

Promoting the 'Public' in Digital Architectures

Public digital infrastructure can be viewed as comprising of three parts; publicly owned software applications, content in the public domain and public connectivity. By 'public' we do not mean state or the government, but what we call as 'network public', a network of public and community institutions that can compositely denote people's (inclusive and universal) ownership against private (exclusive) ownership. Since digital resources are 'non-rivalrous', it takes specific legal and technical efforts to privatise them and make them exclusive and scarce. Whereas collaborative creation and sharing are intuitive to digital processes and can support the creation of an equitable and universal digital environment. There is a need to create wider awareness on the need for 'public' ownership over critical digital infrastructure, for enabling an equitable information society. Over more than thirty years of its existence, the Free Software Movement has developed thousands of software applications that are free to study, share, modify and use. Public Software is defined as 'software that is essential for participating in the digital society and thus needs to be provided to everyone as an universal right and entitlement'. Therefore public software needs to be available for free. We believe that public investment and support is essential to complement efforts of free software communities to create an environment in which free applications are available to all. IT for Change's Public Software Centre works in the areas of capacity building, research and advocacy on public software.

During the year 2011-2012, Public Software Centre's efforts in building public software eco-systems focused on institutions of school education, technical education and on Non-Governmental Organisations (NGOs) in the state of Karnataka. Our work to promote public software in school education has been discussed in the chapter on 'Exploring a new model of teacher professional development'. Technical education is the key space for learning about the use and production of software tools. Accordingly, awareness of the possibilities stemming from 'public' ownership over software is critical to create here. Our work with NGOs seeks to spread understanding amongst developmental actors that the nature of software is not a technological issue but something that has significant structural implications for the emerging 'digital' or 'network' society.

Public Software in Technical education

Public Software Centre participated in the Department of Technical Education, Government of Karnataka, and the National Institute for Technical Teachers' Training and Research project to revise the syllabus for the fifth and sixth semesters of polytechnic courses. This revision identified public educational software alternatives to popular proprietary tools, the use of which can support the emergence of a rich learning environment, replacing the scarce and minimalist resource environment created by using expensive proprietary software applications.

We have been asked by the National Institute for Technical Teachers' Training and Research to be part of their capacity building programme, in line with the revised syllabus, to help teachers learn identified public educational software tools. Department of Technical Education has also issued a circular to all polytechnics instructing them to install public educational tools for all subjects, wherever possible, and to seek the support of Public Software Centre in this process.

As a part of this engagement with technical education, we have conducted capacity building workshops for MEI polytechnic and MNTI polytechnic. Our capacity building workshops included introduction to public software along with training on Ubuntu (operating system), LibreOffice (office suite), PhEt and STEP (Science

“ We appreciate the value of a shared knowledge that grows by the contribution of myriad users. "No one lights a lamp and hides it under a bowl," says the Bible. Unfortunately that is what is happening with technology. It needs commitment to change this, though the path may be arduous. We congratulate the IT for Change team for their diligent effort.

Jayadev, Founder and Hon. Secretary, Deenabandhu Trust

“ When we first met the IT for Change team, we knew that we have a lot to learn and indeed, unlearn. Through our initiative of training people living with HIV+ on making Digital Stories, we as well as our participants started using Audacity and Kdenlive frequently. Drupal was very helpful in enabling us in managing our website on HIV, without external support. Now we are using public software with ease and are also exploring different software which we need in our work. We greatly appreciate the efforts of IT for Change in introducing public software to our organisation.

Shangon Das Gupta, Executive Director, Communication for Development and Learning

Mumbai under the Spoken Tutorial Project which is a part of the National Mission for Education through ICT (NMEICT) programme of Ministry of Human Resource Development (MHRD) to promote Information and Communication Technologies (ICTs) in higher education. Many faculty members and students in these institutions also participated in these workshops on select public educational tools such as Ubuntu, LaTeX, Scilab. On successful completion of an online test they received certification from IIT, Mumbai. As part of our work with the Spoken Tutorial Project, Public Software Centre has developed several video-based tutorials on various educational tools including Geogebra, STEP, QCAD, Audacity, Inkscape, Drupal and Libre Office. All these tutorials can be accessed at http://dte.karnatakaeducation.org.in/?q=Resources_all.

simulations), Geogebra (Mathematics), Scilab (numerical computing), Netbeans (IDE), Drupal (content management system), QCAD and Blender (drawing and animation) public educational software applications. The detailed functionalities of these applications and the proprietary tools that they could replace are available on <http://public-software.in/FOSS-applications>. In addition, we have also conducted the self-learning 'SELF' workshops, designed and administered by Indian Institute of Technology (IIT),

Knowledge Management and Knowledge Networking

The very nature of work of public institutions, aiming at equity and social justice, places an imperative upon them to adopt public software that is accessible to all, especially to the communities that are marginalised. Public Software Centre provides capacity building and support for the institutional adoption of public software by NGOs, through 'Knowledge Management and Knowledge Networking (KMKN) workshops', which aim at



