

# An Overview of Hybrid, Digital and Virtual Library

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## Abstract

A digital library is a combination of textual, numeric, scanned photos, graphics, audio, and video recordings that allows consumers to easily retrieve information from a digital collection. Recent advancements in computer store and processor, communication technologies, e-products, networking, and internet use have resulted in a radical shift in the way libraries and their services operate. Current study discusses a functioning collection of textbooks, documents, newspapers, and audiovisual resources stored and arranged in a library for anyone to read or borrow. Information and Communications Technology (ICT) has had a significant influence on libraries, and it has altered the traditional library idea in which print and paper materials are the primary components of the system. Libraries are transforming into digital libraries in order to fulfill the massive information explosion and rising demand for information. Due to the digitization of library materials and the rapid advancement of technology, a new sort of library has emerged: the virtual library. Most of us are often perplexed by library jargon. In this work, we attempt to clarify the language used in these libraries in a professional manner. Such libraries will increase the efficiency of education in the coming eras.

**Keywords:** digital, influence, information, library materials, technology

## 1. Introduction

We live in the digital age, in which any piece of knowledge from any period may be found in electronic form. Traditionally, libraries were thought to be book storage facilities reserved for monarchs and other prominent members of civilization. Future on, it was regarded as a library and information center, but with the advent of Information and Communications Technology (ICT), the conventional library idea was altered; Knowledge has taken the role of textbooks, and data is becoming more valuable now used for diffusion rather than preservation. Because of the rapid improvement in technical breakthroughs in the area of ICT, user demand has shifted from conventional libraries to digital libraries, electronic libraries, and virtual libraries in order to fulfill user demand (R. Lawson 1896).

ICT allows for quick information capture, storage, processing, and distribution, as well as a number of worth-additional amenities. With the rise of data overload, it is becoming more tough to deliver the appropriate data to the appropriate person at the right time. However, We can simply offer the correct data to the correct person at the appropriate time thanks to info technologies. People in today's culture have easy access to and usage of They require electronic data that they can obtain at any moment and from any place through info technologies gadgets such as PCs, laptops, and iPads, that could only be given by electronic sources (F. L. M. De Guzman, L. N. N. Moukoulou, L. D. Scott, and J. J. Zerwic 2018).

A digital library is a controlled the gathering of digital or electronics data with associated services, in which data is obtained, stored, and processed using electronic equipment and requires access to these digital resources over a network. A hybrid library, on the other hand, contains both print and non-print collections and offers online and offline services to its users. Even if the terms "electronic library," "digital library," "virtual library," and "hybrid library" are interchangeable, there should be several meanings. Hybrid, electronic, and virtual libraries are considered contemporary libraries since they vary significantly from conventional libraries (M. Wang, H. Chau, K.

Thaker, P. Brusilovsky, and D. He 2021).

### 1.1 Hybrid Library

Hybrid libraries include both traditional print items like books, periodicals, and papers, as well as nontraditional or electronic-created items like audio books, electricpapers, and e-books. Chris Rusbridge created the phrase "hybrid library" in a 1998 essay for D-Lib Publication.

Most commercial and institutional library are experimenting with hybrid libraries because they can readily provide electronically or online operations and build collections with their current services and collections. With the advent of "information technology" in the 1990s, libraries were able to obtain electronic materials that were more freely accessible and generally accepted for public and academic use (Z. H. Hu, A. M. Shi, G. W. Cao, and J. J. Bao 2016). Material supplied on media such as CDs, DVDs, or specialized online offline databases was readily accessible to these digital items. Electronic content now comprises Papers and services on the web that are available online, like as e-journals, e-docs, and so on, thanks to the widespread availability of electronic content. Staff members in a hybrid library must be properly educated in the use of electronic equipment like as CPUs, scanners, and other similar devices, as well as in the search of the large quantity of information accessible in the digital age (C. Chen and X. L. Lü 2015).

### 1.2 Digital Library

All services are entirely automated in digital libraries, and all materials are available in digital format. These libraries are diverse in scope, including work on data and how to digitize, preserve, discover, connect, imagine, utilize, distribute, maintain, and distribute data. A digital library is a collection of digital computer, storage, and communication equipment, as well as information and software (N. Tomal and M. B. Yilar 2019). There are primarily two categories of information in a digital library:

- Born digital: This details is digitally generated and kept.
- Digitalized: Data is stored in physical forms, which are then transformed to virtual or electronics ones using suitable gear and technology.

### 1.3 Architecture of Digital Library System

Architecture of digital library system mainly consists of 4 things user interface, search system, handle system and repository (Figure 1).

