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DIGITIZATION AND DIGITAL PRESERVATION ACTIVITIES AND INITIATIVES AT THE ADDIS ABABA UNIVERSITY: TOWARDS INSTITUTIONAL DIGITIZATION AND DIGITAL PRESERVATION STRATEGY

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Abstract
Addis Ababa University (AAU), the leading academic and research institution in Ethiopia, produces a tremendous amount of research output. Theses and dissertations, scholarly journals, proceedings and staff/discussion papers are among the major items. The print materials are available in different units of the University. Some units (schools and faculties) are planning to conduct mass digitization on some print collections of indigenous knowledge. Others have already started digitization activities on a smaller scale. However, digitization is a resource intensive and costly activity and hence requires a strategic approach.

On the other hand, the practice of collecting and preserving "born digital" materials at the AAU is in its infancy. This has influenced the development of digital library infrastructure (for example institutional repositories) that provides access and increases the visibility of digitally born research materials to researchers.

This paper examines the digitization activities and practice for managing born digital research materials, and suggests a strategic approach to digitization for the AAU. It brings together all relevant units of the University towards the establishment of a centre of digitization with a clearly defined digitization and digital preservation strategy.

Keywords: digitization strategy, digital preservation, Digital Projects Centre, Addis Ababa University

Introduction

Although it is not easy to trace exactly when digitization activity was initiated within the Addis Ababa University (AAU), the launch of the electronic thesis and dissertation project in 2007 marks the first official major digitization project, although there were many small scale digitization projects carried out on an ad hoc basis by faculties, museums, and research institutes hosted by the University.

The exercise has grown over time but the motives behind this move to digitization have not been well articulated. Although one cannot deny the contribution to the overall effort of building an institutional repository to enable wide access to their unique collection of

documents, it poses many challenges ahead. These efforts are non-coordinated diverse actions without clear strategic direction. This partly explains why most of the digitized documents have ended up on various departmental servers without any system for preservation and access.

In addition, the issue of standardization in terms of metadata treatment, format of digitized objects, storage and accessibility have not been considered as a serious concern in such practice. A survey of these situations is another topic of concern but is not the aim of this particular paper. I will therefore focus my discussion on some of the recent major digitization projects underway in the University and the evolving strategic initiative to address the current problems and shape the future of digitization practices at the AAU.

Electronic Theses and Dissertations repository (AAU-ETD)

The institutional repository of electronic theses and dissertations of the AAU (AAU-ETD) was initiated by the University Library System and the School of Graduate Studies and Research in mid-2007.

The objectives of the AAU-ETD repository are to:

- improve graduate education by allowing students to produce electronic documents, use digital libraries, and understand issues in publishing;
- increase availability, visibility, and access of AAU student research for scholars;
- preserve AAU theses and dissertations electronically;
- train scholars and students of the AAU in the technique of electronic publishing and electronic access to documents;
- make submission and handling of theses and dissertations less costly and more efficient; and
- promote enhanced scholarly communication.

The AAU-ETD repository system is built on DSpace technology that is maintained and run by the Library System. Initially, it was a pilot project in specific disciplines such as humanities, arts and social sciences. Later it was scaled up to include all subjects being covered by all the faculties of the University. Now it is a fully-fledged repository of about 2500 MSc and PhD theses and dissertations accessible to anyone in the world at http://etd.aau.edu.et/dspace/.

Input to the AAU-ETD repository was at first handled centrally; the School of Graduate Studies and Research forwarded all the theses submitted on CDs to the Library. However, following the decentralization of the theses submission system within the University, that allowed students to submit their work to the relevant departments instead of the Graduate School and Research, the Library had to change its approach accordingly.

Training was provided for two library staff members from each faculty library, in management of the electronic theses collections, format control, metadata treatment and input into the DSpace repository. These Library staff members were provided with clear guidelines and secure remote access to the DSpace server to input the theses after collection

from nearby departments. Realizing there is a delay in collection and uploading of the theses through intermediaries (the librarians), the Library is working to introduce a workflow so that students can submit their own theses online, using the online submission interface, immediately after the successful completion of their defence.

