GUIDELINES FOR THE PROCUREMENT OF FREE AND OPEN SOURCE SOFTWARE IN PUBLIC ADMINISTRATIONS*

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ABSTRACT

This paper provides a concise guide on Free and Open Source Software procurement for European Public Administrations to be used by elected representatives and decision makers, procurement and Information Technology managers and staff in addition to any existing national or European Union guidelines and regulations. This work provides definitions of basic terms, outlines the legal context and the main principles of software procurement and highlights good practices and recommended actions for Public Administrations. Although the adoption of Free and Open Source Software as a strategic choice has certain advantages for public organisations, the guidelines and resources provided in this paper also apply to both open source and proprietary software procurement procedures and scenarios, such as downloading and purchasing, in-house development and outsourcing. The main aspects addressed and guidelines provided include: planning and defining a procurement method, estimating costs and benefits, setting interoperability and the use of open standards as a priority, avoiding discriminating practices such as naming trademarks, understanding and assessing licensing schemes, software provision models and suppliers, and establishing fair tendering processes.

KEYWORDS

Free and open source software; proprietary software; public administration; guidelines; procurement;

1. INTRODUCTION

Public procurement refers to the process used by governmental bodies, national agencies, regional and local authorities and Public Administrations (PAs) to buy products and supplies, services and public works. Procurement procedures take up a great part of a public organisation's budget, operational activities and administrative processes. Having to do with spending of taxpayers' money they also have to be conducted under certain rules and specifications. Especially in European Union (EU) member states, public procurement is underpinned by certain principles and is conducted under specific rules and procedures that ensure that purchases made by public organisations reflect the best value for taxpayers' money in a transparent way that promotes fair competition.

As defined in several policy documents (e.g. the i2010 e-Government action plan), carrying out procurement procedures electronically is set as a priority and strategic objective for government and public agencies across Europe (EUROPA, 2010). E-procurement refers to the electronic handling of procurement processes through the internet and e-mail instead of conventional, paper-based methods. E-procurement is promoted as a priority in the EU as a way of speeding up and simplifying public purchasing also fostering transparency and fair competition through the online availability or all related information. In addition, PAs have the mission of best allocating available resources in a socially responsible, transparent and economically efficient manner. Free and Open Source software (FOSS), being a public resource based on non-rival use rights and allowing for lower entry barriers in software development, offers public stakeholders a set of cost-effective, re-usable tools and resources that can give impetus to innovation, entrepreneurship and economic growth. In parallel, the adoption of open standards, closely linked to interoperability, is set either as a requirement or as a priority for public agencies when obtaining or using software systems and applications.

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This paper provides a basic guide on acquiring FOSS systems, applications and related services for PAs. Although highlighting open source as a strategic choice in the public sector, guidelines also broadly refer to good practices in the public procurement of software. It is worth mentioning that this work comes to complement previous guidelines and to provide an additional resource on acquiring FOSS that is particularly relevant to PA staff and representatives. Therefore, the guidelines do not intend to replace any existing regulations, legal documents or previous guidelines (such as (IDABC, 2010)) on software acquisition or public procurement in general. They are rather intended to be used as a reference guide or a starting point in planning software procurement by PA senior managers and decision makers, procurement officers in PAs, Information Technology (IT) managers in the public sector, procurement and IT staff in PAs and anyone having an interest in public procurement or / and FOSS.

The rest of this paper is structured as follows: Section 2 examines current EU procurement legislation and regulations. Section 3 investigates the main software procurement practices and scenarios in order to set a basis for decision making in software acquisition and outlines the most common product exclusion or software discriminating practices that affect competition fairness and hinder the process of selecting the best possible options. In Section 4 the guidelines and recommendations for FOSS procurement in PAs are presented and the main issues to be considered in acquiring software and related services are outlined. Finally, in Sections 5 conclusions and some proposals for future work are drawn up.

