



EDITORIAL

Editorial

Defining a digital library

Michael Seadle and Elke Greifeneder

Humboldt University, Berlin, Germany

169

Abstract

Purpose – This editorial seeks to examine the definition of a “digital library” to see whether one can be constructed that usefully distinguishes a digital library from other types of electronic resources.

Design/methodology/approach – The primary methodology compares definitions from multiple settings, including formal institutional settings, working definitions from articles, and a synthesis created in a seminar at Humboldt University in Berlin.

Findings – At this point, digital libraries are evolving too fast for any lasting definition. Definitions that users readily understand are too broad and imprecise, and definitions with more technical precision quickly grow too obscure for common use.

Originality/value – A functional definition of a digital library would add clarity to a burgeoning field, especially when trying to evaluate a resource. The student perspective provides a fresh look at the problem.

Keywords Digital libraries, Electronic media, Internet, Germany

Paper type Viewpoint

Received 15 March 2007
Revised 18 March 2007
Accepted 18 March 2007

Introduction

Teaching a combined lecture/seminar series on digital libraries seemed like an obvious priority for a newly hatched “Professor for Digital Libraries” and coming up with a definition was one way to justify selection of the various digital library examples. Several sample definitions came to mind from various US funding agencies. The National Science Foundation (NSF) has this explanation on its web site for the Digital Library Initiative projects:

Digital Libraries basically store materials in electronic format and manipulate large collections of those materials effectively. Research into digital libraries is research into network information systems, concentrating on how to develop the necessary infrastructure to effectively mass-manipulate the information on the Net (NSF, 1999).

The problem with this definition was the weight it put on purely technical aspects. Since the lecture and seminar also emphasized the use of anthropological methods, the definition needed to include the human context.

It also seemed important to reassure students and colleagues that the Institute was not merely becoming a light-weight computer-science establishment. The broad concept of digital libraries implicit in the National Leadership Grants program of the Institute of Museum and Library Services fits this purpose:

The Digital Revolution has affected nearly every aspect of library and museum services, from the automation of internal recordkeeping systems to the digitization of physical collections, and from the acquisition of new “born-digital” works of art or library publications to the use of technology to present collections and engage audiences.

Digital technology enables the full range of holdings in our museums, libraries, and archives – audio, video, print, photographs, artworks, artifacts, and other resources – to be



Library Hi Tech
Vol. 25 No. 2, 2007
pp. 169-173

© Emerald Group Publishing Limited
0737-8831

DOI 10.1108/07378830710754938

cataloged, organized, combined in new ways, and made accessible to audiences in new ways. . . . Digital technology connects more people to the resources and services that only museums and libraries can provide (IMLS, 2005).

Definition

The definition used initially for the classes rested heavily on the IMLS model and also aimed to reaffirm the connection between digital and traditional bricks-and-mortar libraries with predominantly paper collections:

A “digital library” is fundamentally a resource that reconstructs the intellectual substance and services of a traditional library in digital form.

Digital libraries consist of digital contents (which are sometimes but not necessarily text-based), interconnections (which may be simple links or complex metadata or query-based relationships), and software (which may be simple pages in HTML or complex database management systems). A single, simple, stand-alone web page is probably not a digital library in any meaningful sense, any more than a single page or a single book is a traditional library. A mass of raw data such as comes from the Hubble telescope is probably also not a digital library, though its contents arguably belongs in one.

Digital libraries are not replacements for traditional libraries. They are rather the future of traditional libraries, much as medieval manuscript libraries simply became a specialized and much revered part of the larger print-based libraries that we have today (Seadle, 2006).

This definition lacked precision in a number of areas that continued to make it hard to determine whether a particular resource was a “genuine” digital library. The students continued to ask a number of intelligent questions about what digital libraries really were. The questions were less about what a digital library is than what it is not? Using this definition, Google Scholar or even Wikipedia could be considered a digital library. Especially in Germany, the types of projects that are called digital libraries are very broad and varies from a hyperlink-list to pure holdings digitization. “Digital” is a buzzword whose meaning few professionals care about precisely. An interesting question is what is included semantically in this concept. In its Latin origin digital means, “finger” and this meaning persists in medical fields. For a health professional a digital library could be a “finger” library! The above definition further predicts that digital library content is in digital form. But “digital form” is ambiguous. For the students it was not clear whether digital referred to the data type – i.e. an electronic format – or to the environment – i.e. the internet.

This classroom dialogue led to the exploration of how others defined digital libraries:

The digital library is not a single entity; The digital library requires technology to link the resources of many services that are transparent to the end users; Universal access to digital libraries and information services is a goal; Digital library collections are not limited to document surrogates: they extend to digital artefacts that cannot be represented or distributed in printed formats (ARL, 1995).

The digital library is the collection of services and the collection of information objects that support users in dealing with information objects available directly or indirectly via electronic/digital means (Leiner, 1998).

A managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network (Arms, 2000).

What these definitions have in common is the repeated emphasis on access to services and on content, which is sometimes called collections or documents or information or information objects. What they did not do was to provide sharper criteria for deciding whether, say, JSTOR was a digital library, or merely a valuable resource within a digital library collection.

