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How can government responsibly
procure free software?

by Mike Gifford

Free software is "free" in two senses: it is distributed free of charge, and can be freely used and shared because it is unencumbered by onerous and restrictive licences. This software model has been refined over the past twenty-five years, and its use has become mainstream.[1]

For example, in 2008, leading IT industry analyst Gartner Research announced that, "Eighty-five percent of companies are already using open source software, with most of the remaining 15 percent expecting to do so within the next year." Amazon lists 90,000 books when searching for "open source," and there are many more publications available electronically.[2]

In this age of the Internet and mature, enterprise-ready, open-source projects, commercial off-the-shelf software is an outdated concept. There is no longer a need for either the boxed software or the shelf it sat on. This article offers an introduction to this model [open source] of software development and distribution, and offers procurement professionals guidelines for approaching and understanding free and open-source tools.

[1]http://en.wikipedia.org/wiki/Free_software
[2]http://amazon.com/dp/0815733933

What is free/open-source software?

Free software is distinguished by its licensing and by its transparency; it can be freely distributed and modified because its source code is made available. In contrast to the opaque workings of proprietary software, free software is developed in public, and is freely available for inspection, evaluation, and modification.

There are subtle licensing and philosophical differences between "free software" as defined and promoted by the Free Software Foundation (FSF) and the broad world of "open source" software. Our focus will be on free open source software (FOSS), but most of the points will also be relevant to open source software (OSS) as well.

However there are many assessments of the value of FOSS products which clearly show that this is not the case. According to Ohloh.net, for example, the OpenOffice.org office suite would cost almost USD $150 million to develop from scratch, but it can downloaded for free, and offers a near drop-in replacement for Microsoft Office. In addition, it can then be distributed, modified, and improved just like other FOSS software.[3]

Given that the current economic challenges mean everyone is trying to do more with less, paying for a licence is often an unnecessary expense. And proprietary, closed-source software has far more costs than most government agencies realize. When you hire consultants to deploy and manage closed source products, there is no added value or opportunity to participate in a community of innovation. Investment in FOSS projects, on the other hand, benefits the entire sphere of FOSS users and developers. Open source tools free you from dependency on the sustainability, competence, and good will of third-party software vendors because there is a community of technical

expertise that can be mobilized, commercially, or not, to troubleshoot and improve FOSS systems.

Open source software reduces up-front implementation costs by eliminating license fees, but more importantly it can help protect against single-vendor lock-in.

Vendor lock-in is a problem because it increases the cost for the deliverables. Lock-in is also a problem in terms of future-proofing your data or applications. If a company is bought out, goes out of business, or simply discontinues a product line, you may not be able to get support for your software. Software producers benefit by lock-in because they have an effective monopoly on their customers; this means they have little or no incentive to make better products, or to make their products interact well with other tools.

The "free" aspect of [open source software] has been seen as problematic, inasmuch as things that are free are often seen as being without value.

On a technical level, FOSS tools benefit from open, distributed, community-driven development. Many FOSS projects enjoy the attention of hundreds or thousands of developers, and tens or hundreds of thousands of engaged users. Such projects have demonstrated very rapid cycles of continuous quality improvement. Moreover, they are directly and actively responsive to the needs of their users. Many organizations have chosen to implement mature open source projects because they allow

[3] http://gnu.org
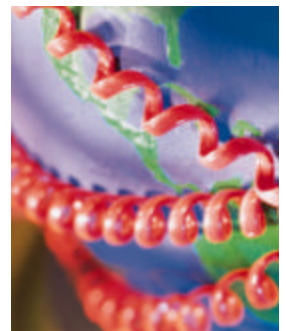
for the fast delivery of a well-tested product. In developing the Canadian Museum for Human Rights[4] website within just six weeks, for instance, Mark Stephenson of RealDecoy[5] said, "the Drupal[6] framework really saved us a lot of time."

Despite its strong technical reputation and very widespread use, there remains a great deal of uncertainty about free software. Many of the concerns are unfounded, and based on limited knowledge of the FOSS community. For instance, the following are all true of FOSS software:

- there is a great deal of commercial support available;
- you have a wide choice of vendors (unlike many proprietary applications);
- it is almost always more secure than closed-source code and on par or better than proprietary software, because the user/developer community is constantly evaluating and improving it;
- industry has built and extended FOSS applications for real world enterprise environments; and
- active communities allow users to learn from each other and encourage innovation.

Government and FOSS: shared values

Free software is presently being used by most if not all government departments. There is no central listing of software used by the Government of Canada. A short survey conducted by OpenConcept[7] revealed that nearly half of the 400+ government websites reviewed were using some form of open source software.[8] FOSS is already being used extensively from the Canadian Revenue Agency (CRA) to the Canadian Space Agency (CSA).

In many ways FOSS software is a natural match for government. Both software projects and government departments are mission-based and depend on finding a cost-effective manner to deliver services. Government financing comes largely through its citizens and anything that is produced is ultimately there to benefit the community. Likewise software projects are responsible to their community of users.

