UNESCO-CERN Workshop on Digital Library

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Abstract

This report describes the workshop on digital library that took place in Kigali between the 20th and 26th of September 2009, and it focuses on the Invenio training itself. It gives conclusions and possible steps for further developments.

1 Local host

The workshop was hosted by the Kigali Institute of Science and Technology (KIST). Built in 2004, the KIST4 building is a large structure with 5 floors. The workshop room, at the last floor, was perfectly equipped with about 50 working PC desktops. Other similar rooms were also available in the building.

2 Week Overview

Outline The workshop lasted five days and was divided in morning presentations and afternoon hands-on sessions. It turned out that more time had to be spent in sessions, and presentations were shortened. Programme and material is at http://indico.cern.ch/event/65380.

Local preparation started two weeks earlier for the logistic (JL. Denblyden) and two days before for the computing set-up (P. Amoako-Yirenkyi).

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CERN Ghana collaborator, Peter Amoako, had come in advance and received green light from KIST to install Ubuntu Operating System and packages required by Invenio on all the desktop PCs to be used in the Training room. This was a major step as it then allowed all attendees to run exercises on their own. The 15 pre-installed laptops was therefore not needed, and remained mostly unused as a backup solution.

On participants initiative, all the mornings started with a summary of the previous day by two 'rapporteurs'. The timing was flexible, but in average, lessons were on going between 9:00-12:30 and 14:00-18:00.

Monday Monday was bank holiday - end of Ramadan. This was announced by the government only three days before, causing the absence of a few participants. In the morning, the participants were welcomed and a general introduction about science collaboration and CERN experience during the last 50 years was presented. Main concepts and general description of digital libraries were introduced. The afternoon was then devoted to a general introduction of the Invenio DL Software and to a round table discussion with present participants.

It can be noted that the "CDS-Invenio" name caused some confusion as UNESCO distributes a product called CDS/ISIS. The "CDS" part of CDS-Invenio was dropped the next days to avoid possible misinterpretation. As "CDS" is also used as an acronym for many services (e.g. Centre de Donnees de Strasbourg), it might be worth dropping it in future releases.

Tuesday Tuesday focused on User interfaces and Installation steps. As none of the participants had experience with Linux, and some were not very familiar with computer in general, the installation was laborious and needed very close follow-up (line by line). At the end of the day, Invenio was eventually running fine with the header changed to the institute name of each participant on about half of the computers.
A more focused selection of participants (with Linux know-how for example) and a split of librarians and IT persons in two groups could improve future similar workshops.
It was therefore already obvious that:

- training objectives had to be reconsidered

- teaching together librarians and technicians was not the best approach

Still, the positive part of this first session was the willingness of the trainees in general and the very visible satisfaction of seeing their library web site created (on localhost, off network). It was not clear to all of them at this stage that this was only training and that it would last only the time of the workshop.

Wednesday Wednesday agenda was modified to take into account the Tuesday observations. After an introduction of Open Access in general, additional time was devoted to ensure all attendees had an Invenio instance customized with their institute name, loaded with some Invenio demo records and running Invenio scheduler daemon in the background. Hands on session on the user interfaces was then run for the rest of the day. It was divided in two parts: playing with the features available to end-users and playing with the Web Search administration module. Trainees learned different searching mechanisms, using baskets and setting up alerts before creating a new collection on their demo site called "KIST Training". Some exercises to manage and customize this collection were carried out. The access control interfaces could not be put into practice. Again, the very different levels of understanding of the participants has slow down the work and prevented a more extensive coverage of the modules. The successful trainees who managed to organize collections of documents have shown strong willingness to learn more.

Thursday On Thursday, the focus was put on the acquisition procedures. Beforehand, in the morning, user interfaces were concluded with some more exercises and the harmonization of the different trainees Invenio collections. General explanations were then provided on the various procedures available within Invenion to fill in repositories and to manage their records. Hands-on session on one of the procedure - Web Submission - was immediately performed. Each participant went through a small modification of the web submission interface, to enable the submission of different types of material into the previously created "KIST Training" collection. Everybody managed to load into their own digital library some pictures that were shot during the workshop itself. Being immediately able to search for it was very satisfactory. Some more advanced trainees also uploaded into another collection the slides of the workshop, or other personal documents, in the same way they

would entered a thesis. As KIST had provided a few real examples of thesis written by their students, they were used to demonstrate the procedure. Unfortunately, time was too short to go through the complex Web Submission administration guide which enables fine customization of screens and processes.

