Managing Information

Work Book on Information Management

Introduction

Knowledge is most powerful when the right information can be used at the right time and at the most appropriate place. The workshop on Information management , organized by the Centre for Science and Environment (CSE) is aimed at bringing together information collectors, disseminators and users of environmental information interested in quality information management. At this workshop CSE aims to share some practical examples from its own experiences as a non-governmental organization (NGO) engaged in public interest research and education.

This manual gives an insight into the world of managing information. The manual is not intended to be an exhaustive resource on library science, but as a complementary reader to the workshop discussions. It is meant to be used as a handbook containing some unique guidelines on information documentation techniques and retrieval systems. While introducing some theories and concepts on information classification, automation, and the current trend of digitization, the manual provides some practical tips on how to go about collecting and organizing information to meet the needs of an NGO, voluntary organization or an individual.

The manual consists of five broad topics- Sourcing of Information, orgnanising information, managing audio visual resources, Information technology and information management and Information dissemination.

Chapter 1 explains what the various sources of information are and how to acquire them. It also provided few tips on overcoming financial and other challenges and yet builds up a qualitative collection.

Chapter 2 highlights the range of significant search engines, features of the distinct search engines, along with the tips on using Internet as a potential tool for research.

Chapter 3 describes the information classification tools and approaches, and how to select the classification scheme appropriate to the organization's needs.

Chapter 4 highlights the significance of audiovisual resources like photographs, slides, films, etc for any one dealing with developmental issues. It details the key essentials required to set up an audiovisual resource centre. It also covers the process of documentation process required for their effective organization, archival and dissemination. It also introduces the use of software for managing audiovisual collections.

Chapter 5 highlights the significance of planning process before going in for software development initiating automation, website development etc.

Chapter 6 focuses on the roles of a webmaster in managing the websites for advocacy and outreach and the basic skills required for it.

Chapter 7 explains the basics concept of a digital library and its advantages and disadvantages for information archival and outreach. It also lists out the key requirements for setting up a digital library, myths associated with it and the challenges faced by organizations in developing and maintaining it.

Chapter 8 highlights the role of databases in effectively managing information resources of various kinds and details the process of creating a database using MS Access.

Chapter 9 introduces the importance of information dissemination. It also presents significant criterias which must be considered while planning for information services. A range of services are introduced in the chapter, to help the reader in identifying appropriate services based on the identified target groups.

Chapter 10 explains the significance of emails and using them effectively for information dissemination.

Chapter 11 presents the challenges faced in marketing and dissemination of information products and even the services.

Information Sourcing: Building Up a Collection

Objectives: In this section you will be able to:

- Identify the organisation's needs.
- Identify information materials for specific needs.
- Identify the sources for getting information required.
- Apply selection methods for getting the identified materials.
- Develop procedures for collecting information resources of the best quality.

An Introduction

Information is a product generated by different types of activities undertaken by individuals or organizations for achieving their specific objectives. It is of various types and available in multiple forms manifested in a variety of media such as Paper, Film, Magnetic and Optical storage devices etc. But acquisition of information must be related to the interests of the users and the information needs based on it. In this section we will deal primarily with sourcing and developing a collection of information resources as per the organisation's information needs.

Stage I

Identifying Organisational Needs

1. What forms a good collection? How to build up a good collection?

What kind of information resources are required by the organisation? Only a collection which fulfills the needs and objectives of an organisation and the individuals within it can be called a good collection.

A step-wise approach can be employed for meaningful information collection.

Step 1: Understanding and identifying the objectives and mission of your organisation.
Step 2: List all the subjects and issues that are of interest to your organisation.
Step 3: Other related subjects/issues must also be considered.
Step 4: Languages preferred byt
Step 5: Availability of the budget.
For example-Information resources at the Environment Resources Unit of Centre for Science and Environment, New Delhi. The collections development is based on the mission and objectives of CSE, the parent organisation. (**Ref:** Section on Information Organisation in the workbook for the main subject areas of interest to the organisation)

1.2 Understanding nature of activities and the time frame

- An information intensive activity is always associated with a time frame. This also dictates the pace at which the information
- has to be made available. A collection of information is viable only if it is able to meet the information requirements well in time. (See Table 1)

Key actions:

- Record the subjects/issues which are of interest to your organisation
- Identify type of activities and the timeframe required to fulfill the objectives- research, reporting, publishing, campaigning, etc.
- Languages in which materials are preferred.

