23 Libre Software Policies at the European Level

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Initial Drivers and Motivations

Until the last months of 1998, there was only a limited awareness of free software/open source software ("libre software" for the rest of this chapter) in the various European institutions.[1] There was a libre software section in the portal of the Information Society Project Office, but it was considered a marginal activity. A few staff members were also actively involved as developers in projects or as users. When the libre software achievements became more visible, including, in business circles, through the efforts of the Open Source Initiative campaign, a variety of factors led to a series of libre software initiatives. This did not happen through an overall policy impulse, as there was not—and to my knowledge still is not—an overall policy on these issues. Instead, as is often the case, a number of people driven by a variety of motivations were each able to build a sufficient case to convince their decision-making hierarchy that it was worth "giving it a try." This mostly occurred in the European Commission, which, due to its policy proposal role, is open to experimental actions. It is interesting to recall the motivations of these initiatives.

Within the research funding programs, the initial impetus arose from:

- The growing frustration with the poor dissemination, usage, and commercial exploitation record of European software research results licensed under proprietary terms[2]
- A positive vision of an information society based on open creation and exchanges of information, knowledge, and contents

In policy and regulatory units, as well as in the European Parliament, security and privacy concerns were an additional driver. Within units dealing with European administrations data interchange (closely connected with National Member States IT for administration offices), the fear

of excessive dependency upon supplier(s) and the search for long-term control of costs were the initial drivers.

At the same time, there was a growing criticism by libre software groups of the European Commission regulatory initiatives; in particular, in the field of software patentability. This led a few software technology-aware persons (including myself) to try to better understand and interface with these initiatives. Little did we realize at the time that it would become a heavy challenge, and one that we would end up perceiving as engaging the full future of human rights and intellectual exchanges in our civilisation.

From the start, the individuals involved in exploring potential libre software related actions chose to coordinate their efforts. Coordination between technology research actions and policy units was encouraged by higher management. Furthermore, open, informal horizontal cooperation is quite common in the European Commission administration, at least when no significant budget spending or regulatory initiative is at stake. An initial step was the creation of an informal group of external experts (chosen because they came from different countries and different libre software backgrounds, such as community NGOs, companies, and technical projects). These experts were asked to draft an issues paper,[3] which was finalized in November 1999 and presented at the IST'99 Conference in Helsinki and publicly debated until a workshop concluded this debate in March 2000. This report made a number of recommendations in various domains, including research and development policy, standardisation, rejection of software patentability, education, and usage in administrations. It received significant attention.[4] Parallel initiatives were developed in European countries, such as the KBST report[5] in Germany and the Bouquet du Libre Prime Minister agency action[6] and the National Software Research Network (RNTL) report[7] in France. Together with recommendations given by the official Advisory Group of the IST Programme (ISTAG),[8] these helped to create a favorable environment for implementing some of the proposed actions.

Research and Technology Development: From Experimental Actions to Mainstream Scheme?

The European Working Group on Libre Software and the IST advisory group suggested some specific domains or modes of support for libre software innovation. ISTAG pointed to platform and infrastructural software, meaning software on top of which many applications or services can be built. The Working Group on Libre Software recommended that support

particularly target libre software whose development called for an initial investment going beyond what normal individual or community projects can afford before the "first threshold of usefulness" can be reached, the idea being that it is only when such a threshold of usefulness is reached that a community development process can take over. But there were some challenges to address beyond these orientations. For example, how did one get the innovative libre software developers involved in types of programs that they generally ignored, or perceived as being reserved for large corporations or their established academic partners? And how could one make sure that despite all the inherent management constraints to European-level funding (calls for proposals and related delays between proposing a project and actual start of funding, and financial viability requirements for participants, for instance), the participants would still find the game worthwhile, and that practical results would truly emerge? How could one ensure the quality of the peer evaluation process used for the selection of project funding, and guarantee that moving the selection of projects at an earlier stage compared to the community-based developments would not bias the overall development ecosystem?[9]

The approach taken was pragmatic. A first call was published calling for the adoption of libre software platforms in embedded systems. This domain had been chosen because there were strong European activities in the field, and because there were indications of the great potential value of libre software platforms, but also because there was some reluctance to make the initial steps in that direction. European funding often acts as a mechanism for "unlocking" such situations. A limited number of projects were selected in 2000, mostly in the areas of embedded telecom (gateways, routers) and industrial systems (controllers, real-time systems). These projects have been technically successful, demonstrating the performance and reliability of libre software platforms in these demanding application spaces. Even more significantly, though it was not required, these projects have actually released new libre software. The release has ranged from release of tools developed (or adapted) in the project, to the release of the full software.[10]

