research and technology communities and provides COS with valuable advice for meeting its mission, please see our [bylaws](#).

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## Complying with TRUST

### *The TRUST Principles for Digital Repositories*

These principles offer guidance for maintaining the trustworthiness of digital repositories, especially those responsible for the stewardship of research data.

COS has endorsed the [TRUST principles for digital repositories](#).





## Transparency

To be transparent about specific repository services and data holdings that are verifiable by publicly accessible evidence.



## Responsibility

To be responsible for ensuring the authenticity and integrity of data holdings and for the reliability and persistence of its services.



## User Focus

To ensure that the data management norms and expectations of target user communities are met.



## Sustainability

To sustain services and preserve data holdings for the long-term.



## Technology

To provide infrastructure and capabilities to support secure, persistent, and reliable services.

# Transparency

### *Individual Control*

Our tools and services provide you with control over your account and content and who can access your content. We provide system security and protection to ensure that user control is maintained and user data is protected.

### *Have confidence that COS will:*

- Provide unique user identifiers, global unique identifiers (GUIDs)
- Respect your privacy by letting you decide what information is associated with my user account
- Be clear and consistent about how you control access to your information
- Allow you to decide who has access to what content you have created and the ability to change those permissions at any time
- Follow the data protection rules in your country

Individual ownership and control over the content you choose to put on the OSF are part of COS's core principles. As a user, you control what information is connected to your profile and who has access to your data.

## *COS Privacy Principles*

- You own your OSF user account and any content associated
- You control who accesses the content in your OSF account and can change access at any time
- You may close your OSF user account at any time or request a full GDPR deletion
- Organizations may only access information in your OSF account if you have permitted them to do so, or have made the information publicly available

## *International Policies to Support COS Values*

COS is an international organization, with users throughout the world and members in every region. We are aware that values and community norms regarding data collection, use, and privacy vary from country to country, and we recognize that it is important that our policies and practices reflect our scope. Thus, we engage external counsel and auditors to review our policies and practices. Details about how COS handles user information can be found in our [privacy policy](#). Our privacy policy is reviewed periodically to ensure that it continues to meet user needs and COS values. Questions about this policy may be addressed and directed to [support@cos.io](mailto:support@cos.io). COS undergoes an annual SOC2 by an independent third-party organization to ensure that we meet the criteria for managing customer data based on five “trust service principles”—security, availability, processing integrity, confidentiality, and privacy. More information can be found under Security & Privacy, [here](#).

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## **Responsibility**

COS makes itself accountable to all who use and support COS and OSF activities through our non-profit status, our membership-based fee-for-service model (FFS), community guidelines, and our dispute resolution processes.

### *Have confidence COS will:*

- Remain committed to our mission: To increase openness, integrity, and reproducibility of research
- Persist as a service
- Be transparent with regard to policies and priorities within the organization and the supported OSF platform

Along with our users, members and other organizations within research and open scholarship communities drive our growth. COS makes itself accountable to those who use and support COS and OSF activities through our non-profit status, our membership-based fee-for-service model (FFS), community guidelines, and our dispute resolution processes.

### *Non-Profit Status and Open Access*

As a mission-driven organization, we are—by design—responsive to our community. In addition to being committed to openness and accessibility, COS is an independent not-for-profit 501(c)3 tax-exempt organization registered in the United States (please see our [bylaws](#)). As such, we are subject to US laws and regulations governing charitable entities, including the requirements that we must be organized and operated exclusively for charitable purposes and our activities cannot impermissibly benefit private interests. There are significant restrictions built into our governance structure and policies to ensure COS remains true to its nonprofit mission.

In staying true to our mission and values, we encourage our users to make their scientific research and scholarly communication openly accessible to the research community. All public data uploaded to the OSF is community-owned, operated, and licensed freely and publicly, subject to the terms of applicable law. COS holds no ownership of community upload data and therefore cannot sell, trade, or gift data to any other entity.

### *Handling Disputes*

While the majority of interactions between individuals in the OSF community fall within our Community Guidelines, violations of those policies do occur at times. When they do, COS staff may need to take enforcement action to address the violations. However, in some cases, there may be a basis to reverse a moderation action taken by COS Staff. In these instances, we have a process in place to handle disputes and appeals and reinstatements.