Further discussions with colleagues at the International Conference on Digital Libraries in New Dehli (December 2006) and at the American Library Association Midwinter meeting in Seattle (January 2007) produced a rich variety of input for discussion, but nothing definitive. A digital library turned out, like many dynamic social organisms, to be hard to pin down.

A synthesis of definitions

The students in the seminar broke into groups to make their own attempt at synthesizing these definitions and describing the nature of a digital library. This was not easy.

The students had seen so many projects being called digital libraries that they first tried to include all the various attributes from the projects in one definition. But this did not make any sense, because it became so broad that a digital library became anything in electronic format. In a second step the students tried to build up a definition with their idea what a digital library should be. They started with comparisons, for example a digital library is not an online book store like Amazon, it is not software and it is not an online catalogue from a traditional library. But then they recognized the difficulty of extracting positive attributes out of this antonym-based analysis. It was a challenge to find words to express what a digital library really should be, and it took courage to argue that resource that called itself a digital library really was not one. In the end, they realized that they could either write a relatively imprecise definition that most people could understand or they could fashion a well-crafted one with specific terminology that needed an explanation to be applied.

Here are the definitions the students developed:

Eine Digitale Bibliothek basiert auf in digitaler Form vorliegenden Dokumenten, die gemäß der traditionellen bibliothekarischen Aufgaben (Sammeln, Erschließen, Verfügbarmachen) bearbeitet und deren so erstellte Katalogisate für Nutzer online zugänglich gemacht werden (Group 1).

A digital library is based on documents in digital form that are handled like traditional library documents in standard processes (collecting, cataloging, and providing access) and that are made available online for users via catalog records (our translation).

Eine Digitale Bibliothek ist ein elektronisches Produkt einer Software, das sowohl Primärdaten als auch manuell erstellte bzw. geprüfte Metadaten beinhaltet. Die Primärdaten können sowohl thematisch oder bestandsabhängig sein, müssen jedoch ständig gepflegt werden. Eine Digitale Bibliothek beinhaltet des Weiteren die drei Hauptfunktionen einer herkömmlichen Bibliothek: Erschließung, Langzeitarchivierung und Verfügbarmachung (Group 2).

A digital library is an electronic product of software that contains both primary data and manually created or manually proofed metadata. The primary data can be either thematic or collections-based and must constantly be maintained. A digital library also includes the three

main functions of a traditional library: cataloging, long-term archiving, and access (our translation).

Eine Digitale Bibliothek ist die elektronische Bereitstellung digitaler Dokumente in Verbindung mit Onlinedienstleistungen, aufbauend auf den Aufgaben einer traditionellen Bibliothek, die den weltweiten Zugriff auf deren Bestand via internet ermöglicht (Group 3).

A digital library is the electronic provision of digital documents in connection with online services, building on the tasks of a traditional library, which enables worldwide access to its collection via the internet (our translation).

The definition from Group two is particularly interesting because it broadens the content from documents to data of all types. It also insists on the value of humanly created or at least humanly examined metadata, instead of purely machine-generated indexes, and it includes archiving as one of the defining aspects of a digital library. All three definitions emphasize the continuity with traditional library work, and two of the three require internet access.

Conclusion

Digital libraries are in fact probably too young to define in any permanent way, but how we think about them will have a great deal to do with how future generations of librarians conceptualize their mission in the digital world. A digital library build in the image of the NSF definition for the Digital Library Initiative projects may turn out to be a technological marvel, but if it fails to organize meaningful collections or to provide access to information intelligible to end-users, it fails to meet key tests in the student definitions. More importantly, if digital libraries fail to carry out that vital mission to preserve information resources for future generations, they fail in an historically well-recognized task for all major research libraries.

Student definitions are not, of course, quite the same as the carefully-weighed utterances of active scholars and professionals. But these students see the problems with fresh eyes and live in the digital world. We who have spent years building up digital library resources may be too close to our own modest works to put them in perspective or even to know what we have (or have not) created.

References

- Arms, W.Y. (2000), *Digital Libraries*, MIT Press, Cambridge, MA.
- Association of Research Libraries (1995), "Definition and purposes of a digital library", available at: www.arl.org/sunsite/definition.html
- Institute of Museum and Library Services (2005), *National Initiatives: Digital Corner*, US Federal Government, available at: www.ims.gov/about/digitalcorner.asp
- Leiner, B.M. (1998), "The NCSTRL approach to open architecture for the confederated digital library", *D-Lib Magazine*, available at: www.dlib.org/dlib/december98/leiner/12leiner.html
- National Science Foundation (1999), *Digital Libraries Initiative: Available Research*, US Federal Government, available at: <http://dli2.nsf.gov/dlione/>
- Seadle, M. (2006), "Lecture", 23 October.

Further reading

Arms, C.R. (1996), "Historical collections for the national digital library: lessons and challenges at the Library of Congress", *D-Lib Magazine*, April, available at: www.dlib.org/dlib/april96/loc/04c-arms.html

About the authors

Michael Seadle is Editor of *Library Hi Tech* and Professor at the Institute for Library and Information Sciences at Humboldt University in Berlin. Michael Seadle is the corresponding author and can be contacted at: seadle@ibi.hu-berlin.de

Elke Greifeneder is a Master's student at the Institute for Library and Information Sciences at Humboldt University in Berlin and is also Editorial Assistant for *Library Hi Tech*.