Date submitted: 24/06/2009

National Digital Library – Ensuring of availability of electronic information resources of libraries, archives and museum now and in the future

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Meeting: **190. National Libraries**

WORLD LIBRARY AND INFORMATION CONGRESS: 75TH IFLA GENERAL CONFERENCE AND COUNCIL
23-27 August 2009, Milan, Italy
http://www.ifla.org/annual-conference/ifla75/index.htm

Abstract

Ministry of Education of Finland has started a project called "National Digital Library" (2008 – 2011) which encompasses digitization of prioritized cultural heritage material of museums, archives and libraries, and online accessibility and long term preservation of both digitized and born-digital cultural material.

The aim of this project is to establish one national access point, a public interface to digital resources - collections, databases and repositories - and services of libraries, archives and museums.

This new information and communication infrastructure will be divided to front-end user services and back-end management systems. The public interface provides the front-end services. Back-end systems are library systems, digital archives, museum collection management systems, linking resolvers, metasearch systems and the long term digital preservation system.

In addition, the Finnish National Digital Library aims at creating a common infrastructure for long-term preservation of digital cultural heritage materials of libraries, archives and museums.

Introduction

Dear colleagues, I am delighted to be here and to have the opportunity to give a presentation on the Digital Library of Finland.

Libraries, archives and museums are at the core of the information society. Their electronic information resources and services determine to a great extent how culture, history and science are present in our daily lifelives, research, education and creative

activities. These organisations are in a position to make an active contribution to the kind of information society that we will inhabit in the future.

The National Digital Library is a Finnish Ministry of Education project. The project implements the goals of culture, education and science policies. It is based on the notion of a valuable information resource complex formed by libraries, archives and museums the prudent management of which requires coordination, collaboration and shared solutions.

At the same time, the National Digital Library project is part of the national development of electronic services and infrastructures. It is one of the public administration projects defined in the Ubiquitous Information Society action plan implementing the Government Resolution on the Objectives of the National Information Society Policy 2007−2011.

The policies set up in the communications and recommendations of the European Commission and in the conclusions of the Council of the European Union concerning the central role of cultural materials, scientific knowledge and research materials as the content of the information society and conveyed in these documents calls for action by the Member States to be taken into account when defining the goals and focuses of the project.

The aim of the National Digital Library project is to make the electronic materials of libraries, archives and museums accessible to all via information networks and to preserve them for future generations. In future, their main information resources will be accessed through a common user interface. One long-term preservation solution will be developed for that cultural heritage material which will be permanently preserved.

Culture and science content in common services

The future public interface of the National Digital Library will provide ample access to the information resources of libraries, archives and museums and enable the use of their electronic services. Using the one stop shop the customer gets the desired information via one service regardless of which organisation has produced this information.

The public interface forms a common national view to the services offered by the back-end systems of libraries, museums, archives and other information providers. Back-end systems include, among others, library, archive and museum systems, a long-term preservation system, a meta-search service and digital archives.

The public interface enables the user to easily access a versatile bulk of materials that consists of databases, catalogues, documents, newspapers, research reports, videos, audio recordings and e-publications. The majority of the resources offered by the public interface are public domain material that is open to all users. In addition, there will be available licensed materials requiring identification such as e-magazines or archive materials with restricted display and use. Initially, the service will include 50 million database references, hundreds of thousands of museum objects and photos, over 1.3 million pages of old newspapers, over 20,000 scientific journals, more than 300,000 e-books and hundreds of thousands of documents. Moreover, there will be more than 1 million pages of digitised archive material.

The operating principle of the evolving public interface is based on separating the front-end service and the back-end systems from one another. This makes it possible to develop the public interface regardless of the development of the back-end systems. The digital objects themselves still remain in the back-end systems.

Within the framework of the National Digital Project, the aim is also to enhance the availability of copyright protected materials. This requires that the different parties would seek in cooperation solutions enabling the use of these materials. The public interface will be deployed in 2011.

Operating principle of the public interface

The public interface performs automatic indexing of the material's metadata for information retrieval. Standard interfaces can be used for indexing or the necessary interfaces can be built between different systems. Services produced by the back-end systems will also be integrated into the front-end service (for example, orders for photos, material booking, renewal of library loans). Other external services can also be linked to the user interface. Indexing is supplemented to a required degree by real-time meta-searching from distance databases.

