Day 1

Chan Zuckerberg Initiative

Open Source Citizenship

Participating in OSS as a corporate contributor

CZI SciTech Team Training | 29th August 2023

Introduction 👋🏽

🎯 **Goal:** Understand how Open Source projects and communities work, and how to engage with them meaningfully.

🎙️ **Trainers:** Tania Allard, Pavithra Eswaramoorthy

🙋🏽‍♀️ **Questions:** Ask any immediate questions in the chat, or at the end of each section when we open the room for discussion

This space is covered by the Contributor Covenant Code of Conduct.

Please report unacceptable behavior to opensource@chanzuckerberg.com.

Topics 🗂️

1. Introduction to Open Source
2. Participating in Open Source
3. Enhancing your OSS contribution impact

🔗 **Extended Training Material:**

https://github.com/chanzuckerberg/czi-oss-training

Outline: Day 1 🎯

Introduction to OSS [40 mins]

Break [5mins]

Hands-on activity [15 mins]

Participating in OSS [15 mins]

Learner Personas 🤦🏻‍♀️

- Code contributor 💻
- Code-adjacent contributor 🎨
- Manager/stakeholder 🤝

🔗 Full descriptions in the repository README

01. Introduction to Open Source

The Origins Of Open Source 🌱

1950-1960's

Software was mainly developed by academics and corporate researchers. Work shared in the *public domain*.

Late 1960's

Rise of software-only companies.

Mid 1970's-Early 80's

- Software copyright (1974).
- MSDos is released.
- Richard Stallman starts GNU operating system. Establishment of the Free Software Foundation and emergence of the Open Source Definition.

1990's

- Linus Torval releases the Linux Kernel under a GPL license (1991).
- Eric S.Raymond Published the Cathedral and the Bazaar.

The Four Freedoms ✊🏾

Freedom 0: The freedom to run the program as you wish, for any purpose.

Freedom 1: The freedom to study how the program works and change it so it does your computing as you wish.

Freedom 2: The freedom to redistribute copies, so you can help others.

Freedom 3: The freedom to distribute copies of your modified versions to others.

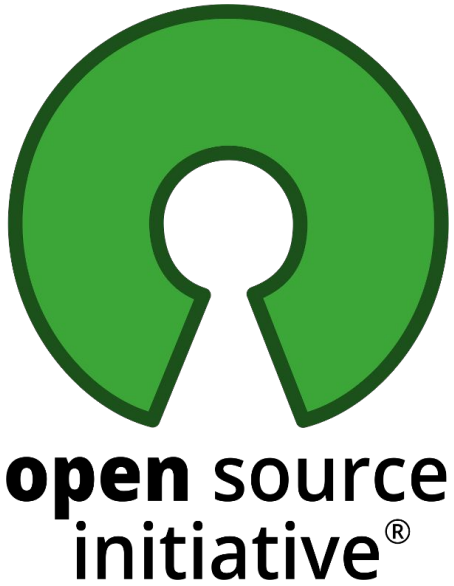
FREE SOFTWARE FOUNDATION

Free as a bird 

Free as ice-cream 
(gratis in Spanish)

The Open Source Definition

1. Free Redistribution
2. Source Code
3. Derived Works
4. Integrity of The Author's Source Code
5. No Discrimination Against Persons or Groups
6. No Discrimination Against Fields of Endeavor
7. Distribution of License
8. License Must Not Be Specific to a Product
9. License Must Not Restrict Other Software
10. License Must Be Technology-Neutral



https://opensource.org/definition-annotated/

“Open Source is a development methodology; free software is a social movement.”

Richard Stallman

If it does not meet ALL of the principles in the OSD it is NOT open source


TECOSYSTEMS

Why Open Source Matters

By Stephen O'Grady | @sogrady | August 3, 2023

https://redmonk.com/sogrady/2023/08/03/why-opensource-matters/

InnerSource 🏢

Application of **open source principles** to **proprietary software development** within an organization, to increase collaboration and transparency.

