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Digital Library *by*

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ABSTRACT

Information Technology has changed the modern day libraries as compared to traditional libraries. The conventional set up of brick, stone and mortar libraries that store information within a constrained physical space (Books/Print materials on the iron racks/wooden racks) have given way to digital multimedia information store houses that integrate data resources around the globe through the effective deployment of Information Technology, without straining the financial resources. Today it is obvious that the most effective way this is to create digital libraries, distributed information systems ensuring reliable storage and effective use of various collections of electronic documents (text, graphics, video, audio etc.) via global telecommunication networks in a way convenient to the end users. The information explosion has direct impact on the libraries as they have to devise ways of performing their tasks better and faster even when the volumes are increasing at a high pace. Terms such as electronic library and virtual library are often used synonymously. The emergence of Internet and wide availability of affordable computing equipment have created tremendous interest in the Digital Library and electronic publication concept.

• INTRODUCTION

A digital library is a highly organized collection of electronic resources. Digital libraries share an important characteristic with search engines - they can both be accessed online. However, while search engines cover a wide range of subject areas, digital libraries are more narrowly focused around one or a specific group of disciplines. Unlike search engines, digital libraries attach content-specific and highly descriptive metadata to describe each item in the collection. When a user conducts a search in the digital library it is this metadata that is searched. Search engines, on the other hand, search "blindly" on an item's content and the results obtained may only indicate that a particular search terms appears somewhere in the item, and not whether the overall content of the item is relevant to the search. Therefore, searches in a digital library produce more useful results, save users' time and effort in searching, and users can access the information found instantly. Digital library is a very complex and dynamic entity. It has brought phenomenal change in the information collection, preservation and dissemination scene of the world. There are many definitions and they are synonymously used as electronic library or virtual Library.

They require technology to link the resources of many and the linkage between them and the information services are transparent to the end users. There collections are not limited to document surrogates they extend to digital artifacts that cannot be represented or distributed in printed formats. Another thing is that digital libraries will not be single, completely digital system that provides instant access to all information, for all sectors of society, from anywhere in the world. This is simply unrealistic. This concept comes from the early days when people were unaware of the complexities of building digital libraries. Instead, they will most likely be a collection of disparate resources and disparate systems, catering to specific communities and user groups, created for specific purposes. They also will include, perhaps indefinitely, paper-based collections.

- **Digital Library : Defination :**

"Digital libraries are organized collections of digital information. They combine the structuring and gathering of information, which libraries and archives have always done, with the digital representation that computers have made possible."

"A digital library is a collection of information that is stored and accessed electronically."

"A digital library is the technologies, tools, resources, and practices associated with the management of content in an electronic information environment."

"An informal definition of a digital library is a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network. A crucial part of this definition is that the information is managed. A stream of data sent to earth from a satellite is not a library. The same data, when organized systematically, becomes a digital library collection." "The digital library is not merely equivalent to a digitized collection with information management tools. It is also a series of activities that brings together collections, services, and people in support of the full life cycle of creation, dissemination, use, and preservation of data, information, and knowledge."

A digital library is "a managed environment of multimedia materials in digital form, designed for the benefit of its user population, structured to facilitate access to its contents and equipped with aids to navigation of the global network"

"A digital library contains digital representations of the objects found in it - most understanding of the digital library probably also assumes that it will be accessible via the Internet, though not necessarily to everyone. But the idea of digitization is perhaps the only characteristic of a digital library on which there is universal agreement."

"A digital library is an electronic extension of functions users typically perform and the resources they access in a traditional library."

"A digital library encompasses two possibilities: a) library that contains material in digitized form, and b) library that contains digital material. There is a subtle difference between the two (though not of great significance). In first case, the digital content is produced by digitizing physical counterparts (e.g. paper). In the second case, the initial content itself is created in digital form."

"A digital library is the collection of services and the collection of information objects that support users in dealing with information objects and the organization and presentation of those objects available directly or indirectly via electronic/digital means."

- **Features of Digital Library :**



No Physical Restrictions :

With the traditional libraries, one has to physically make arrangements and go to a library to access books or other documents. There are no such physical restrictions in the case of digital libraries. One can access it from anywhere, even from the comfort of their homes! All that is required is a good Internet connection. That's it!