In addition to the public interface forming a common national view of the materials offered by libraries, museums, archives and other information providers, the organisations can customise their own organisation-specific views. In their own user interfaces they can adopt their own visual design and make their own materials first for retrievals. In this way a search interface for the organisation's material can be created using the public interface.

The public interface can be integrated into the organisation's web site, portals and other systems. Search functions can be added to, for example, electronic learning environments, social web services and other environments. In other words, information search services can be offered in those environments where the users already are.

The end-user groups of the public interface consist of the general public, experts, the training sector, cultural actors, authorities and the media. Therefore, the service must support the very different needs and processes of an information search.

Practices of the social web are utilised, for example, by giving the users an opportunity to attach their own indexing terms or tags to contents and by offering other communal and interactive services. In terms of culture and science policy, the aim of utilising Web 2.0 technologies and the practices of social media is to empower users and to increase the impact of the information resources which to a great extent are produced and managed with public funding.

Digitisation as part of the National Digital Library

In future, information networks will have an increasingly important role as environments for information searching, learning and experiencing a sense of community. The quality and representativity of the cultural and research material that can be accessed via these

networks will define how culture, history and science are present in people's daily lives and how they are used as source material for research, education and business.

It is a challenge for culture and science policy to enable digitisation of the most important cultural and research materials that are in a physical form - documentary materials, publications, photographs, audio and video recordings, objects and cultural environment sites - so that the materials available online would form a representative, versatile and sufficiently comprehensive national complex.

On a national level, the ultimate goal of the digitisation of the physical library, archive and museum materials is to gain the positive social impacts that the use and reuse of the digitised content would create. It is a common challenge to accumulate, on a national level, material that takes equally into account the needs of citizens, science, culture and education. The impact can also be approached by considering what negative impacts non-digitisation of the most essential cultural heritage materials would have on people and different social sectors.

Building of the user interface will raise new questions concerning the choice of the materials to be digitised as the materials become part of a larger entity. Together with organisation-specific priorities, the one stop shop will create a convenient channel for libraries, archives and museums to cooperate in evolving focus areas that would satisfy essential customer needs.

A prerequisite for successful digitisation of cultural heritage material and its subsequent attachment to a common search service is that the memory organisations prepare or update their digitisation plans which define the priority criteria used in the selection of material to be digitised. With a view to ensuring the availability and long-term preservation of materials, it is a challenge to the whole field of actors to create practices that promote a structural standardisation of metadata.

The digitisation of cultural heritage materials will be carried out both as an outsourced service and as an in-house activity in libraries, archives and museums. Among the memory organisations, the Centre for Microfilming and Conservation at the National Library of Finland specialises in the development and implementation of digitisation of bound and stitched volumes, loose leaves and audio recordings as an internal service of the National Library and as a chargeable service for external customers. Its digitisation activities will be strengthened and expanded. In Finland, there are a considerable number of private sector actors offering digitisation services. In order to form a balanced national complex it is fundamental that the essential prioritised materials will be digitised within a reasonable time, irrespective of the type of material in each particular case.

For a memory organisation, digitisation also incurs many other ecomic consequences in addition to the actual implementation of digitisation. Advanced online services improve the efficiency of activities as resources can be reduced to a traditional customer service. In most cases digitised material is intended for permanent preservation; accordingly permanent availability will multiply the impact benefit gained by digitisation but it can also incur long-term expenses.

In recent years, Finland has been in the middleweight class among European countries in terms of public funding allocated to the digitisation of cultural heritage materials. In addition

to the social benefits accruing from digitised materials, the labour intensity of the actual digitising process has certainly improved the Ministry of Education's chances of allocating funding to the digitisation activities carried out by memory organisations even in times of recession.

Europeana provides a European view

National digital libraries are evolving simultaneously in many European Union Member States; in future their materials can also be searched in the European Digital Library, Europeana.

The European Union's i2010 strategy, the Digital Libraries Initiative of the European Commission and subsequent policies have aimed at creating a common European digital library.

Europeana is a joint project of the European Union Member States and the European Commission: a multilingual search system extending to the object level. Its essential content consists of the digitised materials of libraries, archives and museums. In comparison with many other EU-level and internationally implemented Internet services, the merits of Europeana, which is currently at the pilot phase, rest in the reliability and diversity of the materials.