Types of Open Source

OSS Licenses 👩‍⚖️

OSS Governance ⚖️

Motivations for OSS Projects 🌱

OSS Licenses 👷

Permissive

Minimal restriction on derivations & redistributions

Copyleft

Derivations & redistributions must remain open

Apache License

MIT License

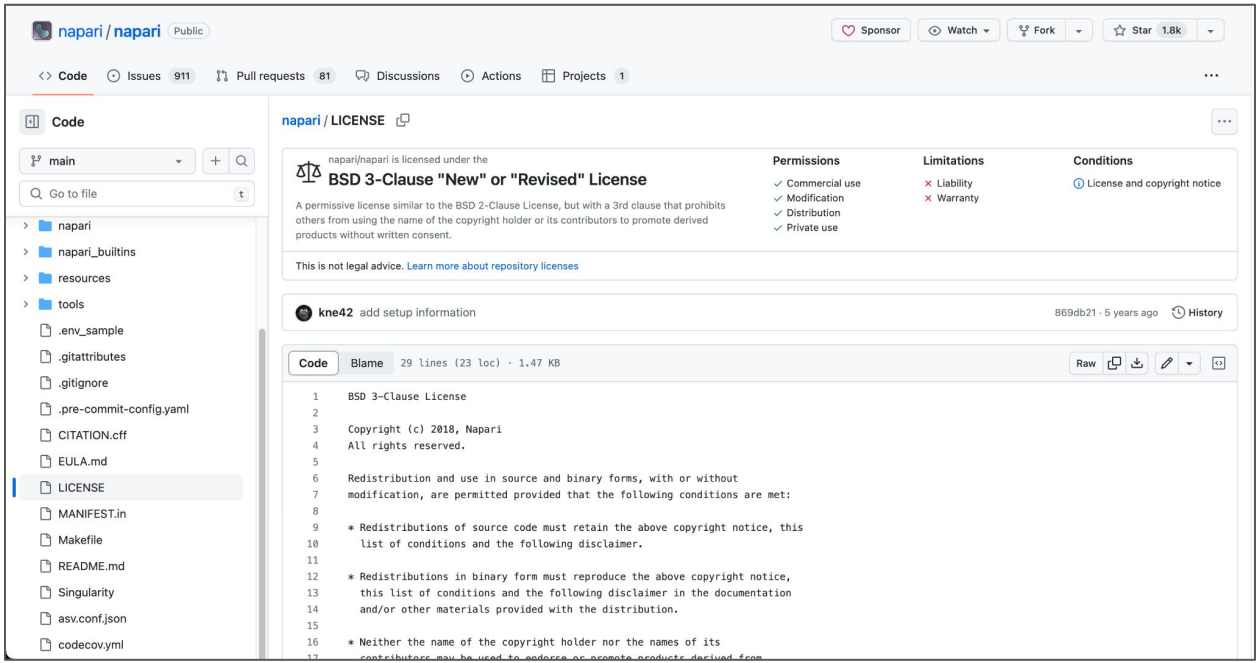
BSD 3-Clause License

GNU Public License (GPL)

Mozilla Public License (MPL)

🤦 Learner Question

Do you know napari's license?



Contributing License Agreements

Legal document that clarifies the intellectual property (IP) rights for the contributions made by an individual or a company

Common in high-profile, copyleft-licensed, or corporate-backed projects.

⚠️ If you need to sign a CLA to contribute to a project, especially if you're contributing to it during work hours, check with your management chain to ensure compliance.

License Considerations for Collaboration

Verify licence compatibility for new dependencies or integrations with other OSS projects

Sometimes the documentation and design assets may be under a different licence than the codebase.

⚠️ When unsure about any license clause, raise it along your management chain

Motivations for OSS Projects 🌱

Academic

Share research work (reproducibility, collaboration)

Company-backed

By for-profit companies (adoption, integration, goodwill)

Individual/Hobby Project

Created by individuals in their spare time (fun, personal interest)

