

**South India Regional workshop on
'Software Principles for the Public Sector, with focus on Public Education'
Case studies – Public Software**

The workshop aims to create two documents arising out of its proceedings: 'Experiences and learnings as well as challenges from public software projects' and 'Guiding principles for public sector software'. For this workshop to be successful in evolving some useful principles that define and help develop 'public software', we need to ground it in practical examples from ICT projects in public sector that have either conformed or not adhered to what may be seen as imperatives of the public sector. This note briefly discusses few such cases to highlight issues and principles that can be derived. It is a new territory and early work in this area has often been done against much adversity. The purpose of listing some cases which, while giving some positive leads, may also help us see what should not be done in wider public interest, is not to apportion blame, but just to take our lessons and move forward more effectively.

Some positive examples:

1. Bihar's Disaster Management Application customised to be used in Karnataka

A 'disaster/flood management application' on a freely shareable model was developed by UNESCO/Intel for the Bihar Government. This is a web based collaboration tool that addresses common coordination problems faced during a disaster; like tracing missing people, managing aid and managing volunteers across the work of a large number of government and non-government agencies. Months later, Karnataka Government took the source code, customized the same application, and used it to help the North Karnataka flood team. Read more at <http://www.ajuonline.net/blog2/technology/featuredopensourceapps/2008/09/02/sahanasresponse-to-bihar-floods/> and <http://www.sahana.lk>

2. Educational software is adapted for local language and teachers' specific uses

The Open Source Software-based Kerala IT@Schools Programme is customized accorded to teachers' specific needs and also in the local language. All learning material, both text books as well as digital resources, used in this program is publicly owned and freely shareable. Periodically (around once a year), the department distributes a single CD with new and enhanced tools to each school, and teachers install it on all available computers. Since all the software tools (operating system along educational software and other popular applications) are publicly owned, they can be bundled into a single CD for a **one-point installation** which is not possible with proprietary software applications. A local NGO called SPACE has made customizations to the applications for adding educational material and increasing the local language (Malayalam) features. Read more: <http://www.itschool.gov.in> and <http://itschool.gov.in/initiatives.php#e-text%20book>

3. Indian Railways provides Internet-based services on open source platform

IRCTC started providing Internet-based rail ticket booking through its website. The new beta interface (<http://www.irctc.co.in/cgi-bin/beta.dll/irctc/services/home.do>) has been built on an Open Source Platform and has been complimented by users for its usability and speed (<http://gnuyoga.wordpress.com/2010/01/05/instant-love-with-new-irctc-beta-interface/>). IRCTC official website (http://www.irctc.co.in/Compatible_Browser1.html) is compatible with a host of browsers, including Mozilla Firefox. **Indian Railways, the largest employer in the world, has being adopting Open Office free software for official use on PCs and laptops.** Another large public sector, LIC also

uses open source desktop systems, as does one of the largest banks in India, ICICI. It should therefore hardly be difficult for the same to be employed across all government offices, resulting in huge savings to the public exchequer.

4. Tamil Nadu: Vendors end up supplying free operating system's drivers for printers

The Electronics Corporation of Tamil Nadu (ELCOT) convinced vendors to supply drivers for peripherals that goes along with the free operating system. Initially drivers were available only for proprietary operating system, but ELCOT asked vendors to provide drivers compatible with hardware for the free operating system. The negotiation was part of the process of migrating its entire IT infrastructure to Open Source Platform started in 2006 and was completed in 2008. The incompatibility of the printer drivers was a challenge that is now solved. ELCOT also rolled out free software to the schools' servers. Read more at: <http://www.elcot.in/testimonials.php>

5 Design, development and implementation of freely shareable and open source software (District Health Information Systems – DHIS)

Health Information Systems Program (HISP), an international project, aims to design, develop and customise software to meet the comprehensive needs of the public health system at various levels - from the sub-centre through intermediary levels of PHCs, and DHCs to state department levels. The Indian customization and implementation of the project started in 2000 in Andhra Pradesh, and has since covered Karnataka, Kerala, Gujarat, Madhya Pradesh, Jharkhand, Chattisgarh and Rajasthan. The project is on a not-for-profit basis and employs a collaborative architecture.

