



FLOSSWorld Africa Regional Workshop Report

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APPENDIX 10: FLOSS Development Projects in Africa



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1 FLOSS Development Projects in Africa

1.1 South Africa

1.1.1 Kewl.NextGen

Enver from South Africa started by talking about the AVOIR project at the University of the Western Cape (UWC) which involves 12 other African universities tasked with developing a learning management system called KEWL (Knowledge Environment for Web Learning). Although world class software is produced on the project, a central aim of the project is to develop capacity and computer skills, in particular programming skills within the African Diaspora.

This development is based on several years research and development of the first generation KEWL, and now incorporates the functionality of KEWL 1.2 and expands on it to create a genuine next-generation LMS that will be known during development as KEWL.NextGen.

KEWL.NextGen (KNG) is a next-generation e-learning application built on its own Model-View-Controller (MVC) extensible framework architecture. Unlike other e-learning platforms, KEWL.NextGen moves beyond the sphere of merely being a “web software”.

Apart from a web platform, the application also has offline authoring, and active dynamic mirroring (ADM) capabilities to allow improved wide-area collaboration activities. Another planned area for KEWL.NextGen is the integration of mobile technology such as SMS and MMS facilities. The Kinky framework has also been used to develop a pharmaceutical dispensing system, a

At present, we are developing an instructional design support system to help educators in structuring their online courses.

1.1.2 Knowledge Tree

According to Neil Blakey-Milner knowledge-tree is a commercial open source document management system. The project is privately funded and caters for a number of different

sectors. The program can be used in large as well as small organizations in solving document management and compliance challenges. KnowledgeTree runs on Apache/MySQL/ PHP (LAMP) stack

An active community has developed KnowledgeTree. Several foreign language packs have been developed and the community has actively contributed to both the product's stability and feature-set as well as taken on an active role in supporting the product via the community forums.

Open source inherently avoids vendor dependencies and lock-in. Open source projects focus on standard capabilities and allow for continuous operation even in the case the company or project behind the solution should no longer exists. Due to its openness, skills and development resources are often broadly available and come at a lower cost compared to proprietary alternatives.

1.1.3 Plone

Jean Jordaan from upfrontsystems.co.za Stellenbosch, South Africa is working on a number of applications such as Plone and Bika. Plone is a user-friendly and powerful open source Content Management System with strong multilingual support. It is ideal as an intranet and extranet server, as a document publishing system, a portal server and as a groupware tool for collaboration between separately located entities.

The Plone team includes usability experts who have made Plone easy and attractive for content managers to add, update, and maintain content. Plone is international. The Plone interface has more than 50 language translations, and tools for managing multilingual content. There are close to a hundred developers in the Plone Development Team around the world, and hundreds of companies specializing in Plone development and support.

Plone is Open Source. Plone is licensed under the GNU General Public License, the same license Linux uses. This gives you the right to use Plone without a license fee, and to improve upon the product.

Plone is extensible. There are many add-on products for Plone that add new features and

content types. In addition, Plone can be scripted using web standard solutions and Open Source languages.

Plone is technology neutral. Plone can interoperate with most relational database systems, open source and commercial, and runs on a vast array of platforms, including Linux, Windows, Mac OS X, Solaris and BSD.

1.1.4 BIKA

Bika Lab Systems was established in 2002 as a response to the need for affordable and easy to use information systems and instrument interfaces for small and medium size laboratories, customised to requirement.

Web clients were becoming popular but few LIMS were web based, merely web enabled legacy systems. And none of them open source. Bika Lab Systems sponsors and coordinates the Bika open source LIMS project at SourceForge.net, keeping the Bika code free for download.

Most programming is outsourced to Upfront Systems, Plone developers who are also responsible for technical back-up. Both projects are privately funded.

1.2 Tanzania

1.2.1 The Care2x Health Care System

Bob Jolife then asked about development projects utilizing the Care2x health system in Africa. Care2x integrates data, functions and workflows in a healthcare environment. It is currently comprises four major components. Each of these components can also function independently.

