



## Response to the European Open Digital Ecosystems Strategy

Open Future welcomes the opportunity to contribute to this call for evidence, and welcomes the focus of the proposed strategy on open source software and technologies as a way to bolster digital sovereignty.

Digital sovereignty—understood as the “independent and self-determined use and design of digital technologies and systems by the state, private organizations and individuals”<sup>1</sup> —is not merely a technological aspiration. It is the foundation of the European Union’s ability to govern itself, safeguard democracy, foster prosperity, and lead the transition to a decarbonised economy. Without sufficient control over its digital infrastructure, the EU is sidelined in critical decisions about its future.

A thriving open source ecosystem is the best path towards building not (just) European alternatives, but an ecosystem that supports alternative ways of developing technology that serves the needs of society. This approach goes beyond technical and economic autonomy, and towards a commitment to foundational values such as the respect for human dignity, freedom, democracy, equality, the rule of law, and human rights, as set out in Article 2 of the Treaty on European Union and the European Declaration on Digital Rights and Principles.

In particular, in line with the recognition in the consultation of the key role played by the Digital Commons EDIC, the open source ecosystem should be understood not just in terms of products – openly licensed software code – but as digital commons. The call for evidence correctly identifies digital commons as shared online resources that are collectively created, maintained and governed by a community. Many of the open source development efforts targeted by this initiative also function as a digital commons, with various forms of collective or community governance.

Digital commons underpin critical layers of the digital stack, and include web server software, programming libraries and protocols and operating system. Furthermore, open source software is a foundation for various platforms and infrastructures that function as digital commons. As an example, Wikipedia is built on open source code, a collectively managed resource, but also a knowledge platform that plays a key infrastructural role for various digital ecosystems, including the emergent generative AI ecosystem. Other

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<sup>1</sup> This definition is drawn from the work of the [Sovereign Tech Agency](#).

examples of digital commons include platforms like Matrix, Decidim, Mastodon, or DHIS2.<sup>2</sup> These examples demonstrate that digital commons offer proven frameworks for scaling and delivering public value.<sup>3</sup>

By fostering shared ownership and democratic governance, digital commons thus support digital sovereignty, understood not just as a state's ability to act independently, but also as providing individuals and communities with greater control over the digital environments on which they rely.

The call for evidence emphasises the importance of a full cycle approach, considering the need not just to develop software, but to sustain, scale, bring to the market or the public infrastructures and solutions built on top of this software. This aligns with the framing of open source technologies as digital commons, which helps shift the focus from technological artefacts to the social and institutional conditions that sustain them. By recognising community and stewardship as core infrastructural elements, this approach provides the necessary foundation for sustaining, scaling, and deploying open technologies over time.

Digital commons are also particularly suited for cooperation across Member States, as they address challenges that individual countries or private actors cannot solve alone. By enabling community-driven innovation and collective governance, digital commons provide a model for developing public digital infrastructure at scale. They support interoperability across borders, allow for cost sharing among governments, and enable national adaptation without sacrificing coordination. Digital commons initiatives also have the capability to bridge public and private sectors, while aligning with public interest goals.

In this context, we respond below to the specific questions raised by the consultation, with a particular focus on mechanisms that support open source technologies, and the digital commons built on their basis.

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<sup>2</sup> "Active communities of commoners and relevant commons", a report published by CNRS as part of the NGI Commons project, offers an analysis of the various digital commons. See:

<https://commons.ngi.eu/2025/06/26/active-communities-of-commoners-and-relevant-commons/>

<sup>3</sup> The report "Digital Commons as Providers of Public Digital Infrastructure" offers examples of how digital commons function as a viable and valuable mechanism for providing digital infrastructure. See: <https://commons.ngi.eu/2024/11/14/digital-commons-as-providers-of-public-digital-infrastructures/>

# **1. What are the strengths and weaknesses of the EU open-source sector? What are the main barriers that hamper (i) adoption and maintenance of high-quality and secure open source; and (ii) sustainable contributions to open-source communities?**