Since the software is available on a freely shareable and customizable model, it has been possible to implement it in more than 400 districts in around 25 Indian states in a short period of 2-3 years. (This is to be contrasted with the case of Andhra Pradesh's NREGA software described in the next section. Though NREGA is a flagship program for the entire country, the software developed for the NREGA in AP is privately owned and the process of free and open sharing (permitting localization and customization) across the different states has not been possible. Such sharing requires a fully public ownership of the NREGA application, whereby the country could benefit from customizing and implementing it for different states. Private ownership severely retards the possibilities for social change that the NREGA application could have supported through rapid sharing across the country as done in the case of HISP software. Education Management Information System developed by National University for Planning and Administration is another example of publicly owned software which has been implemented all over the country without licensing restrictions arising from private ownership over the source code). **Read more at:**

http://hisplndia.org/index.php?option=com_content&view=article&id=46:what-is-hisplndia-hisplndia&catid=25:the-project&Itemid=27

6. Standardised Tamil fonts for free download spread local language use on the net

Prior to 1999 Tamil fonts popularly used were owned by a single vendor, requiring the government to procure it at an exorbitant cost. Also it was not compatible with free operating system environment. ELCOT got a vendor to develop high quality standardised Tamil fonts and conversion utilities and purchased these and made it publicly owned and freely available to all, whether for non-commercial or commercial use. The purchased fonts have been tested for TAM, TAB and UNICODE storage formats and can be free downloaded to be used in both open source and proprietary operating system environments, promoting local language computing. Read more at: http://www.elcot.in/tamilfonts_download.php

Software design and implementation not adhering to public sector principles

1. In the much celebrated NREGA software application in AP, the source code does not belong to the government

AP's NREGA application has been developed by the private sector at 'no cost' to the Government. However, in not taking ownership of the software source code (a mistake often done in e-governance application development), the department is dependant on one vendor for servicing and/ or enhancements. Also the Government cannot share this application with other state governments, who could have used it for NREGA in their states with some customisation, since it is in any case a central government schemes with common procedures and processes. In the present situation, every state government would need to pay license fees to the vendor for using the software, which fees may also go up as number of per state users go up. Significantly, the most important part of 'intellectual property' vested in this application actually came from the government officials who discussed and laid out requirements and processes, and tested software, in an intense process over many months. The corresponding 'technical expertise' required to design and develop the application is relatively trivial and easily available as a commodity from the market. However, now the whole IP of the application is owned by the private vendor who can make a lot of money out of it, selling it to other public agencies. **This case is not unique. We think what has happened in this case is true of much of e-governance application development going on in the country.**

2. SHG management information system

A Delhi based 'social enterprise' developed a SHG management information system using grants from a donor. It also used the help of open source community over global open source collaboration platforms. Later, it seems to have sold the same application to a SHG collective for a massive sum, provided by another donor. Worse, it refuses to share the code, and has objected to the collective increasing the number of installations of the software than initially agreed, and using it in other areas where the NGO supporting the collective works. The situation represents something which, not known to many, is something quite common in the public and non-profit sector.

3. Non-competitive bidding process for IT products and services

In the process of procuring IT products and services, governmental bids tend to specify proprietary brands, and hence exclude the participation of open source software companies. One out of several such examples comes from CSIR Labs. Annex 7 of a recent bid document states that all Enterprise applications would need to be build on a specific brand technologies in order to keep with the current skill sets/capabilities of CSIR Operation, Systems, Management Research Group (OSMR Group)/Technical Team. Read more at:

<http://www.csir.res.in/External/Heas/commoncad/Pre%20Qualification/BID-PDFs/BIDDOC-RFP-SLA.pdf> and <http://www.csir.res.in/External/Heads/commoncad/Pre%20Qualification/BID-PDFs/ANNEX-VII-ARCH-STDS-POL.pdf>

Such a statement coming from India's top public sector technology research institute is quite surprising. It is supposed to help competition, avoid vendor lock-ins and encourage development of local industry and local technology innovations. The 'comfort of use' factor is often comfort of use for senior officials alone, who may not be ready to go through a short leaning curve to understand alternative systems, but whose decisions may jeopardise public interest to a considerable extent.