1. *HIS - Hospital/ Health service Information System*
2. *PM - Practice (GP) management*
3. *CDS - Central Data Server*
4. *HXP - Health Xchange Protocol*

According to Rishab, it is being implemented in Kenya but he did not know whether they're developing the system locally. He stated that a concern to him was that the system was maintained by a company in Germany but not locally. In fact, the University of Dar es Salaam has been writing code customizing Care2x as there is a missing module (missing from the Indian and Brazilian systems) which is the anti-retroviral module. There is currently a pressing need for this module which should be developed through inter-regional collaboration.

1.2.2 Translating Open Office

According to the delegate from Tanzania, the University of Dar es Salaam is translating open office.org and thus far has managed to translate open office into Swahili. This process involved collaborating with other parts of Africa. According to Joris from Schoolnet Namibia, Dwayne Bailey the CEO from translate.org has only been marginally involved with this process which has mainly been university funded, the University of Dar es Salaam also provides staff, donors and short-term inputs. About 10 people are involved and they are currently translating version 2.0

1.3 Ghana

1.3.1 The Telephone Billing System

As far as Ghana is concerned, the telephone billing system is now defunct as they cannot build it any more. The telecommunications industry has opted for Hotspot Billing. They're also working on a 2d barcode encoder which takes a url and puts it into a barcode and allows for a mobile point of sale. They're also working on a ruby, asterisk gateway interface.

Rishab then wanted to know whether these projects are locally initiated and whether they are fulfilling local needs. Furthermore, he wanted to know how large the developer community in Ghana is. Guido is currently involved on a plethora projects— a patch to uclinux binary processing tool (elf2flt); 2d barcode decoder; semacode; Guido also wrote the GPL encoder; built code metric an automation tool as well as several components on www.topcoder.com. Guido also wrote the specs for an OSS library system for the parliament of Ghana for as the parliamentary librarian wanted a local product which would be very costly. Guido argues that the problem with FOSS is “what cut of zero am I going to get in my budget. He stated that UNESCO rates Koha very highly however, at the moment he is interested in what is out there and is conducting a user-needs analysis. The potential for East/West African collaboration is thus possible. Guido argues that such a system should be OSS, from top to bottom in order to ensure its longevity.

1.4 Uganda

1.4.1 A Client Management and Information System

According to Paul Bagyenda from Uganda Infocom Uganda, a leading Internet Service Provider in Uganda, wanted a client management and information system for their operations. This application was commissioned to replace the old and ailing Windows-based application. The move to a web-based platform was considered an important part of Infocom's system upgrades.

The challenge for DS was to create a scalable application that could handle accounts information for Infocom in a flexible and easy-to-use manner. It was decided that a web application would be most ideal for Infocom's setting, where many clients and Customer Service Representatives (CSRs) access client information from numerous workstations over the Intranet/ Internet. In addition to the numerous access points and high levels of activity, there was a concern regarding security, since the application could be accessed over the Internet.

The system implemented is a web application running on top of a standard SQL database on Linux. Application security is maintained by the use of encrypted session "keys" passed along with each HTTP request, IP- as well as user-based access control and secure HTTP (HTTPS) where available. The GP system is quite modular and has grown with time and usage. New modules are added as the need arises.

1.4.2 The Celtel Web2sms Application

The Celtel Web2SMS was conceived by MSI Cellular ISP division as a value-added short messaging service for their customers and provides clients with a convenient messaging system.

Any Celtel subscriber can logon to the site, create distribution lists, send messages to the lists. Messages can be sent to any destination to which Celtel can send text messages. Users can also send email via SMS. The application uses the client's Web2SMS profile to set the sender address. All messages sent from the Web2SMS application are billed to the user account.

Celtel was keen that the entire application interface be navigable by non-Celtel site visitors, but that only registered users be allowed to use the site. Security and reliability were also important considerations. Digital Solutions were able to build the application.

