

# **Study on the effect on the development of the information society of European public bodies making their own software available as open source**

## Executive Summary

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## Executive Summary

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Publishing software fully owned by public bodies as Free/Libre/Open Source Software (FLOSS)<sup>1</sup> could facilitate re-use, adaptation and modification of the software by other public organisations, as well as other actors. The free availability of public sector software could possibly result in a "multiplier effect", which if significant, could have an accelerating effect on the development and take-up of information society technologies.

The FLOSS paradigm could be a practical and operational way of allowing the above described multiplier effect to take place. FLOSS has leapt to prominence by taking significant share in some specific segments of the software infrastructure market.

This report addresses the following points and questions:

- What would be the potential impact on the development of the Information Society if public organisations (administrations, research institutions, universities, agencies, public companies etc.) were to release software fully owned by them under a FLOSS licence? Is an amplification effect on the adoption and use of information society technologies to be expected? What are the possible characteristics of such an effect, and under what circumstances would it occur?
- What are the conditions under which software fully owned by public organisations can be made available using a FLOSS licence? What are the opportunities, barriers and limitations to this process?
- What options and recommendations can be provided for actions that could be taken, notably by the European Commission, EU Member States, and the private and public sector in general?

The study draws upon data gathered in the 2004 FLOSSPOLs survey of 955 public authorities in 13 EU member states. To examine certain aspects in more detail, we also studied six cases of FLOSS development and distribution by public authorities in four different European countries. Possible impacts on the European software market were assessed with the help of theoretical structures based on the standard models of industrial organisation by Cournot (1838) and Hotelling (1929).

### Opportunities and barriers

Challenges and barriers for public bodies that are looking to use FLOSS and distribute their own software as FLOSS are:

- Public administrations wanting to develop, distribute or adapt FLOSS will need to build up a certain degree of technical capabilities, whether by employing skilled staff or by contracting external services. However, lack of support for the *use* of FLOSS does not appear to be an important problem.

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<sup>1</sup> In this report we refer to the single phenomenon known by the various terms "libre software", "free software" and "open source software" as Free/Libre/Open Source Software (or FLOSS). We note that the EU/FP5 FLOSS developer survey of over 2800 respondents showed that a majority of developers themselves identify with the term "free software", while Libre software (logiciel libre, software libre, software libero) is the favoured term in southern Europe and Latin America.

- With over 100 FLOSS licences in existence, special expertise is sometimes required to determine how a given piece of source code can be legally distributed. This is especially true when combining software from pieces distributed under different licences.
- To develop software as FLOSS, a public administration's staff needs to master the appropriate skills. Besides programming knowledge, this includes both the management of a development project and its code base, and communication with other developers and the wider FLOSS community. A number of procedures have to be developed and put in place, e.g. for integrating feedback.
- The challenges associated with developing and distributing FLOSS require a redistribution of tasks within the organisation's IT department. People who were previously tasked with maintenance or performing internal processes become responsible for communication with actors outside the PA, for providing content for websites and mailing lists, and for adapting processes to new technologies and needs.
- The overwhelming majority of communication about FLOSS development happens in English. This might constitute something of a language barrier for some public administrations.
- Lack of prior experience with FLOSS is likely to be a barrier to using and releasing FLOSS software.

Opportunities are:

- The formation of a pool of cost-efficient public sector software of potentially high quality.
- Possibly significant cost savings through the reuse of software made available by other public bodies. Most cases studied had the perception that their costs had decreased through using FLOSS. But such savings may not be the top priority, especially when the decision to develop and release FLOSS is made with strategic objectives in mind. The externalisation of development costs plays a comparatively minor role.
- Increased flexibility in software use, both through independence from vendors and from a deeper understanding of how the software works.
- Since dealing with FLOSS induces public administrations to deal with questions of copyright, patents and trademarks, legal knowledge is often generated in institutions where it was not present before.
- increased interoperability, both within the administration's IT system and with citizens and enterprises, as FLOSS uses open standards and protocols. Exchanging data with other institutions becomes easier.

## **Impact**

The study examined the impact the development and distribution of FLOSS by public bodies has on eGovernment services, the economy, and the information society.

- The degree to which an administration's software configuration and hardware architecture are affected by FLOSS development and distribution projects in the public sector depends on the scope and purpose of these projects. If the project aims at reorganising the services the public body provides, then the effect on software configuration and hardware architecture is quite high. In contrast, when FLOSS is produced for the purpose of serving the needs of other users / institutions or as an application that runs by and large

independently from the services and processes of other departments, the impact on software configuration and hardware architecture is rather low.

- As for the impact of FLOSS releases on the economy, neither the “releasers” nor the “non-releasers” expect a negative economic impact of public bodies releasing their own software as FLOSS. Quite to the contrary, there is some confidence that it might have some positive economic impact, if any.
- However, our analysis of the case studies shows that local businesses and the local FLOSS community benefit from the general need of public administrations to adapt software to their specific needs, and these spill-over effects – though varying from case to case - are very important at the political level of each project.
- The cases that were analysed showed strong differences with regard to their impact on the information society. The greatest impact clearly occurs when the decision to release software as FLOSS is not made for purely technical or practical reasons, but is part of a strategy aiming at a wider impact on the information society from the start, as in Extremadura. On the other hand, the impact of merely releasing a specialised application as FLOSS is likely to be limited.
- Though we consider that *currently* the *actual* impact of such attempts as limited, we see a great *potential* for a fundamental impact of public bodies' FLOSS activities *in future*. Based on the analysis of the case studies, we distinguish four different scenarios for FLOSS development by public bodies, each with their own potential impact on the information society.

## Conclusions

Based on the analysis of our observations, the central conclusions of the study are:

- The type of software predominantly developed by or for public bodies is neither general-purpose nor public sector specific software, but specialised software such as content management or work-flow systems, heavily customised to be of use to the public sector but possibly also useful to other organisations.
- Legal issues did not prove to be a major barrier for public bodies to engage in FLOSS development projects. The present legal environment appears sufficient to enable public bodies to release their software as FLOSS.
- Instead, we identified as the most important barrier a lack of IT professionals that are experienced in software development and / or FLOSS. The availability of skills is the bottleneck for the public sector to become capable of developing and distributing FLOSS.
- While FLOSS-related skills – or rather the lack thereof – frequently are a barrier to developing FLOSS, those administrations who engaged in development reported an improvement of their skill base.
- Except for one case, all FLOSS projects were initiated by the IT department of the public body involved. Managers and employees in public administrations still tend to focus on their organisation and to disregard the potential of direct interaction with citizens and users and the FLOSS community.
- The use and development of FLOSS in public bodies should not be discouraged; instead, it is important to build awareness for the advantages that this software model may bring. Governments (on all levels, i.e. local, regional, national, EU) should make decision-makers

in public administrations aware of the advantages of developing and distributing their own software under a FLOSS licence.

- The impact on the information society of FLOSS releases by public bodies depends on the question whether such an impact is intended. If it occurs, it usually is the result of a conscious effort.

In the Annex to this report, we provide guidelines and a practical toolkit for making software owned by public bodies available under an appropriate FLOSS licence.