

Open source as sustainable infrastructure

From shared code to greener compute



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Sovereign Tech Agency

The Sovereign Tech Agency supports the development, improvement, and maintenance of open digital infrastructure. Our goal is to sustainably strengthen the open source ecosystem.

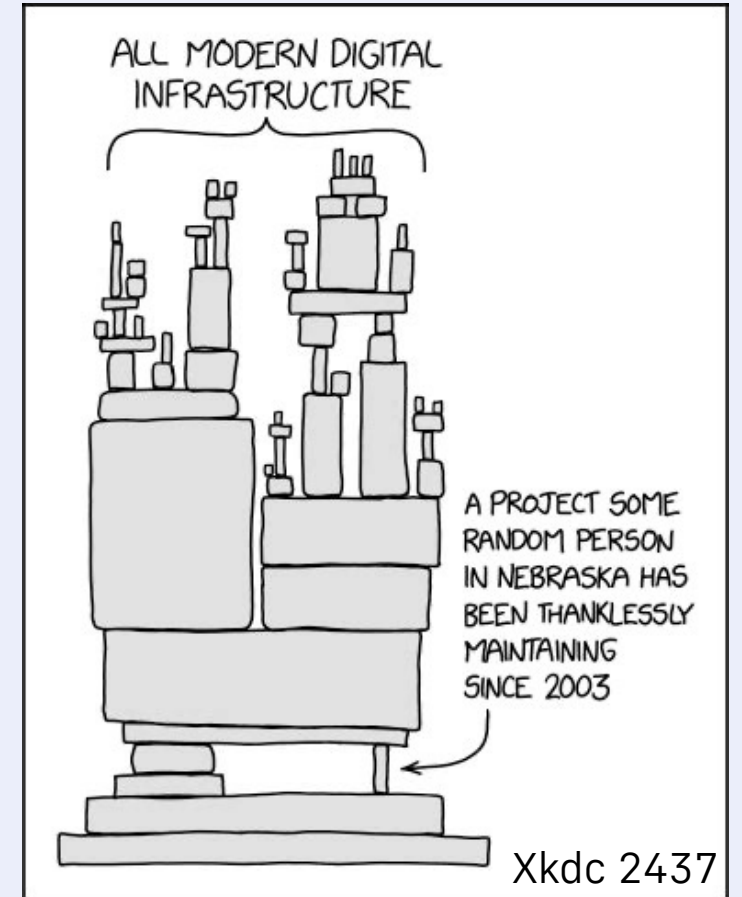


Photo by [Akira Hojo](#) on [Unsplash](#)

Ice Breaker 1

When you hear the word
“sustainability,” do you think first
of nature – or of people?



Ice Breaker 2

Do you think the way we build and maintain technology affects our ecological footprint?

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Ice Breaker 3

Should the maintenance of open digital infrastructure be treated as a public responsibility?

Agenda

TL;DR

Maintenance as care

The socio-technical-ecological system

→ Exploitation as a structural problem

Digital sovereignty, public interest and the role of public institutions

→ A ripple effect

→ Resilience and people

From exploitation to shared stewardship

TL;DR

Sustainability in open digital technology can be perceived as a socio-technical-ecological system, where caring for code, the people behind it, and the environment is a matter of public interest.



Maintenance as care

Maintenance is the quiet work that keeps the world running – the act of sustaining what sustains us.



The socio-technical-ecological system

People, technology and the environment form one living system – resilience depends on their balance.

Exploitation is what happens when we fail to see the relationships that bind us – to each other, to the world, to every living thing. It is the refusal of connection.

...

Our technologies, like our politics, have been built on ideas of extraction and domination: of nature, of others, of ourselves. What we build out of these ideas inherits their violence.

James Bridle, Ways of Being, 2022

What is digital sovereignty?

Digital sovereignty is the self-determined use of digital technologies and systems by individuals, industry, and governments.

- It cannot be achieved without a robust open source ecosystem.
- Strengthen open digital infrastructure fosters security, innovation and economic growth
- A resilient digital foundation for participation and democracy.



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Digital sovereignty, public interest and the role of public institutions

Public investment transforms open collaboration into collective stability – sustaining the digital commons.



We invest globally in the open software components that underpin Germany's and Europe's competitiveness and ability to innovate. By targeting core digital infrastructure, our investments scale across many sectors and benefit a broad range of users.

The criteria are listed on our website:

<https://www.sovereign.tech/programs/fund#module-criteria>



A ripple effect

Maintaining one core component strengthens thousands.

Sustainability multiplies through connected networks.

Case Study

Fortran

Investment: € 816,000.00

Years of investment: 2022-2024

<https://fortran-lang.org/>

Modernizing the language to become performant and user-friendly for scientific communities

Objective: support the modernization of Fortran, the long-standing programming language at the core of climate modeling and high-performance computing.

Outcomes: Improved compiler performance, better tooling through the Fortran Package Manager, and strengthened community governance.

Why It Matters: Enables scientists to maintain and expand climate and environmental models without rebuilding decades of research infrastructure, linking open technology directly to ecological knowledge and sustainability.

Case Study

Python Package Index

Investment: € 1,056,672.77

Pypi.org

Improving the security of the Python ecosystem

Objective: invest in critical engineering, maintenance, and support for PyPI and its widely used packages.

Outcomes: Security enhancements, infrastructure updates, legacy support and transition

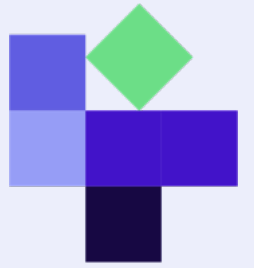
Why It Matters: protects against supply chain attacks and set a standard for the security practices across open-source software repositories.



Resilience and people

Resilience begins with people.
Supported maintainers build
stronger, longer-lasting
infrastructures.

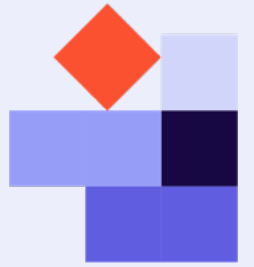
Sovereign Tech Resilience



The Sovereign Tech Resilience program proactively increases the resilience of open source software infrastructure and empower small and medium-sized open source projects.

Bug bounty programs and code audits are part of the program.

Sovereign Tech Challenge



We issued three challenges providing up to €300,000 to encourage active participation in open source infrastructure.

With the call to “**Contribute back**,” we are making it possible for developers, contributors, and maintainers to actively contribute to and work on the open source projects they depend on over a four to eight-month period.



Our maintainer-in-residence fellowship program supports key individuals and strengthens the open source by focusing on the people behind the code. We highlight and provide recognition for the often invisible work that goes into our digital infrastructure.

We are empowering more people to put their skills and experience toward making the open source ecosystem more resilient and sustainable for us all.



From exploitation to shared stewardship

Sustainability is not an endpoint but a relationship – between code, community, and the common good.

Thank you!

**Sovereign Tech
Agency**

Learn more www.sovereign.tech

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