

Roads to Digital Libraries: A Discussion on the East Asian Experiences

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I am honored to be part of this workshop to discuss issues about and strategies for implementing a Maghreb digital library. Although the development of digital libraries is still in its early stages, there have already been many experiments performed, projects accomplished, and lessons learned over the past years. As an East Asian librarian in a U. S. research institution, I have had opportunities to learn and observe successful and not-so-successful digitization projects implemented in both the United States and in East Asia (including such countries and regions as China, Japan, Korea, Taiwan, and Hong Kong). It is my hope that, by sharing some of what I have learned and observed, I might be able to bring some useful perspectives to the workshop.

I would like to briefly discuss three issues.

1. Commercial vs. academic endeavors

The vast majority of digitization accomplishments made in the U. S. and the East Asian countries can be attributed to two major forces: commercial companies and academic or research institutions. Because of differences in the political and economic systems, the role played by each of these two forces varies, to a certain degree, from country to country. But in general, the digital endeavor accomplished by commercial enterprise tends to be greater in scope, mightier in quantity of data, and require larger investment for long-term development and sustainability than the digitization projects made by academic institutions. Obviously, with profit as their primary goal, commercial companies need to make sure that the contents they choose to digitize are marketable and can sell well. While the materials they have chosen to digitize include many different kinds of publications, their favorites appear to be journals and magazines, publications in science and technology, law materials, and newspapers. In order to assure good (useful and wanted) content, commercial companies often seek partnerships with publishers (in some cases, they are also publishers) and sometimes with libraries and research institutions.

In comparison, the digital projects accomplished by academic or research institutions tend to have a much more focused scope or subject with focused goals and limited resources (both human and financial). The materials they choose to digitize are often from their own collections with uniqueness, rarity, and local or subject strengths. However, there are some exceptions. In Japan, for instance, the National Institute of Informatics (NII) is an inter-university research institute but provides portal service to the scholarly community in Japan with various online information, including a good number of digitized academic journals in full-text (<http://ge.nii.ac.jp/>). The institute provides online access to about 4,400 journals. Among them, more than 700 titles are from 260 academic societies which are known to publish many of the best academic journals in the country. The rest were the “university journals/bulletins” published by more than 600

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universities. NII obtains the digital right of these journals from each society and provides access to them with a system that collects payment for a site license, individual accounts, or through a pay-per-view option to compensate the publishers. Because of the complication and difficulty in obtaining and managing digital right, the database contains only journals published by universities and some by academic societies but not titles by commercial publishers. As more commercial digital databases have entered the Japanese market in recent years, it remains to be seen how the NII's journal database will play out in future.

Understanding the different characteristics of the commercial versus the academic forces in digitization will be helpful in determining what to digitize for the Maghreb digital library. To avoid choosing something that would be best done by a commercial company is certainly wise, but it is also good to keep in mind that commercial companies are not always competitors – they could very well be helpers or even partners. For instance, several successful digital projects that have been accomplished by academic or research institutions in China and Taiwan have used commercial companies for developing special software, managing the access, billing and payment, or even being contracted to implement much of the hands-on part of a project.

2. Collaborated vs. individual endeavors

Here, collaborated endeavor refers to the digital projects that involve more than one institution in participation whereas individual endeavor refers to those which are mainly implemented by a single institution. Each type of endeavors has had successful examples and will have its own right to be continuously successful. However, since the Maghreb digital library will be a collaborative endeavor, I am focusing on this type.

Collaborated endeavors vary greatly in scale, ranging from a few institutions to regional, national or even international endeavors. The advantage of a collaborated endeavor is that it pools the resources, support and expertise (both subject and technical) of all the participants together; however, it also requires a greater effort in organization, coordination, and communication. China Academic Digital Library and System (CADLIS) is an example of a collaborated endeavor on a large scale. CADLIS was launched in 2002. It was the second phase of the project “China Academic Library and Information System” (CALIS), which started in 1996 and was funded since then by the Ministry of Education in China. CALIS has several hundreds of members. All of them are academic libraries, including libraries from all the top-notch universities. The system has 4 national, 7 regional and 15 provincial centers. While the main objective of the CALIS was to improve tradition library resource sharing among its members by implementing network and library automation technologies, the CADLIS also focuses its effort on digitization and e-services. The contents that they chose to go digital with include theses and dissertations, special collections, and some public domain monographs. It makes very good sense for each participating institution to digitize its own theses, dissertations and local collections with unique or special strengths and to share them with each other. To support this working model, CADLIS took a “centralized

