



Artificial Intelligence and Free Software (Also known as Open Source)

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Introduction

The Free Software Foundation Europe (FSFE) is a charity that empowers users to control technology since 2001. The FSFE helps individuals and organisations to understand how Free Software (also known as Open Source) contributes to freedom, transparency, and self-determination. It enhances users' rights by abolishing barriers to Free Software adoption, encouraging people to use and develop Free Software, and providing resources to enable everyone to further promote Free Software in Europe.

The European Union has set itself the goal of adopting digital policies that are aligned with people's rights, Artificial Intelligence (AI) is not any exception. Free Software plays an important role in the development and further success of such technologies. Hence, we want to point out to specific demands that must be considered in the legislative process of the AI Regulation, to be aligned with Europe's ambition of building and deploying technologies that empower people while strengthening Europe's economy.

A well thought-out AI legislation focusing on the use of Free Software will foster innovation, boost the economy, enhance control, strengthen trust, and it will make Europe fit for the digital age.

1. AI and Free Software

Technical improvements, the accumulation of large, detailed datasets and advancement in computer hardware have led to an AI revolution. For example, breakthroughs in computer vision, as well as the building of large datasets and amelioration in text analysis coupled with the gathering of personal data, have given birth to countless AI applications. These new AI applications have given many benefits to European Union citizens and economy. However, because of its inherent complexity and requirements in technical resources and knowledge, AI may undermine our ability to control technology. Therefore, introducing dedicated legislation on AI is a worthwhile objective.

In the context of a new legislation, acknowledging the potential of releasing AI applications under Free Software (also known as Open Source) licences paves the way to foster innovation and the economy, to serve the public, to save tax payers money, and to safeguard fundamental rights.

2. What is Free Software?

Free Software (also known as Open Source) empowers people to control technology by granting four freedoms to each user:

1. The freedom to use software for any purpose, without geographical limitations;
2. The freedom to study software, without any non-disclosure agreement;
3. The freedom to share software and copy it at no cost;
4. The freedom to improve the software and share the improvements.

These freedoms are granted by releasing software under a Free Software licence, whose terms are compatible with the aforementioned freedoms. Thus, similar applications don't have to be developed from scratch every time. Furthermore, with transparent processes, others don't have to reinvent the wheel. Hence, expertise and costs can be shared.

3. Why is Free Software good for AI?

Fostering innovation

AI released under a Free Software (also known as Open Source) licence saves everyone from having to reinvent the wheel and enables reproducibility, making researchers and developers alike able to focus on creating new and better AI software. They can either reproduce previous works or base their research on already existing code that they can improve. Reproducing previous research and building new knowledge upon what has already been done is at the heart of the scientific process, and the free flow of information is a key element of it. AI research is therefore easier and faster with Free Software, leading to new discoveries and products. Free Software allows global cooperation and Free Software

licences allow sharing of code in any jurisdiction. Solutions developed in one country can be reused and adapted in another one, enhancing **interoperability**. Thus, it lowers the cost of development by saving time and removing license fees.

Needless to mention, the **collaborative** and inclusive ecosystem that Free Software fosters by allowing different stakeholders and experts to contribute with scientific and technical knowledge in the development of new technologies, with comprehensive, high-quality and innovative solutions as result.

Enhancing control

Regarding AI, transparency can be defined as the ability to understand what led to the predictions but also to inspect the software for security issues or improvements. Although a proprietary AI model can be transparent, Free Software facilitates transparency by making auditing and inspection easier. With Free Software, everyone is able to run and test the AI to **understand it**.

Another good aspect of Free Software in this context is that by granting the right to **improve** the AI software and share these improvements with others, it helps preventing vendor lock-in. These improvements can be shared directly with everyone and security issues could be fixed quickly and straightforwardly.

