

Chapter XIV

E-Commerce and Digital Libraries

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ABSTRACT

Until recently, digital libraries have provided free access to either limited resources owned by an organization or information available in the public domain. For digital libraries to provide access to copyrighted material, an access control and charging mechanism needs to be put in place. Electronic commerce provides digital libraries with the mechanism to provide access to copyrighted material in a way that will protect the interest of both the copyright owner and the digital library. In fact, many organizations, such as the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE), have already started to make their collections available online. The subscription model seems to be the favourable option at this point of time. However, for many ad hoc users, the subscription model can be expensive and not an option. In order to cater to a wider range of users, digital libraries need to go beyond the subscription models and explore other possibilities, such as the use of micro payments, that appear to be an alternative logical solution. But, even before that can happen, digital libraries will need to foremost address a number of outstanding issues, among which including access control, content management, information organization, and so on. This chapter discusses these issues and challenges confronting digital libraries in their adoption of e-commerce, including e-commerce charging models.

INTRODUCTION

Digital Library Research Initiatives in the United States and the increased interest in digital

libraries by computer science researchers has provided the impetus for the growing proliferation of digital libraries around the world. Most existing digital libraries have mainly focused on

digitizing individual collections and making them available on the Web for users to search, access, and use. They are providing a new means of fast and effective access to information in different forms and formats. Nonetheless, the development of digital libraries also translates into significant financial requirements, which, in the past, has been borne largely by government funding agencies, academic institutions, and other non-profit organizations.

By virtue of the basic principles of economics and business, digital libraries are looking for alternative forms of revenue generation in order to meet the ever-increasing needs of users through the provision of new value-added services and products. In this respect, e-commerce can provide digital libraries with the means to support their operation and provide them with a sustainable source of funding. This is a natural evolution in the use of digital libraries, as content management and electronic publishing are gaining momentum and popularity.

However, before digital libraries can engage in e-commerce activities, many issues need to be addressed. Some of these issues include intellectual property, access control, backup and archiving, and micro payments. In this chapter, we will look at these issues and highlight problems and opportunities related to digital libraries as a viable e-commerce business model.

Characteristics of Digital Libraries

The “digital library” is a term that implies the use of digital technologies by libraries and information resource centers to acquire, store, conserve, and provide access to information. But with the increased interest in other areas such as electronic commerce and knowledge management, the concept of digital library has gone beyond the digitization of library collections. It has been expanded to encompass the whole impact of digital and networking technologies on libraries and the wider information field. Researchers from many

fields including computer science, engineering, library and information science are investigating not only the digitization of catalogues and collections or the effective use of networked resources but also the meaning of these developments for both information providers and users alike. Beside the technical issues that engineers are dealing with, there are a number of issues such as acquisition, content management, charging, and intellectual property that require the help of business and legal experts.

As digital libraries are being embraced by many communities, the definitions and characteristics of digital libraries vary from one community to another. To the engineering and computer science community, digital library is a metaphor for the new kinds of distributed database services that manage unstructured multimedia. It is a digital working environment that integrates various resources and makes them available to the users. From the business community perspective, digital library presents a new opportunity and a new marketplace for the world’s information resources and services. From the library and information science perspective, it has been seen as “the logical extensions and augmentations of physical libraries in the electronic information society. Extensions amplify existing resources and services and augmentations enable new kinds of human solving and expression” (Marchionini, 1999).

According to the Digital Library Federation (DLF), 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” (Digital Library Federation, 2001). From the above, it is clear that the stakeholders of digital libraries are many and wide-ranging. They include publishers, individual authors and creators, librarians, commercial information providers, federal, state and local

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