Multiple Access :

One main problem in traditional libraries is the restriction in using the same resource by multiple people simultaneously. It is not a problem in the case of digital libraries. Several individuals and institutions can access the same resource at the same time. Mintbook is one such digital library where resources are available to universities, training centers, banking, and even schools. It has a variety of content that matches everybody's choice.

Easy-to-Use :

DLs are more comfortable to use as compared to physical libraries. All you have to do is search for the title or the author, and you'll get your book in no time. You don't have to go from shelf to shelf looking for a book. Moreover, their digital libraries are customizable. Such DLs can be easily customized with your business requirements by getting integrated with your setup.

Conservation and Preservation :

Physical books get damaged after being used and reused again. Their pages get torn, and print disappears with time. Thus, DLs have an advantageous position in this area. No matter how many times a resource is being accessed, it will not affect its condition. It remains preserved in its original form for a more extended period. However, it is still debatable whether DLs are the ultimate preservation solution for physical books.

No Limitation of Space :

The storage capacity of the traditional libraries is restricted due to the limited amount of physical space. On the other hand, there is no such limitation in the case of DLs. DLs can store thousands of resources without facing any difficulties because media storage is very affordable. Mintbook Digital Library has about 10 lakh content stored in more than ten regional languages!

Their resources are in the form of videos, e-books, magazines, quizzes, simulation labs, media clippings, etc. They also have annotation features such as notes, highlighter, dictionary, etc. In a nutshell, it has everything you can wish from a library during this pandemic.

Scope of Improvement :

Digital Libraries have improved and advanced due to technological changes. In the future, too, we'll see the improved version of these DLs. For instance, the quality of pictures might improve, removal of visible flaws like discoloration and stains.

More Than a Library :

Another exciting feature of digital libraries is that it's not just a library. Its spectrum is broader than the old school libraries. For instance, digital libraries engage with their clients via formal as well as informal mode.

Not Time-Bound :

The one thing we are all lazy at doing is returning the book to the library. Admit it that we always return the book late, and then what? We pay the late fee. In some libraries, the time you can issue a book is as low as a week. Who can finish a book in a week? Nobody! (unless you're an avid reader).

Digital libraries also solve this problem. All you need is to pay a minimum subscription price, and then you'll have access to all of their material until the subscription expires. There is no headache of returning the book on time!

No Boundaries of Knowledge :

Digital Libraries reduce the regional and national boundaries of knowledge. For instance, if someone from one country wants to access books from another country. In that case, he or she can easily access the book via a digital library. A walk-in library can't include every book in the world, but that's not the case with Digital Libraries. You can access any text from any corner of the world!

No Language Bar :

Apart from having a wide variety of texts and books, a digital library also has texts in many languages. Language isn't a hindrance to DLs.

360-Degree Virtual Learning Experience :

Some technologically advanced Digital Libraries have a 360-degree Virtual Learning experience.

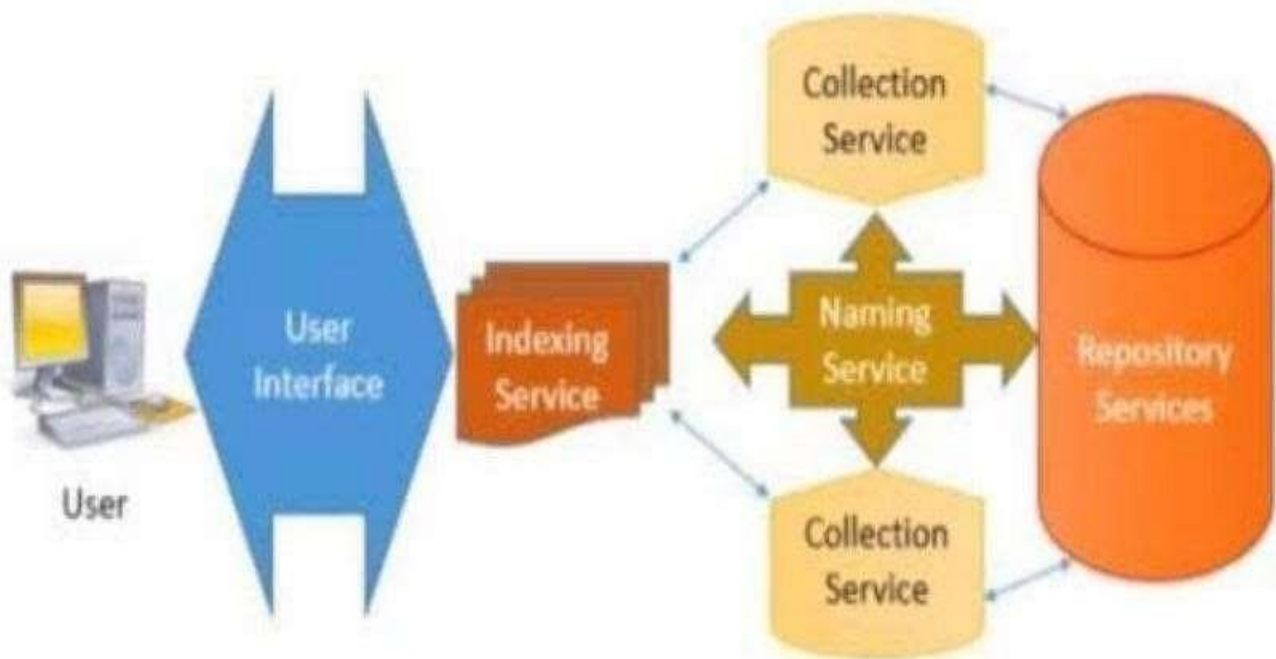
It allows customers to land up in a versatile training program. Apart from academic resources, digital libraries also have vocational content. It indeed does have something for everyone!