## User Focus

COS works with the community to enable open research practices to be carried out transparently and collaboratively. To advance these practices COS developed and maintains the OSF, which is a free open source project management tool that is designed to facilitate collaboration and sharing amongst researchers as well as being a generalist repository for data storage.

### *Security & Privacy*

The protection of your research, and personal information is our top priority. OSF may collect various data that you share upon registering and in using OSF and its suite of products. Please see section 7 of our [Privacy Policy](#) for this information.

### *Support*

COS has a dedicated support team that can respond to requests for help [support@osf.io](mailto:support@osf.io) as well as [Support Guides](#) where you can find information on [Getting Started](#) and other [Frequently Asked Questions](#).

### *Accessibility*

When COS was founded in 2013 web accessibility did not have quite the widespread awareness it enjoys today. The principles of openness that COS was founded on dovetail neatly into these larger concepts of access (please see the [COS Accessibility Statement](#)). After all, if material on the OSF is open but not accessible to all, then it will not be serving the global community nearly as effectively, and we will not move as closely to our mission to scale, and sustain open research practices that will democratize access to research, improve inclusion of all stakeholders, enhance accountability to research integrity, facilitate the self-corrective process of science, expand transparency and sharing of all research content, and improve research rigor and reproducibility.

According to the [Web Accessibility Initiative \(WAI\)](#), for an online technology to be accessible, it must be, “designed and developed so that people with disabilities can use them.” What this means specifically is that people with any disability—auditory, cognitive, neurological, physical, speech, or visual—can perceive, understand, navigate, interact with, and contribute to content they find throughout the web. Over the last few years, we have made great strides

in improving the accessibility of OSF content by working towards [WCAG 2A accessibility standards](#) for all pages and also conducting tests to ensure that the OSF can be accessed using mobile devices. Here is the [Accessibility Report for OSF 22.04.00](#).

### *User Feedback & Engagement*

In 2020 COS began performing user surveys in order to better understand users' experiences with and feelings about the OSF in order to ensure that platform improvements are being developed to meet the needs of our community. In addition COS has multiple user research teams where beta testing and user feedback related to various improvements can be gauged.

### *COS Openness to Ensure Availability*

One of the core values of COS is openness. In addition to providing free access, no barriers to access for individuals, democratic and transparent governance, and open source software, we are committed to working with the community. We take our role seriously in ensuring access to content you choose to share publicly on the OSF platform. We make your public data available under a Creative Commons CC0 License through the OSF website and through a public API. In addition, the [OSF status page](#) can be accessed to see real time updates on service status or to sign up for alerts. This includes the status of services the OSF platform relies on as well as any dependencies.

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## **Sustainability**

COS has been successful at obtaining foundation and federal grant awards to test or enact our mission. With the maturation of its products, services, and community engagement, we are at an inflection point that requires a shift away from a high percentage of restricted funding (up to 98%) to a more diversified and sustainable funding portfolio. COS needs greater flexibility to drive a strategically aligned set of service roadmaps for the OSF, policy, community engagement, and research activities without the inherent limitations that restricted grant projects can create. Furthermore, we aim to ensure the sustainability of the core infrastructure and solutions that are now relied upon by the research community.

COS will focus on diversifying the funding portfolio across [1] restricted (but mission- and business-aligned) and unrestricted philanthropic and federal grants, [2] earned revenue through OSF-related services and new consulting and training services, and [3] philanthropic support (from individuals and corporations). The objectives below describe the path toward this desired diversification, and for more information about [COS finances see this page](#).