## Strengths and Value add of Open Source and Digital Commons

The strategy correctly identifies open source as an important way of building sovereignty, premised on source code availability, interoperability, and non-lock in. From the perspective of maintaining the self-determined use of technologies and the autonomy of institutions, simply switching to European alternatives that still rely on extractive and proprietary ecosystems that lock users into a relationship of dependence do not address the fundamental challenge. Further, open source is a more resilient approach to building meaningfully sovereign alternatives. European technology companies could still be bought out or acquired by foreign companies, undermining the objectives of the current push towards strategic autonomy. Open source based technologies in this case offer credible exit: institutions and businesses can more easily switch to alternative (european) providers without serious disruption to their activities.

Further, much of the contemporary digital infrastructure is built upon Digital Commons. [More than 70%](#) of modern software depends on open source components. The European Commission's 2021 [study](#) on the economic impact of open source software and hardware recognized that open source software delivers a 3.5-fold return on investment and constitutes a form of Digital Commons requiring commons-based governance rather than purely market-based approaches.

## Barriers to Adoption, Maintenance and Sustainability

We identify two main barriers that hamper development, adoption, and sustainability of open source and digital commons initiatives.

### Sustainable Contributions and Funding

While the EU funds digital research and innovation through several programmes, the current model of support tends to be project-based, with limited support for continuity or scaling. Such a model does not meet the long-term needs of maintaining digital infrastructures. Such funding structures tend to incentivize feature development over critical tasks related to governance and sustainability. This risks leaving maintenance, security, documentation, or

community building undervalued and underfunded. This gap not only undermines the growth of individual initiatives but prevents the emergence of sustainable Digital Commons that can strengthen the EU's digital sovereignty.

Beyond building technical infrastructure, deploying viable alternatives to dominant platforms also requires alternative business models and stewardship arrangements. [Findings from the NGI Commons project](#) suggest that Digital Commons rarely follow a single blueprint for organisational structure or governance. They evolve through processes of collective experimentation, in which communities iteratively develop governance and operational arrangements that fit their context and scale. This requires support for experimentation with alternative models such as cooperative ownership, public utility approaches, or community-governed infrastructures that can enable open technologies to mature into viable, sustainable alternatives.

#### Support for Critical Infrastructures

[Findings from the NGI Commons project](#) indicate that while some digital commons may generate revenue through provisioning services, many foundational infrastructures may be unable to create viable income streams due to their open and shared nature. These infrastructures require direct, sustained public funding. As noted, open source and digital commons underlie much of the contemporary digital infrastructure, with up to 70% of modern software depending on open source components.

While many such open source projects benefit from private contributions or commercial ecosystems, numerous others—especially small but widely used components—operate under severe resource constraints. A 2024 survey found that 60% of European open source maintainers are unpaid, and most are sole maintainers of their projects. The consequences can sometimes manifest in the form of security vulnerabilities and governance deficits.

As with any critical infrastructure, the digital systems underpinning social and economic life require predictable, long-term funding throughout their entire lifecycle. Public investment, best suited to supporting infrastructures that do not fully align with market logic, should enable the development, maintenance, and democratic governance of such shared digital resources, over their entire lifecycle, recognizing that digital commons can provide foundational infrastructure.

#### Adoption Challenges

The EU, through programmes such as [NGI](#), already funds promising open source technologies with the potential for public value. However, these technologies also need demand side impetus to scale. Competing against dominant players with significant network effects and lock-in, as well as large amounts of capital, requires sustained and strategic

procurement support. Public funding can help EU-based and open source providers scale and become more competitive, and more attractive avenues for further private investment.

Unfortunately, current procurement practices favour established, non-EU technology providers and proprietary solutions, reinforcing vendor lock-in and limiting opportunities for European open source alternatives. By prioritizing short-term cost savings over long-term strategic objectives, including interoperability and autonomy, these practices de facto subsidize foreign technology with public funds.