Deputy Chief Technology Officer for Canada, Jeff Braybrook, spoke in February about the Treasury Board's adoption of MediaWiki for GCPedia. In his summary government and FOSS communities are natural allies as they share common values. Both communities: i) encourage participation and have a platform to perform, contribute and interact with others; ii) promote co-operation and collaboration which is critical for any successful federal government or open source project; and iii) depend upon and are improved by agreed upon standards that allow for innovation.[9]

To be innovative you need to encourage creativity, collaboration and provide inspiration for those working on common problems. Innovation is largely about combining old tools in new and creative ways. FOSS allows you to do this by not limiting how one can learn from and extend the tool and by encouraging the technology to be shared with others. Governmental use of FOSS tools thus provides a ready opportunity to both fulfil internal technical requirements while at the same time fostering and disseminating innovation.

FOSS procurement internationally

Earlier this year in the UK, the IT in Government initiative of the Cabinet Office put forward a very progressive procurement

[4]http://humanrightsmuseum.ca
[5]http://www realdecoy.com
[6]http://drupal.org
[7]http://osbr.ca/ojs/index.php/osbr/issue/view/85
[8]http://openconcept.ca/blog/mgifford/canadian_government_uses_plenty_of_open_source_software
[9]http://openconcept.ca/node/2086

position. They called for more use of open source, open standards and re-use within government. They were looking for solutions that provided the best value for money and also encouraged share and re-use of what the taxpayer has already purchased. The initiative was designed to encourage innovation and this precedent will not only benefit governments within the UK, but also around the world.[10]

In the USA, the Department of Defense is a big advocate of this software model. Recently they launched Forge.mil, which is hosting the military's open source projects. In their study, they determined that using open source projects increases flexibility, produces greater interoperability and reduces IT costs. The US *National Defense Authorization Act* "has explicitly articulated a preference for open source software."[11] There is a strong effort to even further entrench open source within the USA government, especially since the election of Barack Obama to the presidency. Large open source companies are banding together to lobby for change. Critical websites like Recovery.gov have been built using the Drupal CMS, and others are coming online using other open source tools.[12]

FOSS procurement in Canada

It is a misconception that FOSS isn't being used in the public sector in Canada. The Treasury Board's Federated Architecture Program has quite a wealth of information on OSS. Though it was largely written in 2003-2005 and thus needs to be updated, it is nonetheless an example of a central department pursuing a path for OSS procurement within the Government of Canada.[13]

Industry Canada maintains an OSS Solutions and Support Providers page, and Public Works and Government Services Canada (PWGSC) has created a Software Acquisition Reference Centre (SARC) that has a section for OSS. Neither of these is an endorsement of the companies listed, but reflects a general need for government departments to know where to consider their options.[14]

PWGSC put forward an request for information (RFI) earlier this year in an attempt to get clarity on how the federal government should approach this issue. There should be a good summary from all of the input that was submitted, however, in my view the question was much too general. The RFI was for "Not for Charge Software," which included both OSS and FOSS licences, but also careware, trialware, shareware and adware. This very broad set of licences has very little in common other than that there is no upfront financial cost. It should be stressed that openness and collaboration are distinctively characteristic of OSS and FOSS projects.

OSS procurement

There are strong precedents for the use of FOSS, clear indications of value for total cost of ownership, and plenty of evidence that OSS can deliver enterprise-class results. But how does a procurement officer evaluate software in this new paradigm? In many cases the procurement officer may not have a software background so will not be able to technically compare two similar solutions. Having a richer understanding of the software industry will help, but there are a number of steps that can be taken to improve best practices. The following are some items to consider:

- Evaluate the size of the community of users and developers and look at relevant trends of comparable software (with so many options available, make sure you have a critical mass). Google allows you to do a simple comparison with the trends search.[15]

[10]http://cabinetoffice.gov.uk/government_it/open_source.aspx
[11]http://arstechnica.com/open-source/news/2009/02/department-of-defense-launches-open-source-site-forgemil.ars
[12]http://opensourceforamerica.org
[13]http://www.tbs-sct.gc.ca/fap-paf/
[14]http://www.ic.gc.ca/eic/site/ict-tic nsf/eng/h_it07356.html
[15]http://google.ca/trends?q=drupal%2C+wordpress%2C+interwoven

- Check that there are users within your sector (it's worth checking if there are any communities of government sites). Drupal's founder Dries' blog has a focus for government[16] and there's also two Drupal Groups available (for municipalites[17] and national/provincial[18] organizations).
- In evaluating software, ensure that you are aware of the niche areas that the software is written for (MediaWiki[19] is a great wiki platform if you want to emulate Wikipedia).
- Most popular OSS projects are transparent about their processes for code review and also security evaluations. It's good to know what the release schedule is and also that there is an upgrade path available for users. All software needs to get upgraded at some point, so it's best to have a plan.
- Is there a strong user community that is contributing back to the projects (either in bug reports, feature enhancements or even providing use cases)? Are there regular conferences, or even local meet-ups?
- Are there a number of companies who work with the software who you can engage if required? Local companies and large multi-nationals are all using OSS, so it is important to consider where you want your money to go.
- Is there a clear software licence under which you know what obligations there are for your work? If work is all developed under the same licence it will make it easier if questions around intellectual property issues do arise. Any software downloaded directly from Drupal.org is under the GPL free software license.[20]
- Particularly in Canada, it is useful to assess if there is language support in both official languages. With most software projects, the developer documentation is usually written in English, however it is critical that the user/admin components can be available in French as well.

