

Digital Library Activities in Europe: A Brief Overview

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Abstract

The article is a brief overview of the digital library activities happening in the last decade in Europe. At first the definitions of the digital library was discussed. Then in the main part of the article the programs and projects on the digital library taking place in Europe are described briefly at three levels, which are digital library activities across Europe, national digital library activities and local digital library activities. In addition to the programs and projects several examples of the conferences and institutions in the field are also given in the article. Finally some conclusions are drawn based on the description above.

Keywords: *Digital library; Activity and project; Europe*

So far since the year the first group of digital library projects were initiated more than ten years have passed. Within these years the digital library has become from a “baby” to a “mature adult” and entered into the stage of stable development. It might be unnecessary to declare again and again how important or meaningful the digital library is. The situation that there have been so many digital libraries on the Internet could be an apparent and the simplest evidence for the degree of how the digital library is welcome, though some of them are not real digital libraries according to the strict standard.

Europe is an area with both long and splendid cultural traditions and advanced information technologies. Digital libraries develop quite fruitfully in this area. As an observer the writer makes a brief overview on the digital library activities in academic communities in Europe. She intends to draw an outline of the development of European digital libraries so that the experiences might be shared with more and more professionals all over the world. Nevertheless it's impossible for the writer to mention all such activities in pan-Europe. The selection has to be made with pain while writing.

Definitions of Digital Libraries

The digital library has different visions in the minds of people from different domains. There are a great number of definitions of the digital library as time being and many of them were formulated during the implementation of digital library projects. Some of the definitions are comprehensive while some of them focus on one or more aspects of the digital library. Here are some typical examples of the various definitions.

The Digital Library Federation (DLF) drafted a full definition which is thought to be broad enough to comprehend other uses of the term.

Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities.¹

More recently William Arms put forward an informal definition of the digital library in his monograph *Digital Libraries* as following:

An informal definition of a digital library is a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network.²

Additionally in order to distinguish the term “digital library” from “electronic library” and “virtual library” Roy Tennant once provided a definition for the “digital library”.

A digital library is a library consisting of digital materials and services. Digital materials are items that are stored, processed and transferred via digital (binary) devices and networks. Digital services are services (such as reference assistance) that are delivered digitally over computer networks.³

In a word, from the definitions above it could be found that the key factors of “a digital library” are managed digital collections and service based on the digital collections and the computer network is the platform of the digital library. However in the practice experts from different communities have their own emphases when dealing with the digital library. The computer scientists and engineers might emphasize more on access to and retrieval of the digital content of digital libraries while comparatively the library and information professionals pay more attention to the digital collection and service on the basis of the digital collection. According to the writer’s understanding both aspects should be the same important and that’s why the three definitions above were selected.

In the following parts not only the initiatives or projects which include the phrase “digital library” in their names will be mentioned but also some activities focusing on one or more aspects of the digital library activity will be included. The digital library has become more and more comprehensive field and itself deal with a lot of disciplines.

Digital Library Activities in Europe

Though the idea of the digital library is not new,⁴ it came into reality until 1990s. Generally all over the world the pioneering digital library projects took place in the United States, for example, the Alexandria Digital Library Project, Digital Library Initiative, etc. Soon later the activities related to the digital library began to be launched out in Europe where such new style for preserving and transmitting the cultural heritage seems more necessary. In the last decade variety of such activities happened in European countries at various levels.

1. Digital library activities across Europe

Europe is one of the continents where countries with distinct characteristics are located very closely with each other. On the other hand some similar cultural heritages exist cross several European countries. Based on this two fold reasons cooperation among European countries is quite popular. The co-operational tradition is kept identically in the field of the digital library.

a. Telematics for libraries

The European Commission has been active in the libraries area in the context of the European Union's Third and Fourth Framework Programmes for Research and Technological Development, and more specially, the Telematics for Libraries programmes have been a part. Though the running time of the program Telematics for Libraries is from 1990 until 1998 continuous financial support to the digital library activities was provided under the Fifth Framework Programme.⁵ The following list is that of some typical digital library projects within the program.