1.5 Kenya

1.5.1 The HR Localization Project

Joseph Sevilla from Strathmore University in Nairobi stated that he is aware of an HR localization project that wasn't written as OSS but is being released as OSS. The developer team is based in Nairobi. The project is a local in nature. According to Sevilla the project involves porting from an MS environment to an OSS environment. He stated that as more time and resources become available they port more with the goal of having a complete OSS solution and once they have a working version will set a release date. The project relies on private University funding to sustain itself. The project is built mainly for internal use but it would be good if others could use it as well.

1.5.2 KOHA

John from Swaziland addressed a question to the floor and asked whether library management systems cost \$20K a year in license fees. Joseph Sevilla replied that they found Koha from New Zealand which is OSS because the proprietary quotations were very expensive. Koha is a full-featured Integrated Library System (ILS) which is an enterprise-class ILS with comprehensive functionality including basic or advanced options. Koha includes modules for circulation, cataloging, acquisitions, serials, reserves, patron management, branch relationships etc. Koha is distributed under the open-source General Public License (GPL). There is also no vendor lock-in: libraries are free to install and use Koha themselves if they have the in-house expertise or to purchase support or development services from the best available source.

James from Uganda stated that "selling FOSS actually works, as it is easier than giving it away." According to John this philosophy works well for digital libraries. Kim cited the example of Greenstone.

1.6 Ethiopia

According to Guido, there are a number of different projects in Ethiopia, chief amongst these is the localization of Opencms (the Open Source Website Content Management system) into Amharic which according to Guido is one of the oldest languages in Africa and is also the lingua franca of Ethiopia. It was, thus a necessity to localize it before the Arabic languages. A localization of Linux is also being completed in Ethiopia but this is mostly being done by the diaspora.

Guido pointed out that standardization involves standardizing and localizing the character set as well. The localization also involved inclusion of Ethiopian in Unicode, working on keyboard standardization and terminology standardization.

According to Rishab, many First World OSS projects utilize a broad base of volunteers whereas projects in Africa rely mostly on donor funding. According to Ghosh, we know how people develop OSS in Europe, the US and Japan but not in Africa. On Google's *Summer of Code* project, there were no participants from Africa.

1.6.1 Project to Prevent Software Duplication in Government

The Ethiopian Free and Open Source Software Network (EFOSSNet) started a cost analysis for government to ensure that different Ministries develop the same systems but do not share it. In other words tax payers would not have to pay double for the same thing. The study attempts to show how many duplicates have been developed in government organizations. The delegate from Ethiopia stated that if they had developed a FOSS model for government they would have saved huge amounts of taxpayers' money.

Ghosh pointed out that this is a good example of how sharing experiences can help. He then provided a similar example of a study that was conducted by the European Commission (EU) on the topic of duplication relating to licensing models (the study is available online). Ghosh also pointed out another study which deals with the same issues addressed by a joint inspection unit of the United Nations (UN) and looks at how different member states have different policies regarding government software. The report also calculated the extent to which sharing this knowledge would save money.

1.7 Namibia

1.7.1 SchoolNet

According to Joris Komen, SchoolNet's Executive Director, SchoolNet Namibia is a nonprofit provider of internet service, hardware and training to schools. Since February, 2000, close to 450 schools have received free hardware, free training on the OpenLab operating system as well as subsidized telephone service to help get young people online. It's all part of the plan to empower youth through internet access.

Through a number of ambitious strategies such as its adoption of a Linux Terminal Server thin-client networks, its dedication to the open source movement and its fledgling wireless and solar plans, SchoolNet has begun to realize a vision of Namibia where all students have not just access to the internet, but the skills to participate in the digital revolution.

1.7.1.1 SchoolNet Projects

According to Komen, Openlab funded Schoolnet Namibia and Nigeria. Schoolnet has launched Openbooks, a local copy of Gutenberg, Edukar, Wikilite which is a local Wikipaedia, hai-ti which is a comic strip dealing with open-source issues and a low-cost way of reinforcing OSS concepts in children. Schoolnet Namibia also has a freedom toaster, uses direq café and Osmis which is a secure, integrated, student centred solution for managing the delivery of Courseware. OSMIS provides a Managed Learning Environment (MLE) and provides the services for managing and monitoring students through the Learning Process exchanging data with all other support systems including Finance, Personnel, Human Resources, Payroll and Estates. Schoolnet Namibia also makes use of Schooltool which is a project to develop a common global school administration infrastructure that is freely available under an Open Source licence. SchoolNet also relies heavily on Edubuntu as well as Skubuntu.