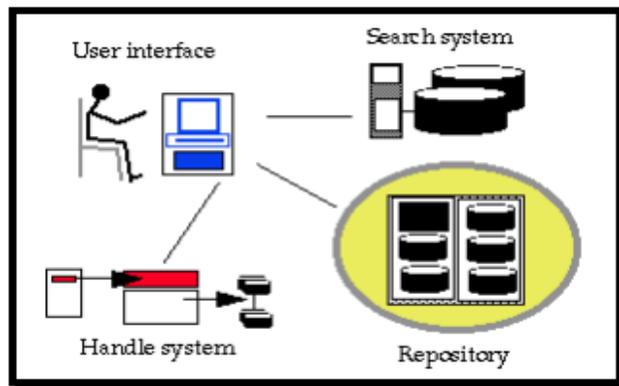


Figure 1. Diagrammatic representation of architecture of digital librarysystem [DLIB]

#### 1.2.1 User Interface

Both the pilots and prototypes contain two client interactions: one for library patrons and another for librarian and systems admins who manage the collections. Each user interface is split into two parts. A conventional Internet browser is used for the real interactions with the user. This may be Netscape Browser or Microsoft Internet Explorer. The browser communicates with client services, It serves as a link among the website and the rest of the computer Client facilities allow the user to select from which to browse and what to collect; they perceive details organized as electronic objects; they try to negotiate terms and circumstances, handle connections among electronic objects, memorize the country of the communication, and transform among the processes used by the numerous sections of the system; and they transform among the processes used by the numerous components of the framework; and they transform among the processes used by the numerous sections of the framework (Alaca, E 2017).

### 1.2.2 Repository

Digital items and other information are stored and managed in repositories. Many repositories of different sorts, such as current repositories, legacy databases, and Web servers, may be found in a big digital library. The repository access protocol is the name of the interface to this repository (RAP). RAP has many features, featuring explicit description of right and permission required before a clients may acquire a digitally object, support for a broad range of electronic object dispersion, and an accessible design with well-defined interfaces(K. S. Chung, H. W. Byun, S. Kim, and H. C. Yu 2018).

### 1.2.3 Handle System

Handles are identities that might be utilized to locate down Internet assets such as electronic items throughout time and manage material in any repository or databases. Whenever utilized with the repository, the handle system takes a handling for a digitized object as inputs and returns the identity of the archive wherein the object is stored.

### 1.2.4 Search System

The electronic library system is constructed on the assumption that there would be a large number of indexes and catalogues that may be searched to find details previously extracting it from a repository. Separately, those indices might be managed and supported a number of techniques(M. Kovač, A. Phillips, A. van der Weel, and R. Wischenbart 2019).

## 1.3 Virtual Library

Another kind of Digital Library is a Virtual Library, which serves as a doorway to knowledge that is accessible electronically elsewhere. This is done to underline that the Library does not have any material of its own. For a decade or more, librarians have used this word to describe a library that gives access to dispersed content in electronic format through links given locally. "Remote access to library and other information components and services, merging an on-site gathering of existing and strongly utilised components in both write and digital form with a digital network that offers entry to and delivery from external world - wide library and commercial details and knowledge sources" according to Gapen (1993). Virtual libraries have become a worldwide emblem of the information access paradigm due to its quick and extensive access to current information contents(A. Cayvaz, H. Akcay, and H. O. Kapici2020).

The old-style emphasis of librarians on the choice, classification, and administration of information resources such as books and periodicals has shifted thanks to the Virtual Library. The virtual library prioritizes accessibility above the requirement to account for the time needed by these technological operations. Virtual Libraries have prompted libraries, researchers, publishers, and document delivery companies in both developed and developing nations to form new collaborations for the benefit of scholarly communication.

The goal of aThe purpose of the Online Libraries is to aid education and information gain., create a more solid foundation for education, and improve quality of life by using ICT-based tools to access digitally accessible (ideally on-line) books, materials, and periodicals. A Virtual Library gives remote access to a wide range of nationwide and global content (e.g. curricula, learning materials, books, journals, periodicals, and newspapers), as well as conventional library and information source services. As a result, virtual libraries integrate electronic contents with an electronic network that allows for access to and distribution of such items.

To be a successful instructional tool in the public sector, it must react to the demands of potential users - students, instructors, researchers, and academics - and offer inexpensive access. Building public domain collections that are available via, for example, free software applications on the basis of low Internet rates should be prioritized.

### 1.4 Function of Virtual Library

- It enables worldwide access to up-to-date information in a timely and efficient way.
- It has revolutionized the old library method of exclusively cataloging book items.
- Non-book materials (NBM) cataloging encompasses not just databases but also websites.
- The focus is on access rather than collecting.
- It saves time
- It creates a digital gap since only wealthy nations with the finances to automate and meet the infrastructure needs for Virtual Library services can afford to sustain them.