- * CANDLE (Controlled Access to Digital Libraries in Europe).⁶ The project started in February 1998 and lasted for 30 months. It aims to demonstrate how the digital management system developed in the CaseLibrary project can be used to improve the handling of electronic publications acquired by libraries through collaboration with publishers and supplier agencies. The coordinator came from Madrid, Spain and the involved institutions are the B.H. Blackwell Ltd.(UK), Sough Bank University (UK), Univerit di Fierenze (Italy) and National and Capodistrian University of Athens (Greece).
- * CECUP (Central and Eastern European Copyright User Platform).⁷ It began in June 1998 and implemented for 18 months totally. The project is the extension of the European Copyright User Platform to Central and Eastern Europe. It addresses technological developments towards digitisation and enhanced electronic services which also confront libraries in Central and Eastern Europe, which face increasing problems in the area of copyright. It was coordinated by the European Bureau of Library, Information and Documentation Associations

(EBLIDA). Library Associations of the 10 C&EE (Central and Eastern Europe) countries were involved in the project.

- * DEBORA (Digital Access to Books of the Renaissance).⁸ DEBORA began in January 1999 and lasted for 30 months too. It developed tools for accessing collections of rare 16th century documents via networks. This includes setting up a production chain for digitizing old books. The coordinator was from the National School of Information and Library Sciences Lyon and cooperation happened among institutions from France, the United Kingdom, Portugal and Italy.
- * DECOMATE II (Developing the European Digital Library for Economics).⁹ The project initiated in February 1998 and ended after 30 months. It developed an end-user service that provides access to heterogeneous information resources distributed over different libraries in Europe, using a uniform interface, leading to a working demonstrator of the European Digital Library for Economics. The coordinating institution is the Tilburg University Library, Netherlands and ten institutions from Netherlands, Italy, the United Kingdom, Spain and Belgium took part in the project.
- * DIEPER (DIgitised European PERiodicals).¹⁰ It started in November 1999 and lasted for 26 months. The project addresses the need for a central access point where all digitised periodicals should be recorded. It offers the test-bed for studying the impact of providing electronic access on the use of these materials and may pave the way for electronic modes of publication. The Goettingen State and University Library acted as the coordinating institution and the project attracted over 100 participants from EU countries.
- * EULER (European Libraries and Electronic Resources in Mathematical Sciences).¹¹ The project began in April 1998 and finished in September 2000. EULER is a European based world class real virtual library for mathematics with up-to-date technological solutions, a sound sustainable business model, well accepted by users. The main goal of EULER was to integrate different, electronically available information resources in the field of mathematics. EULER has successfully constructed a digital library in mathematics from existing heterogeneous sources. The coordinator of the project is the Department of Mathematics and Computer Science of the Fachinformationszentrum (FIZ) Karlsruhe in Berlin and main partners came from Germany, Sweden, France and Italy.
- * NEDLIB (Networked European Deposit Library).¹² This project was launched on 1st January 1998 and ended on 31st December 2000. It aimed to construct the basic infrastructure upon which a networked European deposit library can be built. The objectives of NEDLIB concur with the mission of national deposit libraries to ensure that electronic publications of the present can be used now and

in the future. The Koninklijke Bibliotheek, National Library of the Netherlands, led the NEDLIB project. As a result NEDLIB provides a set of tools for building digital deposit systems. The partners separately came from the Netherlands, France, Norway, Finland, Germany, Portugal, Switzerland and Italy and three publishing companies contributed to the project as sponsors.

b. DigiCULT

“Digital Heritage and Cultural Content” (DigiCULT)¹³ is a domain of research activity in the Information Society Technologies (IST) Programme, a European Commission programme addressing the pervasion of Information and Communication Technologies (ICT) into all aspects of the European citizen’s life. This programme was part of the Fifth Framework Programme for Research and Technological Development (RTD) which run from 1998-2002, and continues to exist as a key thematic priority area within the 6th Framework Programme (2002-2006).

The mission of the project is benefiting the cultural heritage sector, through monitoring and assessing existing and emerging technologies that provide opportunities to optimise the development, access to, and preservation of Europe’s rich cultural and scientific heritage, within the emerging digital cultural economy.

The European Commission, DG Information Society, Cultural Heritage Applications D2, in July 2000 issued a Call for a Study on “Technological Landscapes for Tomorrow’s Cultural Economy”, short DigiCULT, to provide memory institutions with better information on how to face this challenge. Salzburg Research in Austria, together with a consortium of nine highly acknowledged European cultural organisations, has been awarded to carry out the DigiCULT study within the next twelve months, starting on January 1, 2001.

The DigiCULT Consortium Prime Partners are:

- * Salzburg Research Forschungsgesellschaft mbH, Salzburg, Austria
- * Consorzio Civita, Rome, Italy

And the following institutions are core expert partners of the project.