Digital Libraries are a blessing to students, schools, universities, and everyone who loves learning. They are proving helpful, especially today when the coronavirus has badly hit us. With all physical sources of knowledge shut down, there is one thing that has not impeded expertise, and that's Digital Libraries. If you are interested in seeking knowledge, you should not restrict yourself to physical books or resources. Here are 10 advantages of digital libraries that you should know about.

• Purpose of Digital Library :

- Expedite the systematic development of procedures to collect, store, and organize, information in digital form.
- Promote efficient delivery of information economically to all users.
- Encourage co-operative efforts in research resource, computing, and communication networks.
- Strengthen communication and collaboration between and among educational institutions.
- Take leadership role in the generation and dissemination of knowledge.

Key Components: Digital Library Architecture and Design



• **Ingredient Of Digital Library :**

1. Objectives :

Library Preserving Access to Digital Information (PADI) initiative aims to provide mechanisms that will help to ensure that information in digital form is managed with appropriate consideration for preservation and future access. Its objectives are:

1. To facilitate the development of strategies and guidelines for the preservation of access to digital information;
2. To develop and maintain a web site for information and promotion purposes;
3. To actively identify and promote relevant activities;
4. To provide a forum where researchers, practitioners, and representatives of interested applications and industries can exchange ideas and experiences;
5. To define and conduct a joint program of activities in order to integrate and coordinate the on-going research activities of the major research teams in the field of digital libraries for the purpose of developing the next generation digital library technologies;
6. To contribute improving the effectiveness of research in the digital library field;
7. To Improve international cooperation in DL research areas.

2. Basic skill :

There are basic skills a librarian needs to learn to stay relevant in this new age. Once computers came, typists immediately sought to learn how to use them, so they remained relevant in the industry. A modern librarian needs to have a variety of digital skills.

This article seeks to educate you on the digital skills you need as a librarian, to stay relevant in the educational sector. This will also help anyone else who wants to access resources in the library.

2.1 COMPUTER LITERACY :

Before you even begin to think about digitalization, you must first familiarize yourself with the concept of ICT technologies including computers and internet routers. It is possible to take computer classes. They are very cheap these days. A cheaper option could be to get someone to teach you how to effectively use a computer system to its full potential. ICT is slipping into every industry and one way or the other, changing things. Hence, the library is no exception. Computer literacy is essential for everyone. If you want to remain relevant in any industry, most especially the library sector, you must acquaint yourself with the computer.

2.2 WEB LITERACY :

The idea of a global village was first theorized by Marshall McLuhan in the 1960s. Social media has turned the world into a small community that makes the distribution of information faster and easier. Social media has come as the third phase of the internet revolution. It consists of email/computer systems, basics of the internet, how the internet works, and all sorts of niches. Although the web is where the majority of educational and other content are stored, social media also holds relevance because trends often start from there.

Therefore, as a librarian, you need to familiarize yourself with the web and media. This will help you serve your readers better. Also, since authors create more and more e-books. You should be able to advise readers properly on the sites they could find books. These books need not be in the typical hard copy. It is also very important that you filter out fake information from the real ones on the internet.