A prototype for the European digital library Europeana www.europeana.eu was launched in autumn 2008. The initial technical problems have been solved and now the service provides access to four million objects. A complete service with richer content, advanced search functionalities and versatile services will be launched in two years. One of the aims is to offer the users a multilingual search functionality.

Europeana constitutes a common view of European cultural heritage. This is especially important for those countries in which materials have been difficult to access due to linguistic or other reasons. Hence, there is a strong possibility that, for example, the use of Finnish sources in international research will increase with Europeana.

Among services similar to the Finnish digital library we might mention the German BAM-portal www.bam-portal.de/, Culturaitalia www.culturaitalia.it , and Culture.fr http://www.culture.fr/. Recently published services, which are less extensive and somewhat different from one another, include the Swedish Sondera http://sondera.kb.se/ and the Austrian www.kultur-pool.at/.

It is characteristic of the Finnish solution that a search service extends also to databases and catalogues whereas many other similar services cover digital objects only. It is also ambitious to integrate current and new services into the public interface, thus making it more than a search service.

According to Europeana's vision it aims to be more than just a resource portal. Europeana seeks to disseminate not only content but also competence and innovation. A community of developers will be set up around the service with the task of producing new search methods and services on the basis of the content and its reuse. Europeana can utilise its central position by generating new information resources and tools for all. It provides the

participating organisations with new audiences, users for services and it can be used for advertising current exhibitions.

It is fundamental for attaining these aims that, in addition to building Europeana's own permanent management model, available materials are produced by the participating organisations and that they are of high quality both in terms of technicalities and content.

From Europeana's standpoint national and cross-sectoral projects built on a sustainable basis such as the Finnish National Digital Library are of special importance.

Centralised long-term preservation is reliable and cost-effective

The realisation of the long-term preservation of electronic cultural heritage and research materials has become an acute issue in the framework of digital libraries both nationally and internationally. Maintaining the availability of materials contained in digital libraries far into the future requires that a sustainable solution for the long-term preservation of electronic materials is found.

During the last decade, actors throughout the world have become conscious of the fact that without a sustainable realisation of the long-term preservation of electronic materials our collective memory is in danger of becoming damaged in the course of time. At the same time, we will lose the strength of evidence included in the materials and their potential as a source for education, research, creative activities and general access to information, and as an object of economic utilisation and the social environment.

The National Digital Library project focuses primarily on the electronic cultural heritage materials of the memory organisations operating under the remit of the Ministry of Education. The aim is to design a common solution that will preserve the national electronic cultural heritage in a usable form for hundreds of years.

The long-term preservation system under design will offer interface services both for receiving material from the organisations' information management systems and for distributing the stored information to back-end systems. The basic task of the system is to offer digital information delivered for storing to the target audience in an accessible form.

Another aim of the development of the use and preservation of digital materials is to make the use of resources more efficient. That is why it is justified to seek a centralised solution that would save costs in all the processes of long-term preservation.

The prospective long-term preservation solution conforms with the national IT policy definitions and architecture of public administration. It is follows the logic of the Reference Model for an Open Archive Information System (OAIS).

A plan concerning the long-term preservation solution for electronic cultural heritage materials will be completed in summer 2010. Hopefully it will be possible to start its implementation in the coming years.

Cooperation intensified and expanded also in future

In addition to creating common solutions, the implementation of the National Digital Library requires elaboration of practices, continuous interaction and agreement on the rules of the game.

A total of 70 members from 35 organisations in five groups are participating in the development of the National Digital Library project. The development of the common user interface and the long-term preservation solution are supervised by extensive sections working under a steering group.

So far the project has defined functional requirements for the public interface and the long-term preservation system, investigated the scope, availability and long-term preservation needs of the electronic information resources of libraries, museums and archives, and has started to build an overall architecture for the whole project.

At the same time, it has been noticed that certain national services are gaining ever-more importance. These services cannot be realised in the project but they are fundamental to attaining the project goals. These include, for example, the adoption and maintenance of services related to uniform resource names (URN), finding author information in different languages (authority database), ontologies and geographic information. The establishment and expansion of these services would also serve other electronic services that are important for citizens and authorities.

The services, practices and procedures produced by the project have an impact on the whole field of libraries, museums and archives. With the creation of the National Digital Library, efficient common utilisation of infrastructures will increase and the use of national information resources will become more efficient. The utilisation of common solutions requires that the organisations update their processes, work hard to build interfaces and commit themselves to joint development work also in the future.