Mass digitization of the AAU Library collections

The Ethiopian Government has embarked upon an ambitious effort to expand higher learning institutions throughout the country. There has been a considerable increase in the number of public as well as private universities in Ethiopia. Following the establishment of over 30 public academic and research institutions recently, the demand for access to the AAU Library's rich collection of resources by these newly emerged institutions has significantly increased. This has been clearly demonstrated by the increasing number of students and staff from the newly emerging institutions coming to consult the collections of the AAU Library.

As a pioneer academic library in the country, the AAUL understood the necessity of expanding access to its collection to a wider community that includes users from the emerging institutions. In addition, the 2008-2013 AAU strategic plan attaches great importance to technology-supported availability and accessibility of educational and research resources and specifically identifies the development of the digital library as part of the University's agenda. These strategic issues are some of the driving factors for the Library to aggressively aspire to mass digitization of its collections.

Identification of priorities and an assessment of the target resources have already been made. The enormous number of print-only theses and dissertations, which the Library has collected right from the commencement of postgraduate education in the University, is the first area of focus for the Library's digitization effort. The Library's indigenous and unique collections that are high on demand are the second prime target for digitization. These resources are often unpublished AAU and other government publications. Most of these types of collections are in danger because of the physical wear and tear on them. In addition, copyright- free publications in the general collections in danger due to physical wear and tear, are also on the priority list of documents for digitization.

Digitization of indigenous journal collections

The AAU is part of the open access initiative that is spearheaded by the International Network for the Availability of Scientific Publications (INASP) and there are nearly 15 high quality journals published online through African Journals Online (AJOL). On the other hand, there is a huge collection of back issues of print journals, which are not accessible to anyone outside the University. Access to these hard copy issues of journals has proved difficult and time consuming even within the University. The School of Graduate Studies and Research is therefore preparing to digitize the very large collection of printed journals, which were published either by the University or with financial support from the University.

Digitization of the Museum collection

The Institute of Ethiopian Studies Museum of the AAU has also embarked on mass digitization of its historical and archive collections. The current figure indicates that over 7000 Islamic and Geez manuscripts and archives and over 21,000 photographs have been digitized with funding from the British Library under the endangered archives programme. Metadata has also been added to these collections of scanned content, which is more than eight terabytes (tb) in size. The content is not however accessible on the web or through the University intranet. This is because the scanned documents are not organised in any repository management system. One could say that there is a obvious flaw in this project as it seems digitization was undertaken only as scanning. The management of the scanned content and its accessibility was completely out of sight.

Digitization of ancient monastery manuscripts

It is believed that the ancient Ethiopian civilization was documented mostly by church members who use the Geez language as a means of written communication. These Geez manuscripts are housed in various monasteries and churches throughout the country. Access to such valuable resources has been very limited by reason of security. The inaccessible location of the monasteries and churches is also another block for those who wish to have access and use these treasures of resources. Recently, an initiative has been taken by the Ethiopian Languages and Culture Academy of the AAU to digitize the manuscripts for wider access and long-term preservation.

Initiation of a Digital Projects Centre (DPC)

Earlier this year the University Library initiated a dialogue with different units of the University as stakeholders who expressed a range of interests in digitization. Through a series of formal and informal meetings a general consensus has been achieved, to take a strategic approach in digitization and digital resources management practice. Setting up a centralized unit that caters for digitization practice and research was considered as a key step in the process. That is when the idea of a digital projects centre came to surface.

The Digital Projects Centre (DPC) is a joint initiative by the University Library, School of Information Sciences, Academy of Ethiopian Languages and Cultures, and School of Graduate Studies and Research. However, it aims to work across all faculties, schools and other areas of the University. The key objectives are to combine theory with practice in innovative ways; and to be a centre of research and practice in the area of distributed digital information and learning environments.