Community-driven

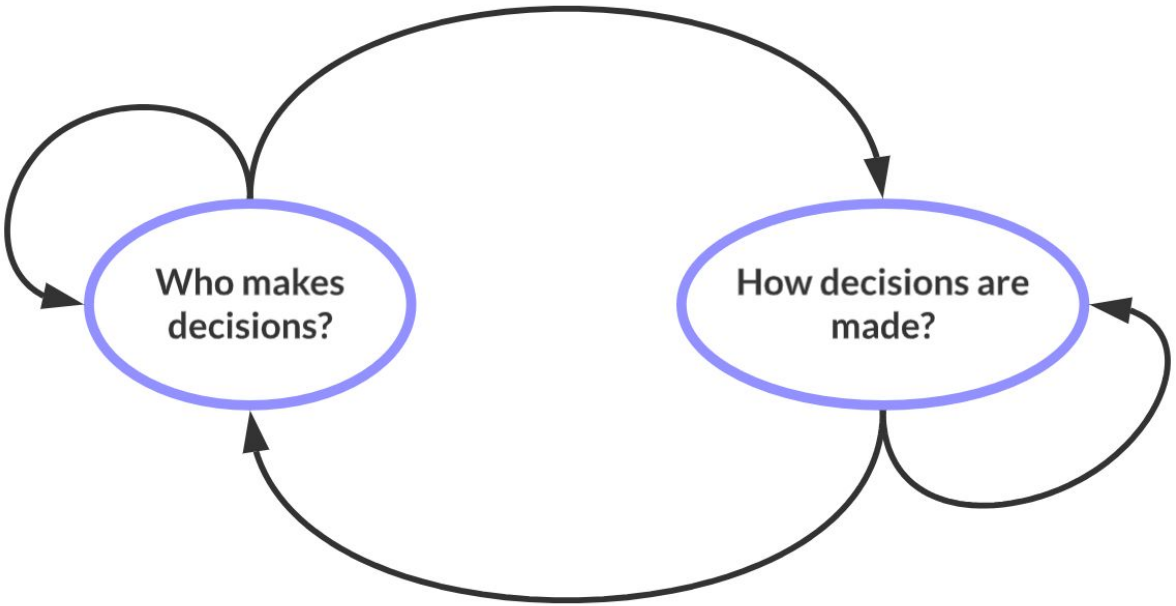
Sustained by the community-as-a-whole instead of the original creators

🙋 Learner Question

How would you categorize "motivation" for napari?

Based on the project history, we can infer that napari was started as an academic/company-backed project, which has grown into a community-driven project.

OSS Governance ⚖️



Governance Types

- **Do-ocracy** — people who do the work make decisions
- **Founder-leader** — individual (or group) who authored the project make decisions
- **Self-appointed council or board** — community appointed group (from within the community) make decisions

Governance Types

- **Electoral** — community elects certain members for specific project roles
- **Corporate-backed** — company that has majority stake in the project makes decisions
- **Foundation-backed** — non-profit organization is created (or joined) to make decisions

Governance Models

- Benevolent Dictator for Life (BDFL)
- Core Team
- Elected Council
- Council & subcommittees

Governance Models

Benevolent Dictator for Life (BDFL)

Creator/author makes final decisions, with advice from other contributors

Core team

A group of active sustainers lead the project and make final decision

Elected council

A group of active sustainers, elected by the community, lead the project and make final decision

Council & subcommittees

Two-tiered approach: council is responsible for overall direction; subcommittees make day-to-day decisions and advise the council

BDFL

Creator/author makes final decisions (with advice from other contributors)

Popularized by Guido van Rossum, creator of the Python programming language

Examples: Linux Kernel, pandas, and SciPy

Core Team

A group of active sustainers lead the project and make final decision

Requires pathways for:

- community members to start contributing,
- become regular contributors with more privileges like merge rights, and
- eventually join the core team involving a community or self-nomination, followed by discussion and approval by the core team.

Examples: pandas and Bokeh

Elected Council

A group of active sustainers are elected by the community to lead the project and make final decision

Council members serve a fixed term

Examples: Python and Kubernetes

Council & subcommittees

Two-tiered, collaborative, approach:

- elected council is responsible for overall direction
- subcommittees make area-specifc decisions and advise the council

Examples: Kubernetes project with "Special Interest Groups" and the Jupyter Project with the "Software Steering Council"

Enhancement Proposals (EPs) 

Structured way for a large community to share ideas for a new feature or major change, propose details and impact, and gather feedback before implementing

Examples: Python's PEPs, NumPy's NEPs, Kubernetes' KEPs,

🙋 Learner Question

Do you know how napari is governed?

Read napari's governance and Napari Advancement Proposal (NAP) process in the project documentation!