- * Austrian National Library, Vienna, Austria
- * Filmmuseum of the Netherlands, Amsterdam, Netherlands
- * Haus der Kulturen der Welt, Berlin, Germany
- * The Royal Library, National Library of Sweden, Stockholm, Sweden
- * Scottish Cultural Resources Access Network — SCRAN, Edinburgh, UK

In addition to the digital library projects across Europe there are also some international cooperations in which many European institutions were involved. One of the examples on this point is Biblioteka Universalis which is basically an international project but most of the partners involved are from the European continent. The project Bibliotheca Universalis aimed to put major works of worldwide cultural and scientific heritage com-

prising text, images and sound, at the disposal of the general public using communication and information technology. Thirteen partners of the project are national libraries and only two of them came outside of Europe.

The project EMANI¹⁴ is another good and more recent example in this range though it happens in not so wide area as the above one. EMANI, or Electronic Mathematical Archiving Network Initiative, aims at ensuring long-term preservation and accessibility of mathematical information in digital form. Since July 2002 it combines four important research libraries located separately in China, France, Germany and USA and content providers such as Springer-Verlag into a co-operational system to support the long-term electronic preservation of mathematical publications.

2. National digital library projects

At first, when the digital library activities at national level are discussed, some pilot projects within the UNESCO's Memory of the World programme should not be neglected. The twofold purpose of the programme is to safeguard and promote the endangered world documentary heritage. During implementation of the programme UNESCO plays its role to the full as co-ordinator and catalyst. The projects within the programme took advantage of variety of digital methods to address the need for preserving manuscripts, rare and valuable documents in the libraries and archives and other documents in any medium crucial to protecting and continuing the national documentary heritage. For instance, one of the pilot projects, the project Memory of Russia deals with preserving and improving access to the collection of 15th and 16th Century Slavic manuscripts held by the Russian State Library in Moscow. It also includes the archives of many of the major Russian authors such as Dostoevsky and Pushkin. Since the programme began at the beginning of 1990s most of the results then were issued in the form of CD-ROMs initially. In light of this point, strictly to say, this programme does not belong to the range of digital library activities. Nevertheless, it's natural that digitization is the basic work of the projects and providing services in digital format is their fundamental idea. Furthermore, as the network has become more and more common these outcomes have been conversed gradually under the networked environment. Therefore this programme might be taken as the pioneer of the national digital library activities in Europe.

Normally the national library plays an important role in leading the development of the librarianship in a country. Most of the digital library projects in the section below are sponsored by or take place in the national libraries for the writer believes such activities should stand for the highest level of the digital library activities in the countries. Besides some programmes or projects mentioned below were launched across the country. Of course they are just examples in the field.

* **eLib**: The Electronic Libraries Programme (The United Kingdom)¹⁵

The eLib was funded by the Joint Information Systems Committee (JISC) of the United Kingdom and has been engaged in the higher education community in the United Kingdom in developing and shaping the electronic library. The implementation of the whole programme was consisted of three phases. Phases 1 and 2 together formed a successful £15M programme over a period of 3 years from 1994 to 1997. eLib Phase 3 was a £4.1M, three year programme which sought to consolidate this work in a practical context and to extend Phase 1 and 2 benefits by helping to achieve “critical mass” in key areas. The main goals of the last phase is to build model digital libraries for the future through the main approaches such as hybrid libraries, large-scale resource discovery, digital preservation and turning earlier project into practice. A series of waves of funding, proposals and projects has resulted in the eLib programme consisting of around 60 projects. Many of the projects are involved in, or tackle, overlapping or complementary themes; several of the projects and programme areas are also working closely with other digital/electronic library initiatives, some of these having a more international focus.

* **Gallica** (France)¹⁶

Gallica is an Internet server which was first set up to test on-line searching of the National Library of France (Bibliothèque nationale de France, BnF) digitised collections, together with fixed image collections produced jointly with the Musée de l’Homme, the Maison Pierre Loti and the National School of Civil Engineering Document Centre. Gallica 2000 is the latest version of the BnFrance digital library which contains multimedia documents spanning the entire period from the Middle Ages to the early 20th century.

