Chapter 2

Digital Resources
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DIGITAL RESOURCES

1. INTRODUCTION

Earlier, most libraries' acquisitions were limited to books, serials, microfilms and audio visual material but with the advancement of information technology, information explosions, availability of large number of documents in electronic gradually replaced by e-documents. In this context the libraries have no other option than to build collection on e-resources. [1]

A recent study by Chern Li Liew and Schubert Foo suggested that there is a growing interest in digital resources and users expect them to offer advanced forms of value addition including interactive features. While there are several major ongoing projects aimed at digitizing resources originally produced in some other format, there is a realization of the fact that increasingly more and more resources are born digital. And so digitization is on the rise and digital resources constituted a growing importance.

2. SIGNIFICANCE

Some reasons that have contributed to the growing importance of digitization and digital resources are

1. Digital resources lend themselves to remote access and shared use, i.e. they are accessible from any computer that has network connections; and thus overcome the barriers imposed by space and time.

2. Digital data can be used by more different ways; digital data is
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amenable for manipulation in ways clearly difficulty if not possible, in the print world.

3 Digital data and resources can be interrelated and linked to one another in a seamless fashion. In fact it may be difficult to determine the beginning and end of a digital object; e.g. Bibliographic references in a digital paper could have links to full texts of items referred to; these links could also be to items in many different formats and the linked objects may physically reside anywhere.

4 Digital resources offer the users with their facility to built and develop workspace for future use and reference.

5 Digitization offers a cost effective means of preserving the contents of resources that are difficult to preserve in their original form.

6 Hence, with the advancement of technology the libraries are moving towards digital resources which provide more, support searching capabilities. It has changed the way information is stored, retrieved, and disseminated. [2]

3. DEFINITIONS

1 Digital resources could be resources that are born digital, or resources originally produced in some other form and converted to digital form.
2 A Digital resource can be defined as any computer available
information source containing facts, perspectives, or information
on a topic of interest.

3 A Digital resource is anything which is published in computer
readable format.

4 A Digital resource can be defined as a selected and organized set
of digital materials (objects) along with the metadata that describe
them and at least one interface that gives access to them.

4. USEFULNESS OF DIGITAL RESOURCE

1. Access to information is instant.

2. Effective searching can be possible to retrieve particular information.

3. Presentation of information through the digital resources can be done
within a reasonable time with speed and ease.

4. Multiple accesses to electronic resources are possible.

5. Downloading of the required information is very easy.

6. Addition of information to the collection of digital resource is faster.

7. Cataloguing, editing, referring, indexing, etc. can be done with ease
and speed.

8. The quality of information service can be improved and maintained
through the digital resource Education and training can be provided
through digital resources effectively.
9. Career planning and related information can be accessible using the digital resources of information.

5. PROCESS FOR DIGITIZATION

Digitization refers to the conversion of an item be it printed text, manuscript, image, or sound, film and video recording – from one format (usually print or analogue) into digital. The process basically involves taking a physical object and essentially making an "electronic photograph" of it. An image of the physical object is captured – using a scanner or digital camera – and converted to digital format that can be stored electronically and accessed via a computer. Digital resources can broadly be grouped into two categories – those that are originally created and distributed in digital format and those that are originally created in another format and are later converted into a digital format through a process generally referred to as digitization.

To create and manage digital resources, the basic requirements are:

1. All the functions of the library should be computerized.
2. Networking facilities like LAN and WAN must be available in the Library.
3. CD-ROM and Multimedia Workstations to be installed.
4. Internet connection must be provided.
5. Digital computer scanner and CD-writer facilities to be established.

Thus Digitization involves three phases conversion from paper to
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digital image; this permit storage in the computer. At the second phase, the image needs to be converted into machine readable digital texts. Finally, it is usually necessary to mark up the text for display on the screen.