Ganapati Hegde, from CDL, developed their site entirely on Drupal

enabling them to use a variety of digital tools and processes for their knowledge management as well as networking activities. Communication for Development and Learning (CDL), an NGO, developed its website using Drupal¹ and their partner organisation, Karnataka Network of Positive people (KNP+), learnt how to make and edit audio and video resources using Audacity and KdenLive. *Makkala Jagriti* (another NGO) has been innovating with educational tools in their community learning centres. Various public educational tools have been explored to integrate ICTs into teaching-learning processes in Mathematics (Geogebra, Bruch, KTurtle),

languages (SCIM, KHangMan), Science (STEP, Stars, Stellar, Kalzium), Social Science (Marble, Kgeography) and analytical and creative thinking (FreeMind). Two other NGOs, Child Rights Trust and Concerned for Working Children, have also used public software applications in desktop publishing (Scribus), poster making (Inkscape) apart from basic applications such as LibreOffice (office suite), Mozilla Firefox (web browser), Thunderbird (mail client) etc. Most NGOs, due to lack of awareness about alternatives, use proprietary software. Public software can provide NGOs a rich and enabling environment to build internal competencies by exploring large number of free software applications in different areas and expanding their political and practical understanding of the digital phenomenon.

Advocacy and Dissemination

With support from United Nations Educational, Scientific and Cultural Organisation (UNESCO), Public Software Centre produced a film titled 'Transforming Teacher Education with Public Software'. The film is available at http://youtube.com/watch?v=D-kqSW_o9z8&feature=relmfu and has been discussed in more detail in the chapter on education. We gave a talk on 'Public Software and Public Institutions' in an event organised by The Energy and Resources Institute (TERI) in Bengaluru. IT for Change made a remote presentation² to IBSA (India, Brazil, South Africa) Summit at Open World Forum (<http://openworldforum.org/>) on the role and rationale of public software for public institutions. This video presentation was created through RecordMyDesktop³, a public software tool which can be used to create simple videos, combining audio with the visual images of the desktop (which can be presentation slides). The Open World Forum is an annual programme that aims to bring academicians and practitioners working on Free and Open Source Software (FOSS) together to share experiences and learnings. We also presented on our work in Education and Public software at the Fourth International FOSS Conference, Kerala, in December 2011 and contributed to the discourse by highlighting the pedagogical benefits of using software resources that support a collaborative and a free sharing environment, processes essential to teaching-learning.

IT for Change provided feedback on the Policy on Device Drivers for Procurement of Hardware for e-Governance⁴ of the Department of Information Technology, Government of India which discusses the need for device drivers on public operating systems (GNU/Linux). Enforcement of this policy would help government departments avoid 'vendor lock-in', whereby vendors provide drivers available only for select proprietary products. IT for Change was invited by the National Institute of Smart Government to participate in a training programme on ICTs and governance for mid-level bureaucrats in Indian Institute of Management, Indore. We held a session on public software in governance. The popular discourse on ICTs in governance sees government as a consumer of proprietary digital resources produced by private vendors whereby the government becomes a perennial royalty payer, with no control over these resources. The participants at the session were happy to learn about the possibility of a rich public digital domain which could support universal access as well as community participation. We feel that much more efforts need to go into such awareness building. For just a fraction of the amount being spent on licence fees for proprietary software, large-scale capacity building for government officials on understanding both the political as well as the practical uses of ICTs can be achieved. Our public software resource portal⁵ was redesigned to create awareness for public software and support its adoption. A frequently asked questions (FAQ) section was added along with a list of different public software tools available in different domains.

Looking Ahead

We are planning to work with the Ministry of Human Resource Development of Government of India on their 'National Mission for Education through ICT' programme to reach out to more technical educational institutions in Karnataka and with National Vocational Education Qualification Framework (NVEQF), a Government of India programme to promote vocational education within secondary education to support vocational skill building using public software applications in different areas like desktop publishing, graphics, enterprise ICT support etc. We will continue to work with NGOs to create a network of public institutions adopting and promoting public digital resources and integrating them into their programmatic and advocacy activities. We will also use FrontAccounting and GNU/Khata applications in our financial accounting and add it as well as PSPP (statistical analysis) to our repository of tools that NGOs could adopt.

1 Free tool for content management and website development, with several thousand modules it is easily modifiable and customisable.

2 The presentation can be viewed at: <http://youtube.com/watch?v=hinsvN1vj4&feature=plcp>

3 More information can be found on: <http://recordmydesktop.sourceforge.net/about.php>

4 Feedback at: http://public-software.in/sites/default/new/Feedback_from_IT_for_Change_on_Policy_on_Device_Drivers_for_Procurement_of_Hardware_for_e-Governance_July_2011.pdf

5 <http://public-software.in/>