



NATIONAL SCIENCE FOUNDATION
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NSF 22-062

Frequently Asked Questions (FAQs) for the NSF Pathways to Enable Open-Source Ecosystems (POSE) Program (NSF 22-572)

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1. What is the difference between an open-source product and an open-source ecosystem?

An open-source product is an artifact (software source code, hardware instruction sets, designs, and specifications, models, languages, formats, scientific methodologies and processes, manufacturing process and process specifications, data, etc.) that is made available freely to anyone and for any purpose. An open-source product is generally shared via a webpage on the Internet, and further development (if any) is done solely by the original authors.

An open-source ecosystem, or OSE, is a self-sustaining organization that enables the ongoing collaborative, asynchronous development of an open-source product that is designed to be publicly accessible, modifiable, and distributable by anyone under an open-source licensing model. This model is governed by sociotechnical processes and mechanisms for continuous development, integration, and deployment, and sustained by a decentralized and open network of contributors who contribute their time and expertise to develop and maintain the open-source product.

2. What is the goal of the NSF POSE program?

The goal of the NSF POSE program is to fund new OSE managing organizations, each responsible for the creation and maintenance of infrastructure needed for efficient and secure operation of an OSE based around a specific open-source product or class of products. The early and intentional formation of such managing organizations is expected to ensure a more secure and distributed development process, increased coordination of developer contributions, and a more focused route to impactful technologies.

The POSE program is not intended to fund:

- further development of open-source research products, including tools and artifacts;
- existing well-resourced open-source communities and/or ecosystems; or
- the development of products that are intended for profit, as such efforts may be better suited for NSF's Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) programs.

3. **How is POSE different from other Infrastructure programs at NSF?**

NSF offers several programs that support the creation and maintenance of open-source cyberinfrastructure. For example:

- The Cyberinfrastructure for Sustained Scientific Innovation (CSSI, [NSF 21-617](#)) program supports innovation in software, data, tools, and services that enhance scientific cyberinfrastructure and enable scientific discovery. CSSI supports open-source development, software robustness efforts, and specialized communities.
- The Computer and Information Science and Engineering (CISE) Community Research Infrastructure (CCRI, [NSF 22-509](#)) program supports projects that drive discovery and learning in core CISE disciplines by creating and enhancing research infrastructure. CCRI also supports further development of open-source projects to enable science and engineering research and education by members of the academic community.
- The Capacity ([NSF 21-501](#)) program supports implementation of, scaling of, or major improvements to research tools, products, and services that advance contemporary biology and that are broadly applicable to a wide range of researchers.

The POSE program builds on these programs by supporting the development of a managing organization for creation and maintenance of governance processes and infrastructure needed for efficient and secure operation of an OSE based around a specific open-source product. POSE-funded managing organizations are expected to build a community of external contributors who will actively participate in the ongoing distributed development of the open-source product; understand the requirements of the end-user ecosystem within which the open-source product will be deployed; and ensure that ongoing development of the open-source product is aimed at meeting these requirements.

4. **The solicitation refers to an existing mature open-source project. What does "mature" mean here? Does this mean a publicly-accessible website and/or a GitHub repository?**

"Mature" means a robust open-source product that is in existence, via a publicly accessible website or a public repository (e.g., GitHub), with some external third-party users and/or content contributors. For Phase II proposals, the open-source product should also have some support and tools for download and/or upload of content.

5. How can POSE funding be spent? What development activities are allowable in a POSE project?

POSE funding may be used to provide salary to any staff who will assist in the scoping and/or development or governance of the OSE, including the principal investigator (PI) and co-PIs, students, developers, and marketing, administrative, and/or legal professionals. Funding may also be used to cover costs incurred for organizational, coordination, and governance activities, any necessary infrastructure, as well as market analysis and customer-discovery activities. The budget may include funds of up to \$10,000 to cover mandatory NSF-provided training.

The budget for POSE proposals may include salary for professional developers. While the bulk of the OSE content development is expected to be done by external contributors, professional developers could be used to develop and maintain the infrastructure and processes for build, test, configuration, verification, security, and/or quality-control activities. Proposals are expected to clearly explain the responsibilities for all funded staff.