The DPC will conduct a broad range of digital projects, including the digitization of library and museum collections and archives, research in information retrieval technologies for digital collections, and digital library research projects. It also develops instructional resources and facilitating tools for digitization projects, and experiments with the application of digital content in teaching and learning. In general, the DPC has been planned to develop into a centre of excellence in digital information development and management, which will provide digital services and guidance in areas including imaging, archival storage of

electronic files and metadata development for contents, at the discretion of the AAU and other national institutions.

It is one of the primary objectives of the DPC to implement and develop a digital repository management system for the AAU. The AAU institutional repository (AAUIR) will serve as a space for collecting, preserving, and disseminating the intellectual output of the University in digital form. These outputs of the University may include materials such as research papers, journal articles, preprints and post prints undergoing peer review, theses and dissertations as well as other digital assets generated by normal academic life, such as course notes and learning objects. The AAUIR will help the University to create global visibility for the University's scholarly research, collect local content in a single location, and provide open access to institutional research output by self-archiving, and by storage and preservation of other institutional digital assets.

The AAUIR will provide a central archive of the work of staff and students, and increase the dissemination and impact of their research. It increases the visibility and prestige of the University and acts as an advertisement to attract funding sources, potential new faculty and students. It also ensures long-term preservation of the University's academic output. It will encourage electronic learning (e-learning) through carrying out research on best practice and the provision of guidelines on innovative ways of delivery and access to course content.

The DPC defines mechanisms for the production, storage, manipulation, access management and dissemination of digital library content. It investigates all aspects of creating and disseminating digital collections, including proposed and adopted standards, emerging technologies and formats, effects on previously established processes, and protection of original materials. While the DPC also promises to ensure long-term archiving for digital content, access levels for the wider community will be determined by the providers of the original content. In order to expand accessibility of the records of the digital objects across the world, metadata of the digitized content will be added into the University Library catalogue.

Digital libraries research will be made an interdisciplinary activity across various programmes within the AAU. It will focus on the practical problems of large-scale electronic publishing, web information systems, scholarly communication and the long-term preservation of digital information. The research will investigate architecture, protocols, services, users, and policies that facilitate the creation, management, accessibility, and longevity of digital information. It will also cover areas like digitization of unique resources for the purpose of preservation and wide public access as well as metadata creation, use, evaluation, standards and workflow.

In general, the Centre will develop and progressively implement large-scale country-wide collections with innovative access services that support communities of practice in the creation, interpretation and use of cultural and scientific content, including multi-format, multi-source and multi-language digital objects. In order to realise its objectives, the DPC will establish partnership with various institutions, universities, and private citizens.

Overview of DPC digitization workflow

The basic steps to be followed by the DPC for the comprehensive range of activities from digitization to service delivery include the following:

- DPC enters into agreement with the owner of documents with clear arrangement for digitization, access and treatment of original and digital versions;
- DPC develops guidelines and advises various units of the University on document selection for digitization;
- transfer of selected documents to the DPC temporary storage and preparation for scanning;
- document scanning and formatting of digital content;
- addition of sufficient metadata to digital content to allow retrieval and management of the digital copy;
- quality control of metadata and digital copy of documents;
- addition of the digital content to the digital repository to make it accessible for the University community and the general public, depending on the access control and publicity arrangements made with owners of the original documents;
- treatment and transfer of the original document back to the owner; and
- maintenance of digital copies and metadata based on the migration schedule developed.

Conclusion

There are diverse digitization practices within the AAU but most of these efforts are not more than the production of digital documents. The various difficulties mentioned above, caused mainly by diverse practices, require a standardized and systematic approach. Thus, recognizing the importance of digitization and digital resources for research and scholarship, the University Library and some major units of the University took the step to move from a project-based approach to a programme that has a well defined role in the strategic objectives of the Library and the University at large. This helps to harmonize the diverse digitization efforts and pave the way for a wise use of the limited resources for such activities.

The role of the DPC in steering local research to find ways and develop tools that will organize local multi-language and multi-format documents into digital library systems will certainly support the optimal utilization of services and products by all local and external communities. I believe it is also a step forward in addressing the issue of sustainability in digitization and the management of digital resources by strong adherence to internationally recognized standards and best practices to facilitate interoperability and long-term access to digitized content.

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