Pathways to Enable Open-Source Ecosystems (POSE) Program Overview

Welcome!

➢ Overview presentation (<20 min.)

➢ Q&A (>30 min.) – please submit questions via webinar Q&A system (we will not be using the raised hand option or chat)

https://new.nsf.gov/funding/initiatives/pathways-enable-open-source-ecosystems

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Pathways to Enable Open-Source Ecosystems

NSF's Three Strategic Priorities

STRENGTHENING ESTABLISHED NSF

With **investments that expand the frontiers of knowledge and technology**.

INSPIRING THE MISSING MILLIONS

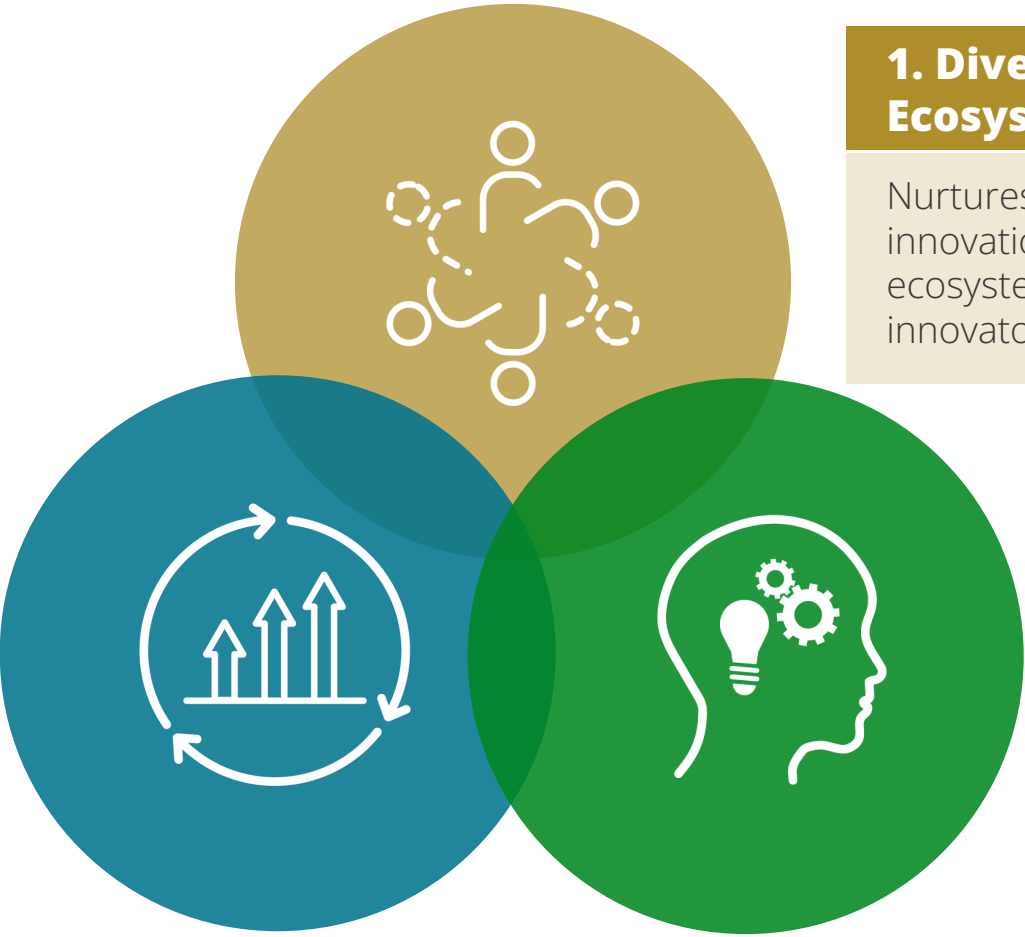Using **interventions and capacity building** that enhance and broaden participation.

ACCELERATING TECHNOLOGY AND INNOVATION

Through innovative, **cross-cutting partnerships** and programs.

TIP: Accelerating Research to Impact

1. Diverse Innovation Ecosystems

Nurtures regional and national innovation and technology ecosystems to support researchers and innovators.

2. Technology Translation and Development

Supports researchers, startups, and entrepreneurs to create technologies and innovations with impact.

3. Workforce Development

Supports people from all demographics and geographies to get the training and expertise for the jobs of the future.