Although initiatives supporting the adoption of libre software platforms were having some impact, the main aim of research and development actions was to make possible the *development* of innovative libre software in areas where it would not exist without EC funding. After a limited experimentation in 2000, a specific call for proposals[11] was organised in 2001 under the heading "Free Software Development: Towards Critical Mass." Seven projects were selected for a total budget of a little more than €5

million, which represents only 0.16 percent of the overall IST program funding for research in the 1999–2002 period. Five software developments projects were driven by user organizations and software suppliers (including a limited number of academic research labs), all wanting to adopt libre software strategies. They targeted next-generation components for some essential information society applications, such as large-scale public key infrastructures and their applications, reference implementation for standards, and agent-based workflow tools for administrations. Two projects are trying to address specific needs of the libre software development process. The AMOS project is providing indexing and searching technology for libre software packages and components, and the AGNULA project is developing and disseminating specialized audio/music libre software distributions (including innovative software from music research centres) and is providing advanced hardware detection and configuration facilities.

These actions remained limited in scope. In parallel, libre software projects emerged at the initiative of external participants in other domains of the IST programme (IT for health, education, mathematical software or libraries). However, overall the share of libre software in all software having received IST program funding remained arguably below 1.5 percent. Is it possible to make libre software a mainstream or default choice for publicly funded research software, as the author,[12] the UK government policy paper,[13] and grassroots petitions[14] have all proposed? Progress in this direction within the European research programs would call for a deep rethinking of the intellectual property rules built into these programs. The European research actions are predominantly giving partial (shared) funding to cooperative efforts between industry and research partners from various countries. As a result, the funding contracts have built-in rules granting participants the property of results, and pushing them to use "adequate and effective protection" for these results. Many experts have argued that use of libre software and open contents licensing is indeed an adequate and effective means to reach some essential objectives of the research policy.[15] However, the inertia in interpreting the intellectual property rules plays in favor of restrictive licensing approaches and extensive usage of patent mechanisms that create heavy transaction costs in the dissemination path for results, or even inhibit some development models.

A Libre Software Technology Strategy?

Will it be enough for libre software to be under a libre software license to achieve the goals that motivate its promoters? One can doubt that it was

ever enough. Without the sound peer-to-peer architecture of the Internet, without some nice modular properties of UNIX systems that could be further elaborated in GNU/Linux (despite other limitations), libre software would have achieved much less towards the values that motivate it. In the keynote speech he delivered at the Georgetown University Open Source Summit in October 2002, Tim O'Reilly stressed the need for libre software developers to become more aware of the link between what they try to achieve through licensing regimes and the nature of the information society infrastructure they are developing. One particularly difficult challenge is that this must today be achieved at all three "layers" identified by Yochai Benkler:[16] the physical computing and network infrastructure layer, the logical software layer, and the information and contents layer.

At the physical computing and network layer, we are faced with some risks for the peer-to-peer structure of the Internet and its end-to-end properties, and even stronger risks for the end-user control on computing. Can new forms of networks such as ubiquitous mesh wireless networks represent an alternative to the "re-broadcastising"[17] of the Internet? One can hope so, even if in some national contexts, the regulatory context for open wireless networks is not favorable. Meanwhile, it will also be necessary to preserve the structure of the classical Internet.

Furthermore, the introduction of trusted computing platforms—in particular, in the context of Digital Rights Management systems—is the most visible symptom of a general attack against end-user control on computing platforms, an attack that could simply ruin the promise of information technology for culture and for democracy. These threats arise from the Palladium[18] or similar products. They likewise arise from trends towards creating information devices (for instance consumer electronics devices or e-books) that are supposedly open platforms, but which are quite limited in practice. Often, users cannot physically control which software is running, nor install new software, or can install only software that is "approved" by some central supplier. This situation will make clear for everyone that libre software alone is not enough: a libre software implementation of a totally closed system such as Palladium-based DRM will just work against the open cooperation platform that libre software advocates have created and are expanding. As with standards, an end-to-end analysis of openness is required: it is not enough for one component to be open, it is the full chain of components necessary to a realistic usage situation that must be analyzed to understand whether it is under user control or open.

At the software logical layer, similar risks arise from the monopolization of some critical functions of interaction between people and software components: authentication, identity management, security management. The libre software communities have identified these risks, and there are alternatives in development, but it is unclear whether they carry the sufficient momentum.