2. EU PROCUREMENT LEGISLATION AND REGULATIONS

The legal framework for public procurement in EU has been set on the basis of transparency, non-discrimination and fair competition. The main legal documents that reflect these principles regarding public procurement are Directive 2004/17/EC (Directive 2004/17/EC, 2004) and Directive 2004/18/EC (Directive 2004/18/EC, 2004).

While there are no EU-wide policy documents specifically referring to software procurement, these directives cover various procurement issues, some of which refer to IT. Directive 2004/18/EC in particular, addresses software procurement issues in the public sector (e.g. technical specifications, trademarks and patents). In article 2(a) it defines "*public contracts*" as: "*contracts for pecuniary interest concluded in writing between one or more economic operators and one or more contracting authorities and having as their object the execution of works, the supply of products or the provision of services within the meaning of this Directive*". Article 23(8) of the Directive states that technical specifications that refer to goods of specific source and origin or trademarks and patents that tend to favour or exclude certain products are prohibited. According to the Directive any reference to trademarks is only permitted in exceptional cases where a full and precise description of standards or functional requirements for the desired products is not possible. Even in these cases, however, reference should be accompanied by the words "*or equivalent*".

In addition, certain directives on remedies (e.g. Directive 2007/66/EC of the European Parliament and of the Council of 11 December 2007 (Directive 2007/66/EC, 2007)) have been issued in order to improve and facilitate national reviewing procedures regarding contract awarding.

All PAs in the EU Member States are expected to comply with the rules of the Directive in ensuring open and transparent procurement procedures and fair competition between product suppliers. As shown in the "The comparative survey on the national public procurement systems across the PPN" (European Union Policies, 2010), most of the countries surveyed have transposed EU Directives 2004/18/EC and 2004/17/EC into national law by means of a unique legislative act and in most cases, together with the Remedies Directive 2007/66/EC. Netherlands will include all Directives in a new Public Procurement Law, currently under formation. New accession countries (e.g. Estonia, Poland, Hungary, Bulgaria, Latvia, Lithuania, Czech Republic, and Romania) have transposed the Directives by adopting a "Public Procurement Law". In most countries the same rules apply for procurements both above and below the threshold. In some cases (e.g. UK) general principles apply on a transparency, non-discrimination basis.

In most cases, contracting authorities are in charge of procurement procedures both at a central (or federal) and local / regional level. Public procurement policies are usually coordinated by government bodies that have been specifically assigned with this task (e.g. Public Procurement office in Poland). Both internal and external audit offices are responsible for supervising procurement procedures in terms of legality, accounting regulations and economic efficiency.

3. PRACTICES AND SCENARIOS

This section examines the main software procurement practices and scenarios in order to set a basis for decision making in software acquisition by PAs. It also outlines the most common product exclusion or software discriminating practices that affect competition fairness and hinder the process of selecting the best possible options.

3.1 Acquiring Software: Downloading and Purchasing

There are two basic methods in which public organisations can acquire software: downloading for free and purchasing. In the first option the software is downloaded free of charge from a certain website or online repository. In the second option a tendering procedure is required in order to obtain the software. Downloading software for free may seem as an obvious or easier solution but excluding *a priori* a software acquisition method should not be considered a good practice. Each of these two scenarios has its own advantages and disadvantages and should be thoroughly considered on its own merit. Setting a tendering procedure certainly has certain rules and requirements that should be met by a public organisation and it also can prove to be a long lasting or burdensome administrative process. Downloading free software, on the other hand, although being a simpler or more direct way to obtain software, requires a different set of planning and preparation activities that could be more demanding in terms of available in-house resources. Specifications and selection criteria should also be set for free software. Moreover, while the software itself may be downloaded for free, additional IT services that are linked to that software (e.g. technical support, troubleshooting, updating and maintenance) are often provided by vendors and therefore they should be tendered separately.