1.8 Nigeria

1.8.1 Leapsoft's African Linux Distro

According to Bello, Nigerian software vendor Leapsoft has launched an African Linux distro in 3 major languages—its focus and people working on the project are based in Lagos. The name of the distro is *Wazobia Linux*. So far, it has not spread to the rest of the country. The project started at university and students founded the group involving all universities and polytechnics. There are currently no developers.

The distro is supplied in Hausa, Yoruba and Igbo, the three most spoken languages in Nigeria, as well as English, and comes with translations of the OpenOffice.org 2.0 productivity suite, multiple browsers, desktop search, automated networking tools, multi-media software, and application development tools and much more.

1.9 Spectrogram

Kim then used an innovative technique known as a spectrogram in which participants in a group are split into smaller sub-groups based on their opinion; they are then challenged on that opinion. The first question posed to the group was, *What is present and future impact of floss in developing countries?*

Three groups were formed: (1) no impact (2) 50% impact is possible, (3) 70% impact is possible and (4) 100% impact is possible.

According to group 1, change in Ethiopia is difficult as the country has not accepted opportunities like FOSS and hasn't been good at grasping them. They will have to work harder to ensure that opportunities are used.

According to group 2, (50% group) said that it is hard to believe that one solution would change everything as there are other factors that would contribute a great deal as well.

According to group 3, (70% group), “where there’s a will there is a way” but change will not take place over night. They also stated that FOSS has worked well in libraries and should address the issue of open access for journals. According to Tanzania it won’t be quick as there are no business drivers in Tanzania.

According to the delegate in Ethiopia, Ethiopia is totally different to other African countries especially in terms of language so customization is required. In addition, the country is very poor and can’t afford to do this kind of customization thus FOSS should play an important part here.

According to Neil, even if FOSS isn’t the thing that provides the final solution, it can act as a catalyst. FOSS can help proprietary people focus on African issues as proprietary isn’t 100% incompatible with FOSS.

According to group 4 (100% impact), Both Joris and Bob believed that proprietary products have solutions but they aren’t systemic. They argue that in Africa we need systemic solutions. According to Guido we are experiencing a progression of regression. In other words future FOSS impact depends on change of consumption/ production patterns.

2 Table of Projects

No	Name	Country	Project	Type Of Funding	LOCAL/GLOBAL	Sector
1.	Enver Ravat	South Africa	AVOIR	Private sector	Local & Global	Education/medical/B us.
2.	Bob Jolife	Kenya	Care2x	International donor funding	Local & Global	Health
		Tanzania		Not sure	Local & Global	Health
3.	Joesph Sevilla	Kenya	HR localization Project	Private University Funding	Local	Education/hr/ internal
4.	Paul Bagyenda	Uganda	GP Billing platform	ISP Infocom Uganda (ISP)	Local and continental	Telecoms
5.		Uganda	Celtel Web2SMS	Celtel	Local and continental	Telecoms

Additional projects mentioned include:

<i>Project</i>	<i>URL/Comment</i>
OpenLab	http://www.getopenlab.com
Ubuntu	http://www.ubuntu.com
Edubuntu	http://www.edubuntu.org
tuxlabs	http://www.tuxlabs.org
Education Out of the Box	
IMPI Linux	Localisation of Ubuntu (South Africa)
Localisation: OpenOffice, etc.	http://www.translate.org.za
Localisation in Ethiopia is comprehensive	Dawitt Bekele
Knowledge Tree:	http://www.ktcms.org
Coefficient	http://coefficient.sourceforge.net
Kewl.NextGen	
Free GIS work at UWC	
Plone and Zope CMF hosting	http://www.upfrontsystems.co.za

<i>Project</i>	<i>URL/Comment</i>
LinuxChicks	
	http://openicdl.org
	http://learnlinux.org
Freedom Toaster	http://freedomtoaster.org