Navigating Governance Structures

Essential as you start contributing to a project regularly, especially large-scale projects

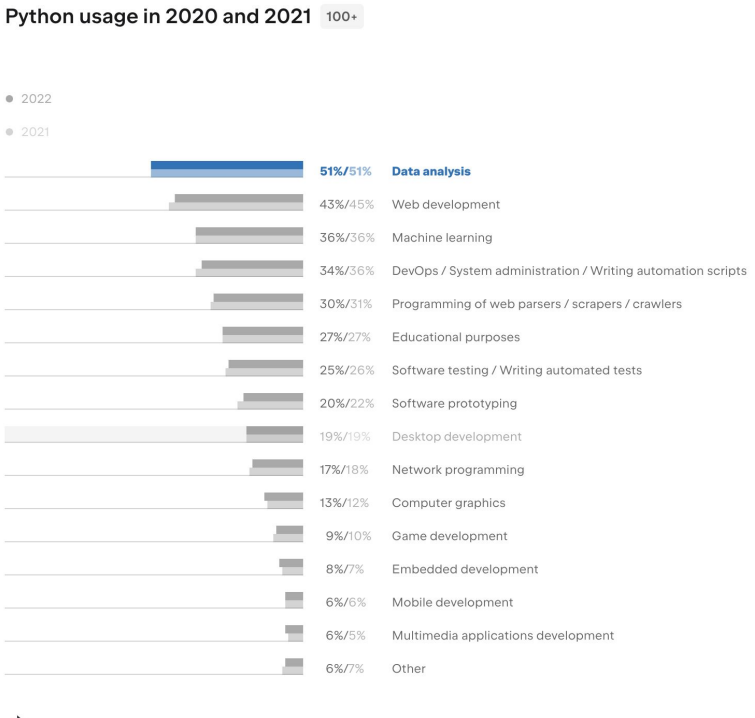
It's how the community has decided to collaborate, and as a community member, you're expected to respect that

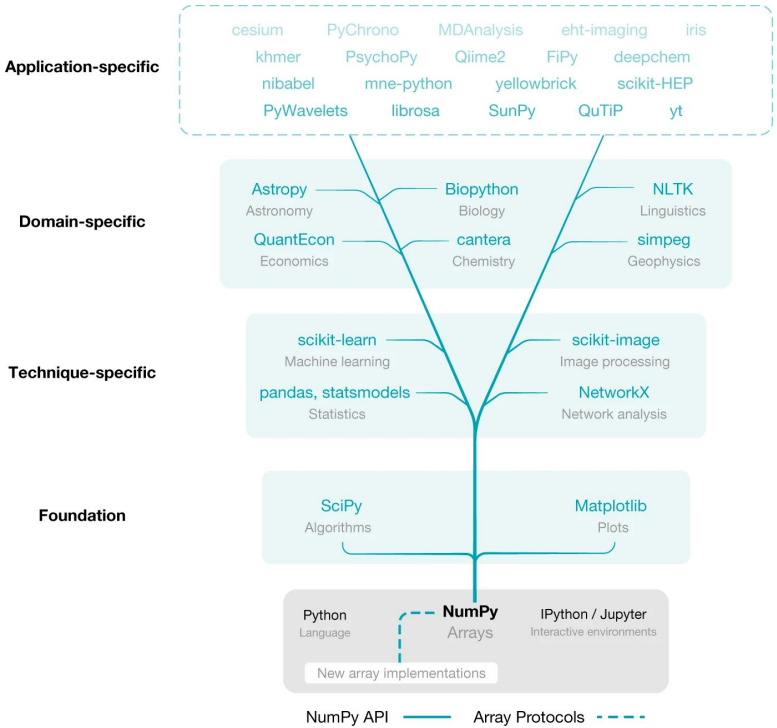
The governance models are in the project's community documentation, contributor's guide, or repositories dedicated to project management

OSS project management 🗂️

Unlike corporate and academic projects, open source software projects don't have formal project management systems beyond a project roadmap, release milestones, and some issues (features, tasks, or bugs) marked as important

Broader open source software community 🌱





🙋 Learner Question

Where does napari fit in the OSS ecosystem?

napari is a part of the PyData (and hence, broader Python) ecosystem. It's a technique-specific project (high-dimensional imaging) that leans towards bioscience.

Open Research Movement

Introduction to Open Research 🔭

Open Research (science) ➡ how research is carried out and disseminated

➡ The practice of making the primary outputs of publicly funded research results – publications and the research data – publicly accessible in a digital format with no or minimal restriction.