6. PROCESS OF CREATION OF DIGITAL RESOURCES

Efforts have to be made to produce all documents in digital form. This will reduce our expenditure in converting texts to digital form. Creating texts in digital form would facilitate in publishing of documents electronically either on the Web or in the form of CDs, etc. Information using the Electronic texts and Journal should be created and provided through LAN or WAN or Intra/Internet facilities to the users.

A separate web page may be created by the library highlighting its services and collections on Internet which will support electronic publishing of reports, announcements, new additions, notices, etc. and increase the use of its resources.

CD-ROM search may be admissible to the users by creating and managing separate CD-ROM workstations for which a good collection of CD-ROMs and Multimedia CDs should be purchased and kept at the libraries for accessing the relevant information after getting signature and data about the CD-ROMs searched by the users.

Using the Computer Scanner and CD-Writer, relevant and required images from textbooks and journals and other primary documents may be scanned and included in the required documents and they may be provided to the users on demand at reasonable charges. Internet access may be
provided to the user for retrieving the required information and a fee may be collected for browsing the Internet and a separate data and account may be maintained for the same.[3]

7. ACCESSIBILITY

Accessibility implies several factors. Primarily the users should be able to connect to the resource and use it. The site(s) on which the digital resources are hosted need to be accessible speedily and reliably. A primary factor that determines accessibility is the infrastructure available bandwidth, network, the service providers and the equipment.

8. RETRIEVABILITY

Retrievability is ensured through the use of collection and object description. Collection description serves two purposes: it helps people discover the existence of a collection and it helps users of the collection understand what they are looking at.

Users should be able to retrieve individual objects in the resource both through searching and browsing. These two aspects of retrieval need different approaches. Searching requires a database that needs to be populated with appropriate information about the item its description, location, content and other metadata. While most databases are developed manually, there is software being developed collect resources, validate them according to pre-defined criteria, check links, and update the resources.

In developing this tool, which will help in resource discovery, it is important to follow standards such as ISBD-ER or MARC-21. The use of
metadata on the digital resources provides a substantial assistance in creating local institutional metadata.[4]

9. COLLECTION

Attention is being paid to digitizing material and publishing digital collections on World Wide Web (WWW) as a strategy to increase user access. A "collection" commonly extends beyond resources the library owns to include all the resources to which it can provide access.

The nature of publishing is changing. Publishers are moving away from print model which is expensive to delivers, in favour of electronic formats. It includes electronic or digital material. [5]

10. DIGITAL RESOURCES OF LIBRARIES

The digital resources of the library basically include the followings, which should be acquired by library as per its needs.

1. CD/DVD-ROMs

Today CD/DVD-ROMs have become a popular e-media for archival, retrieval and distribution of information. It is used for the storage of a large amount of data with user-friendly software. It can be networked through a CD server or exist as a stand alone units with both specific and general in coverage. There is a developing trend, to use CD-ROMs for specialized collections of full-text material. [6]
1.1 Benefits of CD/DVD-ROMs

The success of CD/DVD-ROM over traditional removable storage media such as floppy disks, tapes can be attributed to following key factors:

- Cross-platform standard- The ISO 9660 format for CD-ROM and Universal Data Format (UDF) for CD/DVD provides common file system specifications for these media to be read from multiple platforms and operating systems (Windows, Mac, UNIX flavors, etc.).

- Capacity – A single CD-ROM can store up to 700-MB of data equivalent to 486 floppy discs and DVD storage capacity range from 4.7 to 17 GB

- Durability – Due to its physical write once nature; CD/DVD-ROM media are very durable and have extremely long shelf life. It can store data for significant period of time and are stable media for future access.

- Portability- CD/DVD-ROM media is removable, compact and lightweight and can be transported inexpensively making it extremely cost effective for software and data distribution.

- Inexpensive- CDs are cheaper and replicating media is also simple and inexpensive making it most favorable media for software marketing.