Furthermore, due to its usage for critical matters, AI needs to be transparent. For example, AI is used to determine credit worthiness, in self-driving cars, in predictive policing or in healthcare. In these contexts, getting information about how the predictions are done is therefore critical and information about the data used and how it was processed by the AI should be made available. Hence, trust and adoption of AI would consequently be higher. In this regard, it becomes **verifiable** whether legal requirements are met.

Strengthening trust

AI predictions are not always correct and they may use sensitive information, they can also lead to harmful discrimination and human rights violations. It is therefore important to be able to study the source code and check the predictions of the AI to make sure rights are protected. Thus, AI needs to be released under a Free Software (also known as Open Source) licence.

Since an AI application released as Free Software may be used and inspected by everyone, verification of whether it is free of potentially harmful discrimination is easier than if it were proprietary.

This synergises with AI transparency, as a transparent AI application facilitates the understanding of the factors considered for making predictions. As everyone is able to improve AI software distributed under a Free Software licence, potential risks can be identified and avoided.

While not a sufficient solution, releasing AI under Free Software licences is necessary for its widespread use throughout our information systems by making it more scrutable, **trustworthy** and safe for everyone.

4. Conclusion for AI Regulation

To have a future-proofed legislation on AI, the European legislator should make sure to include requirements to release AI under a Free Software (also known as Open Source) licence:

Public Money? Public Code!

Free Software enhances sustainability in public administrations, thanks to the reuse of existing software code and the advantages of sharing code and costs with other institutions. It strengthens digital sovereignty, since public organisations can have control over the software they are using, while it enables that public funds are spent in the most efficient way. (See Info-Box below: "Public Money? Public Code!")

Having said that, public procurement should encourage Free Software AI

and digital solution to be used in the public but also private sector. Public authorities using AI systems shall publish those, including a description, version history and the source code in a public register (see: “Collaborative Platforms”).

Public Research? Public AI!

The use of Free Software in AI technologies has the potential to increase their adoption by reducing the level of technical knowledge that is necessary to use AI. An existing algorithm that can be re-used benefits the whole research ecosystem. This will promote innovation and generation of knowledge which can focus on more advanced AI technologies and as a result they will be more accessible, robust and of high quality.

In this regard, public research and educational institutions inventing, using or procuring AI systems shall publish those, including a description, version history and the source code in a public register (see: “Collaborative platforms”).

Open Data

If an AI system uses open data, the corresponding code must also be made publicly findable and accessible under a Free Software licence. Thus, an ecosystem of openness can emerge which will foster innovation and serve the public. Thereby all stakeholders, not only developers, can contribute and discuss future developments in furtherance of achieving the highest potential of AI technologies.

Collaborative Platforms (Code repositories)

Free Software is rooted in openness and transparency, and its development is based on collaborative networks of programmers and stakeholders. Therefore, the need for public software platforms (code repositories) in which the code and also best practices are shared is a must. These platforms will enhance sharing solutions as well as improving auditability by making the identification of vulnerabilities easier and, consequently, faster to tackle and fix them.

Public Money? Public Code!

Today, digital technologies are a crucial part of the infrastructure of modern states. This challenges public administrations, raises new questions regarding control, security, efficiency, distribution of power, and transparency of institutions.



publiccode.eu

More and more state actors are concerned about the long-term costs and dangers incurred by a dependency on single software vendors. Successful counter-strategies against vendor lock-in, proven to work in practice, rely to a great degree on open standards and Free Software licences. New procurement policies help to minimise dependencies and to lower costs via competitive Free Software offers. A growing number of countries have implemented roadmaps or legislation that support the use of Free Software licences in the public sector. Today, even large scale government IT projects are published regularly under Free Software licences.

We need software that fosters the sharing of good ideas and solutions. Like this we will be able to improve IT services for people all over Europe. We need software that guarantees freedom of choice, access, and competition. We need software that helps public administrations regain full control of their critical digital infrastructure, allowing them to become and remain independent from a handful of companies. That is why we, call our representatives to: Implement legislation requiring that publicly financed software developed for public sector must be made publicly available under a Free and Open Source Software licence.

If it is public money, it should be public code as well.

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