The software procurement landscape has become more complicated and it is critical that public sector managers be able to evaluate the richer set of options that are now available.

- Software maturity is important for consideration. It is easy to start a software project, but much harder to sustain it and build a strong user base around it.
- Documentation is important issue to evaluate with any software. Both online and user documentation should be considered (With any reasonably large OSS project you'll find that there are books are available).
- How user friendly is the product and how much training is required?
- Is there a clear definition of what needs the software is expected to fulfill? How well does the software being evaluated meet these requirements? The Commons Group has developed a software needs worksheet to help.[21]

Conclusions

The software procurement landscape has become more complicated and it is critical that public sector managers be able to evaluate the richer set of options that are now available. Resources are available to help educate and guide staff in making informed decisions about the pros and cons associated with different choices. There are also a number of frameworks, like the one defined by the Commons Group above, which can be used to plot the needs of the organization to learn about how to make better

[16]http://buytaert net/tag/government
[17]http://groups.drupal.org/local-government
[18]http://groups.drupal.org/drupal-state-and-federal-agencies-government
[19]http://www.mediawiki.org/wiki/MediaWiki
[20]http://drupal.org/project
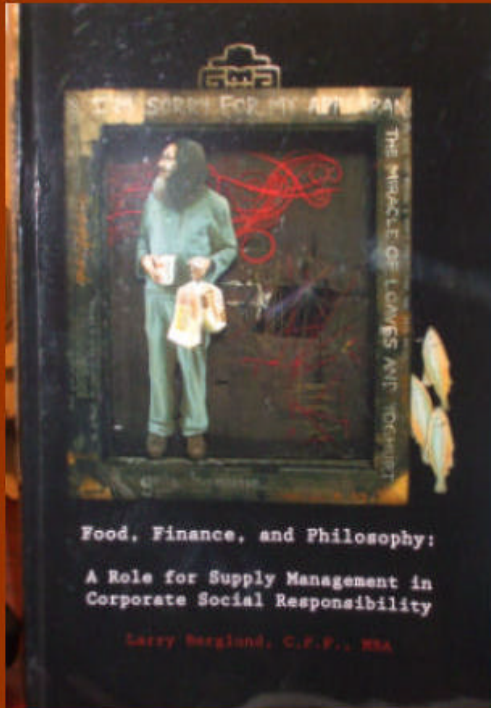[21]http://commons.ca/articles/fulltext.shtml?x=335

use of software within your organization. Requirements gathering takes time and money to do properly, but it is much better than once again purchasing something that doesn't meet the needs of users and that is incapable of being modified to do so.

Open source solutions offer robust performance and technical excellence, but perhaps more importantly, they offer independence and flexibility. And importantly for the public sector, money spent implementing FOSS projects is an investment in the common good because improvements and testing for one can be contributed to improve these tools for all. ⋀⋀

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They also fly in the face of commercial common sense. In buying goods and services, a municipality is simply a consumer. Our entire economic system is based upon the notion of autonomous traders and customers, each carrying on business with a view towards his or her own best interest. Essentially, for everyone else than a supplier to the public sector, a trader, consultant, builder or other supplier of goods and services is entitled to no better treatment from its customers than its market strength allows it to exact. Not so with the supplier to a municipality; staff are instructed not to try to drive the price down, but rather "to encourage competitive bidding; … to ensure objectivity and integrity in the purchasing process; [and] … to ensure fairness between bidders." Only when these steps have been taken, is any thought to be given to the taxpayer.

Nevertheless, one can hardly blame a municipal council that becomes confused as to the direction to take when identifying the duties of municipal staff. If one reads through the hundreds of judicial decisions that have been handed down in recent years with respect to the subject of municipal procurement, it is rare to find a case in which the idea of putting the municipality (or other public authority) first is even mentioned.

On the other hand, it is possible to find quite a bit of case law in which the idea is implicitly rejected, in order to give precedence to the needs or interests of suppliers. The problem is that a provision such as the one set out above simply reinforces that attitude. By placing so much emphasis on supplier interest in its own purchasing bylaw, the municipality reinforces the approach that the courts have taken. Thus, when litigation arises in relation to some aspect of procurement, any court that looks at the municipality's own purchasing bylaw will see clear direction given, not only to take supplier interests into account, but (if the ordering of the section is intended to give any direction) to place fairness to suppliers ahead of the interests of taxpayers.

Such over-emphasis on supplier interests entrenches a division of loyalty as a matter of law. Instead of being directed to put the interests of the municipality first, the municipal staff are being directed to make sure that its suppliers are fairly treated.

A house divided, so the *Bible* tells us, cannot stand. Maybe it is time for municipal councils to take a good hard look at their purchasing by-laws to see whether they are diverting staff from best serving the interest of the municipality as a corporate entity. 〰️

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