Open Research in practice 👩‍💻

Publicly available, reusable, and transparent:

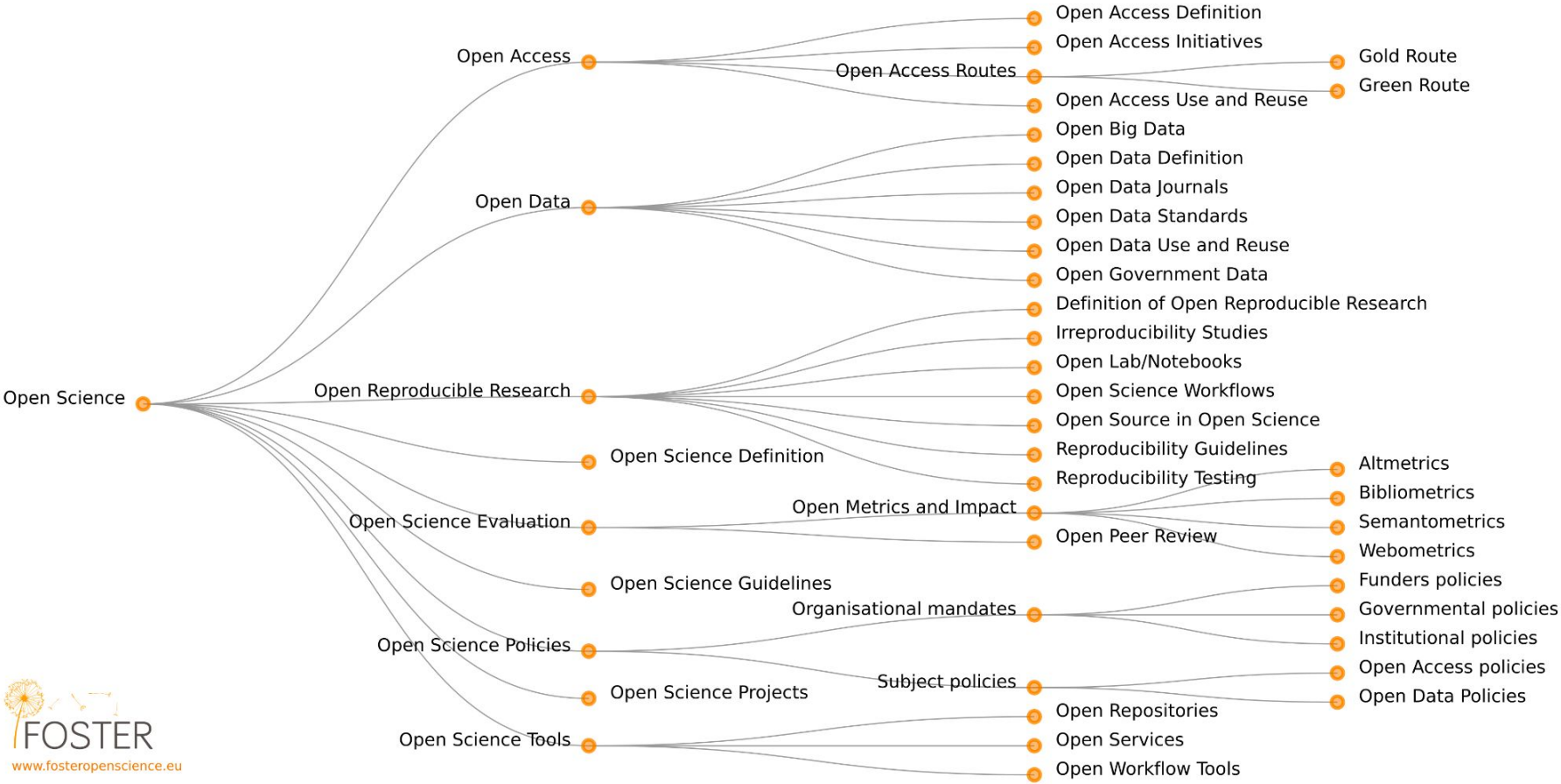
- Open data
- Research Software
- Open hardware
- Open access

Open Scholarship 🎓

Builds on Open Research, but extends to aspects such as::