### 1.5 Electronic Library

An electronic library is one in which the collections are preserved in electronic forms and are available by any medium. The electronic data or content may be kept on a local server or on a distant server that can be accessed through computer networks. All of these electronic materials, as well as electronic services, make up an electronic library. All digital or electronic materials, including a variety of analog forms that need electricity to operate, are referred to as electronic information.

An electronic library offers both online and offline services, saving consumers time and assisting them in finding the information or book they need. The phrase "electronic library" was first used in a paper by the Corporation for National Research in 1988.

### 1.6 Advantages of Digital, Virtual, Electronic and Hybrid Library

- There was no need for consumers to travel to the library since they could instantaneously get the same knowledge from anywhere on the planet through the internet. He or she just has to input the library's URL to access all of the services and information available at the library. This saves time for users, as all information is available with a single click.
- Availability Library are opened every day of the year, 24 hours a day, 365 days a year. Because computers are unaware of day, night, weeks, and months, all digital On the internet, content is available 24 hours a day, seven days a week. Every piece of information is accessible online at any time.
- Multiple users may access the same resources at the same time. Users may access the same information several times and at the same time without experiencing any difficulty. It saves consumers time and money, which is cost-effective and leads to improved services tailored to the requirements and desires of the users. Multiple accesses refer to when a large number of people utilize the same resource at the same time or after a period of time. In conventional libraries, however, a single user may only access a resource once.
- The contents of contemporary The contents are incredibly well arranged, enabling users to rapidly go from the catalogues to a specific books, and then from the novel to a certain chapter, and so on. A library contains structured archives of humans learning, allowing us to quickly explore a certain subject and acquire materials connected to it through search. We do a systematic search on the subject, moving from a catalogue to a book, next to an indexes, then to a chapters, and so on, as needed.
- Users may use any term that is connected to a word or phrase in the complete collection to search for or retrieve information. Users will appreciate the user-friendly interfaces and one-click access to the library's contents. Users may simply search any word, phrase, symbol, or number using interfaces known as search boxes. Using search, we can navigate around our subject. The consumer saved energy by not having to hunt for material, provides rapid access to their subjects, and is simple to use.
- Traditional libraries have storage and space issues since their collections are in print form, which takes up more room, but electronic or digital libraries hold more information in a less amount of area. Thousands of eBooks, periodicals, journals, and other items may be kept on a single hard drive, therefore it's crucial to understand that the digital library requires relatively little space to operate and provide services. When a traditional library runs out of room, digitizing its collection is the only option.
- Nowadays, libraries are interconnected by high-speed internet connections, which is referred to as networking. Resources may be shared via link sharing. Users do not need to travel to the library; they may readily access the library's materials and services through the internet. Users may quickly access many libraries' databases with a single click since libraries exchange connections to other libraries' databases, saving time and assisting users in their search for relevant information.
- Keeping an electronic, virtual library is far less expensive than maintaining a conventional library. A traditional library must accept higher costs for upkeep, personnel and professional pay, and so forth. This may be alleviated by electronic, virtual libraries, since these contemporary libraries need just a one-time investment until technology evolves, after which fewer specialists are required to maintain the library (Figure 2).

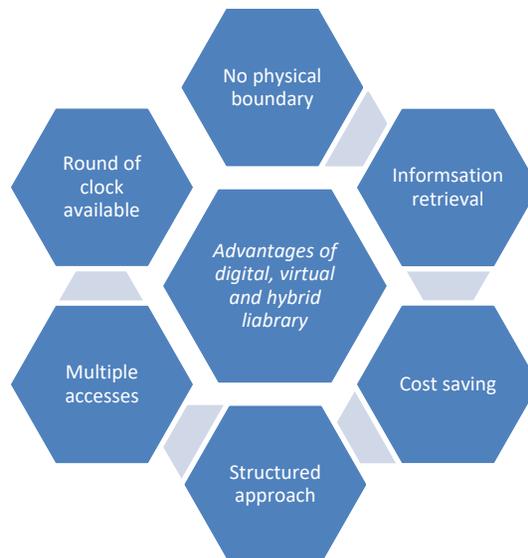


Figure 2. Diagrammatic Representation of Advantages of digital, virtual, electronic and hybrid library

### 1.7 Disadvantages of Digital, Virtual and Hybrid Library

#### 1.7.1 Copyright

Because the information or resources of one author may be easily transferred by others without his knowledge, digitization goes against the copyright law. The key difficulty is how libraries transmit information while yet preserving an author's intellectual property. There are strong penalties for violating copyright laws, yet it is more difficult to protect an author's or publisher's intellectual property rights in the digital age.

#### 1.7.2 Website Speed

when more computers join, the burden on the server increases, making the website sluggish. If no new technologies emerges to address the problem, the Web will soon be swamped with failure notifications. Because digital information contains music, video, and documents that are large in size and demand higher bandwidth speed, it's challenging to give the same speed of access because technology is aging.