Finally, the information, media and contents layer will have critical cultural and societal impact. Open information and contents, creative commons, open science publishing, and other forms of cooperative knowledge production from distributed genome annotation to Wikipedia and alternative networked media are among the most exciting achievements of our times. Their continued development calls both for the protection of the open infrastructure that enables them, and for new innovative functionality to enable more people to contribute to their increased quality. This includes ability to criticize centralized media (broadcast in particular) and to publish the results of this criticism according to quotation and other fair use types of rights.

On these issues, the European institutions have not defined policies, nor even minimal requirements, and probably no other government has either. But in the absence of such requirements, large integrated media industries and a few dominant players in information or communication technology will simply roll out technology and obtain legislation to stop what they fail to understand, or what they see as a danger to their established businesses.

Information Technology for Administrations

Around 1998, use of libre software became an issue on the government/administration agendas of most European countries. In September 1998, Roberto di Cosmo, a researcher, and Dominique Nora, a journalist, published "Un hold-up planétaire, la face cachée de Microsoft."[19] In addition to criticizing Microsoft's approach to technology, business, and competition, it drew the attention of the general public to the risks of having one company controlling the essential tools of information technology. The authors called for national and European governments to support usage of what they saw as the only practical alternative: libre software systems. In parallel, some civil servants in IT central agencies and in local government started being able to build cases for a more voluntary approach to the introduction of libre software solutions. Finally the European Parliament Science and Technology Office of Assessment pro-

duced a report on the Echelon system of universal surveillance of communications. This led the Parliament to adopt a resolution in 1999,[20] in which the Parliament urged:

> the Commission and Member States to devise appropriate measures to promote, develop, and manufacture European encryption technology and software and above all to support projects aimed at developing user-friendly open-source encryption software; calls on the Commission and Member States to promote software projects whose source text is made public (open-source software), as this is the only way of guaranteeing that no backdoors are built into programmes.

Even if this text was somewhat ambiguous on the definition of open source software, and even though such resolutions are not truly binding for the European Commission, it was a clear political signal.

Four years later, explicit policies are in place in several countries, implemented in general through central government information technology or e-government agencies. This is the case, for instance, in Germany (KBST, BMWi-Sicherheit-im-Internet), France (ATICA, now renamed ADAE), the UK (Office of the e-Envoy), the Netherlands, and Italy (AIPA). Other countries are doing preliminary studies or implementing pilot experiments. Regions and local governments are also very active. Those countries implementing direct policies use a variety of instruments:

- Guidelines for, and exchanges of experiences between administrations that wish to develop usage of libre software
- Emphasis on standards for which libre software implementations exist
- Tendering of libre software components for some layers (cryptography and secure e-mail or groupware in Germany)

In terms of usage rates, there is a wide diversity. The FLOSS survey sponsored by the European Commission[21] found that in 2002, the current and directly planned use in German public sector ranged from 44 percent for small establishments to 69 percent in large establishments, while the comparable figures were 16 to 23 percent only in Sweden. These figures follow closely the figures for the private sector usage. One should be cautious when interpreting them: they do not represent the share of libre software compared to proprietary software, but only the percentage of establishments consciously using libre software in parts of their IT infrastructure. As much as 12 percent of German establishments (companies and public sector) have libre software on the desktop.

In the practical implementation of libre software usage in administration policy, the key motivation for governments lies in supplier independence, and greater control over the evolution of their infrastructure. In the

already mentioned FLOSS study, 56 percent of those companies and public sector entities using libre software quoted it as an important factor, making it clearly the most important single motivation.

Except in Germany, where a voluntary policy was conducted, the very slow progress towards actual introduction of libre software solutions in administrations has led to an increased pressure for legislation in Europe, as in most areas in the world. Laws or regulation pushing a more proactive approach to the introduction of libre software solutions in administrations have been adopted in Andalucia and Catalonia, or were proposed at several levels of the Belgium administration.

The European institutions had a timid approach to introduction of libre software in their own administration, limiting it to some server-side software and more recently a limited pilot of introducing it on desktops in the European Commission. This shyness is not surprising: for years, the IT departments have been asked to build an infrastructure that would be as integrated as possible, supporting as few different "products" as possible. The recruitments were conducted at insufficient level, favoring, at least at operational level, the presence of staff with know-how centred on to the configuration and management of solutions from a given provider. In some cases, there are high operational challenges: the European Parliament, for instance, manages one of most multilingual large-scale public Web sites. Of course libre software solutions could support all these operations, but there is strong inertia working against change. There is growing consciousness that this supposed cost limitation in the short term actually works against cost and functionality control in the long run, but it is far from being yet translated in concrete action.

