

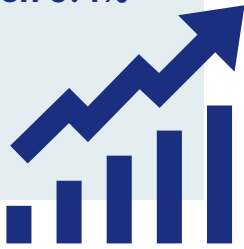
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The Impact of Open Source on the EU Economy

**A summary of the European
Commission's 'Study about the
impact of open source software and
hardware on technological
independence, competitiveness and
innovation in the EU economy'**

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**An increase of 10% in
OSS contributions
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additional EU GDP per
year of between 0.4%
and 0.6%**



The European Commission's (EC) 6 September 2022 [study on the impact of open source software and hardware on technological independence, competitiveness and innovation in the EU economy](#) concludes that Open Source Software (OSS) is already having a large impact on the EU economy, and that the potential of Open Source Hardware (OSH) is beginning to emerge.

It recommends a comprehensive and coordinated approach to public policy in order to further scale and incentivise Open Source productions for the benefit of the European economy.

The report includes a detailed, quantitative cost-benefit analysis of the economic impact of open source investments; a survey on the views of over 900 stakeholders; a number of concrete case studies; and several public policy recommendations to the EC and the [EU member states](#). The methodology underlying the analyses is explained in great detail in the EC report.

Economic Benefits of Open Source: A Green Field Advantage for Policy Makers

The report predicts that an increase of 10% in contributions to Open Source Software code would annually generate an additional 0.4% to 0.6% GDP, as well as more than 600 additional ICT start-ups in the EU. In 2018, the EU GDP was €15,900 billion, so a GDP increase of 0.4% to 0.6% corresponds to an increase of €65 - €95 billion. Currently, companies located in the EU invested some €1 billion in OSS in 2018, while econometric time series analysis of EU Member State GDP data indicates that the economic impact of OSS was between €65 and €95 billion.

The report authors based their estimation of EU investment in OSS in 2018 on public domain information, explaining that: in 2018, there were at least 260,00 OSS contributors to GitHub. These OSS contributors made more than 30 million commits to Github, which the authors estimate represents a personnel investment of around 16,000 full-time equivalents (FTE). Based on average EU personnel costs, 16,000 FTEs represents an investment of €1 billion.

According to the study, in 2018 "the contribution of OSS to EU GDP, and contributions of EU employees to OSS, yield a cost-benefit ratio of slightly above 1:10. After taking into account hardware and other capital costs of the 260,000 EU contributors to OSS, the cost-benefit ratio is still slightly above 1:4."

**The EU invested
€1 billion
in OSS in 2018**

OS Drives Open Strategic Autonomy and State of the Art Technologies

In addition to the quantitative analysis, the study conducted a survey to gather and analyse the views of EU stakeholders on the impact of OSS and OSH. The survey received responses from more than 900 companies and developers. Most respondents were involved in OSS as users, developers or providers of services, with only a smaller number involved in OSH development.

The survey showed that the top motivations for being involved in open source were: finding technical solutions, avoiding vendor lock-in, advancing the state of the art of technology, developing high quality code, and seeking and creating knowledge. Other motivations included cost-savings, lowering internal maintenance efforts, access to royalty-free code, and increasing returns on R&D investments.

In addition, the survey found that individuals were motivated by their personal interests in contributing code to OSS communities. Individual survey respondents said that the highest benefits of working with OSS groups were supporting open standards and interoperability, improved access to source code, independence from proprietary software providers, access to a highly knowledgeable and active community, and enhanced security and quality.

Policy Recommendations

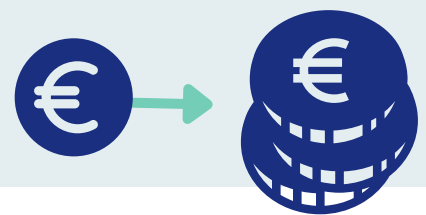
Open Source Software is already having a large impact on the EU economy, and the potential of Open Source Hardware is beginning to emerge. A comprehensive and coordinated approach to public policy is needed to further scale and incentivize Open Source productions for the benefit of the European economy.

Based on its overall analyses, the study made a number of recommendations to the European Commission. These include:

In 2018, across all EU Member States, the economic impact of OSS was between

€65 and €95 billion.

Investments in OSS yield a cost-benefit ratio of 1:4 - 1:10.





- **Building Institutional Capacity.** Create and fund a network of up to 20 Open Source Project Offices to support and accelerate the consumption, creation, and application of open technologies.



- **Creation of Legitimacy.** Integrate OSS and its communities into European research and innovation policies, as well as into European industrial strategy; engage with OSSH foundations that may offer a suitable approach for funding and support.



- **Strategic Intelligence.** Expand the Open Source Observatory - a place where the OSS community comes together to learn about events, find relevant open source software solutions, and read about the use of free and open source in public administrations across and beyond Europe; and integrate Open Source in the data collection activities of Eurostat.



- **Knowledge Creation.** Increase R&D funding related to OSS and OSH projects through existing programs like Horizon Europe, and new initiatives aimed at SMEs startups, and individual developers; and offer research awards and prizes for OSS and OSH communities, students, and professors.



- **Knowledge Diffusion and Networking.** Support the development and maintenance of OSSH platforms and depositories; and provide strong incentives for uploading code generated in publicly funded R&D projects.



- **Entrepreneurial Activities.** Provide entrepreneurial skills on OSS and OSH based start-ups with financial support from OSSH foundations.



- **Market Creation.** Consider Open Source explicitly in competition and platform policies relating to the governance of open source communities.



- **Human Capital Development.** Promote Open Source education, - including development, business models, licensing, and management, - in higher education institutions; offer certification licenses to individuals with OSSH skills; and support research projects to increase the diversity of contributors.



- **Financial Capital Development.** Treat OSSH contributions from individuals and corporations as charitable donations for tax purposes; and launch financial instruments like focused VC funds to help OSSH startups to team up with established companies.



- **Regulatory Environment.** Promote OSS as a major channel of knowledge and technology transfer; improve the inclusion of OSS in public procurements; consider Open Source in future revisions of European copyright and patent legislation; and fund security audits of critical OSS projects.