- Educational resources
- Equity, diversity, and inclusion
- Citizen science

Open Science Taxonomy

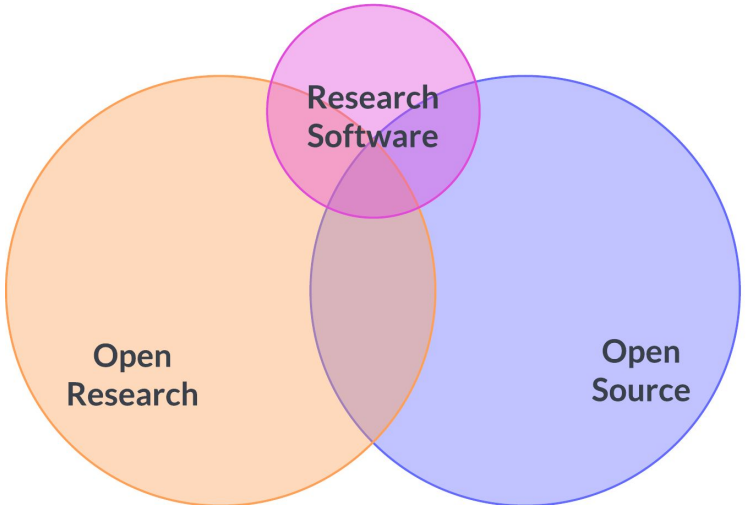


FOSTER
www.fosteropenscience.eu

Open Research and Open Source 💻

The Open Definition: Open data and content can be freely used, modified, and shared by anyone for any purpose.

Research software outputs adhering to the Open Definition should then be distributed under an open licence.



Break 

Activity: OSS Power Map

Team Activity: OSS Power Map (15 mins)

- You will be split into breakout rooms of 3-4
- One member of each team:
  - **makes a copy** of the activity worksheet (link in the chat) and
  - shares their screen with the worksheet
- All team members discuss the questions one at a time and note down answers
- Finally, we will reconvene as a group to share any discoveries or ask questions

Resources
What resources do the key interested parties value?

- Time
- Talent: skills and expertise
- Treasure (financial contributions, grants and other funding)
- Human infrastructure

Disruptions
Who/what can disrupt the current system? (e.g. loss of resources or key parties)

- Over-representation/single representation within decision-making groups
- Non-OSS/community friendly corporate backed alternatives
- Inaccessibility of the tools*

Key interested parties
Who is involved in the project? Who maintains or advances the project and status quo?

Which of these are system critical?

- End users (researchers, educators, developers, data scientists, journalists)
- Organizations as users (universities and research institutions, government agencies, non-profits)
- Corporate sponsors/contributors (Quansight, QuantStack, AWS, Bloomberg, IBM, 2i2c)
- Many many projects*
- Project contributors, core teams 🛠️
- Software steering council, executive council 🛠️
- Distinguished contributors 🛠️

https://jupyter.org/governance/intro.html

Power and influence
Who has control over the resources? Who (or which groups) holds the greatest influence?

- Project contributors, core teams 🛠️
- Software steering council, executive council 🛠️
- Distinguished contributors 🛠️
- Working groups

https://jupyter.org/governance/intro.html

Jupyter

02. Participating in Open Source

Why and how to contribute to Open Source

Why contribute to OSS? 🌱

Individual volunteer contributors

Extrinsic motivations: Career development, Upskilling, Recognition

Intrinsic motivations: Community, hobby/passion, responsibility, ideology

Corporations/organizations

- Stability
- Adoption and Sustainability
- Efficiency
- Software quality and security
- Talent retention
- Reputation

Day 02

Dive deeper into how to be a good corporate OSS citizen

Volunteer and organizational contributions 🤝

Volunteer contributors have a community-first perspective.

Organizational (a.k.a. corporate) contributions provide financial, structural, and organizational support allows the project to move beyond day-to-day maintenance.

To keep the project stable, everyone must work collaboratively and aim for continuous and intentional communication and stakeholder alignment to ensure clarity between organizational and community needs.

