

Chapter 3

Digitisation: Methods, Tools and Technology

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ABSTRACT

This chapter provides a practical approach to digital libraries. The authors present a comprehensive picture of digitization and explains the process of digitization in a step-by-step approach. The chapter also describes different file formats and alternatives to digitization.

INTRODUCTION

All recorded information in a traditional library is analogue in nature. The analogue information can include printed books, periodical articles, manuscripts, cards, photographs, vinyl disks, video and audio tapes. However, when analogue information is fed into a computer, it is broken down into 0s and 1s changing its characteristics from analogue to digital. These bits of data can be re-combined for manipulation and compressed for storage. Voluminous encyclopaedias that take-up yards of shelf-space in analogue form can fit into a small space on a computer drive or stored on to a CD ROM disc, which can be searched, retrieved, manipulated and sent over the network. One of the

most important traits of digital information is that it is not fixed in the way that texts printed on a paper are. Digital texts are neither final nor finite, and are not fixed either in essence or in form except, when it is printed out as a hard copy.

Flexibility is one of the chief assets of digital information. An endless number of identical copies can be created from a digital file, because a digital file does not decay by copying. Moreover, digital information can be made accessible from remote location simultaneously by a large number of users.

Digitisation is the process of converting the content of physical media (e.g., periodical articles, books, manuscripts, cards, photographs, vinyl disks, etc.) into digital format. In most library applications, digitisation normally results in documents that are accessible from the web site of a library and thus, on

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Digitisation

the Internet. Optical scanners and digital cameras are used to digitise images by translating them into bit maps. It is also possible to digitise sound, video, graphics, animations, etc.

Digitisation is not an end in itself. It is the process that creates a digital image from an analogue image. Selection criteria, particularly those which reflect user needs are of paramount importance. Therefore, the principles that are applicable in traditional collections development are applicable when materials are being selected for digitisation. However, there are several other considerations related to technical, legal, policy, and resources that become important in a digitisation project.

Digitisation is one of the three important methods of building digitised collections. The other two methods include providing access to electronic resources (whether free or licensed) and creating library portals for important Internet resources.

DIGITISATION: BASICS

Definition

The word “digital” describes any system based on discontinuous data or events. Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on. All data that a computer processes must be encoded digitally as a series of zeroes and ones.

The opposite of digital is analogue. A typical analogue device is a clock in which the hands move continuously around the face. Such a clock is capable of indicating every possible time of the day. In contrast, a digital clock is capable of representing only a finite number of times (every tenth of a second, for example).

As mentioned before, a printed book is analogue form of information. The contents of a book need to be digitised to convert it into digital form. Digitisation is the process of converting the content

of physical media (e.g., periodical articles, books, manuscripts, cards, photographs, vinyl disks, etc.) to digital formats.

Digitisation refers to the process of translating a piece of information such as a book, journal articles, sound recordings, pictures, audio tapes or videos recordings, etc. into bits. Bits are the fundamental units of information in a computer system. Converting information into these binary digits is called digitisation, which can be achieved through a variety of existing technologies. A digital image, in turn, is composed of a set of pixels (picture elements), arranged according to a pre-defined ratio of columns and rows. An image file can be managed as a regular computer file and can be retrieved, printed and modified using appropriate software. Further, textual images can be OCR'd so as to make its contents searchable.

Needs of Digitisation

Digitising a document in print or other physical media (e.g., sound recordings) makes the document more useful as well as more accessible. It is possible for a user to conduct a full-text search on a document that is digitised and OCR'd. It is possible to create hyperlinks to lead a reader to related items within the text itself as well as to external resources. Ultimately, digitisation does not mean replacing the traditional library collections and services; rather, it serves to enhance them.

A document can be converted into digital format depending on the objective of digitisation, end user, availability of finances, etc. While the objectives of digitisation initiatives differ from organization to organization, the primary objective is to improve the access. Other objectives include cost savings, preservation, keeping pace with technology and information sharing. The most significant challenges in planning and execution of a digitisation project relate to technical limitations, budgetary constraints, copyright considerations, lack of policy guidelines and lastly, the selection of materials for digitisation.

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