POSE Program Vision

Technology Translation and Development

Supports researchers, startups, and entrepreneurs to create technologies and innovations with impact.

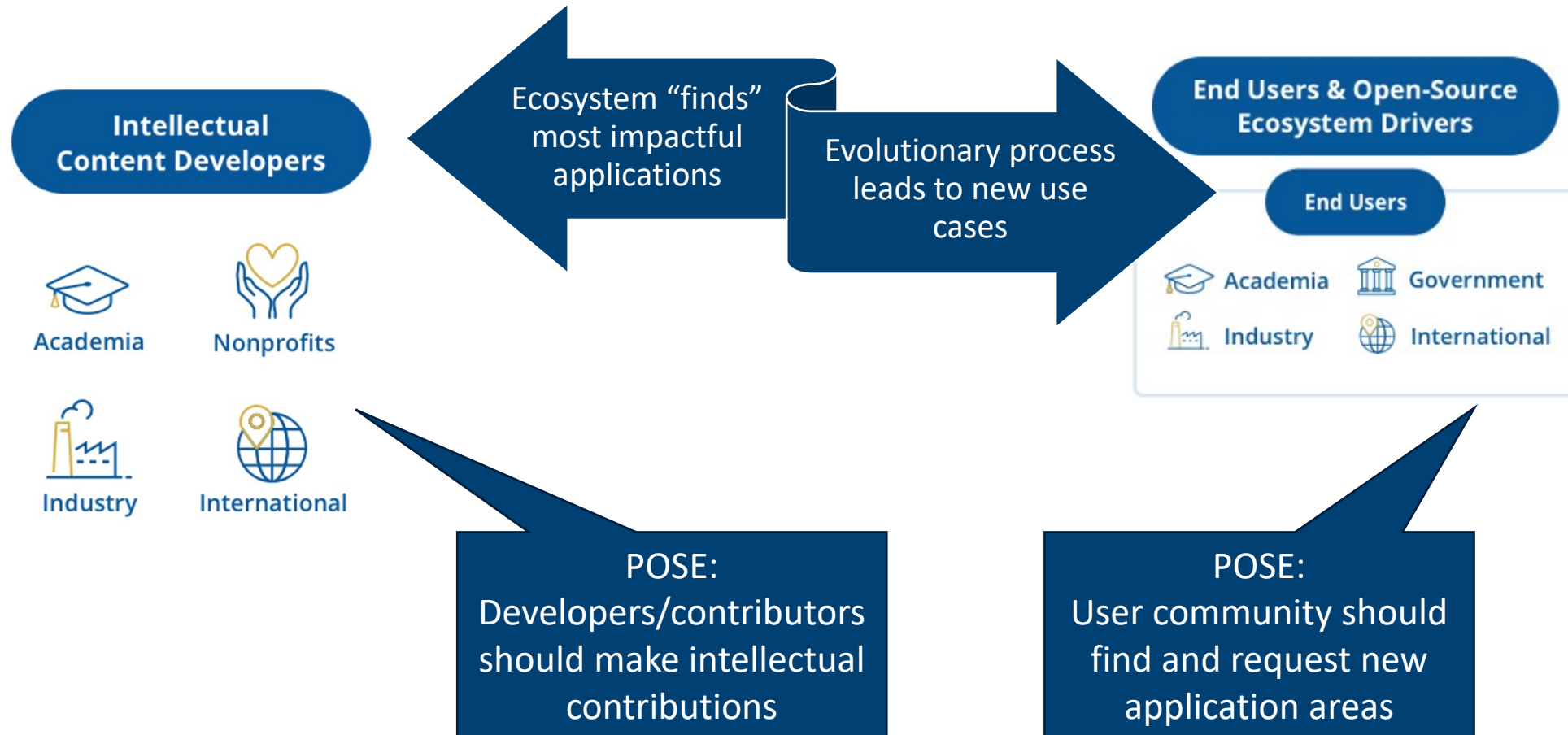**Diverse Innovation Ecosystems**

Nurtures regional and national innovation and technology ecosystems to support researchers and innovators.