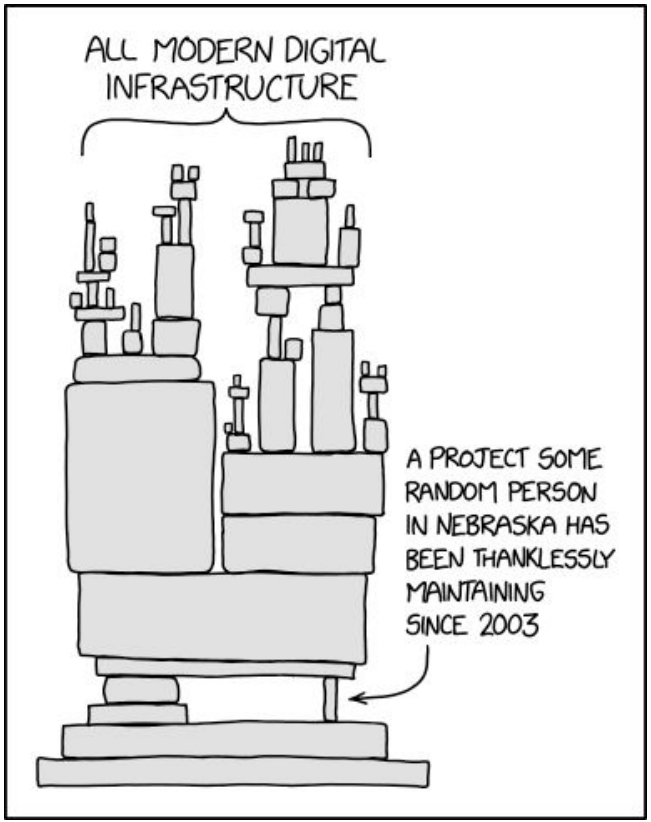
Understanding Open Source Sustainability and Life Cycle

Sustainability ♻️

FOSS licenses allow everyone to use, modify, and re-distribute software freely, which is why it fuels today's technology.

⚠️ **An entire industry, and millions of products hinge on volunteer labour. Leading to sustainers experiencing burnout, stress, and diminished mental health**

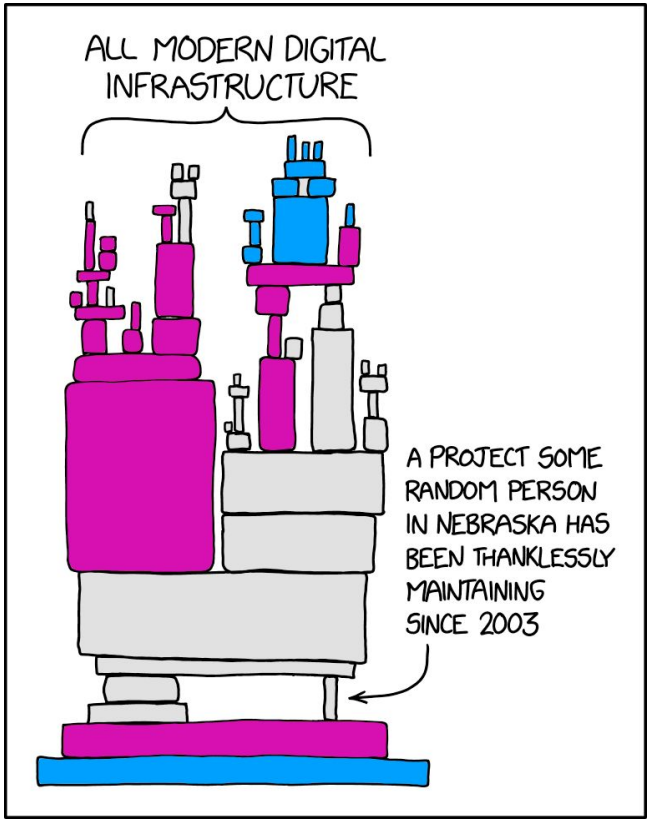
Requisite xkcd



https://xkcd.com/2347/

That be dragons (PyCon AU 2023) - Amanda Casari

v2.0



- Projects owned & resourced by multi-billion dollar company who hires full time engineers directly or through contracts
- Projects governed by multi-billion dollar organization whose maintainers are not directly paid
- Other

adapted from https://xkcd.com/2347/

That be dragons (PyCon AU 2023) - Amanda Casari

Corporate Sustainability 101

Definition of sustainability:

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

~ Brundtland Report

A sustainability plan impacts **every aspect of an organization's operation** and how it engages with and impacts external groups.

🙋 Learner Question

Do you know what CZI's software supply chain looks like? How much of that chain is or depends upon free and open source software?

Thanks for your attention!