Chapter 8
Emerging Challenges of the Digital Information

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ABSTRACT

The digital era has brought a change to the information world. Digital information is collected in repositories, is described with metadata and is disseminated through digital libraries. But many issues are in debate, even what in fact constitutes a digital object, how to create, store and handle complex digital objects and how to preserve the digital information in the long run. Digital objects are used more extensively than traditional ones, which affect their cost and pricing. The enforcing of the copyright is more imperative, while at the same time copies have to be created for technical reasons alone. It is difficult to distinguish and prevent unauthorized copying and plagiarism, there are many more parties that may be responsible for bad use and the fair use appears in different ways. There are unusually many orphan works and many digital objects have unclear terms of usage or are often offered under open access, such as Creative Commons licenses. Libraries have a new role in this context, which involves using, creating and sharing digital libraries.

1. DIGITAL LIBRARY BASICS

From long ago it is believed that "Knowledge is power"(Bacon, 1597). The need of information is important for satisfying curiosity, planning activities and creating advantages, but is satisfied in different ways on the digital and traditional[1] (conventional) worlds.

The digital information has given new possibilities, but these create problems to previous approaches too. If the new activities - related to the digital material - correspond to the older activities - those related to traditional material, we can be taught by them (but not necessarily copy them). At the same time, we have to redesign new activities.

The purpose of this chapter is to provide a general background of digital libraries and to

expose the problems and possible approaches that came up from the creation and usage of the digital information and its accumulation into digital collections. Such issues, big or small, which are often related to each other, as well as new activities and consequences of the above issues will be examined in this chapter.

What Digital Library Means

An established mission of the digital libraries is that: Digital libraries aim to collect, manage and preserve electronic expressions of knowledge (Marchionini, 2001) on any discipline, type or format.

One of the oldest definitions of digital libraries is: Digital Libraries are organized collections of digital information. They combine the structure and gathering of information, which libraries and archives have already done, with the digital representation that computers have made possible (Lesk, 1997).

Who is Creating Digital Libraries

Digital Libraries are not really about libraries and books, but are about organization and management of digital content contained in discrete digital objects, which can be found in libraries, archives, museums, ministries, and any kind of public or private institutions or individuals. Most of the digital library creators, such as museums and ministries, do not expect to make money out of it, but want to disseminate their information.

Who is using Digital Libraries

Most digital libraries are designed to be used through Internet and computers, although they can be designed to run in autonomous computers or in mobile devices. Any user of such environments can be a user of the digital library, from the naïve user to the most experienced information professional. Depending on the content that is made available,

the digital library may target different groups of users, sometimes even many groups that get different views of the same digital library.

Digitization

Digitization can be used to create digital libraries from objects that are original in traditional form, by appropriately organizing all information that has been converted to digital. These digital libraries will, in many cases, lack the advanced functionality that can be offered in born-digital objects. On the other hand, the representation and use of the digitized objects have other challenges, as they may have to mimic and follow some restrictions of the traditional objects, when they try to provide a similar experience on their use. The digitization directives that are available, like those published from CDCCI (Canadian Digital Cultural Content Initiative, 2001) or the Library of Congress[2] soon become obsolete by technology, and digitization projects should constantly look for the state of the art.

Born-Digital Objects

The digitization choices are not simple, and evolve by the time, as the capabilities of the digitization, storage and transport equipment improve. The born-digital objects have far too many choices that refer to their representation and storage, to policies on their partial usage and to their presentation[3]. They carry a lot of additional (such as structural) information and can also be modified much easier that the digitized objects. There are techniques (such as Optical Character Recognition[4], for images containing text) to convert some kinds of digitized objects to formats that are used for born-digital ones, which enable them with some extra functionality. Sometimes, strict definition of digital libraries recognizes as such only those with born-digital objects, or others with similar functionality.

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