To harness the power of distributed open-source development as an engine of innovation to address challenges of national and societal importance
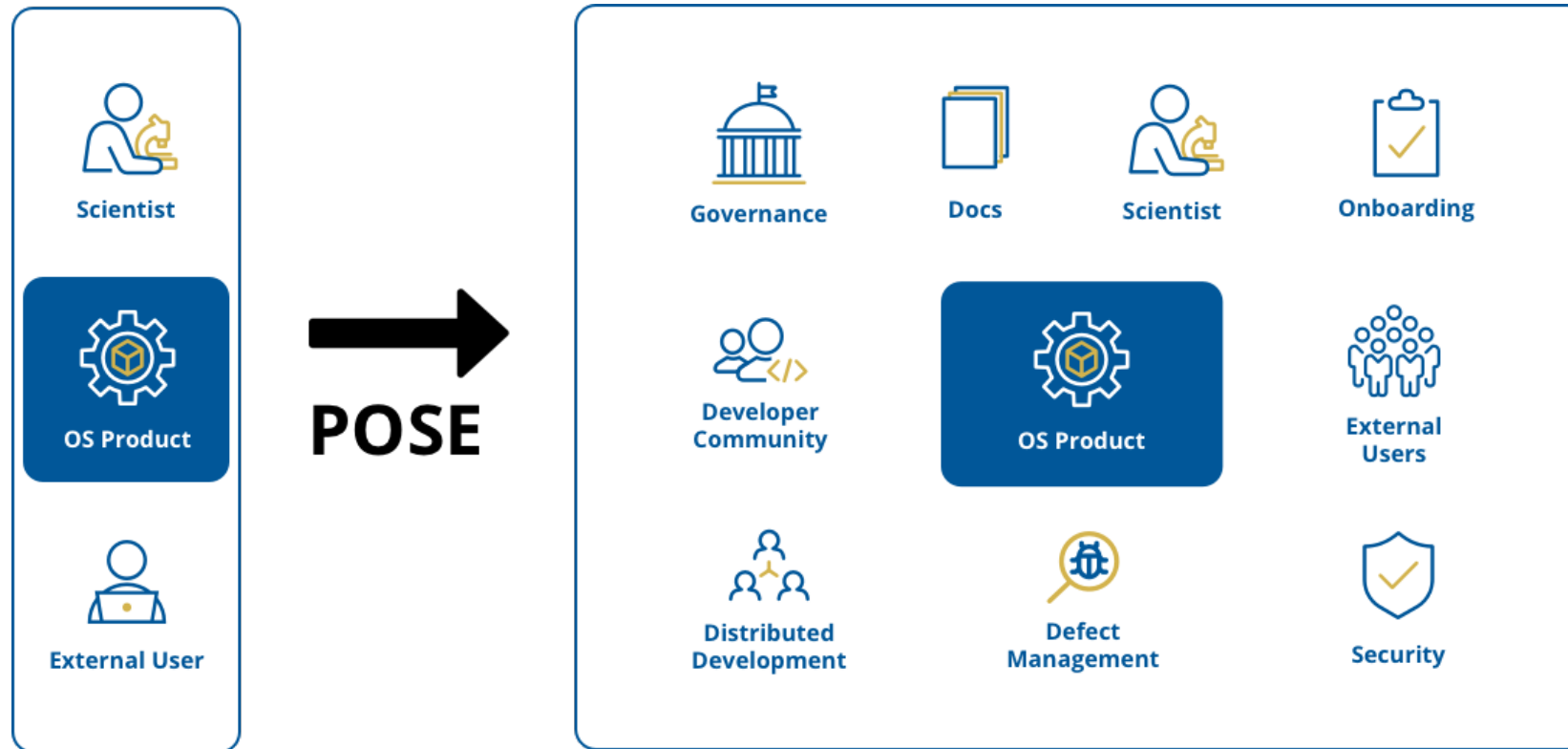
Note: POSE is not limited to software-based open-source projects/artifacts

Distributed Contributions and Ecosystem Evolution

Intellectual Content Developers
- Academia
- Nonprofits
- Industry
- International