THE INTERNET WAS CREATED IN SUCH A WAY THAT EVEN A SIX-YEAR-OLD KID CAN PUBLISH ANYTHING ONLINE.

As a librarian, you must figure out a way to display relevant and actual information on your computers at all times. If readers can't trust the information, they would rate your library bad or possibly never come back again. Like I pointed out earlier, social media is often the starting point for every trend or news.

Applications like Twitter, Facebook, and Instagram are usually the first places any author, musician, politician, or anybody at all. They are platforms that announce the next move in their career. This is important especially for audiences who are great fans of their products such as fiction novels. In fact, many authors will first post about a new release before conducting a press conference. If there is ever one.

2.3 MARKETING :



As the physical libraries are starting to fade, there is high competition between e-libraries. Everyone wants to be the best. As a LIBRARIAN in the digital world, you need some marketing skills to help tell people about your e-library. You need to be convincing enough to persuade people to explore your library. Sometimes, your e-library might have everything but lack a librarian with good marketing skills. Unfortunately, this can seriously affect your library because, at the end of the day, very few people will visit your e-library.

2.4 READING AND MANAGING SPACE :

Since research has found that physical space can really affect assimilation. You must try to use the ethnographic approach to manage space. As a librarian, you must be able to manage space properly. You may create space in an area where people will not believe space could be created. This is a skill set that many librarians are beginning to employ to help them stay relevant in the sector.

A cramped-up library is a turn-off for any reader. About 76% of people prefer their solitude when reading and therefore, need personal space. Sometimes, people come to the library for some peace, space, and quiet moments. Also, reading habits have changed in the past years and people are now getting used to reading from screens.

2.5 REORGANIZING MANAGEMENT :

Education is a sector that is subject to change. The library must, therefore, be able to adapt to these changes. For instance, if the person managing a library is not actually well orientated with ICT technologies and the likes, it might greatly hinder the shift to digitalization, even if you as a librarian might want to shift.

It is important to renegotiate roles and reorganize management to slowly implement some of these changes. As a librarian, you might help to organize various assets in a way that any transition belonging to the organization becomes easy, such as marketing content.

2.6 MANAGING DIGITAL RESOURCES :



This is a very important skill set if you are planning to remain relevant in the library sector. You must learn how to disseminate, filter, and organize digital information according to its relevance.

Also, with copyright laws now stretching to digital works, you must give credits to whom credit is due. In a situation where you are working in a library inside a university, this skill is very important. Academic staff will create educational content and will want them to be organized properly, credited to them, and paid for any royalties that might come with their work.

Librarians need to be able to manage digital resources, such as digital copies of journals, ebooks, and audiobooks. This can often mean managing a system that allows the borrowing or access to digital resources by library patrons.

2.7 COLLABORATION :

To stay relevant as a librarian, you must also learn how to use social media to communicate and collaborate. You could use stay in touch with your professional colleagues outside or inside the country. This is to help you know recent developments in the industry, new researches on how to grow the library, and build reading habits in people in that community. One hindrance to the development of many libraries happens to be the issue of declining reading habits in a community. People have become so dependent on the internet these days, that they have forgotten the use of a physical library. That is why the introduction of the e-library is vital at this stage. It will help rekindle the passion for reading in young adults.

2.8 CUSTOMER SERVICE:



Librarians have always been tagged as rude people. People who won't look at your face while they tell you where to get your book. This is one of the reasons many youths don't frequent libraries anymore. As a librarian, one of your core values should be humility and love for the job. Just like a marketer, you should be able to convince your readers and sell the idea of reading to anyone anywhere. You must be approachable enough for people to have short conversations with you. You should also make it part of your objectives to impact someone's life positively.

2.9 DIGITAL COMMUNICATION :

Good communication skills are essential for any librarian. Being able to use various digital communication methods for both internal communication and external communication has become an increasingly important skill. You should be able to connect people with the information that they need and help to improve communication. The internet has made users and consumers of information find what they want by themselves and without help. However, they sometimes find it very difficult to find the

information they need from the internet because of poor communication from the information provider.

2.10 DIGITAL INFORMATION MANAGEMENT :

Before now, libraries mostly kept physical resources like books, magazines, and maps. However, times are changing and e-libraries are now becoming rampant. Therefore, most documents are now being digitalized since it's a better, faster, and safer way to store information. In this regard, you as a librarian must learn to manage digitalized information. Know how to operate and manage a database. You should also have knowledge about intellectual property and rights management. Other topics relating to the ownership and sharing of information and resources should also be known.