3.2 In-house / External Development and Support for FOSS Solutions

Open source systems and applications largely rely on communities of developers, volunteers and end-users that provide support and feedback, updates and fixes. There are also several vendors that provide full technical support for the most widely-used or enterprise-oriented open source systems and applications. Relying on in-house support for obtained free software or tendering technical support services is an important decision to be made by a public organisation that should be based on a clear assessment of the available in-house resources and capacities against the offerings of vendors. Using internal resources to maintain FOSS solutions offers both flexibility and availability but may be limited on a first-level support depending on the skills and capacities of the organisation's staff. Getting support from an external provider (whether single sourcing or multi-sourcing) could provide more support level options and simplify the issue of accountability. Public organisations often develop custom-built in-house software systems and applications to meet their advanced needs in specialised implementation areas. As shown in the "Study on the Economic impact of open source software on innovation and the competitiveness of the Information and Communication Technologies (ICT) sector in the EU" (European Commission, 2006), internal software development in the public sector covers a significant percentage (almost 30%). Several public agencies have also moved one step further in releasing their own, internally developed applications as FOSS. With pre-packaged, "off-the-shelf" software, representing no more than 20%, it is obvious that software service provision and customisation is a priority for public organisations and therefore it should be carefully considered and integrated in any software procurement plan.

3.3 Software Discrimination Practices

Although EU directives and national policies advise otherwise, cases of software discrimination in tenders are not unusual among public stakeholders. Although claiming to maintain open procurement procedures, it seems that public agencies still tend to favour, to a large extent, proprietary software products and big suppliers over FOSS and small to medium suppliers. The "OFE Procurement Monitoring Report: Discrimination in Public Procurement Procedures for Computer Software in the EU Member States" (OFE, 2008) showed that there has not been significant progress on non-discrimination in public procurement

processes in the last few years. Product exclusion and software discrimination practices are not simply non-compliant with national and EU legislation but also constitute bad policy decisions in terms of competition fairness, software sustainability and the value-for-money factor. The most common excluding or discriminating factors that should be avoided are naming of specific software trademarks, product suites and families, or companies in Calls for tender without providing a strong justification or equivalent options; and requiring compatibility with currently in-use proprietary software systems and applications or closed, proprietary standards. Equally important factors that should be avoided are the requirement of specific software application functionalities that are met exclusively by proprietary suites and systems without strong justification and the description of certain supplier profiles typically in favour of large-scale proprietary software companies thus excluding, with no sound justification, small and medium enterprises.

It seems that naming proprietary trademarks is still largely a common practice among EU member states while there is also a broader tendency to favour "big players" and mainstream, proprietary software product families. This is partly due to the fact that open source is often wrongly perceived as not as "enterprise-ready" as proprietary, "paid-for" software. Large enterprises, however, integrate advanced and reliable FOSS solutions in their IT architectures for many years now and enterprise oriented FOSS systems and services are provided by several vendors in the software market. In that sense, FOSS should be treated and considered equally as a candidate by organisations, according to their needs and wants.

4. GUIDELINES AND RECOMMENDATIONS FOR FOSS PROCUREMENT IN PUBLIC ADMINISTRATIONS

This section presents guidelines and recommendations for FOSS procurement in PAs and outlines the main issues to be considered. The guidelines refer to both methods of acquiring software (downloading and purchasing) and to the basic stages of procurement (Figure 1):

- Planning and preparation.
- Tendering / specifications setting.
- Selecting / contract awarding.