Ecosystem "finds" most impactful applications

Evolutionary process leads to new use cases

End Users & Open-Source Ecosystem Drivers

End Users
- Academia
- Government
- Industry
- International

POSE: Developers/contributors should make intellectual contributions

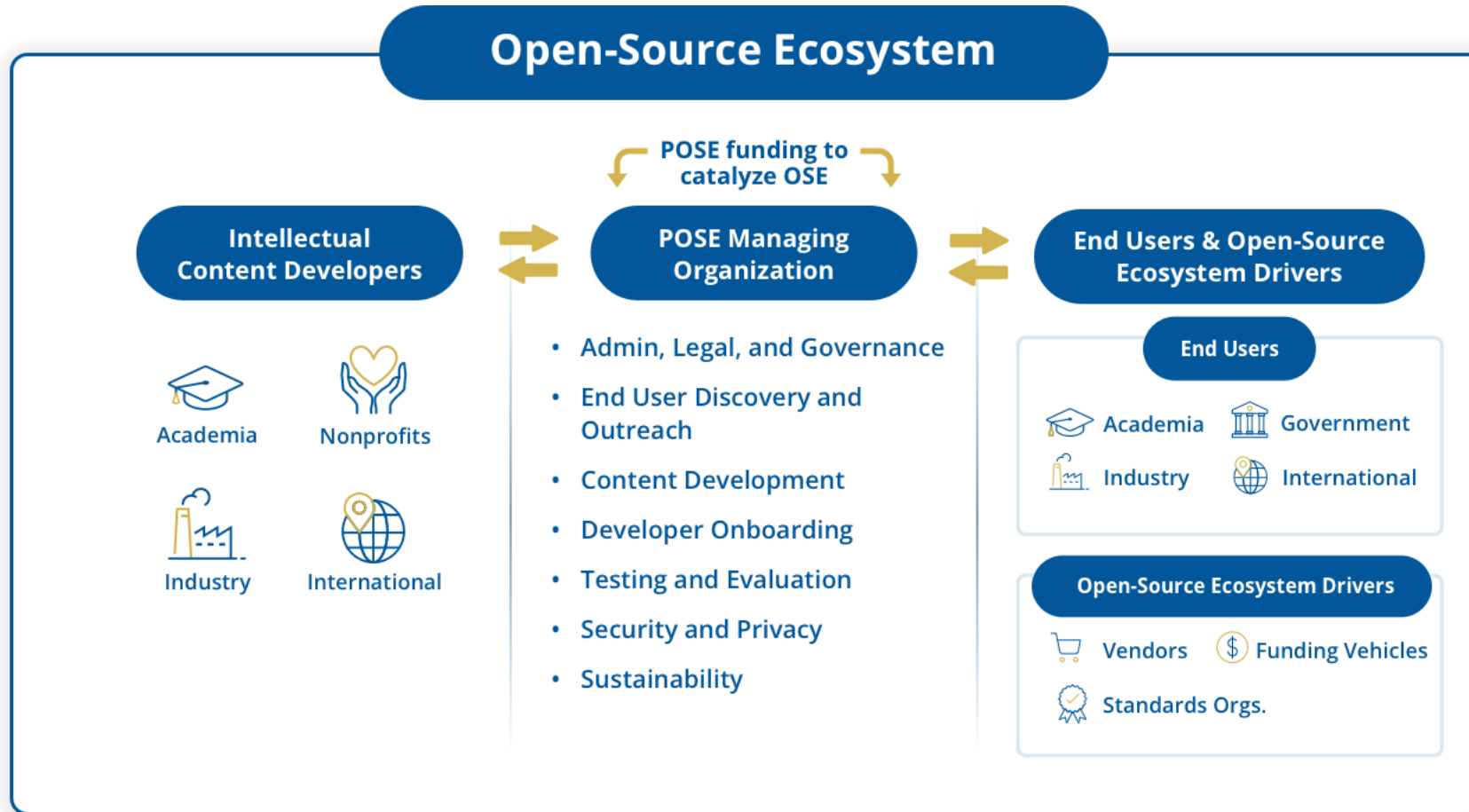POSE: User community should find and request new application areas

POSE Background – From Artifact to Ecosystem

Some open-source artifacts and products evolve into open-source ecosystems

What is POSE Funding For?