### *Objectives*

- Diversification of sustained funding streams across earned revenue, philanthropy, and grants, with greater international reach and contribution
- Disciplined pursuit of grant awards that advance key elements of our priority initiatives and goals across infrastructure, policy, community building, education and training, research, and general operations where appropriate
- Maintenance of a healthy pipeline of grant opportunities to cover baseline operating expenses

- Growth in earned revenue from the intentional investment in product and service development and related marketing and business development efforts
- Growth in philanthropic support with benefactors, major gifts, and corporate support from a multi-pronged development strategy
- A sustained surplus from earned revenue and philanthropic support to help reduce negative impacts of uncertainty and variability in funding year over year.
- Maturation of a more systematic suite of intervention strategies, including the launch of consulting services that support culture change and open science practices
- Future-forward cost containment and management of technical debt
- Greater community contribution to infrastructure, policy, and research activities

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## Technology

We understand that dependability, availability, security, and durability are required of the systems and services we provide for you and the organizations you work with within the research community.

*Have confidence that the OSF Repository will:*

- Be accessible to the public
- Be available when needed, now and in the future
- Keep your personal information safe
- Continue to be driven by and respond to community needs
- Be prepared for challenges that may be hard to predict
- Evolve to the changing needs of its users through its [Strategic Plan](#)

All public OSF data will be shared and preserved in order to meet OSF's commitments to the availability and persistence of the data on OSF. This public data is necessary to provide the activity logs in the OSF user interface. Data made public on OSF is supported by the COS preservation policy. COS established a \$475,000 preservation fund for hosted data in the event that COS had to curtail or close its offices. If activated, the preservation fund will preserve and maintain read access to hosted data. At today's costs for storage and hosting on cloud infrastructure, this fund is sufficient for a minimum of ten years of read-only access to OSF public content. COS will incorporate growth of the preservation fund as part of its funding model as data storage scales. Registrations on the OSF are preserved through our external partner [Internet Archive](#). For information about OSF backups and technical preservation details, see the [COS Backup and Preservation statement](#).

### SOC2

COS is [SOC 2](#) compliant having met the criteria established by the American Institute of CPAs ([AICPA](#)) for managing customer data based on five "trust service principles"—security, availability, processing integrity, confidentiality and privacy. The COS SOC 2 report can be provided to current and potential COS partners upon request. Simply email [support@cos.io](mailto:support@cos.io) with your request.

### OSF Data Management

COS follows a shared responsibility model for cloud-hosted applications. COS applications and data are hosted on Google Cloud Platform (GCP) at Google data centers with strong

physical and digital security measures. More information about operational and hardware-level security can be found [here](#).

The OSF database utilizes GCP's at-rest disk encryption. Columns containing sensitive information (such as third-party storage add-on credentials) are encrypted via AES256-GCM. Passwords are one-way encrypted via bcrypt and cannot be decrypted. The OSF database is backed up via streaming replication 24 hours a day, and incremental restore points are made twice daily. Further, the OSF database is maintained in encrypted snapshots for an additional 60 days. Database backups are verified monthly. Logs are primarily stored in Google Cloud Stackdriver indefinitely. All traffic is encrypted via TLS, both internally between pods and clusters, and externally from the internet. System administrator access is limited to SSH via an on-premise VPN.

OSF connects content and services across the research lifecycle. For storage, researchers can connect to Amazon S3, Bitbucket, Box, Dataverse, Dropbox, Figshare, OneDrive, Owncloud, Github, GitLab, and Google Drive. For citation management, researchers can connect to Mendeley and Zotero. The OSF also has its own default storage add-on, OSF Storage, if researchers choose not to connect to any third-party add-ons. Regional storage locations comply with most institutional requirements. OSF keeps three types of hashes (MD5, SHA-1, SHA-256) for files. COS uses Google Cloud for active storage and Google Coldline as a backup location. File backups are hosted in Google Cloud Coldline storage, indefinitely.

### *Security Breach*

In the event of a security incident, such an event could be a malicious code attack, unauthorized access to information or systems, the unauthorized use of services, a denial-of-service attack, or a hoax. COS has an incident response plan that it will implement to facilitate quick and efficient response to incidents, and to limit their impact while protecting information assets and user data. You can read more about the [COS's Data Breach Response Plan](#).

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## References & Links

- [Terms of Use](#)
- [Privacy Policy](#)
- [COS Strategic Plan](#)
- [COS Bylaws](#)
- [SOC2](#)
- [AICPA](#)
- [OSF Status Page](#)
- [COS Finances](#)