



United Nations
Educational, Scientific and
Cultural Organization

Information for All Programme

IFAP Working Group on Information Preservation

Proposal 3 for the Preparation of the Draft Programme and Budget for 2012-2013 (36 C/5)

Open Source Software for Digital Preservation and Data Management

Background

UNESCO has a strong record in the support of open source software, as is evidenced by the numerous projects, portals and other tools accessible through UNESCO's web site. Indeed, the 2008 document entitled "UNESCO's position on Proprietary and Free and Open Source Software, as endorsed by the Intergovernmental Council for the Information for All Programme 2008" states cogently that it will "promote well documented Free and Open Source Software solutions". As a consequence, there are many individual pieces of open source software developed that are useful tools for particular tasks within the larger digital infrastructure. Seen in this light, the open source movement can be seen to be democratic force for good, and a bridge across the digital divide.

The Issue

However, when there is a requirement for a standards based, fully integrated, simple data storage and management system suitable for long term preservation and access which addresses the needs of smaller collections, or those held by countries with limited technical infrastructure, open source software becomes a privilege of the well endowed archive, library or collection. This seeming contradiction occurs because the integration of open source tools into a seamless whole incurs a heavy load in software development expertise and requires ongoing software maintenance and support. Well-funded institutions and organizations have led the development of digital preservation and made great advances in our approaches and understanding, and continue to tackle the ever more complex problems presented by sophisticated digital data. The software developed as solutions to these problems have been implemented into highly developed systems that are maintained by teams of programmers and software engineers. The individual components of these systems are often made available in open source form for other similarly capable organizations to use within their own systems.

There are, however, no fully integrated complete open source systems which comply with all the functionality defined in the Open Archival Information System (OAIS) defined by recommendation CCSDS 650.0-B-1 of the Consultative Committee for Space Data Systems or the International Standard ISO 14721:2003. A functioning preservation system must consider all aspects of a digital repositories; Ingest, Access, Administration, Data Management, Preservation Planning and Archival Storage, including storage media and management software. The 2007 UNESCO report "Towards an Open Source Archival Repository and Preservation System; Recommendations on the Implementation of an Open Source Digital Archival and Preservation System and on Related Software Development" points out that the two areas which are of the greatest concern in this lack is archival storage and preservation planning, including the recommendation of PREMIS (Preservation Implementation Strategies Group). As a consequence only well funded and wealthy countries have access to appropriate software.

The Requirements

The urgent and critical requirement of many collections in less well-funded environments is the preservation of sound and audio-visual collections, still images, and simple text documents. The only way to preserve these valuable materials, which may well be the only record of many cultures, communities and events, is through the digitization of the content before physical degradation or obsolescence claim the content forever. Once the material is digitized there is an ongoing requirement to manage the preservation of the digital content or the process of digitization will be lost within a very short period of time. The task of building systems that are suitable for and accessible to collections in environments which have limited technical infrastructure, are poorly funded, and who have a need to preserve their collections. In addition to development, documentation and ongoing support are a necessity to maintaining preserved digital content. The models for open source support exist (and are discussed in "Towards an Open Source Archival Repository and Preservation System"). The first stages of the development of such a system has been undertaken by Artefactual Systems Inc under the title of Archivemata partially funded by UNESCO within the framework of the Memory of the World Programme (see <http://archivemata.org/>)

Recommendation:

The IFAP Information Preservation Working Group, therefore, recommends to the Director General that UNESCO continue to promote well documented Free and Open Source Software solutions but that in addition it

- Encourage and support the development of fully integrated working preservation systems suitable for the long term preservation of simple digital objects including archival storage and preservation planning
- To recommend the integration of appropriate archival storage and preservation planning into other repository software
- To ensure the availability of suitable preservation systems for all who have such needs regardless of economic status and collection size.

All measures should be established in close intersectoral cooperation between Communication/Information, Culture, and Science. Within the CI sector measures should be implemented within the framework of Memory of the World Programme. Possible partners in that topic are the National Libraries, Archives, Museums, Universities and software developers, as well as NGOs such as IFLA, ICA, IASA etc. Most importantly, partnerships must be established with potential users of the software to work in collaboration with developers to ensure that the solutions developed are appropriate to the environment for which they are being developed and not just imposed by the wealthier countries and collections by virtue of their control of the software development.

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UNESCO's position on Proprietary and Free and Open Source Software As endorsed by the Intergovernmental Council for the Information for All Programme (UNESCO 2008)
<http://portal.unesco.org/ci/en/files/26806/12113006213C3 - UNESCO's position statement.pdf/C3%2B-%2BUNESCO's%2Bposition%2Bstatement.pdf>

Towards an Open Source Archival Repository and Preservation System; Recommendations on the Implementation of an Open Source Digital Archival and Preservation System and on Related Software Development (UNESCO 2007)
<http://portal.unesco.org/ci/en/files/24700/11824297751towards open source repository.doc/towards open source repository.doc>

Reference Model for an Open Archival Information System (OAIS). CCSDS 650.0-B-1, Blue Book, January 2002 (Also the ISO) <http://public.ccsds.org/publications/archive/650x0b1.pdf>