* **Global-Info**: German Digital Libraries Program (German)¹⁷

The concept for the German Digital Libraries Program was imbedded in the Information Infrastructure Program of the German Federal Government for the years 1996-2000. The actual grants program “Global-Info” was initiated by the Information and Communication Commission of the Joint Learned Societies to further technological advancement in enabling all researchers in Germany direct access to literature, research results and other relevant information. The Federal Ministry earmarked 60 Million German Marks for projects within the framework of the German Digital Libraries Program in two phases over the next 6 years since 1998. A lot of German libraries and information centers were involved in the program.

* **Digital Image Archive** (Austria)¹⁸

The project “Digital Image Archive” was launched in the Austria National Library. It was sponsored by the Federal Ministry of Education, Science and Culture of

Austria and the Austrian Industrial Research Promotion Fund. The project aimed at restructuring the “Collection of Portraits, Picture Archive and Fidei Commissa Library”, Austria’s largest picture documentation center. This division of the Austrian National Library holds more than 1.5 million pictures focusing on historical portraits, architecture, topography and history of Austria. The project’s main target was to create an efficient model for a “Digital Image Archive”, which is based on the existing organizational structures of our collection. The duration of the project was from 1999 to 2001.

* **Het Geheugen van Nederland** (The Memory of the Netherlands) (Netherlands)¹⁹

The Memory of the Netherlands is a project of the Koninklijke Bibliotheek, the National Library of the Netherlands, that is responsible for digitising important sources of the Netherlands’ cultural heritage. The first phase of the project ran until the end of 2003. The final result is a website that offers easy access to more than twenty digital collections from an equal number of heritage institutions.

* **BIBSYS Digital Library** (Norway)²⁰

The BIBSYS Digital Library (BDB) was a national digital library initiative implemented in Norway. It is a three-year project and started in 1998. The main goal of the project was to establish and integrate new and existing services for access to digital informational resources for Norwegian users within the higher education community.

* **Muisti**: project for digitization and network delivery of the Finnish National Collection (Finland)²¹

The Muisti project was a joint project within the Ministry of Education’s programme “Finland as Information Society” with the following participants Helsinki University Library (also the National Library of Finland), Audiovisual Centre of the University of Helsinki, Computer Centre of the University of Helsinki, Finnish Literature Society, National Archives of Finland and National Board of Antiquities in co-operation with Åbo Akademi University Library and Turku University Library. The project was set up on May 1, 1996 and completed its work until April 30, 1998. The aim of the Muisti project was to see how existing collections could be digitized and networked. The project produced the reference database Muisti and local image databases containing digitized texts, pictures, manuscripts and maps.

* **Digitization Project of the Danish Cultural Heritage** (Denmark)²²

The Danish Ministry of Culture (UMTS-funds) has granted two million DKr for a digitization project of the Danish Cultural heritage. The National Library of Denmark (DNLB) has received the funding for the years 2003-2005. The aim of the digitization project is to focus on the presentational aspects as well as the

preservation.

* **Kulturarw 3** (Sweden)²³

The Royal Library (KB), the National Library of Sweden, has started a project with the aim of long time preservation of electronic information. The project was initiated on September 15, 1996, when the project engineer began his employment. The goal of the project was to collect, preserve and make available Swedish documents from the Internet. This laid the foundation of a collection of the Swedish electronic publishing in our time and for future generations.

* **Memoria Hispanica** (Spain)²⁴

Memoria Hispanica is the generic name given to the digitization project of the National Library of Spain (Biblioteca Nacional de España). The Library intended to develop Memoria Hispanica as a contribution to and a point of reference for Spanish culture in the universal digital library. The project began in 1995, as an attempt to deal with all the different factors specifically affecting public libraries. It involved the digitization of unique works, items of extreme rarity and other treasures of the Biblioteca Nacional, the books most often sought by readers — provided these are not subject to copyright — and the volumes most susceptible to deterioration.

* **Memoria Project** (Czech)²⁵

The Memoria Project is a digital library project of the National Library of Czech. It aims to build a virtual research environment for the sphere of historical book resources. The project provides access to the full set of digitised documents and the detailed descriptions of historical documents and it also provides access to bibliographical data from a range of sources in the Memoria database.

3. Local digital library activities

There are two patterns of local digital library activities in the academic communities in Europe, one of which includes almost all kinds of library collections and services over network decentralized in the library, and the other one sets up individual department within the library especially responsible for the digital library activities in the library. The following are two typical examples of these two types of activities.

Figure 1 is the English version of the web page of “Digital Library” of the Goettingen State and University Library (SUB Göttingen).²⁶ It is obvious that a diversity of digital resources and information services provided by SUB Göttingen have been included in this web page. The library does not implement an individual digital library project but harmonizes various related activities into a systematic organism. This web page within the web site of SUB Göttingen aggregates links to the digital information resources and services in digital format in the library.