Successful managing organizations facilitate:

1. Distributed development of the artifact(s) through onboarding and support
2. Governance methods and roadmap for intellectual contributions
3. Facilitation of Developer – User conversations

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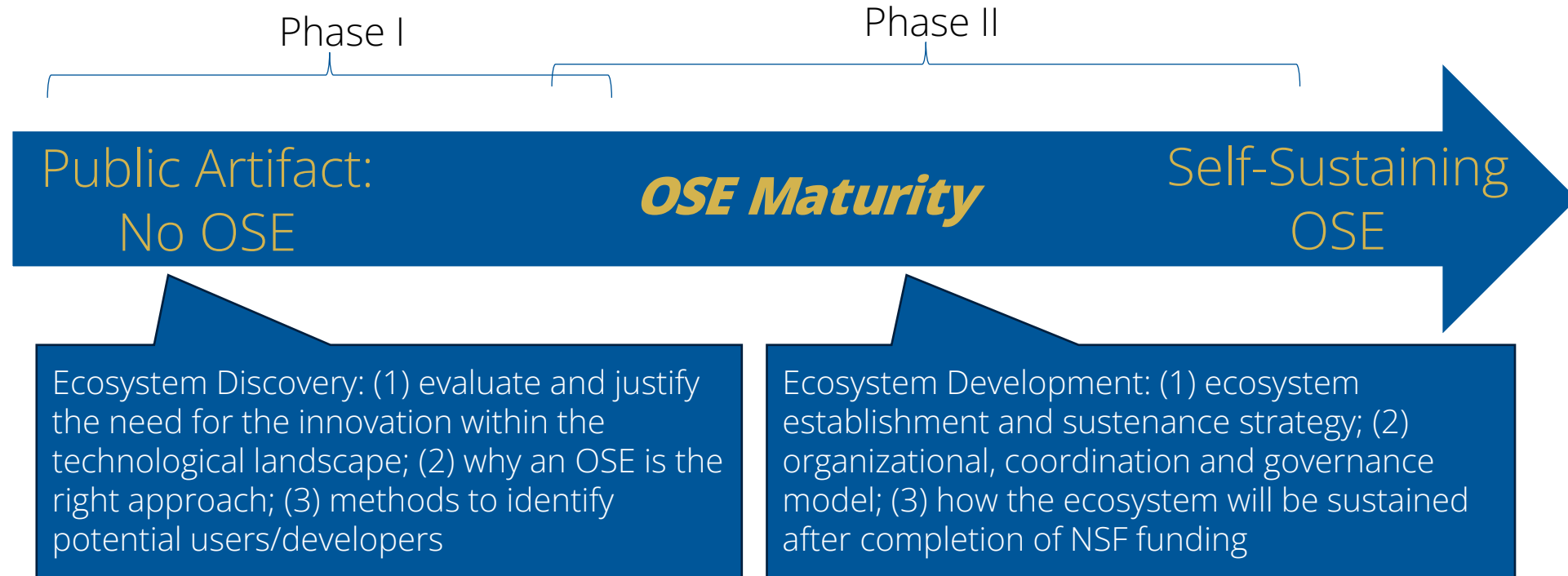# What is POSE Funding For?
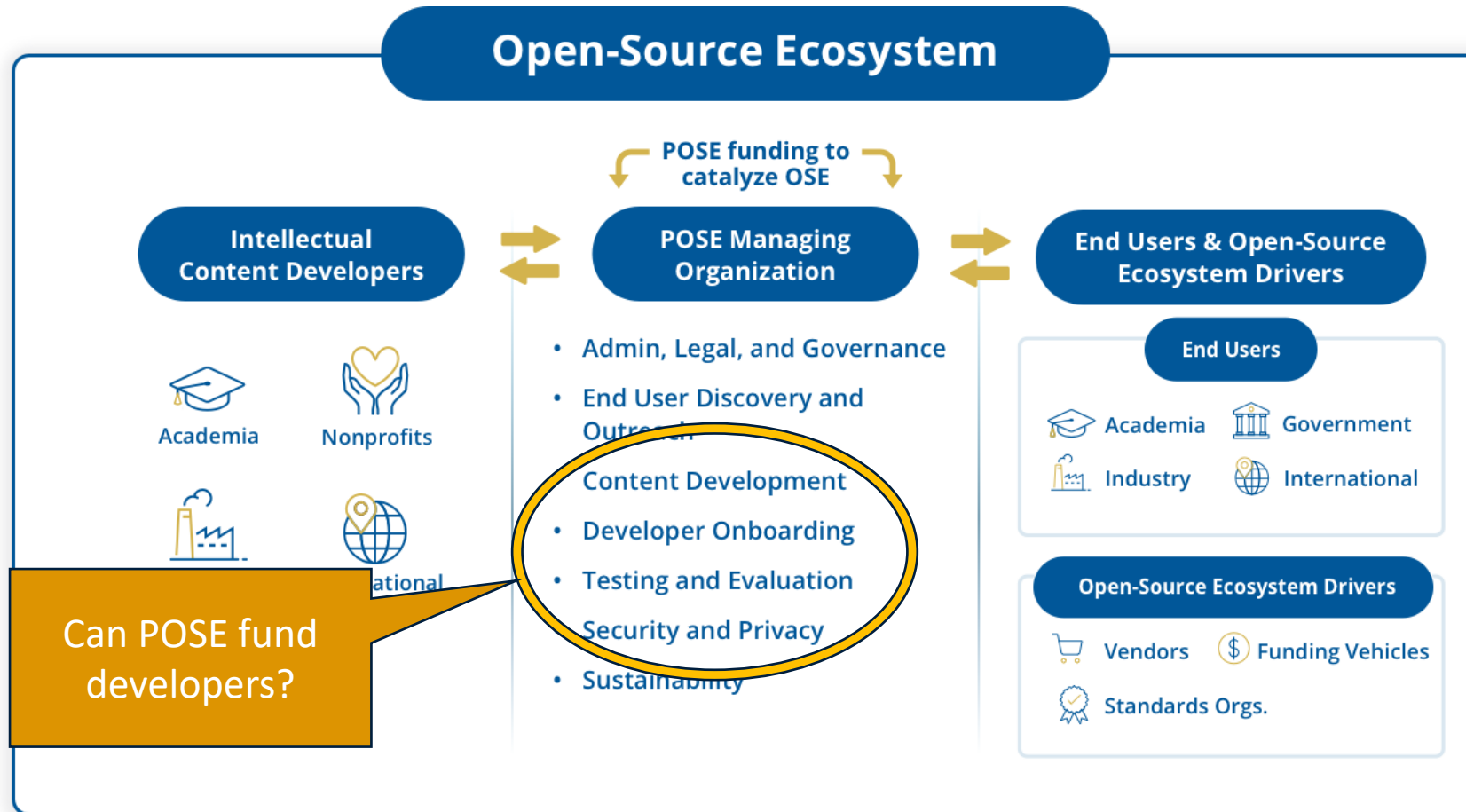
Developers can perform certain kinds of work on POSE awards:
1. Efforts to enable and streamline onboarding of new developers
2. Documentation, tutorials, case studies to support new developers and users
3. Facilities to support product quality, safety, security & privacy

