

US-Korea Collaboration on Digital Libraries: An Overview and Generalization for Pacific Rim Collaboration

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Abstract. We report on recommendations to remove barriers to worldwide development of digital libraries, drawing upon an Aug. 2000 workshop involving researchers from the US and Korea who met at the San Diego Supercomputer Center. We present a summary table identifying application domains (e.g., education), institutions engaged in those applications, example activities, technical challenges, and possible benefits. Since education has high priority in Korea, an important opportunity that should be explored is involvement of Koreans in the initiative led by the US NSF to develop the National STEM (Science, Technology, Engineering, and Mathematics) education Digital Library, NSDL.

1 Discussion

There are many barriers to the worldwide development of digital libraries. These are of particular concern in the context of digital library support of collaboration on research and education between pairs of nations with very different languages and cultures, such as the US and Korea. Recommendations to remove such barriers were developed originally through a workshop involving digital library researchers from the US and Korea who met August 10-11, 2000 at the San Diego Supercomputer Center (see <http://fox.cs.vt.edu/UKJWDL>). A brief summary list of these includes:

1. Real / potentially significant collaboration opportunities should be nurtured.
2. An important opportunity to explore is involvement of Koreans in the US NSF led National Science education Digital Library, NSDL (www.nsd.org).
3. Teams should apply to NSF's International Digital Libraries Collaborative Research and Applications Testbeds Program and similar programs in Korea.
4. Further focused programs might relate to one or more of:
 - a) Korea Culture and Heritage Digital Libraries;
 - b) ontologies and the areas dealing with human languages (e.g., machine translation, cross-language information retrieval, text summarization);
 - c) application areas of particular importance, such as health / medical care;

- d) important DL problems, such as architecture (including managing data, information, and knowledge), interoperability, and user-centered design.

Table 1 further establishes a context for this discussion by identifying application domains, institutions engaged in those applications, example activities, technical challenges, and possible benefits. The application domains support communities which provide requirements that drive the development of digital library applications. The related institutions are representative groups that need the associated software systems. The examples describe either types of software systems, or collections used by the institutions. The technical challenges are specific capabilities needed for a successful digital library. The benefits/impacts are broader results that accrue from the implementation of software to meet the technical challenges.

Many of the technical challenges are cross-cutting, impacting many domains, leading to basic technology important to many institutions. In this sense, the cross-cutting issues can be considered the highest priority challenges for exploration within the context of a US-Korea joint development project. Also noteworthy are the bold entries, which may be of particular relevance to the growth of digital libraries in Korea.

Table 1. Overview of Digital Library Applications, Benefits, and Challenges (where bold entries may have particular application in Korea)				
Application Domain	Related Institutions	Examples	Technical Challenges	Benefit / Impact
Publishing	Publishers, Eprint archives	OAI	Quality control, openness	Aggregation, organization
Education	Schools, colleges, univities	NSDL, NCSTRL	Knowledge management, reusability	Access to data
Art, Culture	Museum	AMICO, PRDLA	Digitization, describing, cataloging	Global understanding
Science	Government, Academia, Commerce	NVO, PDG, SwissProt, <i>UK eScience, EU commission</i>	Data models	reproducibility, faster reuse, faster advance
(e) Government	<i>Gov. Agencies</i> (all levels)	Census	Intellectual property rights, privacy, multi-national	<i>Accountability</i> , homeland security
(e) Commerce, (e) Industry	Legal institutions	Court cases, patents	Developing standards	Standardization, economic development
History, Heritage	Foundations	American Memory	Content, context, interpretation	Long term view, perspective, documentation, recording, facilitating, interpreting, understanding
Cross-cutting	Library, Archive	Web, personal collections	Multi-language , preservation, scalability, interoperability, dynamic behavior, workflow, sustainability, ontologies, distributed data, infrastructure	Reduced cost, increased access, preservation, democratization, leveling, competitiveness, peace