Friday   On Friday morning, the programme was changed to include:

- reports from Mozambique, Cameroon, Ghana and Rwanda

- hands on sessions summary, demo of achieved results and Q&A session

Time was too short to deliver the planned presentation on e-learning.

Parallel   In parallel with the training, KIST made available a server (SUN Fire) on which P. Amoako from Ghana installed Ubuntu and Invenio. The domain name was set up and Invenio was partly customized to provide a first prototype of the Academic Repository of Rwanda:

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http://arr.kist.ac.rw

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Collections are organized by type of documents (theses, reports, etc) on one hand, and by libraries on the other hand. Submission of existing thesis can already be performed by the various institutes, and they will appear on the ARR repository - as long as the submission process is correctly performed and the server is well maintained at KIST.

General conclusions were presented Friday afternoon in the presence of Prof John S. Mshana, Vice-Rector of the Kigali Institute of Science and Technology.

3   Results, difficulties and obstacles

Some positive aspects are underlined below, before listing the existing difficulties and obstacles in the process of setting up and running Digital Libraries in Rwanda.

The three most positive parts are:

- the willingness of the participants in general and their motivation to see the system working

- the ambition of the government to strongly push technological developments in Rwanda, where cell phones are already working everywhere (even in the 'bush') and strong political support for establishing Rwanda digital libraries

- internal networking (via cables) is already well established country-wide and satellite connections will soon be replaced by fiber cables

Still, despite these ambitions, the following difficulties are serious and should not be ignored:

- the network infrastructure is still in its early days. Optical fiber is on its way through Ugandan and should be finished by early 2010, but as long as it is not fully operational, satellite connection is very quickly overloaded and network becomes almost unusable. From personal experience, good speed was only achieved in the early mornings.

- the reliability of the infrastructure is low. Two examples: the KIST Proxy Server could not cope with the high load of the attendees connecting to outside of KIST, and regularly crashed; the Internet Service Provider had regular failures and was pushing the responsibility on another company in charge of the cabling; the server set-up for the ARR service has no backup or mirror server to take over in case of degradations... in addition the hot weather and the lack of air ventilation reduces the machines lifetime.

- the computing education seems to be still quite below European standards. This could be due to the fact that many participants were not specialized enough, or to the simple fact that computers have not spread out over the society as in richer countries. For example, none of the attendees knew the basic Linux command lines.

4 Next steps

Next steps depends on how much CERN and UNESCO is willing to invest into this development. Due to the previously listed difficulties and despite the good will of both library and IT people, the success of further investments cannot be granted.

The least that can be done is:

- providing remote help to run the ARR service on a best effort basis; it implies that the network connection between CERN and KIST does work, which is unpredictable. Help can also be provided by email or by phone to give instructions on how to fix problems.

- follow up the evolution of the ARR service and in particular the growth of the Thesis collection; it is not evident that without local assistance, librarians from all institutes will be able to submit documents. The Thesis collection should be considered as a use case which will give light on the feasibility of large scale digital libraries in the country.

It may be that the timing of the project is not the most appropriate, and that this development should rather come after computing education and network infrastructure are both consolidated.

If the previously listed obstacles are nevertheless considered as non blocking factors, and if UNESCO, CERN or others are willing to invest into more development, the following actions could also be performed:

- invite the most talented participants to receive an extensive training at CERN during a 1 or 2 months period

- organize similar workshops in other African countries with similar ambitions

- coordinate the creation of an Invenio group in Africa (with the active participation of Peter Akaomo from Ghana/KNUST) and accept as CERN post-docs or fellows African students that have proved their excellence

5   Conclusion

Will the Rwandan and later African universities openly expose their academic literature to the world ? Will Internet help preserving the famous African oral heritage ? Will a digital library offer comprehensive coverage of all the Genocide documentation ?

After the Kigali workshop, first steps in these directions have been taken. They are very preliminary steps and the launch of the Academic Repository of Rwanda should be considered as a prototype. Its success or failure (in

particular its thesis collection) will indicate if the maturity in computing of both the technology and the people allows additional developments. If successfully, there should be no hesitation in investing further in additional training and in new repositories. If not, the timing of the project should be reconsidered, and recommendation will be to adopt a slow pace in order to let the infrastructure stabilized and the general computing knowledge to increase.