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The Design of a Digital Library for Mexican Universities

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Abstract

The text shows the link between a theoretical model of an academic digital library and the design of this library at the Institute of Library Research and Information of the National Autonomous University of Mexico. The resulting digital library may be applied in the development of digital libraries in different Mexican universities.

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1. Introduction

From a theoretical perspective, a fully developed digital library (DL) is an organized collection with associated services, where information is stored in a digital format and can be accessed through an information system network.

Nowadays, the predominant trend is to design digital libraries for solving specific library problems. An ideal paradigm would consider research as a source of information for practice, however, this is not the case for digital libraries. Research intervention is scarce regarding the creation of digital library projects and lacks feedback from the empirical part, so research cannot be restructured to include libraries’ dormant problems. This disconnection between research and practice has caused some DL issues to be neglected, since DLs are not seen from a great perspective where they might be considered as a whole.

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The project represents a link between the theoretical model of digital library and a proposed organization for digital resources, considering the practical aspect of this library.

This project will define the guidelines for the development of a digital library for the community of researchers in the field of Librarianship and Information Studies at the Institute of Library Research and Information (IIBI) of the National Autonomous University of Mexico (UNAM).

Since this DL for Librarianship and Information Studies is being developed in the heart of a university, the feasibility of replicating this design in different Mexican universities is considered.

2. General Objective

This article will show you the guidelines for the design of a digital library. This is the first phase of the research project entitled Digital Library in Library Research and Information Studies, developed under the guidance of Georgina Araceli Torres Vargas and collaborative guidance of Ariel Alejandro Rodriguez Garcia, both researchers of the Institute of Library Research and Information of the UNAM.

The main objective of this investigation is:
Developing a digital library for the community of researchers in the field of Librarianship and Information Studies at the Institute of Library Research and Information of the National Autonomous University of Mexico, so this DL may be replicated at different universities in Mexico.

3. Research Methodology

The design is based on:

a) A theoretical model of Digital Library developed from the research at the Institute of Library Research and Information.

b) Usage of the focus group technique with individuals from participating university communities to verify the design.

In this model, Digital Library is defined as:

A library based on a documentary information system network, which offers users digital content and services, whose information and media servers are located in different corners of the world.

This model is composed of three variables:

1. Information technology and communication necessary for accessing DL collections.

2. Organized digital contents. Distributed in a network with different levels of accessibility, can be both local and shared.

3. Digital services. Services are provided and administered in cooperation with other libraries.
The digital library is considered as an independent system for its design. It is not related to the conventional library system, therefore, considers the study of phenomena associated with digital information management and addresses the solution of their problems. The variables that compose digital libraries are closely related.

Due to its nature, digital libraries are under constant development, both in its services and in its contents. The organization of these contents is also continuously developing. Also, the technological roots reveal the social actors (users, librarians, programmers, editors, distributors, etc.).

According to the current technological context, the Digital Library in Library Research and Information Studies will share some characteristics of the Semantics Library. So this DL will be a Semantics Digital Library.

4. The design of the Mexican University Digital Library

According to the theoretical model, reviewed documents, and projects on digital libraries worldwide, the variables of the Digital Library were defined as follows:

1. Digital Library Collection.

2. Technological tools necessary for developing a Digital Library in the area of Librarianship and Information Studies, designed for the research community.

3. Digital Services.

4.1. Digital Library Collection

All documents included in the Digital Library collection will be digitalized. Journals with a digital subscription already carried by the library are not considered as part of this collection. However, the link to the recorded catalog will be offered. The digitalization of documents generated by the community of researchers and alumni of the Ph.D. in Librarianship and Information Studies will be favored.

Since the objective is to include some of the features of the Semantics Digital Library as well, a space will be set out to share information generated by the user and for writing collaboration.

Digital documents will include:
- Monographs edited by the IIBI.
- Posters advertising academic events of the IIBI.
- Digital videos of conferences, symposia, or colloquia.
- Interviews of visiting and IIBI researchers.
4.2. Technological tools

Based on an evaluation of available software for building digital libraries semantic features, we decided to use eXtensible Catalog (XC), which is an open code software. The metadata scheme of XC is based on RDA (Resource description and access) and on FRBR (Functional requirements for bibliographic records).

Since the own metadata scheme of XC is already prepared to present data in RDA, it allows the creation of a Semantics Digital Library.

The inclusion of a repository within the Digital Library is being considered, so documents regarding developments in research studies may be kept, as well as the progress of doctorate theses to be shared with their tutors. The repository is seen as a complement of the Digital Library.

Uses of the Digital Library will be the following:

1. Establish an academic communication and collaboration
2. Favor the previous digital publication of preliminary and final results from research. This information should be protected with a restricted access for uploading as well as for the use and consultation of such materials.

Several tools for the creation of contents by users:

- Software for Weblogs (blog ware). These are Content Management Systems specially designed to create and administer blogs.
- Blogging. Tools to improve the use of blogs. Including readers, organizers, resources to save HTML as PDF, do backups, label, search, disclose, optimize, and index dynamically, as well as an extensive range of applications to enrich blog use.
- Social Networks. Promote communication amongst the community.
- CMS (Content Management Systems), which allow information modification from any computer connected to the Internet, simplifying the tasks for the creation, distribution, presentation, and maintenance of Web contents. Usually, they provide a text editor WYSIWYG (what you see is what you get), in which the user can see the final result while he/she writes, without worrying about programming codes.
- Wikis is a tool that gives the opportunity to modify, increase, or enrich contents published by another person.
- Online Word Processors and Spreadsheets. These are word or number processing tools, with an online platform, therefore, they may be accessed from any computer connected to the Internet. These applications allow users to access, edit, reformat, and share documents. The possibility to create contents in a collective and collaborative fashion is one of its qualities. Multiple users may edit text simultaneously, keeping a historical record of their modifications.
- Photo/Video/TV. Platforms to store, publish, share, and edit, oriented to simplify the access, organization, and search of digital materials and multimedia (photo, audio, and video). Besides finding several areas where the user may publish his/her files, he/she will find out some resources to share and distribute his/her information inside the Internet.
The repository should be a system that facilitates the collection, accumulation, and storage of research results from the alumni, as well as different academic contents created by students and researchers.

Another tool to be used will be the Onix system, for the labeling of monographs. This program uses XML language, which is widely used to interchange or share data among several applications and platforms. We consider that the use of XML provides many advantages such as the flexibility of presentation and the potential to transfer to other systems.

4.3. Digital Services

The Digital Library Services in Librarianship and Information Studies have a direct relationship with the digital publishing cycle.

![Fig. 2 Digital Services](image)

- **Quality Assurance Services.** Verifies metadata quality in the publication. It is determining in the semantic search and recovery.
- **Search, browsing, and recommendation.** Resources recommended among users or by the library through social networks.
- **Services for Augmenting Resources.** Annotations among the community, tagging, and through the highest number of consults.
- **Dissemination and notification services.** Really Simple Syndication (RSS) and notification services by electronic media. Also included mobile information services.
- **Communication via social networking.** Social networks allow the communication among users and its library.

5. Final thoughts

Currently, tests with the chosen technological tools are being performed. The effectiveness in the organization and recovery of information begins to be perceived.

Services aspect is refined according to the uses detected to be useful when tests are performed.

Besides, work is being done in the delimitation of information policies for the access, deposit, and use of digital library documents. These policies will permeate every variable, allowing them to be one of the basic axes for the appropriate development of the library.

Once a sample of documents is collected and services are ready, tests will be performed with the focus group, which will include IIBI researchers and researchers from other regions, such Portugal.
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