#### 1.7.3 Initial Cost

The initial cost of contemporary libraries is quite costly of programs, equipment, communications connections, and other devices are included. Library cannot afford to acquire them since they are not profit-making companies; instead, they rely on any institution that gives cash for the functioning and operation of the libraries.

#### 1.7.4 Bandwidth

Libraries will need high transfer rates for the delivery of multimedia content, but bandwidth is dwindling day by day owing to overuse and internet saturation. Slow bandwidth causes digital information to download and upload slowly, requiring users to spend more time looking for and obtaining their desired content.

#### 1.7.5 Efficiency

Because of the information explosion, there is a lot of information on certain subjects, making it harder to identify the proper information. The information's authenticity is under doubt.

#### 1.7.6 Atmosphere

Modern libraries are unable to replicate the atmosphere of old libraries. Reading written material is also easier for many individuals than reading information on a computer screen. Many individuals prefer to read print information due to a lack of technical understanding. Furthermore, bad behaviors are a huge issue.

#### 1.7.7 Preservation

As technology advances, libraries become out-of-date, and their material may become unavailable. Many new formats will emerge in the future, making it challenging to retain library contents in a standard format that we can

utilize in the future(Figure 3).

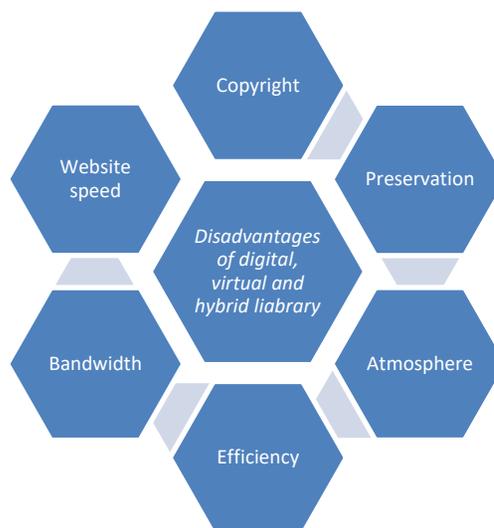


Figure 3. Diagrammatic Representation of Disadvantages of Digital, Virtual, Electronic and Hybrid Library

## 2. Discussion

A libraries is a collections of resources, publications, or various types of content that are accessible for use instead than display. It is responsible for maintaining current data in order to meet the needs of customers on a regular basis. A library may be a real facility, a virtual environment, or both, and offers tangible or digital access contents. A library's collection may include written textbooks and various physical materials such as DVD, CD, and cassette tapes, as well as accessibility to material, music, and various material housed in bibliographic database.

A public organization, like as aadministration, an organization/universities, a company, or a private person, may create and operate a library, which may range in size. Librarians, who are trained and skilled in locating, choosing, distributing, and arranging material, as well as assessing knowledge needs, navigating, and analyzing large amounts of data utilizing a variety of sources, are available via libraries.

Library structures often feature peaceful and suitable study places,as well as common areas for communal research and cooperation, and may also make its technological resources, like as laptops and Web connection, available to the public. The library's clientele and, as a result, the services it provides vary depending on the kind of library: customers of aFor illustration, the expectations of a common library vary from those of a specialized librarian. Libraries may also serve as community centers, where individuals can attend Participating in lifetime education courses and initiatives. Advanced libraries offer a variety of services. literature available through electronic methods, even from home via the Internet, extending their services beyond the physical boundaries of a facility. As a consequence, data maintenance in an electronic age has become relatively straightforward, simply since material can be provided or accessible electronically by people in far-flung areas and various sites distant from the library.

A digital library, also known as an electronic library, an internet library, a digital repository, or a digital collection, is an online database of digital items, such as text, still photos, music, video, digital documents, or other digital media forms, or a library accessible over the internet. Objects may be made up of digitized material such as print or images, as well as digital content that was created in the first place, such as word processing files or new media postings. In addition to storing material, digital libraries allow users to organize, search, and retrieve information from the collection. Individuals or groups may maintain digital libraries, which can range in size and breadth. Digital material may be locally stored or accessible remotely through computer networks. Interoperability and sustainability enable these information retrieval technologies to share data with one another.

## 3. Conclusion

Modern libraries include hybrid, electronic, digital, and virtual libraries, all of which are interchangeable. Modern libraries will not fully replace the physical presence of print materials, but to fulfill current user demand and technological advancement, digitalization must be implemented so that libraries become hybrid in character and in

contact with their users. Although the initial cost of digitization is considerable, research indicates that after digitalization is implemented, the cost of managing and maintaining This library's collections would be lower than a typical library's. The price of digitization is falling day by day since technology is becoming obsolete with each passing day, online publishing is expanding, and consumer demands are migrating away from print sources.

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