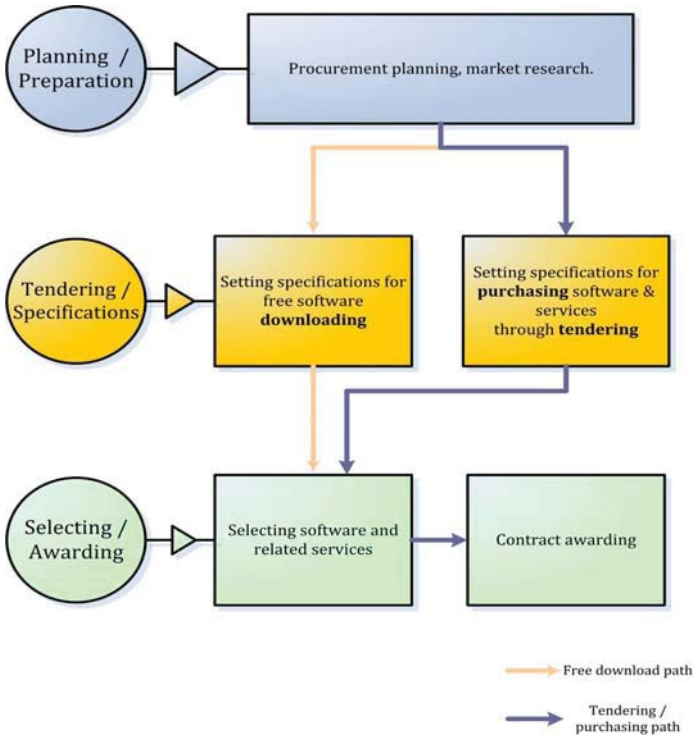

Figure 1. Software Procurement Stages and Scenarios

4.1 Planning and Preparation

4.1.1 Conducting Market Research

Market research should be designed as part of any procurement plan. Researching the software market is critical in the case of downloading FOSS in order to identify reliable sources for trusted and viable products. Even in the case of purchasing software however, a good view of the market will help stakeholders assess available options and solutions (both open source and proprietary), attract multiple suppliers and set up-to-date specifications to be included in the selection criteria.

4.1.2 Acknowledging the Differences between FOSS and Proprietary Models

Open source and proprietary software are not the same in more than one ways and they should not be treated as such, especially in a procurement process. Treating FOSS and proprietary software as equally potential solutions is different than overlooking their inherent differences in terms of licensing, software and service provisioning models or code access features. Failing to recognise the different ways in which open source works often results to neglecting its qualities and advantages. A procurement plan should not ignore these deeper, qualitative effects and consequences of each model.

4.1.3 Assessing in-House Skills and Resources

If opting for in-house software support, development or customisation it is important to have a realistic view of the organisation's internal resources and capacities. If, for example, in-house staff could not support the integration and maintenance of FOSS systems and applications, related tasks and services should be assigned to external suppliers and third party contractors through a tendering process. Training cost should be also estimated if needed.

4.1.4 Collaborating with other Stakeholders

Public organisations have a lot to gain from collaborating with other public stakeholders in procuring open source software. FOSS has not yet reached its full potential in public procurement and therefore national agencies, non-governmental organisations (NGOs) and public organisations keep providing guidelines and information resources on open source procurement policies through dedicated stakeholder networks, groups and consortia. Involvement in such communities and networks will not just facilitate software procurement processes but will also help increase the reliability and trust on FOSS itself.

4.1.5 Raising Awareness among Procurement Staff

In order to improve the software procurement process and make sure that FOSS is considered on a fair competition basis, procurement staff needs to be trained and informed on software procurement requirements and regulations, open standards and interoperability, open source licences and FOSS features. Training staff will help public organisations to analyse and evaluate software products, conduct market research and assess best solutions based on a firm knowledge background. Moreover, trained staff will have the ability to support, maintain and customise, if needed, the adopted FOSS solutions.

4.2 Tendering / Setting Specifications

4.2.1 Keeping Both Open Source and Proprietary Products in the Picture

Keeping all available options open until the decision moment is a bargaining tool that empowers the stakeholder. Considering open source alternatives, for example, can put pressure on proprietary software suppliers to provide better offers, adjusted to the organisation's needs. Even if opted for FOSS, examining the support provided by closed-source suppliers can help better shape required specifications and additional services for open source companies wishing to enter the market. On some occasions, a mixed mode of both FOSS and proprietary software and related services may be the possible choice for a specific organisation. In any case, if a PA wishes to tender open source solutions and services it should describe FOSS properties and features as weighted evaluation / awarding criteria rather than clearly stating that the software to be selected

should be open source. Open source properties and requirements can be included in tenders through a set of specifications such as the ownership of the supplied software (including all associated intellectual property rights with no restrictions on the purpose and type of use), the source code (which may be studied by the public orgnanisation or a third party for testing, training or other purposes), the software which may be modified (by the public organisation or a third party in order to tailor it to its own needs) and the software that can be distributed (with or without modifications by the public organisation to any party of its choice under the same terms and conditions). The last specification is particularly important for PAs wishing to transfer tools and know-how to other public organisations or departments and provide IT services to citizens at no extra cost.