6. My product is currently available as open-source but I intend to commercialize it. Can I apply to POSE?

If you are seeking funding to develop and commercialize a product or service based on open-source technology, the POSE program is not a good fit. Instead, you could consider applying to the NSF SBIR/STTR programs, which fund startups and early-stage small businesses to develop new leading-edge technologies that offer the potential for commercial and societal impact. For more information, please visit <https://seedfund.nsf.gov/>. You could also seek private-sector investment, for example, from angel investors or venture capitalists.

7. What is the difference between POSE Phase I and Phase II projects?

POSE Phase I projects are scoping projects and are intended for teams that have a mature open-source product that is publicly accessible, with some external third-party users and/or content contributors, but that have little or no experience in building an OSE and are unsure of the needs and composition of their end-user communities.

POSE Phase II projects are aimed at developing an OSE. Teams applying for Phase II funding should have a mature open-source product that is publicly accessible, external

third-party users, external third-party content contributors, basic mechanisms in place to enable continuous development, integration, and deployment processes that enable the product to evolve with the state-of-the art, and at least a rudimentary understanding of the needs and composition of their end-user communities.

Both Phase I and Phase II projects should have as their ultimate goal the development of a sustainable OSE that addresses a current or emergent societal, national or economic need.

8. Can I submit a proposal for the same open-source product to both Phase I and Phase II?

No, the requirements for Phase I and Phase II are very different (see [Question 7](#) above). Please consult the solicitation for more information.

9. I have an open-source product that has been downloaded by multiple users but only my group contributes content. Do I need external contributors to apply for Phase I or Phase II funding?

You do not need external collaborators to apply for Phase I funding; rather, it is recommended to have external users (along with letters describing the nature of the participation) for Phase I proposals. It is recommended that you have some external users as well as collaborators (along with letters describing the nature of the participation) for Phase II proposals.

10. I have an open-source data repository that my organization created and continues to maintain, but many people download data from and upload data to this repository. Can I apply for POSE funding to continue to maintain this repository?

POSE proposals are intended to support a managing organization to enable ongoing collaborative development of an open-source product. The content that is added by external contributors needs to add intellectual value to the open-source product being developed. If external contributors are only adding raw data (for example, without specific use cases, models, tools, or other supporting material), then such a project is not a good fit for POSE. Such efforts should consider the cyberinfrastructure programs instead (see [Question 3](#)).

11. I have an open-source data repository that does not deal with sensitive data. Do I need to have a security plan? If so, what should I put in it?

Every POSE proposal is expected to have a security plan. Even publicly available and seemingly non-threatening information can involve security risks. The security plan should consider the security, privacy, and ethical aspects associated with any data involved in the project. Projects collecting or re-using data involving human participants

may also need [Institutional Review Board \(IRB\) certification](#). Proposers are encouraged to consult the Open Source Security Foundation's [best practices](#).

12. I have an open-source product that is freely available for download on my website. Do I need an open-source license in place before applying to Phase I or Phase II?

While a specific open-source license need not be identified prior to a Phase I proposal submission, it is expected that such a license will be in place prior to applying for Phase II funding and that the Phase II proposal will contain a rationale for the type of license selected.

13. Can technical contributors to an open-source ecosystem funded by the POSE program be based outside the U.S.?

Yes, but POSE funding cannot be used for further development of an open-source artifact, tool, or product, whether the technical contributor is located inside or outside the U.S. Further, while NSF welcomes all international collaborations, non-U.S. based entities and personnel cannot receive NSF funds.

14. Will a for-profit organization be eligible as the lead organization by itself, or does it have to collaborate with a non-profit?

Yes, proposals may be submitted by for-profit U.S. organizations, especially small businesses with strong capabilities in scientific or engineering research or education, with or without collaboration with non-profits.

15. Can I use either Fastlane or Research.gov to submit my proposal?

You may only use Research.gov or Grants.gov to submit your proposal.

16. How can I sign up as a reviewer for this program?

Send an email with your resume to pose@nsf.gov.

17. How long will it take for my proposal to be reviewed?

NSF attempts to have most submissions processed within six months of receipt.

18. Do Letters of Collaboration need to follow the NSF Proposal & Award Policies & Procedures Guide (PAPPG) standard format for letters?

Letters of Collaboration do not need to follow the PAPPG standard letter format. Each letter of collaboration cannot exceed two pages and must contain the name of the letter writer, current affiliations, and relationship to the members of the proposing team.