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Comparative analysis and benefits of digital library over traditional library

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ABSTRACT

The paper reviews the relevance of Information Communication Technology (ICT) as related to other professions especially, the Library professions. The importance, advantages and limitations of digital library over the traditional library were emphasized. The comparative analyses of the two types of libraries were also discussed. Governments in all tiers of the Nation and Legislators were advised to make policies and legislate bills respectively that can advance the present state of the National grid and improve on the Internet technology infrastructures which are major factors that can drive digitization.

Keywords: Digital library, Traditional library, Analysis, Information Communication Technology, Benefits

1. INTRODUCTION

The upsurge and unprecedented advancement in Information Communication Technology (ICT) is gradually changing the mode of operations in all other professions for

the positive. This is germane to the cashless operations in the finance sector, implanting of microchips as a replacement to Patient cards and other means of identification that is paper based in the health domain as it is presently operational in the United States of America and the E Library or Digital library taking the place of the traditional library in the library proceedings and so on.

Rapid advances information technologies have revolutionized the role of libraries. As a result, libraries face new challenges, competitors, demands, and expectations. Libraries are redesigning services and information products to add value to their services and to satisfy the changing information needs of the user community. Traditional libraries are still handling largely printed materials that are expensive and bulky. Information seekers are no longer satisfied with only printed materials. They want to supplement the printed information with more dynamic electronic resources. Demands for digital information are increasing.

Digital libraries will start gaining ground in Nigeria in the present century. We are heading toward an environment in which digital information may substitute for much print-based information. A library's existence does not depend on the physical form of documents. Its mission is to link the past and the present, and help shape the future by preserving the records of human culture, as well as integrating emerging information technologies. This mission is unlikely to change in the near future. Digital libraries come in many forms. They attempt to provide instant access to digitized information and consist of a variety of information, including multimedia.

The shift from traditional libraries to the digital is not merely a technological evolution, but requires a change in the paradigm by which people access and interact with information. Gore opined that "A new wave of technological innovation is allowing us to capture, store, process and display an unprecedented amount of information about our planet and a wide variety of environmental and cultural phenomena. Further, we need a 'Digital Earth.' A multi-resolution, three-dimensional representation of the planet, into which we can embed vast quantities of geo-referenced data" (Gore 1998). The total number of different books produced since printing began does not exceed one billion. (The number of books now published annually is less than one million.) If an average book occupies 500 pages at 2,000 characters per page, then even without compression it can be stored comfortably in one megabyte. Therefore, one billion megabytes are sufficient to store all books. This is 10^{15} bytes, or one petabyte. At commercial prices of \$20 per gigabyte, this amount of disk storage capacity could be purchased for \$20 million. So it is certainly feasible to consider storing all books digitally.

A database of a billion objects, each of which occupies one megabyte, is large but not inconceivable. Once one is comfortable with sizes of this kind, it is feasible to imagine a thousand such databases, or to envision them all as portions of the same global collection. This amount of storage is sufficient to house not only all books, but all of the following: photographs, legislative material, court decisions, museum objects, recorded music, theatrical performances, including opera and ballet, speeches, movies and videotape

A traditional library is characterized by the following: emphasis on storage and preservation of physical items, particularly books and periodicals cataloging at a high level rather than one of detail, for example author and subject indexes as opposed to full text browsing based on physical proximity of related materials, e.g., books on sociology are near one another on the shelves, passivity; information is physically assembled in one place; users must travel to the library to learn what is there and make use of it.

By contrast, a digital library differs from the above in the following ways: emphasis on access to digitized materials wherever they may be located, with digitization eliminating the need to own or store a physical item, cataloging down to individual words or glyphs, browsing based on hyperlinks, keyword, or any defined measure of relatedness; materials on the same subject do not need to be near one another in any physical sense, broadcast technology; users need not visit a digital library except electronically; for them the library exists at any place they can access it, for example: home, school, office, or in a car.

2. DEFINITION

A digital library is a library in which collections are stored in digital formats (as opposed to print, microform, or other media) and accessible by computers. The content may be stored locally, or accessed remotely. The first published use of the term may have been in a 1988 report to the Corporation for National Research Initiatives. The term was first popularized by the NSF/DARPA/NASA Digital Libraries Initiative in 1994. Bush (1945) created a vision based on experience (“Digital library”).