4.2.2 Setting Compliance with Open Standards as a Top Priority

It is of critical importance, especially for public agencies and administrations to make sure that their public money is spent on interoperable solutions that will keep public data safe, accessible and retrievable in the long-term. The best way to achieve this is to use open standards and set open standard requirements in all procurement procedures. This is a critical factor that is often overlooked by government agencies and public organisations, resulting into problems and difficulties in data handling and exchange over time.

Equally important is the fact that not setting open standards as a priority clearly favours closed-source suppliers that do not comply with open standards requirements but rather provide their own proprietary, locked standards, on which a PA will depend its data management. This can result to both data and vendor lock-ins. Moreover, PAs are now expected, if not obliged, to handle, deliver and exchange public data in open standard file formats and not force citizens or other agencies to acquire specific proprietary software suites and applications. There is not a universally accepted definition of “open standards” and therefore public organisations wishing to include a description in a tender could consult the specifications and minimal characteristics of open standards as defined in the European Interoperability Framework (IDABC, 2004).

Open standard requirements could be included in tenders in a clear and justified way. A public organisation should specify, for example, that standards, interfaces, protocols or file formats implemented by the supplied solution must meet the open standard requirements. Some basic open standard properties that can be defined are standards that can be delivered by all suppliers and equivalent technologies, standards that are developed and documented following open, transparent procedures and standards without restrictions regarding their reuse. These specifications are necessary for public organisations in order to avoid discrimination and ensure supplier independence.

4.2.3 Specifying Wants and Needs, Not Trademarks

Naming specific software products and trademarks that are linked to a single vendor or a limited number of suppliers is a bad practice that is also against national and EU regulations. Standards and specifications, however, should be defined in the form of technical requirements, desired functionalities or additional services. In software download specifications, the needs and wants of the public stakeholder should be reflected and outlined. In case naming a trademark is unavoidable the phrase “or equivalent” should follow in order to prevent discrimination. Not providing an option for alternatives or “equivalents” mostly excludes open source solutions. Instead of stating that “the supplied solution must implement X technology or application suite” a public organisation could specify that “the supplied solution must implement X or equivalent technologies”, or that “it must have the following properties” or that “it must comply with the following criteria”.

4.2.4 Making Sure That Systems and Applications Can Be Re-Used Within Departments and Organisations

Maintaining the right to re-use software systems and applications within different departments of a public organisation or even throughout the entire public services hierarchy is one of the most important decision-making factors for software selection in the public sector. It should be therefore included as a requirement in the software’s selection criteria. Several public agencies opt for a large-scale, multiple installation licence agreement with large proprietary suppliers. This practice, however, still restricts re-use rights up to an extent while also raising the risk of vendor lock-in for a number of public services and organisations. On the other hand, FOSS grants to end-users the rights for unlimited re-use, copying and distribution thus offering an empowering advantage, particularly for public organisations.

4.2.5 Updating Selection Criteria

All the selection criteria should reflect as best as possible the needs and wants of the organisation and set up-to-date specifications according to the current state of the software market. A market research and preparation stage should precede in order to deliver effective. Recycling previous selection criteria and related resources should not be considered a good practice that would help an organisation reach the best possible decision.

4.3 Selecting / Contract Awarding

4.3.1 Assessing Open Source Software Maturity

Most major FOSS projects rely on the communities developing, documenting and supporting them. Each open source product goes through a life-cycle of early, unstable versions, to full, documented, frequently updated or even enterprise-ready releases. It is therefore critical for any public stakeholder interested in acquiring FOSS to assess the level of maturity and provided support. There is a wide range of FOSS quality assessment tools or maturity models that can be used as standardised ways of evaluating the sustainability of FOSS products such as: the Capgemini Open Source Maturity Model (OSMM), the OSMM by Navica, the Qualification and Selection of Open Source software (QSOS) method and the QualiPSo Open Source Maturity Model (OMM).