In the absence of a clear framework preferencing open source, as well as support and guidance on implementation, contracting authorities default to proprietary technologies and platforms. This perpetuates a dynamic where public bodies become further entrenched in proprietary ecosystems, public funds are not used strategically, and local or open-source solutions fail to receive support beyond pilot stages.

Frameworks for procuring open solutions are also not tailored to the dynamics of open source development and address the sustainability of the ecosystem. For instance, in the context of open source software, public entities typically may not procure the software itself, which is already available under an open licence, but rather services related to support, operation, customisation, or further development.

Overly narrow procurement criteria, such as an exclusive focus on price, can create incentives for practices such as underpricing tenders without allocating sufficient resources to in-house development or maintenance, excessive reliance on unpaid community contributions, or failing to contribute modifications back to the shared codebase. This results in value extraction from open source ecosystems and their contributing communities, rather than reciprocal and sustainable participation. It also places providers that invest in the long-term sustainability of open source ecosystems at a competitive disadvantage. Procurement frameworks should therefore include conditionalities that reward sustainable contribution practices and ensure that publicly funded improvements are made available upstream.

## **2. What is the added value of open source for the public and private sectors? Please provide concrete examples, including the factors (such as cost, risk, lock-in, security, innovation, among others) that are most important to assess the added value.**

Please refer to our introductory comments and the response to Question 1 for a discussion of the added value of open source.

### **3. What concrete measures and actions may be taken at EU level to support the development and growth of the EU open-source sector and contribute to the EU's technological sovereignty and cybersecurity agenda?**

#### Reforming Funding Frameworks

We support the key objective identified in the call, of continuing development and ensuring appropriate visibility of EU high-quality and secure open-source solutions and demonstrating their added value. To address issues of “deployment, usability, software supply chain security and governance, maintenance of code and project sustainability to ensure take-up and upscaling”, the EU's approach to funding research and innovation requires reorientation, in alignment with the lifecycle of open source technologies and digital commons.

This reorientation requires an integrated approach to funding: one that supports early experimentation; but also values maintenance and governance on par with technical innovation; and that provides medium- and long-term funding for scaling and stewardship of digital commons that underlie essential infrastructures.

The NGI programme's cascade funding model is well adapted to the decentralised nature of open source communities, enabling a wide ecosystem of innovation and experimentation while maintaining alignment with EU priorities. The NGI model, which disburses funding through intermediaries embedded in the ecosystem, allows these organisations to leverage their understanding of community-driven development and domain-specific expertise. They can offer deeper support to applicants and grantees by providing guidance and mentorship, constructive feedback, and access to relevant networks.

The impact of this model would be significantly strengthened if its principles were embedded in design choices across the EU's wider funding architecture. This includes, for instance, eligibility requirements preferencing openness and interoperability, evaluation criteria that value governance and community sustainability, and funding instruments that support long-term stewardship rather than short-term delivery.

#### Strategic Funding for Scale and Competitiveness

In addition to support for experimentation and early-stage development, public funding should enable scaling and maturation of Digital Commons and public digital infrastructures that have the potential to become viable alternatives to dominant, extractive platform models. The focus should be on targeted and strategic support that allows commons-based initiatives in transitional phases to develop sustainable organisational and economic models.

Commons-based alternatives must compete with incumbent platforms that benefit from entrenched network effects, access to capital, and closed ecosystems that externalise costs onto users and institutions. In this context, strategic public funding can play a market-shaping role by supporting scaling pathways that prioritise openness, interoperability, and public value, rather than extractive growth strategies.

This requires funding mechanisms that go beyond short-term project grants and include time-bound operational support, and blended financial instruments that enable organisations to professionalise operations and invest in maintenance and reliability.

This calls for staged or tiered funding pathways that allow successful initiatives to graduate to larger, multi-year support, based on rewarding maturity and governance capacity. By enabling promising Digital Commons to transition from prototypes into robust, competitive infrastructures, such mechanisms reduce dependency on closed and proprietary ecosystems while fostering genuinely competitive alternatives aligned with public-interest objectives.