- Random Access – CD/DVD ROMs provide random and quick access to information.
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- Multimedia Capability- CD/DVD-ROM allows different data types such as text, audio, and video to be played in synchronized fashion. For example, an encyclopedia CD/DVD-ROM can simultaneously show text and video clip while playing sound track.

1.2 Library application of CD/DVD-ROM

Shared disc resources for library applications are:

- Supplement of documents such as books / journals /conference etc.
- Encyclopedias
- Courseware/tutorials
- Product manuals/catalogues
- Photos and clip art collections
- Standards
- Vendor information.[7]

2. E-journals

The advent of electronic full text journals affords the opportunity to take a fresh approach, recognizing that any risk to publisher in new electronic age is likely to fall on small and medium size libraries which are operating on restricted budget. Many e-journals are now available online. Some publishers provide free online access to journals published by them against print subscription of library.[8]
2.1 Feature of electronic journals

Some of the important features, associated with electronic journals

- Electronic composition and transmission have led to fast production and distribution of the product.
- Faster reviewing of the journals. Saving thereby the precious time of specialists.
- The production mode of e-journals offers opportunities to establish network communication among the authors, editors, and referees.
- Users can access a particular article or the entire issue of the journal, within no time, if required; printouts of the relevant pages can be obtained.
- Large collections can be searched and retrieved simultaneously and instantly.
- Multimedia capabilities can also be incorporated into the e-journals. This provides an edge over the conventional journal available in print form.
- Hypertext and hypermedia formats enable linkages among different sections within an article or among a group of articles in journals and other electronic resources. [9]

2.2 Advantage of electronic journals

Some advantages of electronic journals are:

- **Speed**

  Articles can be put on the web as soon as they are ready, without having
a wait may be months for a space in a journal issue. This all means that the
information is much more up to date.

- **Easily searchable**

  Searchability is one of the core advantages of a digital format. With
information easier to find, there will be much more to read and keep up to
date.

- **Interactive**

  The rapid turn around time means that articles can be read, commented
on by the journals readers, and amended much more quickly than can be
done with print.

- **Accessible**

  Users can access a particular articles or the entire issue of the journals,
with no time. For any researcher, availability from a desktop computer
means a significant increase in accessibility, particularly for those who don
not work within easy reach of the library. Also different layers of access can
be given to different people with little extra effort, e.g. different levels of
subscription allowing access to abstracts only, of full multimedia.

- **Links**

  Links are the mainstay of the hypertext format, and should be
exploited. Not only can papers link to those they have cited, but with a bit of
effort, they can be linked to those that cite them.
• **Added value**

Rather than just recreate a print journal in exact format, which many of the commercial publishers are doing, advantage should be taken of all the possibilities of the web to add value, for example by using animation, virtual reality and interactive mathematical charts.

• **Inexpensive**

E-journals are quite cost effective as compared to print journals.

2.3 **Demerits of electronic journals**

Although electronic journals are high sounding and becoming only journal form in near future but it is not free from criticism. There are some more demerits with electronic resources.

• **Reading Computer Screens**

The disadvantages of digital information are the limitation of the computer monitor. This leads to problems with reading. Once cannot read for longer period as it happens with the print form.

• **Less weightage**

It is communally observed that the print journals have more weightage in academic environment their e-version.

• **Archiving**

Archiving the e-journals is the problems sometimes the issue crop up that whose responsibility to archive the collection.
• Perishable citation

Web site change URLs or frequently disappear altogether though citation is very important for further research in any discipline.

• Ignorance by Search Engine

Various search engines like, google, AltaVista etc. ignores the PDF files which is the format that a large proportion of e-journals use, particularly those which are direct copies of print versions.[10]

3. E-books

Since 1970s the development of electronic versions of printed books (e-books) has been as a part f the whole e-publishing phenomenon. A good number of e-books are available in most of the subject area online which can be accessed from net either free or on payment[11]. From the perspective of libraries, e-books do not require shelf space in the library and can not be damaged or removed from the collection like a physical book. [12]

3.1 ADVANTAGES OF E-BOOKS

When we all love to read printed books, why should we bother with electronic books, it is because of the advantages below mentioned:

• Portability- a large number of e-titles can be carried together easily, hence, saves shelf space in libraries.