Available support and documentation for a specific FOSS application (e.g. supported versions and releases, manuals and installation guides, supported languages, technical specifications) is a decisive factor when it comes to assessing a FOSS product as a viable solution within an organisation. Insufficient support may result in a search for other options or in tendering of additional support services, apart from the software itself. In any case, in order to get the most of the available consulting and support resources on open source projects, a public organisation needs to invest on constant interaction with the open source community.

4.3.2 Reviewing Licences and Conditions of Use

A good practice that should be integrated in the selection process, particularly regarding FOSS, is licence auditing. Reading, reviewing and understanding licensing schemes and conditions of use should be treated as equally important as the acquisition of software itself. Major, most widely open source licences (such as the GNU General Public Licence (GPL), the GNU Lesser General Public Licence (LGPL), the Berkeley Software Distribution (BSD) and the European Union Public Licence (EUPL)) clearly define terms on the use, integration, modification and redistribution of the software code.

In most of these licences the software is provided “as is”, excluding supplier liability for faults or shortcomings and therefore public agencies should examine different guarantee factors (e.g. community involvement and support, product popularity, release stability) if not wishing to move towards third party suppliers through tendering and contracting. Provided warranties and indemnities should be also considered in terms of risk assessment in selecting the best possible solutions.

4.3.3 Considering Added Value Factors

When selecting a software solution it is important to make a full estimation of all direct and indirect costs on a best-value-for money basis. Such estimation, however, should also take into account added value factors that could help assess a software solution as a long-term investment. In cases, for example, where there is no significant overall cost difference between open and proprietary products, open source may be preferred on the ground of inherent features or expected benefits such as flexibility, data integrity and interoperability, customisation and supplier independence.

4.3.4 Evaluating Suppliers

Putting both open source and proprietary suppliers under scrutiny and challenging their ability to develop and support the suggested solutions should be considered a good practice in getting the best out of the software market. FOSS providers should provide evidence of reliability, maturity and ongoing support of provided products and services. Proprietary software suppliers should make clear whether open source alternatives have been also examined and provide justification in case there were not considered.

5. CONCLUSIONS AND FUTURE WORK

This paper provided PAs with basic guidelines when acquiring open source systems, applications and related services. The guidelines intend to be used as a reference guide or a starting point in planning software procurement by PAs and decision makers, procurement officers and anyone having an interest in public procurement and/or FOSS. To this direction, initially, in order to make the legal framework clearer, we provided information about the main procurement legislation and regulations. The analysis showed that even EU directives and national policies advise otherwise, there are cases of software discrimination in public tenders. The most common excluding or discriminating factors include the naming of specific software trademarks, the requirement of compatibility with proprietary software systems, the requirement of specific software application functionalities that are met exclusively by proprietary suites and the description of certain supplier profiles. However, there are many reliable FOSS solutions and therefore the above discriminating factors should be eliminated; and FOSS should be treated and considered equally as a candidate by organisations, according to their needs and wants.

As a conclusion, our belief is that in order to foster public sector in open source, official, high level policies (e.g. Directives, interoperability frameworks) should be combined with an active support of local / regional FOSS projects and initiatives that could expand and multiply on a shared experience and good practice basis. Open source can provide new business opportunities, create jobs and contribute to the development of Information and Communication Technology (ICT) skills if reaching its full potential. Europe should shape a software strategy that could best capitalise on the FOSS capacities of its businesses, knowledge institutions and developer communities.

In addition, the adoption of software environments in public IT infrastructures sector is not a neutral, "technical" process but a highly political and strategic one with various implications and policy aspects to be considered in decision making. Within this context, our intention as a future work is to provide policy recommendations on issues and challenges pertaining to the use of FOSS by European public administrations. The recommended policy actions will be based on review of the current policy framework. Main goal of this work is to contribute in providing policy orientations and proposed actions that can help governments, public administrations and European institutions fully harvest the benefits of open source.

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