The European Commission programs have nonetheless played an important role in favoring pooling and exchange of libre software experiences between administrations in Europe. This was mostly achieved through the IDA program[22] of Interchange of Data between Administrations, and, to a lesser extent, in the e-Europe action plans. IDA first conducted a survey of libre software for use in the public sector, then initiated actions for pooling libre software produced by the administrations themselves, and also conducted a study on migration towards libre software in a German regional government.

Information Technology for Development and Social Inclusion

The great potential of libre software for development and social inclusion has long been emphasized. The cost aspect of it, though it might act as a

driver, is only one limited aspect of the benefits of libre software in developing countries, deprived regions, or urban areas. The empowerment of persons and groups to not only use technology, but understand it, at the level and rhythm that fits them, with the resulting ability to become active contributors and to innovate are the essence of libre software. Of course libre software can play this role only if some basic infrastructure and services are in place: from power supply to telecommunication, education, and health. But experience in even poorest countries has shown that these two areas (basic infrastructure and libre software empowerment) can be worked out in parallel and contribute to one another.

It is thus not surprising that every development-minded organization, from UNESCO to UNDP, UNCTAD, and the World Bank InfoDev program, has given a more or less explicit role to libre software. The developing countries' national and local governments have developed policy that is often more explicit and more voluntarist. The breadth of these actions is reflected, for instance, in the series of EGOVOS conferences.[23] Two examples can be taken from the European Commission development actions. The @LIS programme[24] of cooperation between Europe and Latin America in the field of information society has included libre software as one of its objectives (in association with open standards). In Vietnam, the European Commission delegation has provided technical support to the ongoing actions there, which have been analyzed in an interesting paper by Jordi Carrasco-Munoz.[25]

The social inclusion contribution of libre software is not limited in any sense to developing countries. Several European regions or local governments have actually centred their regeneration or development programmes on libre software, including the Junta de Extremadura LINEX programme[26] in Spain, the libre software technopolis in the French city of Soissons,[27] and the UK region of West Midlands.[28]

A Software and Information Commons Perspective on the Crisis of Intellectual Rights

The interface between libre software and the information commons, on one side, and the ongoing regulatory or legislative efforts on the other is difficult, to say the least. Regulatory efforts have often focused on widening the scope, the duration, the intensity, and the enforcement of restrictive intellectual property instruments. The scope of this chapter does not allow for discussing this issue in depth, but it is worth stressing a few important perspectives.

The tension is evident in crisis mode when a regulatory or legislative initiative is challenged for its possible harm to libre software, information commons and open contents, or more recently, simply for harming fundamental human rights by setting extreme enforcement mechanisms.[29] But neither the community players, nor those people who understand these matters in administrations, can afford to do case-by-case battles on each of these texts. In addition to limiting damage from some critical texts, one must work out why all this is happening, and set new foundations for approaches that would consider common goods not as limited exceptions but as a realm in its own rights.

Worldwide, a few contributors to intellectual debates[30] have tried to set these new foundations. The key idea is that informational commons, from software to contents, scientific information and publishing, and cooperative media are to be considered in their own rights, and not as tolerated anomalies. Of course, one can only be happy when the existence of these commons proves to be extremely favorable to the development of markets, as is often the case. But in arguing it, one should never forget that the first contribution of informational commons, the one we can see as the cornerstone of a new civilization, lies simply in their existence, and in the exchanges that human beings can build on its basis.

Notes

Views presented in this chapter are the author's and do not necessarily represent the official view of the European Commission. At the time of the drafting of this chapter, the author was head of sector "Software Technologies" in the Information Society Technologies Programme of the European Commission. He left that position in May 2003. He is today the CEO of Sopinspace, Society for Public Information Spaces, a company developing free software tools and providing services for public debate on complex technical issues.

1. Key political institutions at the European level are: the European Commission, which has policy proposal and policy implementation roles; the European Council, representing the Union member states, which has policy decision and legislative roles; and the European Parliament, which has legislative and budgetary power.

2. It is ironic that some proprietary software companies today attack libre software policies as hostile to commercialization of research results, as it is precisely the failure of proprietary licensing to put results in practical usage that motivated some of these policies. In other terms, it might well be that commercialization (in the proprietary licensing meaning) defeats commerce (in the human and economic sense).

3. Report from the European Working Group on Libre Software: "Free Software/Open Source, Opportunities for Europe?" is available at http://eu.conecta.it/paper.pdf.

4. Notably thanks to its Slashdotting at http://slashdot.org/article.pl?sid=99/12/15/0943212.

5. An English version of the original report from Egon Troles is accessible at http://www.kbst.bund.de/Anlage302856/KBSt-Brief+-+English+Version.pdf. General information on KBST open source software actions is at http://linux.kbst.bund.de.

6. Now at http://www.adae.pm.gouv.fr.

7. Accessible at http://www.industrie.gouv.fr/rntl/.

8. Known as ISTAG, this advisory group brings together high-level information and communication technology industry experts, academic research experts, and some national and regional government experts. See ftp://ftp.cordis.lu/pub/ist/docs/istag_kk4402472encfull.pdf for a recent report giving libre software recommendations.

9. In community-based software development, the initial investment (often by a single individual) is followed by a selection phase during which many initiated project fall out. This step is thought by some to be a waste, but one can also see it as a guarantee of exploring sufficiently diverse paths. To keep the process as open as possible, we invested a lot in inciting experts of all flavors of libre software communities and related industries and researchers to register in the expert databases.

10. For an example of full distribution, see the project OPENROUTER at http://www.inaccessnetworks.com/projects/openrouter/project/software/distribution_html.

11. See http://www.cordis.lu/ist/ka4/tesss/impl_free.htm#historical for a record of specific RTD actions targetting libre software, and http://www.cordis.lu/ist/ka4/tesss/impl_free.htm#running for a list of all libre software projects selected during the fifth framework program.

12. Philippe Aigrain, "Open Source Software for Research," Proceedings of the Global Research Village Conference on Access to Publicly Funded Research, OECD, Amsterdam, December 2000.

13. http://e-government.cabinetoffice.gov.uk/assetRoot/04/00/28/41/04002841.pdf.

14. http://www.openinformatics.org/petition.html.

15. For example, the development of basic scientific and technical infrastructure, the creation of standards, and the creation of new markets by initiation of innovative usage. See, for example, the report of the Adaptation and Usage of IPR for

ICT-Based Collaborative Research working group of European Commission, 2003, http://europa.eu.int/comm/research/era/pdf/ipr.ict.report.pdf.

16. Yochai Benkler, "Property, Commons, and the First Amendment: Towards a Core Common Infrastructure" (White Paper for the Brennan Center for Justice, March, 2001). Available at http://www.benkler.org/WhitePaper.pdf.

17. For example, the introduction of differentiated quality of service levels or the development of IP over something else, where the something else is under the control of broadcasters or operators, both technically and with regard to terms of usage, or the deployment of asymetric bandwidth.

18. Palladium is Microsoft's hardware-based implementation of the Trusted Computing Platform Alliance specification. Microsoft now claims that it is not specifically targeting Digital Rights Management applications and that it is compatible with user control of software running on a computer, but there is some evidence that it will be used mostly for DRM, and could lead to users completely losing control, unless they accept to live in a ghetto, severed from any access to "protected" contents.

19. Calmann-Lévy, Paris.

20. http://www2.europarl.eu.int/omk/sipade2?PUBREF=-//EP//TEXT+TA+P5-TA-2001-0441+0+DOC+XML+V0//EN&L=EN&LEVEL=3&NAV=S&LSTDOC=Y.

21. http://www.infonomics.nl/FLOSS.

22. http://europa.eu.int/ISPO/ida/jsps/index.jsp?fuseAction=showChapterandchapterID=134andpreChapterID=0-17.

23. http://www.egovos.org.

24. http://europa.eu.int/comm/europeaid/projects/alis/index_en.htm.

25. Jordi Carrasco-Munoz, "The case for free, open source software as an official development aid tool, ASI@ITC News, 17.

26. http://www.linex.org.

27. Soissons Informatique Libre, http://www.sil-cetril.org/.

28. http://telematics.cs.bham.ac.uk/seminars/linux/.

29. See the recent directive on Intellectual Property Enforcement, initially designed to fight counterfeiting and piracy of physical goods, but extended in scope so that it could lead to extreme measures on alleged infringers of property rights for intangibles, those providing infringes software means, or even those accused of inciting infringement.

30. In addition to the well-known works of Lawrence Lessig, see in particular the works of David Bollier, accessible at: http://www.bollier.org; for instance, his

"Why open source software is fundamental to a robust democratic culture" address to the Georgetown University Open Source software in October 2002, http://www.bollier.org/pdf/Georgetown_remarks_%20Oct2002.pdf. See also Yochai Benkler's "Coase's Penguin, or Linux and the Nature of the Firm," Yale Law Journal, 112, 2002, http://www.benkler.org/CoasesPenguin.html, and the contribution of the author of this chapter: "Positive intellectual rights and information exchanges," http://opensource.mit.edu/papers/aigrain.pdf, expanded in a book to appear in early 2005 at Editions Fayard.