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metadata, distributed full-text” approach for the project. Other interesting e-projects under CADLIS include: 1) “the virtual reference system” which intends to develop a central knowledge base with 50,000 entries from reference inquiries and their answers contributed by the participating members; 2) web resource navigation database which provides web navigation and linkages for various subjects and subfields developed by the participating members based on their institutional specialization and strength of the expertise; and 3) e-reserve service database which intends to construct a centralized database covering course materials for more than 2,000 classes by the participating institutions. These projects carry a common vision and principle: sharing – not only in resources and benefits but more importantly in building and developing. For a country or region with limited resources, the collaborated endeavor certainly looks attractive but poses greater challenges in implementation. Some important lessons learned by the Chinese in implementing CADLIS include: 1) developing and complying with common standards (e.g., for metadata) and open structure from the beginning of the implementation, and 2) adopting commercial software when available for various functions is often more effective in long term than developing your own.

3. The role of government

In East Asia, the government has played a very important role in the development of digital libraries. For instance, the National Institute of Informatics (and its predecessor National Center for Science Information Systems) that I mentioned earlier has received funding from the Japanese government for the services it provides and the research it conducts for all these years. The CALIS and CADLIS projects were not only funded by the Chinese government (via the Ministry of Education) but were also launched as major nationwide projects that receive priority in resource allocation and support. In fact, the digital library projects in the East Asian countries are often part of a national strategy which has much broader objectives and greater commitment from the government. For example, in Taiwan, the government launched an e-Taiwan Project in 2002, aiming to greatly enhance the nation’s communication infrastructure, beef up the information industry, and promote various e-applications in the society. The Project was funded by the government with about 900 million dollars for 6 years. In addition to various e-infrastructure, e-industry and e-government subprojects, the Project also includes several e-society subprojects. The National Digital Archives Program (NDAP) was one of such subprojects. The program has a five-year plan (2002-2006) with a main objective of promoting and coordinating content digitization and preservation at leading museums, archives, libraries, universities, research institutes, and other content holders in Taiwan. The NDAP was directly sponsored by the National Science Council (a government agency) with about 10-million dollars per year for the first two years and more than 15-million dollars each year thereafter. The program has digitized contents in various subjects including world maps, astronomical maps, and contents in archeology, geology, botany and zoology. A few years after the e-Taiwan Project was in implementation, the Taiwan government launched the m-Taiwan Project. With a government investment of more than 200-million dollars each year for five years, the m-Taiwan Project intends to improve the nation’s technological infrastructure to take full advantage of the mobile

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phone and wireless network technologies for enhancing the country's overall competitiveness in the global economy and for developing an information rich society.

Clearly, being a part of a national strategy could give the digital library projects big advantage. However, it also requires that the government understands the power of information technology in today's world and the economic and educational benefits it may bring to its society. In this regard, Korea's experience was another good example. The Korean government's initial investment in a digitization project began during the Asian financial crisis in the late 1990s, when the country was suffering a terrible financial turbulence coupled with a high unemployment rate. At the time, a large number of young college graduates were faced with unemployment, which would not only have been a waste of valuable human resource but also a potential threat to social stability. In order to promote employment and boost the nation's economy, the government hired 13,000 young college graduates in a two-year period (1998-2000) for labor-intensive digitization projects. These projects not only helped the country in stabilizing its social and economical conditions through a difficult time but also laid a solid foundation for its future development in the digital era by converting a huge number of traditional materials into digital form. In 2000, the Korean government enacted the Knowledge Information Resources Management Law and mapped out a Knowledge Information Resources Management Plan (with more new projects) to continue and broaden the country's initial success in the e-knowledge endeavor. From 1999 to 2005, the Korean government invested more than 300 million dollars in these knowledge information projects. In 2006, it put another 43 million dollars towards sponsoring 43 such projects. By the end of 2005, about 250 million items were digitized including materials in nature sciences, information technology, history, culture and other educational and scholarly resources. Many of these resources can be accessed by the public via the Korea Knowledge Portal (<http://www.knowledge.go.kr>). The Portal is managed by the Korea Agency for Digital Opportunity and Promotion, an agency established in 2001 by the Korean government.

As I conclude my brief discussion, I would like to thank the organizers of this workshop and especially the local host for providing this wonderful forum for participants to share views and experiences and to discuss issues on digital libraries. Although one country's success may not be duplicable by another country due to the differences in political systems and social, economic and technological conditions, one could always learn from others' experiences: adapting the successful approaches that fit, and avoiding the known pitfalls and mistakes that others made.