This is one of the most important skills you need to stay relevant as a librarian. It's good to understand how to legally and ethically manage and reference digital information. Just as Cloudpay meets the challenge of managing payroll schedules and maintaining compliance, you should also be able to strike a balance between giving out resources and avoiding property infringement.

2.11 KNOWLEDGE OF RESEARCH :



Being able to research and find necessary information is an important part of being a librarian. Today's research involves being able to use search engines successfully and understand how they work. A librarian should be able to help someone conduct an online search and improve their searching skills. You must begin to support research through your e-library. Internet polls, open access, and social media are becoming very popular ways to conduct research. This is very common especially

when it comes to conducting polls related to your research. Social media allows you to disseminate information faster. You could create open access polls and get feedback from people without having to leave your e-library. You must be conversant with research strategies in our digital world. This will help you to advise library users on the various options they can consider for research.

Hardware of Digital Library :

The minimum requirements of hardware for digital Library are:

- Computer
- CPU, PCI Bus, Ethernet, Silicon Graphics, RAM
- Storage Devices
- Hard Drives, Removable hard drive, Optical drive, DAT drive (Digital Audio Tape), CD ROM drive
- Monitors
- Digitizing devices
- Scanners, Digital Camera
- Out Put Device
- Printers Modem and CD Writer

• Software of Digital Library:

There are number of software, which can be used for different function some of them are as follows:

- Editing images
- Page layout programmers: to integrate text and graphics
- Page transferring utilities : to share files between computer platforms
- File translation programmes : to convert files from graphics ·
File compression software.

The software which are used mainly for digital library are Greenstone, Dienst Eprints Archive software, Dspace etc.

Characteristics of Digital Library :

All conventional libraries basic functions focus on collection, organization and dissemination of information resources. Traditionally a “library is a place in which books, manuscripts, musical scores, or other literary and artistic materials are kept for use but not for sale”. In effect, it is an institution oriented towards collections and custody, where people may make use of the facilities.

Whereas a digital library is an assemblage of digital computing, storage and communications machinery together with the content and software needed to reproduce, emulate and extend the services provided by conventional libraries. In other words, a digital library is a computer-based system for acquiring, storing, organizing, searching and distributing digital materials for end user access. It is not just a collection of material in electronic form; it includes a browser interface and perhaps a virtual space and society. It requires less space and the data can be made available through communication networks to anyone anywhere, while facilitating searches with speed. The digital is not a single entity and as such is linked to the resources of many such collections. Some of the features pointed out in the definitions of digital library may be listed as follows:

1. A library that served a defined community or set of communities.
2. A conglomerate of multiple entities.
3. Library that incorporate learning and access.
4. Library that provide fast and efficient access, with multiple access modes.
5. A library with a collection which are large and persist over time, well organized and managed, contain many formats and contain objects which may be otherwise unobtainable.

Digital libraries will also include digital materials that exist outside the physical and administrative bounds of any one digital library, will serve particular communities or constituencies, as traditional libraries do now, though those communities may be widely dispersed throughout the network, and will require both the skills of librarians and well as those of computer scientists to be viable.

Definition of digital library involves three key components, which constitute the theoretical framework underlying digital libraries, namely : (1) people. (2) information resources. (3) technology. 4. Five laws of library science with digital library.

- **Function of Digital Library :**

The rapid development of the internet in the 1990s and its embrace by the library and information community enabled the concept of the digital libraries (DLs), whose function can be defined as the collection, storage and processing of vast information and knowledge into a systemic project through digitalization and the internet, while providing convenient and highly efficient retrieval and inquiry services. To this effect, at a minimum, the core services expected of a Digital Library System include: a repository service for storing and managing digital objects; a search service to facilitate information discovery; and a user interface through which end users interact with the digital objects. The introduction of the DL has raised library modernization to a new level with over time.

Digital libraries promise new societal benefits, starting with the elimination of the time and space constraints of traditional bricks-and-mortar libraries. Unlike libraries that occupy buildings accessible only to those who walk through their doors, digital libraries reside on inter-networked data storage and computing systems that can be accessed by people located anywhere. At their full potential digital libraries will enable any citizen to access a considerable proportion of all human knowledge from any location. From an access vantage the Internet provides a preview of the possibilities.