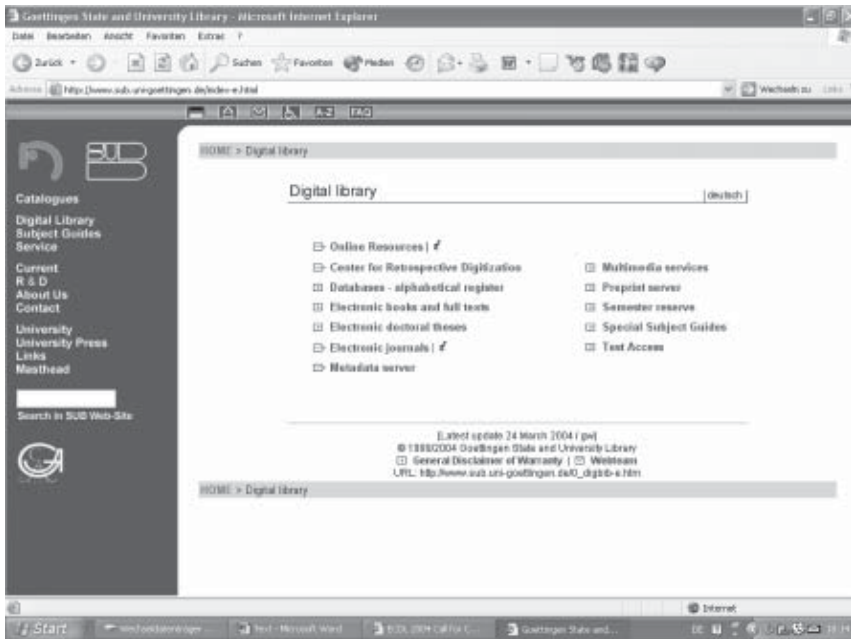


Figure 1 Web Page of the Digital Library Service in the Göttingen State and University Library

Comparatively the Oxford Digital Library (ODL)²⁷ carries out another pattern of local digital library activities. The ODL is a core service of Oxford University Libraries Services. It started operationally as a new unit of Oxford University Library Services in July 2001 and has established an individual web site. On its web site ODL offers central access to digital collections of Oxford libraries and informs the user about ODL services, funding activities, digital library technology and developments.

Nowadays in Europe both of the above types are very common. More or less digital library activities take place at the various level in the European libraries.

Besides the programs or projects described above several important proceedings, institutions and forums in the field in Europe should be also paid attention to. As before only some examples are given below.

- * **European Conference on Digital Library series** The first European Conference on Digital Library (ECDL) was held in 1996. In the past ten years ECDL has become the major European forum focusing on digital libraries and associated technical, organisational and social issues. It provides a forum for the exchange of ideas between scientific disciplines and fosters joint initiatives with application communities. Involvement of researchers and practitioners from computing and information science disciplines is well established at ECDL. Increasingly these disciplines are engaging in discussion and co-operation with

other groups concerned with knowledge management.

- * **Nordic Digital Library Center** (Norway) The Nordic Digital Library Centre (NDLC) derived from a collaboration project (1995-1998) entitled with the same name between the National Library of Norway and NORDINFO. The main objective of the NDLC was to improve the availability of the Nordic cultural heritage via digital methods. In addition to establishing and disseminating competence on digital library issues, NDLC played an active role in several Nordic collaboration projects developing digital library services. The NDLC work was also a central part of the early digital library efforts in the National Library of Norway. Though the project ended several years ago NDLC keeps on organizing and implementing digital library activities in the Nordic countries.
- * **Digital Library Competence Center** (Italy)²⁸ The Digital Library Competence Center (D-LIB CENTER) is funded by the IST Programme of the European Union. It was set up in 2001. The aim of the Digital Library Competence Centre is to provide specific user communities with access to advanced library technologies, services, expertise and knowledge which will allow them to take up these technologies and services.
- * **Digital Library Forum** (Germany)²⁹ The Digital Library Forum is supported by the New Media in Education and Information Support Unit and funded by the Germany Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF). The main focus of the forum is on the funding activities of the German Ministry of Education and Research, the German Research Institute (Deutsche Forschungsgemeinschaft), individual German federal states and other research institutes. It also aims to bring together other information of interest on the subject of the digital library. The on-paper-planing began in September 2000. In the third quarter of 2001 the server went the first time online. By March 2004 they have more than 350 projects concerning digital library in their databases and even more news and events.