4. Private Sector defines curriculum to train governmental school teachers

The Government of Maharashtra signed an agreement with an IT company to train teachers from governmental schools exclusively on the company's proprietary software. However, a good part of the training cost of the teachers (TA/DA) is paid by the Government. This means that government funds are being used to promote the brand and the software of one company, which will also lock-in teachers and schools into proprietary platforms. Such privatization of the process of educational curriculum design and development, a core public function, is a dangerous move. Several educationists wrote to the Government of Maharashtra to protest against this MOU. Read more at: <http://www.itnewsonline.com/news/Maharashtra-Government-Signs-Education-Alliance-with-Microsoft/14633/8/1>

5. Income Tax Department work exclusively with a proprietary spreadsheet software

Income Tax Department's IT return upload process works only with one type of spreadsheet application provided by a specific vendor. For filing returns on-line, users are compelled to purchase proprietary software because alternatives spreadsheet applications, which can do all the needed functions, are not supported, which is a denial of the rights of the citizens to choose between alternative digital system she may want to work with. The non-compatibility of one important government digital system with a set of software and applications can make it completely lose out in the market to the software system that is allowed a monopoly by the concerned department, at the cost of public interest.

6. Inclusive Education Program proposes procurement of proprietary software

MHRD Centrally Sponsored Scheme of 'Inclusive Education of the Disabled at Secondary Stage (IEDSS)' proposes to procure proprietary Screen Reading Software, when free and open source applications are already being widely used. Open Source Software tools are readily available in areas such as speech recognition, adapted keyboard, use of combinations of speech, Braille, and magnification, among others. Read more at: <http://live.gnome.org/Orca> and http://education.nic.in/secedu/sec_iedc.asp

Using a proprietary screen reading software is hugely detrimental in two ways. Since it is not freely shareable, it imposes huge costs for the disabled people trained through this program, while providing gain for a single vendor. Secondly, customization and localization of the software for easy and quick use across different states in the country is not possible, which again imposes huge social costs of non-availability of an important enablement for the disabled, which should be the responsibility of the governments to provide to all disabled people. (The issues involved here are similar to the comparison between the DHIS and NREGA applications.)

7. ISP providers offer rural PCs bundled with bare minimum proprietary software

There is a tie up between ISP providers and computer companies for offering computers with broadband connection and proprietary software to rural customers. This is a subsidised offering and is part-funded by public money. It will be much cheaper for these ISP providers to supply PCs loaded with open source platform complete with all useful software (ranging from office, PDF reader/editor, audio/video/image editors, desktop publishing, financial accounting tools, games, educational software tools) than offering stripped down proprietary software. Should government funds be wasted for procuring *minimum* proprietary software when better alternatives, in their full versions, are available for free?

Read more at: <http://www.thehindubusinessline.com/2009/09/17/stories/2009091752350100.htm>

8. Nudi (Kannada language) software developed only for a proprietary operating system

The source code of Nudi, the Kannada typing software used by Karnataka government, is not publicly

available and hence cannot be improved or made fully UNICODE compliant. Nudi works only on proprietary platforms. There is a need for the government to support the use of local language applications where the source code is publicly owned/accessible rather than one which works only on proprietary software, since this imposes costs on the society to access Kannada information, and greatly hampers interoperability. The Government should support open standard such as UNICODE and encourage use of any application that can work it. It should ensure that UNICODE fonts are publicly owned and freely available (Read more at: http://bangalore.gnu.org.in/index.php/FSUG-Bangalore:Nudi_Issues and http://www.lisindia.net/Kannada/Kan_tech.html)

9. Government of Uttarakhand excludes Open Source Software from tender

On 7th December, 2009, the Government of Uttarakhand issued a tender wherein they specified that Open Source Software will not be allowed to be used, without specifying any reasons. It is not clear if this will really be consistent with general competition laws of the country, and specific rules of fairness in public sector procurement, apart from clearly being against larger public interest.