

## Are "Digital Libraries" libraries? Yes, but ...

In "Being Digital" Nicholas Negroponte<sup>1</sup>, founding director of the MIT Media Lab, depicts our digital future: "When all media become bits". Newspapers, magazines, journals, books, movies, music, roadmaps, the electric meter in our homes and plain data anywhere: they will no longer be what they used to be. The nervous tracts of the dawning information age will consist of optical fibres, microwave antennas and satellites, across which myriads of bits will be carried at unimaginable speed and, at a receivers' end, turned into a mix of graphics, colours, sound, movement and plain old characters, to the beholder's heart's content. Hitherto separate worlds of information, education and entertainment will converge - technically, organisationally and commercially. Today's WorldWideWeb gives perhaps but a foretaste of a powerful global nervous system that will transform the lives of societies and individuals alike.

Where do all these bits come from? How can they be accessed in an orderly fashion? What will the memory be like within this huge new nervous system? How will it be structured?

These are some of the crucial questions underlying an area of interdisciplinary research and development that has been rising to full bloom since the beginning of the nineties (although its roots date back to the days of Vannevar Bush<sup>2</sup> and before). Its name: Digital Libraries. The challenge, in the words of the guest editors<sup>3</sup> of a special issue of the Communications of the ACM (April 1995), is to create a World Digital Library System.

Traditional libraries have been among the first to respond to this challenge. They are indeed perfectly positioned to do so. They have a long history of serving the most diverse information needs of researchers and scholars, engineers and artists, students and ordinary citizens. And not to forget: librarians have always been keepers of digital records, albeit paperbound and based on alphabets somewhat larger than the set of binary digits 0 and 1. They have generated a substantial body of expertise to build on, in order to cope with the paperless digital floods to come. Many a library has long since begun to extend its holdings to include "electronic" stock as well.

It is therefore no surprise to see libraries in many parts of the world involved in projects and initiatives that contribute to a universal "Digital Library". Librarians team up with Information Scientists, Computer and Communication Engineers, custodians, archivists, publishers and copyright experts, and often they take the lead role.

The building blocks created and assembled in these projects range from low-level techniques for scanning and digitising traditional materials (books, manuscripts, images, etc.) to sophisticated components of document management, access and delivery systems. (Notabene: the "genotype" of these documents is just bits, a kind of DNA, to use one of Negroponte's analogies, whereas their "phenotype" - i.e. their visible, audible, ... representation - may be anything, multimedia documents, as they have come to be called.)

As Costantino Thanos<sup>4</sup> explains, there is a minimal set of technology and service areas characteristic of the Digital Library:

- Information appliances and services that can provide access in a scalable, efficient and interoperable way;

- Information access techniques that can enable efficient searches of large distributed information repositories;
- Multimedia information technologies that can, for example, integrate and synchronise real-time delivery of voice and video, and support content-based search and retrieval;
- Economic models, pricing policies and intellectual property rights management.

Will Digital Libraries be libraries? Yes, definitely: Without a firm basis in the world of traditional libraries, the future digital libraries would be quite dull, uninteresting. Some, perhaps many, will be privately owned. Most of them, hopefully, will be linked up and form the publicly accessible "Universal Library". And as such they will no longer be the cherished places made of brick and mortar, but ubiquitous through worldwide telecommunication.

But... Will there still be a place for books? Let us quote the third reason Nicholas Negroponte gives for delivering "Being Digital" as a book instead of as a bitstring: "...Interactive multimedia leaves little to the imagination. Like a Hollywood film, multimedia narrative includes such specific representations that less and less is left to the mind's eye. By contrast, the written word sparks images and evokes metaphors that get much of their meaning from the reader's imagination and experiences. When you read a novel, much of the colour, sound and motion come from you. I think the same kind of personal extension is needed to feel and understand what "being digital" might mean to your life." .

May this confession reassure us that Libraries will always be more than digital libraries.

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<sup>1</sup>Negroponte, Nicholas: [Being Digital](#); New York, 1996

<sup>2</sup>Bush, Vannevar: [As we may think](#); The Atlantic Monthly, July 1945

<sup>3</sup>Fox, Edward A., Robert M. Akscyn, Richard K. Furuta, John J. Leggett: [Introduction to special issue on Digital Libraries](#); Communications of the ACM, Vol 38.4, April 1995

<sup>4</sup>Thanos, Costantino: [Digital Libraries: a new challenge](#); ERCIM News, No 27, October 1996