The Digital Library Federation defines digital libraries as “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 available for use by a defined community or set of communities” (Shiri 2003).

The DELOS Digital Library Reference Model defines a digital library as “An organization, which might be virtual, that comprehensively collects, manages and preserves for the long term rich digital content, and offers to its user communities specialized functionality on that content, of measurable quality and according to codified policies”. (“Digital Library”)

A digital library is not a single entity. It requires technology link the resources of many collections. The links between digital libraries and their resources are transparent to users. Digital library collections are not limited to document surrogates (bibliographic records). They are the actual digital objects such as images, texts and so on.

Lynch (1994) defines that, “digital Libraries [provide] users with coherent success to a very large, organized repository of information and knowledge.” According to Berkeley Digital Library Project, University of California, the digital library will be a collection of distributed information sources.

Table 1. Contrast between traditional and digital libraries is presented below.

Traditional Libraries	Digital or Electronic Library
Print collection	All resources in digital form.
Stable, with slow evolution	Dynamic and ephemeral
Individual objects not directly linked with each other.	Multi-media and fractal objects

Flat structure with minimal contextual metadata	Scaffolding of data structures and richer contextual metadata.
Scholarly content with validation process	More than scholarly content with various validation processes
Limited access points and centralized management	Unlimited access points, distributed collections and access control
The physical and logical organization correlated.	The physical and logical organization may be virtually
One way interactions	Dynamic real time dialogue
Free and universal access.	Free as well as fee based.

(Source: Library Philosophy and Practice, 2010)

Purpose of Digital Library

- To expedite the systematic development of procedures to collect, store, and organize, information in digital form.
- To promote efficient delivery of information economically to all users.
- To encourage co-operative efforts in research resource, computing, and communication networks.
- To strengthen communication and collaboration between and among educational institutions.
- To take leadership role in the generation and dissemination of knowledge
- It gives room for Institutional collaborations and exchange programmes

Function of Digital Library

- Access to large amounts of information to users wherever they are and whenever they need it.
- Access to primary information sources.
- Support multimedia content along with text
- Network accessibility on Intranet and Internet
- User-friendly interface
- Hypertext links for navigation
- Client-server architecture
- Advanced search and retrieval.
- Integration with other digital libraries.
- It is easier and more convenient to use.

Major Factors needed in implementing a Digital Library are as follows:

- Infrastructure
- Digital Collections
- Systems function
- Telecommunication facility

- Human resources

In creating a digital library the followings are highly needed:

- Database of digital material that is open to all users over the organization-wide LAN.
- High bandwidth Internet connectivity
- Focus selectively on acquiring digital resources
- Electronic journals, and gradual elimination of print subscriptions
- Licensed databases
- Creation of local digital content available within the establishment
- Electronic materials within the field of study.

Advantages of a Digital library over a Traditional library are listed below:

- Nearly unlimited storage space at a much lower cost
- Re-allocate funds from some staff, collection maintenance, and additional books.
- No physical boundary
- Round the clock availability
- Multiple access
- Enhanced information retrieval.
- Preservation for some print material
- Added value
- Universal accessibility

Shortcomings of a Digital Library

- Lack of constant and consistent power supply and Internet facilities
- Lack of preservation of a fixed copy (for the record and for duplicating scientific research)
- Lack of preservation of “best in class”
- Difficulty in knowing and locating everything that is available, and differentiating valuable from useless information.
- Job loss for traditional publishers and librarians
- Costs are spread and many become hidden.
- Lack of screening or validation

3. CONCLUSION

From the foregoing, it has been made abundantly cleared that digital library or E library operation is far better than the traditional system, especially at this auspicious period when hardcopy documents or paper based materials are gradually facing out in all fares of human sectors. Though, E library is not without its own shortcomings, for instance, in Nigeria or any other African countries where epileptic power supply and poor Internet technology Architecture or unstable Telecommunication Infrastructure are evident, digital operations cannot thrive.

Therefore, Governments in all the tiers of governance including the Federal and State legislative houses respectively should make policies and legislate bills that can improve on

the power supplies and the Internet Architecture Infrastructures in the Country, because this is the platform and bane through which Nigeria can meet up with the developed Nations of the world technologically in the 21st century.

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