Make sure your budget justification clearly articulates appropriate use of developer effort, if any.

POSE Phase I and Phase II

Phase I

Phase II

OSE Maturity

Public Artifact:
No OSE

Self-Sustaining
OSE

Ecosystem Discovery: (1) evaluate and justify the need for the innovation within the technological landscape; (2) why an OSE is the right approach; (3) methods to identify potential users/developers

Ecosystem Development: (1) ecosystem establishment and sustenance strategy; (2) organizational, coordination and governance model; (3) how the ecosystem will be sustained after completion of NSF funding

Both phases: Projects should already have a publicly available, functional, robust open-source artifact, preferably available under an open-source license, and some users outside of the original developers; Product should offer promise in meeting a societal or national need.

A Phase I award is not a prerequisite to apply for Phase II.

Project Description, Durations, Budgets

Phase I

➤ 7-page project description (excluding Letters of Collaboration and the Data Management Plan)

➤ Up to 12-month duration

➤ Up to $300k

Phase II

➤ 15-page project description (excluding Letters of Collaboration and the Data Management Plan)

➤ Up to 24-month duration

➤ Up to $1.5M

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Security Plan

➢ Security/Safety/Privacy Plan **<u>must</u>** describe mechanisms to ensure the following, where relevant:

- Code/data quality (robustness, portability)

- Security (access control mechanisms for users and content contributors, secure software development methodologies, policies for patching known security vulnerabilities, chain of custody)

- Supply chain protection

- Ethical use of sensitive data (privacy, protection of human subjects)

Eligibility and fit for POSE

➤ Proposals may only be submitted by:
- US Institutions of Higher Education
- Non-profit, non-academic US organizations
- For-profit US organizations
- US State and local governments

➤ Non-profit and for-profit proposing organizations must be U.S.-based, and U.S.-owned and controlled
- See the solicitation for definitions of "U.S.-based", and "U.S.-owned and controlled"

➤ See the solicitation for details

POSE proposals can be multi-organizational, but a single organization must serve as the lead and all other organizations as sub-awardees.

Projects that are not based on distributed, ongoing development of a mature open-source product will not be a good fit with the POSE program.

Who May Serve as PI

➢ For Institutions of Higher Education:

- By the submission deadline, any PI, co-PI, or other senior project personnel must hold either:

- a tenured or tenure-track position, or

- a primary, full-time, paid appointment in a research or teaching position

at a US-based campus of an Institution of Higher Education

- Individuals with primary appointments at overseas branch campuses are not eligible. Researchers from foreign academic institutions who contribute expertise to the project may participate but may not receive NSF support.

- Individuals with appointments at non-US based non-profit or non-US based for-profit organizations are not eligible.

For all other eligible proposing organizations:

The PI must be an employee who is normally resident in the US and must be acting as an employee of the proposing organization while performing PI duties. The PI may perform the PI responsibilities while temporarily out of the US.

Budget Requirements

➢ Budget requirements and guidance are more detailed than in the previous solicitation, e.g.,

  ➢ No equipment requests in Phase I

  ➢ Price quotes for all materials, supplies, travel requests

➢ See "PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS" in the solicitation

➢ Please be sure to adhere to the requirements!

International collaboration?

International contributors to the ongoing development of an open-source product are welcomed

International collaborators – i.e., organizations that collaborate with a POSE managing organization – are encouraged but cannot be funded via a POSE award

International subawards or subcontracts cannot be funded via POSE.

How do I apply?

➢ Detailed instructions in the solicitation – <u>NSF 23-556</u>

➢ Submission deadline (submit via research.gov):

- Phase I and Phase II – September 5, 2024
- Proposals will be reviewed by external experts – review criteria are included in the solicitation

➢ NSF aims to provide outcomes of the review process within 6 months of the submission deadline

More questions after today?

Please read the solicitation (NSF 23-556) carefully. Check for updates later this spring.

FAQs: Search for NSF POSE FAQ

Office hours to answer your questions will be held through the summer

Email: pose@nsf.gov

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POSE Q&A

- Nina Amla (CISE/OAD)
- Peter Atherton (TIP/TI)
- Christopher Balakrishnan (BIO/DEB)
- Robert Beverly (CISE/OAC)
- Dan Bullock (CISE/OAC)
- Parvathi Chundi (TIP/TI)
- Richard Dawes (MPS/CHE)
- Maria Womack (GEO/AGS)

- Daniel McAdams (ENG/CMMI)
- Mimi McClure (CISE/CNS)
- Deepankar Medhi (CISE/CNS)
- Daniela Oliveira (CISE/CNS)
- Sylvia J. Spengler (CISE/IIS)
- Jeffrey Stanton (TIP/TI)
- Patricia Van Zandt (SBE/BCS)
- Teresa Westfall (TIP/OAD)

POSE email: pose@nsf.gov
POSE FAQs

https://new.nsf.gov/funding/initiatives/pathways-enable-open-source-ecosystems

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Links to POSE-Related Resources at NSF.gov

- TIP Homepage

- POSE Homepage

- Previous POSE Awards

- Dear Colleague Letter: Supplemental Funding Opportunity: NSF Innovation Corps (I-Corps™) Training for Pathways to Enable Open-Source Ecosystems (POSE) Phase II Recipients

- Dear Colleague Letter: Inviting Proposals Related to Open-Source Software Security to the Secure and Trustworthy Cyberspace Program

- Open Source in NSF's Public Access Repository

  - Open Source Software Sustainability: Combining Institutional Analysis and Socio-Technical Networks

  - Engaging Students in Open Source: Opportunities and Approaches

  - Code of Conduct Conversations in Open Source Software Projects on Github

NSF Infrastructure Development Programs

- The Cyberinfrastructure for Sustained Scientific Innovation (CSSI, NSF 22-632) 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 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. The supported infrastructure need not be open-source licensed, but must support diverse communities of CISE researchers. 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 23-580) 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 Campus Cyberinfrastructure (CC*, NSF 23-526) program invests in coordinated campus-level cyberinfrastructure improvements, innovation, integration, and engineering for science applications and distributed research projects. Any software development under proposed activities must be made available under an open source license.