### Support for Critical Infrastructures

We support [proposals](#) for an EU-level instrument, such as an EU Sovereign Tech Fund (EU-STF), to address critical dependencies in the EU's digital infrastructure, particularly by supporting strategically important open source components.

Such an instrument should focus on five core activities:

- Systematically map open source dependencies across critical infrastructure to identify under-maintained, vulnerable, or strategically important components.
- Procure and support maintainers to carry out essential upkeep of strategically relevant open source projects.
- Fund security audits and expert-led interventions, delivered through trusted intermediaries, to strengthen the cybersecurity posture of critical open source components.
- Provide dedicated funding to enable widely used projects to improve, evolve, and scale in line with strategic priorities.
- Support coordination, capacity-building, collaboration, and training across the open source ecosystem to reinforce long-term sustainability.

In addition to a focus on critical technical components, the scope of such an instrument should encompass the governance and community structures required to sustain Digital Commons over time. Addressing technical dependencies without investing in the social and organisational foundations that maintain these infrastructures risks reproducing fragility, rather than achieving meaningful and durable technological sovereignty.



Critical open source infrastructure also underpins a resilient and pluralistic digital public space, including decentralized and interoperable communication platforms that support independence from proprietary, surveillance-driven platforms. Dependence on such platforms creates strategic vulnerabilities and threatens the integrity of public discourse. The scope of an instrument for critical open source infrastructure should squarely include support for decentralized alternatives to closed social media platforms.

## Public Procurement Support

Public procurement can be a substantial strategic lever for digital sovereignty and support for digital commons. Through strategic procurement, public bodies can channel investment into open-source technologies, while also shaping markets in line with public values. The [Digital Decade](#) programme puts in place a target of moving all key public services online by 2030. Without a coordinated digital sovereignty strategy, procurement practices can consolidate the dominance of proprietary Big Tech providers, instead of strengthening the digital commons and European industry.

Public procurement reform can be central to the objective of promoting best practice and encouraging the public sector, specialised business sectors and large customers to contribute to and adopt open source. Adoption by the public sector can facilitate further demand from the private sector, along with being a powerful market shaping strategy to ensure that public funds maximise public value, through conditionalities.

Strategically leveraging public procurement, can also address [gaps](#) in research and innovation funding, which often prioritizes early pilots over long-term sustainability and integration into infrastructure. Pre-commercial procurement provides a tool to steer research and innovation toward commercially viable solutions aligned with public needs and already on a pathway to adoption.

The public procurement framework should embed openness, interoperability, and non-locking as guiding principles. This approach is central to a more assertive industrial policy that reframes procurement from simply a purchasing exercise into a strategic market-building effort.

To advance this objective, procurement reform should prioritize: favor open-source solutions and avoid proprietary requirements that exclude open alternatives; mandate interoperability and exit rights, requiring that purchased systems can work together and integrate with other providers' services, preventing long-term dependency; demonstrable switching capability: for complex IT services, providers must demonstrate during the bidding process that they can actually transfer systems to competitors.

Frameworks for procuring open solutions must also be tailored to the dynamics of open source development and address the sustainability of the ecosystem. Overly narrow

procurement criteria, such as an exclusive focus on price, can create incentives for practices such as underpricing tenders without allocating sufficient resources to in-house development or maintenance, excessive reliance on unpaid community contributions, or failing to contribute modifications back to the shared codebase. This places providers that invest in the long-term sustainability of open source ecosystems at a competitive disadvantage. Procurement frameworks should therefore include conditionalities that reward sustainable contribution practices and ensure that publicly funded improvements are made available upstream.

Implementing a framework that encourages (sustainable) open source procurement also requires providing additional guidance and support to contracting authorities, along with modifications to procurement rules to meaningfully prioritize open-source providers.

Conditionalities related to cloud sovereignty and ecosystem sustainability need not operate as eligibility criteria for participation in tenders, but may instead be structured as contractual obligations to be fulfilled during execution. This limits excessive barriers to participation in tender processes, especially for SMEs, while enabling public bodies to iteratively shape markets and create incentives in the direction of strategic outcomes.