Conclusions

Based on the observation of the digital library activities in Europe some conclusions might be drawn as following.

- * **Focusing on some subjects:** Most of the initial digital library projects in Europe focused on preserving the cultural heritage. A lot of later projects deal with humanities, mathematics, etc., in which field historical materials occupy important position. With the development of the digital library more and more subjects will be dealt with.
- * **Raising the sense for providing access to special collections:** Normally the

initial motivation for establishing a digital library is to enable the access to the treasure of the library originally not public. The case in the Oxford Digital Library is very typical on this point. The Bodleian Library does not allow any material of the library be borrowed out of the library. Nevertheless it gradually realizes the necessity and importance to provide the public access to its collection. It's needless to say that great percentage of its collection is unique all over the world. Though setting up a digital library, on one hand, the Bodleian Library makes itself more prominent even in the current digital world; on the other hand, more and more researchers and persons interested in the library benefits could get access to its collection. No matter how the work goes on the progress is making step by step. This is a breakthrough from zero. This also the same case to the collections in languages rather than English. A lot of digital libraries, especially digital library projects of national libraries, focus on collections in their own languages. This is certainly a right way. The world should not be dominated by any one language and all languages and cultures should be kept and respected. However it is necessary to provide proper translation pages in common language in the digital library in uncommon languages, which might ease the use from other cultures and languages.

- * **Preferring rare books and other valuable materials created in the ancient time:** It could be easily found that most raw materials of the current digital library projects are rare books, ancient manuscripts or such thing like. Certainly the first important reason for this situation is that such materials are really of great value and extremely difficult to be achieved. For example, currently there are only four original copies of Bible printed on the parchment with the first Gutenberg printer invented in the 1450s all over the world. In order to let more people to have opportunities to do research on or appreciate this "first real book" the Göttingen State and University Library implemented the project Gutenberg Digital from 1999 to 2002 so that Göttingen Gutenberg Bible could be freely available on the web. In addition the British Library has also digitized its two copies of Gutenberg's Bible and the visitor could view and compare the two copies on the network.³⁰ From these examples the type of raw material the digital library projects prefer could be found. On the other hand there would be no copyright trouble dealing with such materials. Such tendency might be good to research in some fields. Nevertheless to certain fields such as research on gene the most current documents seem more important. That's why attention has also been paid to the preservation of the digital materials and such materials have been included in some digital library activities. The "Kulturaw 3" project mentioned above is an example of the effort in this direction. It is foreseeable that in

the hybrid library none of non-digital materials and digital materials should be neglected.

- * **Cooperation among several disciplines:** The digital library is not a simple subject but a very complex one. The approach to the digital library needs cooperation among a number of disciplines which includes not only the library, archive but also computer science and even other disciplines suitable for some projects related to special subjects. On the other hand a lot of cooperation has happened between the content providers and information caretakers.
- * **From project to information infrastructure:** Almost all of the first batch of the digital library projects have been finished at the end of the last century. A great number of achievements come out from the explore and experimentation during the projects. Currently experimentation is still going on and many achievements have been maintained quite well. The digital library have become the information infrastructure of the libraries in Europe.

Additionally interdependency, multimedia and multilingual could be taken as the tendencies of the digital library activities in Europe.

According to *The Digital Library: A biography*, which was written by Daniel Greenstein, the former director of the Digital Library Federation (DLF), and Suzanne E. Thorin, the development of the digital library was divided into three stages which are the young digital library, the maturing digital library and adult digital library.³¹ Though the document was created on the basis of a survey among the DLF member institutions in the United States, the development of the digital libraries in Europe has gone through these stages similarly. Nowadays the digital library in Europe has become or is becoming a distinguished part of the hybrid library.

Some Final Words

Initially the writer intended to do her best to draw a panorama of the digital library activities in Europe. Unfortunately the thought was found to be too unrealistic to be realized not long after the work on the article began because of certain limitations, such as some original materials are not accessible in the networked environment. In a sense the influence of a digital library project is closely related to availability of the information resources on it. In addition the problem related to language is always one that troubles the writer. There is even no version of some projects in English which is the most common language in the scientific world. The problems might have troubled numerous researchers and practitioners. Hopefully the development of the digital library could be also useful to solving some problems in the near future.

Notes

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