OSS as Digital Infrastructure: Legal Technologies & Institutional Design

Thesis

Developing and maintaining open source software (OSS) relies on an integration of the **technical** (e.g. the ways in which open source code is engineered and maintained); the **social** (e.g. the communities formed around particular OSS projects and their values); and the **organizational** (e.g. formal OSS institutions, but also cross-cutting regulations, financing, and governance).

Consequently, legal and governance infrastructures shape how the digital infrastructure of open source software is developed and maintained.

Methodology

Combining insights from "infrastructure studies" with legal analysis, we developed our inter-disciplinary account in a co-generative process with stakeholders in the open source software ecosystem.

Key findings

- "Thinking infrastructurally" is essential to understanding and analyzing that development and maintenance of open source software are a function of highly entangled technical, social, and organizational dimensions.

- The adoption of the open source ethos by large tech companies and the growing prevalence of cloud computing has changed the open source landscape fundamentally. While traditional volunteer-driven non-commercial projects are still relevant, "free and public code" is increasingly created and maintained by employees in large tech companies. These developments have stretched the meanings of "public interest" and call into question the notion of a single "open source community" with a coherent set of unifying values.

- Open source software itself is a creation of law that favors innovation over maintenance and security. In the absence of legal liability laws for OSS, there is a growing social movement to reframe notions of "developer's responsibility."

- Legal interventions to support digital infrastructures in the public interest need to be carefully crafted and account for highly variegated contexts, considering the social and organizational dimensions of open source development and maintenance.

Recommendations

Advancing normative commitments of *publicness* and *fairness* in production, access, use, and maintenance of digital infrastructures requires careful consideration of the need for accessible information, social action, regulatory intervention, and novel legal or institutional design.

Governments can support open source software in the public interest through public procurement and public funding of digital infrastructures.
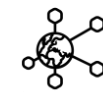
The creation of novel organizations to support the transnational maintenance of non-commercial digital infrastructures in the public interest (e.g. for development, inclusion, or education) should be explored.

Call to action

We are interested in feedback from a variety of stakeholders in the complex open source ecosystem including developers, corporations, foundations, and governments. Please get in touch via email (guariniglobal@nyu.edu) and follow us on Twitter @GuariniGlobal.

More information

The full report will be available at www.guariniglopbal.org/OSS-as-digital-infrastructure.

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