## The Digital Commons EDIC as a Coordination Vehicle

The Strategy already recognises the synergy with the Digital Commons EDIC. The EDIC can play a role in meeting the objective of “supporting market integration, especially with legacy systems and policy alignment.”

While EU funding has launched many innovative digital projects, the absence of a stable, long-term institutional home for governance and stewardship means that many promising initiatives fail to achieve lasting impact or scalability. Alongside sustained investment in research and innovation, Digital Commons in particular depend on durable governance frameworks to ensure their continued development and uptake. Without such frameworks, the impact of public investment risks remaining fragmented and failing to translate into sustainable deployment.

The Digital Commons EDIC provides the legal and operational framework for Member States to jointly develop, govern, and sustain digital infrastructure, enabling long-term policy alignment and shared cost management.

The Digital Commons EDIC could act as an institutional anchor by: hosting critical projects and coordinating multi-country initiatives; managing funding flows to ensure continuity from research to deployment; maintaining shared digital tools and infrastructure for the public good; providing one-stop ecosystem support to both suppliers and users of open source technologies.

For the Digital Commons EDIC to effectively fulfil this role, it must be backed by adequate, predictable, and sustainable resources.

#### **4. What technology areas should be prioritised and why? 5. In what sectors could an increased use of open source lead to increased competitiveness and cyber resilience?**

As noted, open source technologies and Digital Commons that underpin critical digital infrastructures should receive priority. These components represent the greatest vectors of risk from a sovereignty and cybersecurity perspective if left without sustained support.

In addition, the deployment of open source and Digital Commons solutions in the public sector should be prioritised, as the dependence of public institutions on proprietary ecosystems poses a clear threat to their autonomy and ability to perform public functions. Change in the public sector can also have catalytic effects, channeling demand and investment from the private sector towards open technologies, ensuring sustainability of open source ecosystems, and contributing to broader shifts in market behaviour.

Open and interoperable communication platforms are central to digital sovereignty. Digital communication platforms that shape public discourse in Europe are currently concentrated among a small number of dominant corporations whose advertising-driven business models prioritise engagement over democratic values. These platforms amplify disinformation, contribute to declining institutional trust, and weaken societal cohesion, posing significant challenges to democratic discourse.

While regulatory instruments such as the Digital Services Act address platform accountability, they do not create the structural alternatives needed for genuinely democratic [digital public spaces](#). There is therefore a need to recognise sovereign digital communication spaces as critical public digital infrastructure and to invest in open, publicly governed, interoperable, and decentralised alternatives to prevent corporate or state capture.

In addition the EU should support a holistic [public AI](#) approach that combines measures related to the provision of compute, data, and AI models. Public AI represents a vision of open source AI development that prioritises the public interest and operates under public control or ownership. The AI Continent Action Plan (including Apply AI and Data Union strategies) includes actions that contribute to such a strategy for Europe. However, a key element remains missing: robust and sustained support for the development of state-of-the-art European open-source AI models. This gap can be explicitly addressed and foregrounded through the Open Digital Ecosystems Strategy.



Strategically prioritising open source and interoperable technologies also has important implications for the cloud sector. Even with greater adoption of open source software, cloud infrastructure remains the foundational layer upon which other elements of public digital infrastructure, from government services to communication platforms, are built. At present, this critical layer is largely controlled by non-EU providers.

Public procurement reform can create an enabling environment for directing investment to 'sovereign' cloud providers, by leveraging procurement at the software and platform layers to strategically channel demand towards providers meeting defined criteria related to the infrastructural layers. This can shift the cloud market towards service unbundling, mandatory interoperability and data portability and guaranteed migration capabilities, and transparent pricing. This aligns with the recognition in the call for evidence that there are synergies with this strategy and the upcoming cloud and AI development act.

## About Open Future

[Open Future](#) (TR: [936143941653-07](#)) is a European think tank that develops new approaches to an open internet that maximize societal benefits of shared data, knowledge and culture.