• Instant acquisition- Quicker than traditional library acquisitions and the on-line acquisitions are open for 24 hours in a day.
• **Accessibility** - easier to access by all categories of readers.

• **Searchability** - more effective to search the full text.

• **Annotations** – can make large annotations on an E-book, and then extract them later for a final essay.

• **Linking** – can highlight a word and jump to the dictionary definition.

• **Multimedia possibilities** – for all categories of users.

• **Environmental** – saves on material and environmental cost of printing on paper.

• **Self-publishing** - easier for authors to publish directly.

### 3.2 PROBLEMS WITH E-BOOKS

Some of the problems of e-books are mentioned below:-

• **Expensive Readers** – the dedicated readers are quite expensive.

• **Availability of readers** – the dedicated readers are not widely available.

• **Technological change** – there is a risk of buying a reader, which may be outdated soon.

• **Screen resolutions** – typical screen resolutions on handhelds and PCs probably are not good enough for extended screen reading.

• **Limited availability of titles** – limited number of titles are available at the moment.
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- **Cost**—the more recent E-Book titles tend to cost more than a printed book.
- **Limited rights**—your rights of resale etc. e.g. licenses versus sales.
- **Preservation**—issues relating to preservation cause problems.[13]

4. MULTIMEDIA

Multimedia is a combination of some or all forms such as text, data, images, photographs, animation, audio and video which are converted from different formats into a uniform digital media and is delivered by computer.

It is formed by the combination of two words ‘Multi’ and ‘Media’ Multi refers too many and Media refers to storage, transmission, communication, presentation and interaction.

4.1 Features of multimedia

These are the following features:-

(i) It includes many media such as text, photos, sound video etc, which is effective for teaching.

(ii) It allows the learner to participate.

(iii) People can learn more easily when they can see, hear and work

(iv) Multimedia packages are easy to use. [14]

4.2 Components/Elements of Multimedia

These are the following elements or components of multimedia.

i) **Text**: It is the basis for word processing programs. It is a quick way to spread information.

ii) **Graphic Images**: It generally means a ‘skill’ image. They play an
important role in the presentation of data of any work.

iii) **Animation:** It refers to a moving pictures or videos. It illustrate those concepts which are difficulty to illustrate using photograph and more difficult to explain using text.

iv) **Sound:** It is powerful and useful tool to provide information to users in other ways.

v) **Interactive links:** It integrates the whole program giving the user away to interact with the program. [15]

### 4.3 Application of multimedia in libraries

The applications of multimedia in library are as follows:

(i) References sources like encyclopedias, which are bulky in size, are now available in multimedia. e.g. New Grolier Multimedia Encyclopedia, Encarta

(ii) Multimedia provides an ideal learning environment for foreign languages. Several popular multimedia packages were designed for learning most of the European languages by foreigners.

(iii) Multimedia is helping the librarians in integrating all the information from various forms/sources subject wise and making meaning full multimedia databases both for day to day use and archiving.

(iv) Video conferencing which allows face to face communication over net worked environment is also a remarkable achievement. It is
possible due to advanced multimedia platform which supports multimedia net-working. [16]

5. E-Reports

Scientists, research scholars, etc now a day considers as an important e-resource of library, which contains reports, publish E-Reports. These reports are scanned and converted to searchable PDF documents. Then these are classified according to subject categories and archived in a server class machine and a detailed entry is made in a database for facilitating search.

6. E-clippings

The main objective of e-clipping is retrospective search and comprehensive analysis of new items. It facilitates users to retrieve news clips by simple clicks. The news items are archived into server and users have the option to view them by specific date, duration, or news source.[17]
References:


