



NSF's Pathways to Enable Open-Source Ecosystems

Presenter:

Chia Shen

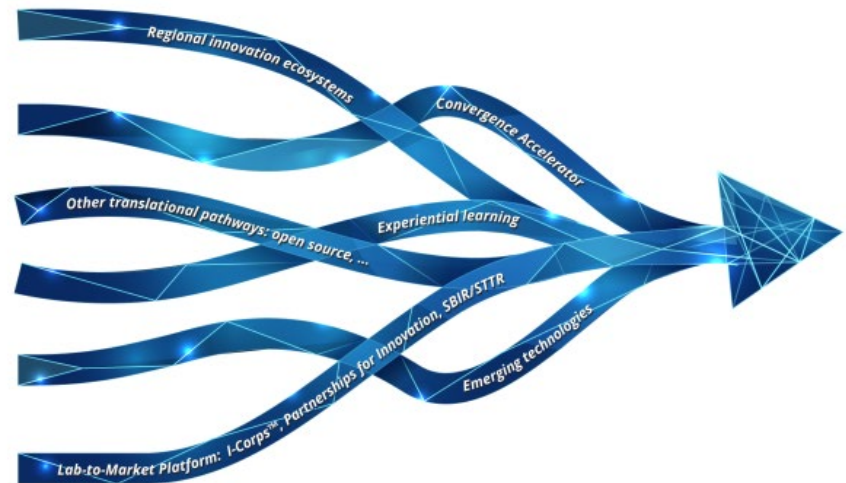
Division of Research on Learning in Formal and Informal Settings (DRL)

Education and Human Resources Directorate

National Science Foundation

Technology, Innovation and Partnerships (TIP)

NSF's first new directorate in more than 30 years



Establishing translation pathways

- Accelerates the translation of research results to practical use through its Lab-to-Market Platform.
- Provides pathways for researchers, startups, small businesses and aspiring entrepreneurs to move their ideas from the lab to society while gaining access to a range of NSF resources.
- Lab to society ideas may include new, open-source ecosystems, innovative technologies, government services or at-scale educational innovations.

Pathways to Enable Open-Source Ecosystems (POSE)

National and societal needs can be served by catalyzing open-source projects into robust, distributed, secure, and sustainable ecosystems

Solicitation: [Pathways to Enable Open-Source Ecosystems](#) (22-572)



POSE Working Group

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POSE email: pose@nsf.gov

FAQs: [POSE FAQs](#)

Solicitation: [Pathways to Enable Open-Source Ecosystems](#)



What is Open Source?

- Open source refers to *something* people can modify and share because its *design* is publicly accessible
 - Software source code
 - Languages or formats
 - Hardware instruction sets
 - Hardware designs or specifications
 - Scientific methodologies, models, or processes
 - Manufacturing processes or process specifications
 - Material formulations
 - Data



POSE Background

Open-Source Artifacts/Products

- Software, Hardware, Data
- Common in research community
- A research project makes an artifact available as open source for others to independently use & develop
- Enables collaboration and catalyzes further innovation

NSF has a long history of funding the development of open-source artifacts and products



POSE Background

Open-Source Artifacts/Products

- Software, Hardware, Data
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- Enables collaboration and catalyzes further innovation
- Common in research community



Open-Source Ecosystems (OSEs)

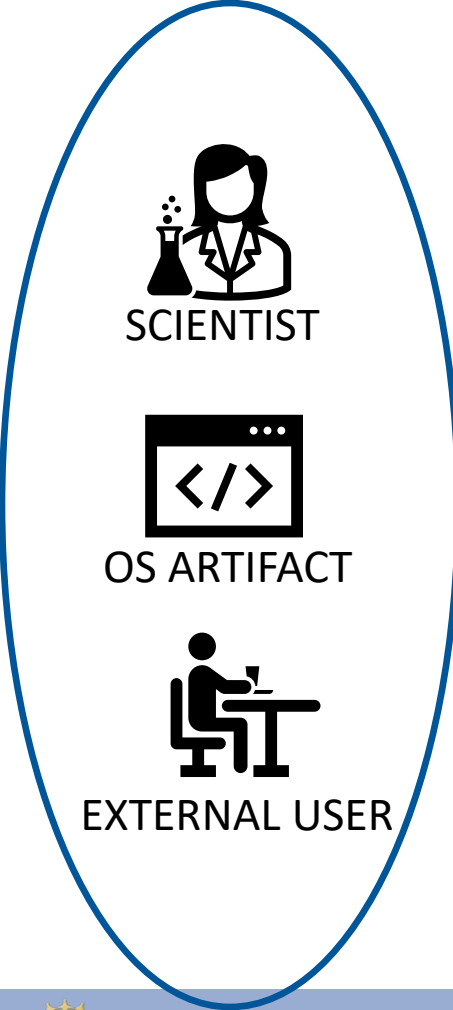
- Organizational structure & governance to enable open and collaborative development
- Distributed community of contributors, users, etc.
- Driven by market demand & need for adaptability

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

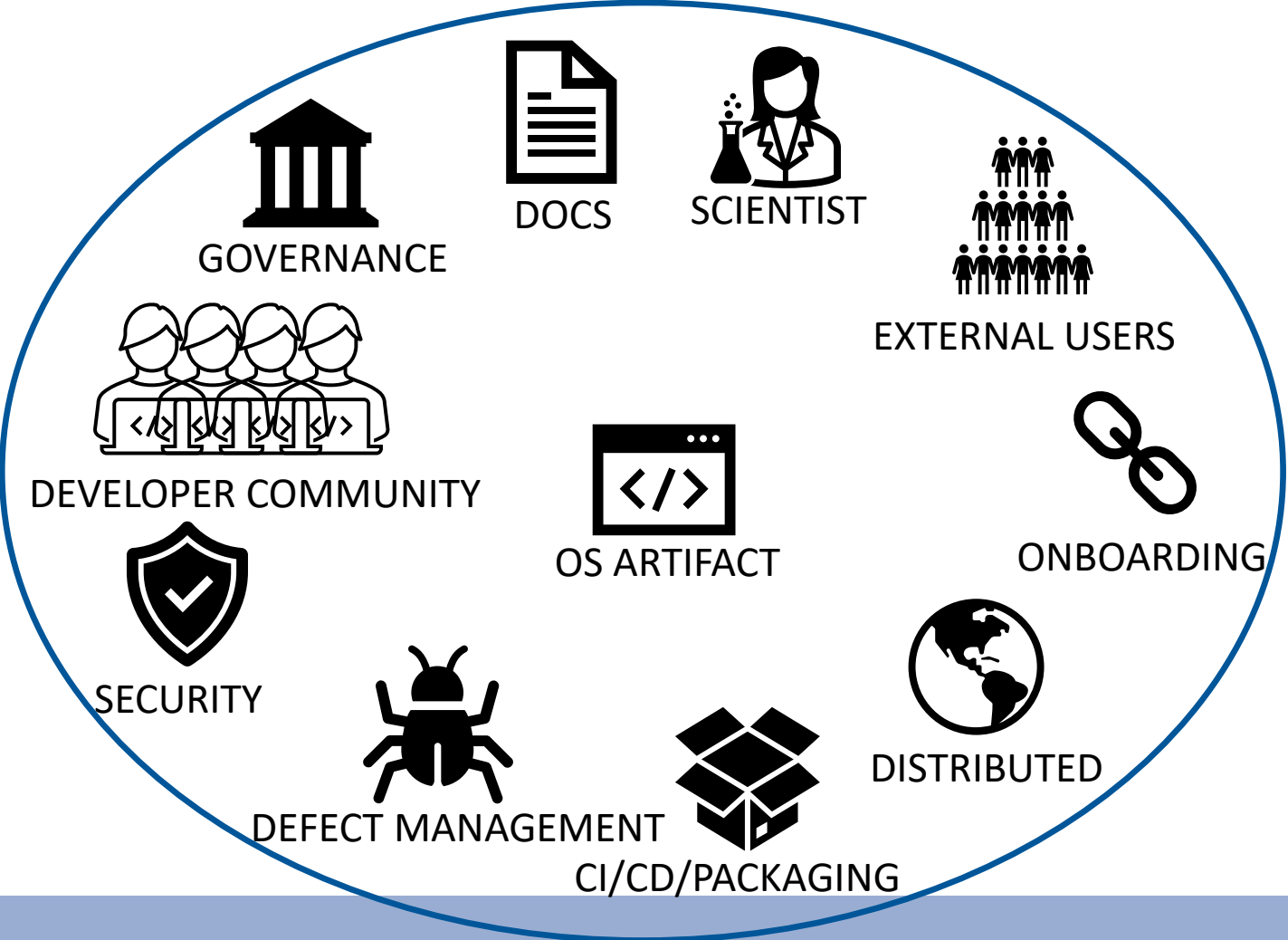


Open-source Product vs Ecosystem

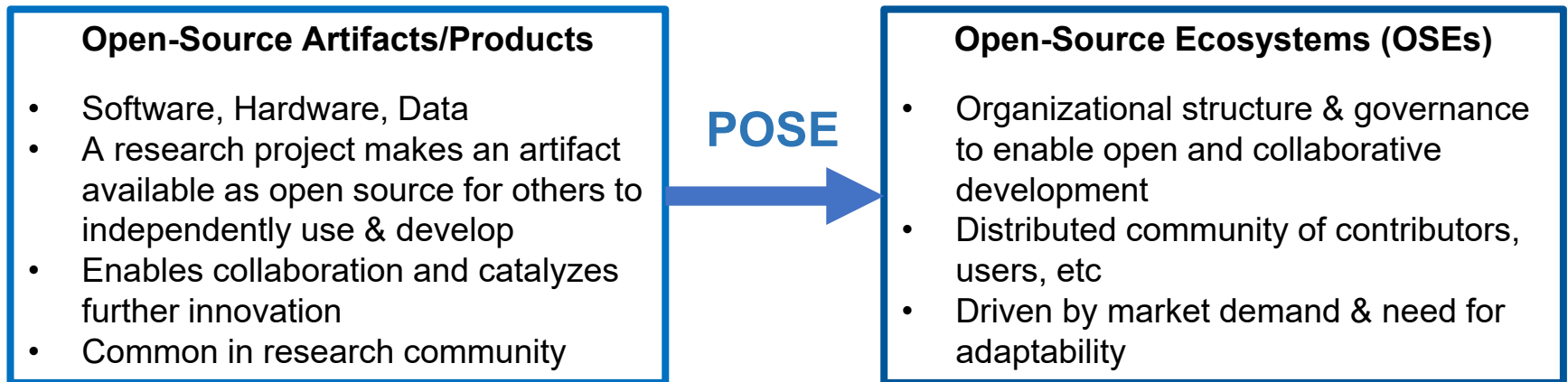
OS Product



OS Ecosystem

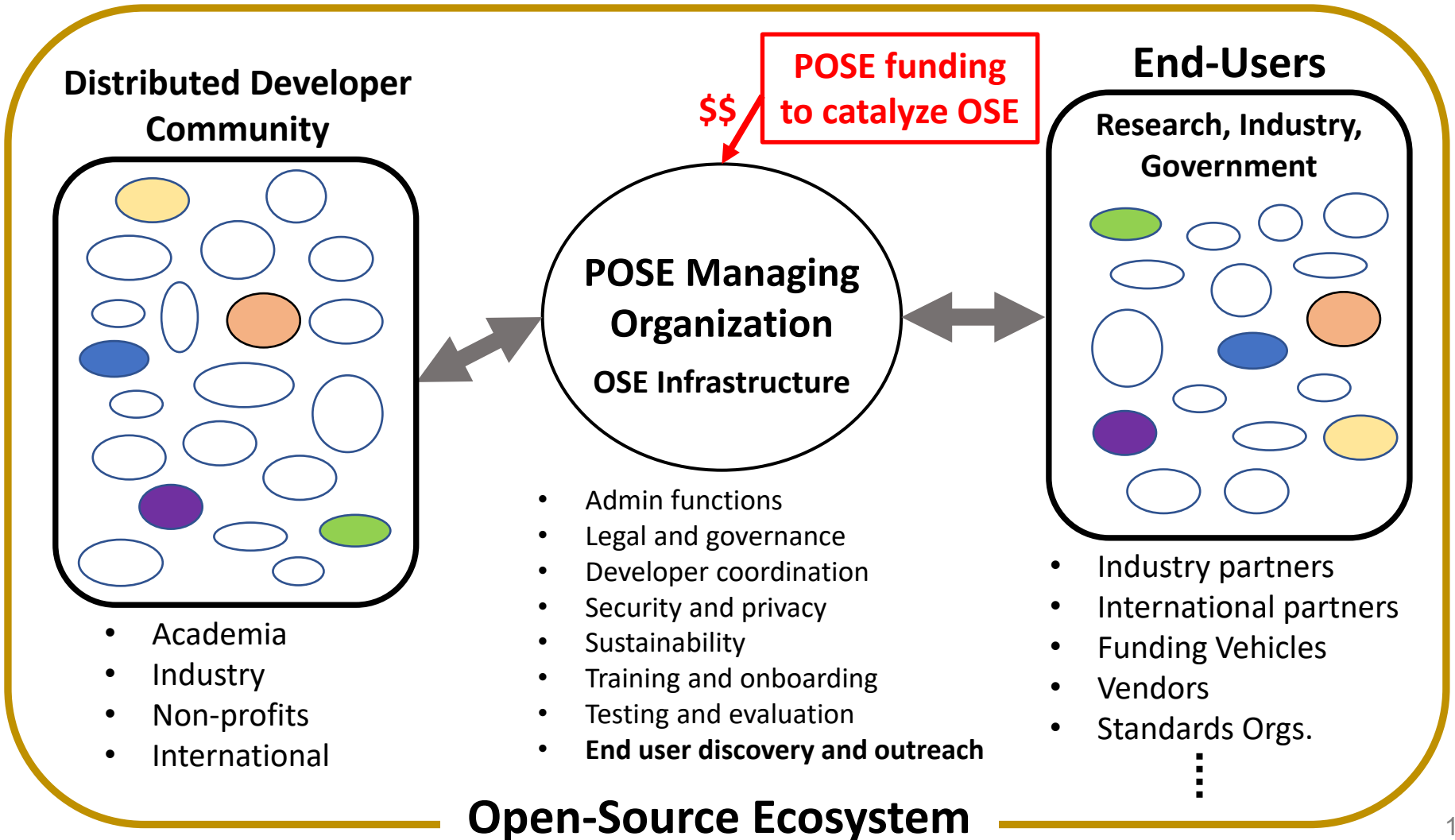


POSE Background



POSE is intended to enable intentional transition from an open-source product to an impactful and safe OSE

POSE managing organization



OSE Maturity



Unmaintained /
Unused OS
Artifact



Robust, active,
and well-resourced
existing OSE

- Not intended to fund the development of open-source artifacts, tools or products
- Not intended to fund existing well-resourced open-source communities and ecosystems

Key: How impactful will NSF funding be to developing the OSE?

Two types of POSE awards

~~➤ Phase I – OSE Scoping Awards~~

- (Deadline was May, 2022) **25 awards announced**

➤ Phase II – OSE Development Awards

- Deadline: October 21, 2022

Phase I award is *not* a prerequisite for
Phase II

POSE Phase II

- OSE Development Project – proposal should address:
 - Ecosystem establishment and growth
 - Organization and governance – describe a well-developed organizational, coordination, and governance model
 - Community building – describe a long-term strategy for community building
 - Sustainability – clear sustainability goals and an actionable evaluation plan with success metrics
- 15-page project description (does not include Letters of Collaboration or the Data Management Plan)
- Up to \$1.5M
- Up to 2-year duration



POSE Phase II (OSE Development) Solicitation-Specific Criteria

- Societal importance
- Long-term vision
- Substantial user-base
- OSE motivation

- Plan for ecosystem growth
- Plan for organizational structure
- Plan for community contributors

- Team expertise
- NSF support needed to form OSE
- Third-party letters of collaboration

- Licensing approach
- Build and test infrastructure; quality and security control
- Sustainability plan and metrics

How do I apply?

- Detailed instructions in the solicitation - [NSF 22-572](#)
- Submission deadlines (submit via research.gov only):
 - Phase II – October 21, 2022
- 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



Questions?

What if I have further questions?

- Please read the solicitation ([NSF 22-572](#)) carefully
- FAQs can be found at [POSE FAQs](#)
- Send email to pose@nsf.gov