The role of a Digital Library is essentially to collect, manage, preserve and make accessible digital objects. The following are some of the function of digital library:

- (1) To provide friendly interface to users.
- (2) To avail network facilities.
- (3) To support library functions.
- (4) To enhance advanced search, access and retrieval of information.
- (5) To improve the library operations.
- (6) To enable one to perform searches that is not practical manually.
To protect owners of information.
- (7) To preserve unique collection through digitization.

- **Advantage of Digital Library :**

A digital library is not confined to a particular location or so called building it is virtually distributed all over the world. The user can get his/ her information on his own computer screen by using the Internet. Actually it is a network of multimedia system, which provides fingertip access. The spoken words or the graphical display of a digital library is again having a different impact from the words that are printed. In the new environment owing a document will not be problem for the library because the user will pay for its uses.



- 1.No physical boundary :**

The user of a digital library need not to go to the library physically, people from all over the world could gain access to the same information, as long as an Internet connection is available.

- 2.Round the clock availability:**

Digital libraries can be accessed at any time. 24 hours a day and 365 days of the year

- 3.Multiple accesses:**

The same resources can be used at the same time by a number of users.

- 4.Structured approach:**

Digital library provides access to much richer content in a more structured manner i.e. we can easily move from the catalog to the particular book then to a particular chapter and so on.

5. Information retrieval:

The user is able to use any search term bellowing to the word or phrase of the entire collection. Digital library will provide very user friendly interfaces, giving click able access to its resources.

6. Preservation and conservation:

An exact copy of the original can be made any number of times without any degradation in quality.

7. Space:

Whereas traditional libraries are limited by storage space. digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them. When the library had no space for extension digitization is the only solution.

8. Networking:

A particular digital library can provide the link to any other resources of other digital library very easily thus a seamlessly integrated resource sharing can be achieved.

9. Cost:

The cost of maintaining a digital library is much lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintains, rent, and additional books. Digital libraries do away with these fees.

- **Disadvantages of the Digital Library :**

The computer viruses, lack of standardization for digitized information, quick degrading properties of digitized material, different display standard of digital product and its associated problem, health hazard nature of the radiation from monitor etc. makes digital libraries at times handicap.

1. Copyright:

Digitization violates the copy right law as the thought content of one author can be freely transfer by other without his acknowledgement. So One difficulty to overcome for digital libraries is the way to distribute information. How does a digital library distribute information at will while protecting the copyright of the author?

2. Speed of access:

As more and more computer are connected to the Internet its speed of access reasonably decreasing. If new technology will not evolve to solve the problem then in near future Internet will be full of error messages.

3. Initial cost is high:

The infrastructure cost of digital library i.e. the cost of hardware, software; leasing communication circuit is generally very high.

4. Band width:

Digital library will need high band for transfer of multimedia resources but the band width is decreasing day by day due to its over utilization.

5. Efficiency:

With the much larger volume of digital information, finding the right material for a specific task becomes increasingly difficult.

6. Environment:

Digital libraries cannot reproduce the environment of a traditional library. Many people also find reading printed material to be easier than reading material on a computer screen.

7. Preservation:

Due to technological developments, a digital library can rapidly become out-of-date and its data may become inaccessible.

- **Conclusion :**

The information and communication technology has changed the complexion of today's libraries on a large scale and we are amidst in information explosion and information technology revolution leading to the emergence of electronic information era. Rapid advances in information processing, storage and communication technologies have revolutionized the role of worldwide libraries in disseminating information services to their users.

As a result, libraries are facing new challenges, new competitors, new demands, new expectations and variety of information services from users tailored to their wants and needs. Libraries around the world have been working on this daunting set of challenges for several years now. They have created many digital library initiatives and projects, and have formed various national schemes for jointly exploring key issues. With several years' accumulated experience, the initial enthusiasm surrounding the development of the digital library has been replaced by sober second thought.

Librarians have discovered that, with a few exceptions, making a business case for digitization and investments in digital technology is more difficult than first envisioned, especially given the technical and legal constraints that must first be overcome. As with most other technical developments in libraries over the years, we will have to move forward in small, manageable, evolutionary steps, rather than in a rapid revolutionary manner.

- **References :**

- Google search – Digital Library
- Visit Digital Library's Web Site
- National Digital Library of India