TIP:

Depending on the time factor, different types of resources (print-newspapers, magazines, journals, books, e-databases, web, films, photographs, etc.) may be more useful than others to a user.

After identifying needs, have a collection policy based on the above aspects.

STAGE II

2. IDENTIFYING TYPES OF MATERIALS

What all are the materials that can be collected?
Understand the nature of activities and select the materials that may be in any of the following forms:

Books-Dictionaries,Directories Glossaries,Atlas,Technical and research studies →

Serials/Periodicals
Journals,Magazines,Newspapers Newsletters

Non-book materials
Films,Photographs, slides,Maps

Reference books and books of general/common interest to an organisation:

I. Year books
II. Statistics-National and International
III. Special directories
IV. Census reports
V. Annual reports of GOI, State govts, public sector and R & D organizations
VI. Common interest books and development of subject areas, which need improvement: e.g., Budget papers, Economic survey, Selected CPCB publications, few ministries priced publications.
VII. Atlases

STAGE III

3. IDENTIFY THE SOURCES.
A wide range of sources can be used to find out and get these materials. They are mainly of two types:

3.1 Local Information sources (Information available internally)

- Papers presented at Seminars and conferences organized by an organisation
- Papers written by colleagues and researchers within the organisation
- Training materials prepared by the organisation
- Organisation's own publications, papers, reports, studies, research, etc.

For example, State of India's environment report series by CSE, Slow murder, Green politics, Down To Earth, etc are internal publications that are documented by the resources unit. (Ref: http://csestore.org.in)

3.2 External Information sources
3.2.1 Producers and distributors:

- **Commercial publishers**
  - **Aggregators** (providers of bibliographic databases)
  - **International agencies**
  - **Government departments**
  - **Non-governmental organisations (NGOs)**
  - **Professional associations and learned societies**

3.2.2 Internet- Ref Section "Using Internet for Information sourcing" for details.

STAGE IV

4. Selecting Materials: Criterias and guidelines.
To decide whether to add a particular book, video, article or other material to the collection, ask yourself the following (and also involve others in your organisation):

Action points
a.What is the content?
b.Is the content useful for your organisation? Select materials keeping in mind the existing programs and projects.
c.Is the information accurate and up-to-date? Be aware of recent literature available and aquire them proactively.
d.How much does it cost? Most of the publishers offer a discount of 10%, but you can try and negotiate for more. Consider whether the material is worth the money and whether funds are available.
e.Consider whether you may be able to request a free copy

TIPS

Proactive collection building: Know recent literature

1.Catalogues/e-mail alerts sent by publishers

2.Regular net browsing: Regular netsurfing with relevant words, areas of interest, specific websites, web pages, etc.

3.Identify new publications, studies/reports through
a.Newspapers reports/reviews
b.References provided in Articles/papers in journals, newsletters etc.
c.Bibliographies provided in studies, reports, books etc.

f.Does the resource center lack materials on this subject?

STAGE V

5. Getting Identified resources

The identified materials can be obtained by:

- Purchasing
- For Free- Gifts and exchanges

5.1 Purchasing - Check for budget available and order the material.

5.3 Gifts, Exchanges, Networking: There are organizations that provide materials free or in exchange for other materials.

TIPS

Gifts, exchange,networking

a.Writing to authors and organizations to get reprints of articles and reports for free.

b.Membership with Library Networks: An annual membership of library networks is very helpful in accessing materials available with other organizations. **E.g** Delnet (www.delnet.nic.in)

c.Proactive networking with resourceful organizations and individuals

d.Use Internet to get open-access books, reports, studies..

e.Getting books for review in your organisation's internal publications.

STAGE VI

6. Reviewing the collection

From time to time the collection needs to reviewed. This may include weeding out (removing) some materials, and deciding what new subject areas or types of material to include. The review should be carried out by the resource center officer in consultation with his or her supervisor, members of the resource center advisory committee and/or other users.

Electronic resources- Collections of Special Concern

E resources: Electronic resources are an important part of any good collection. An "electronic resource" is defined as any work encoded and made available for access through the use of a computer. It includes both online data and electronic data in physical formats (e.g., CD-ROM). It includes indexes and abstracts, full –text periodicals, informational databases in physical formats or as remotely accessed resources. It includes home pages, Web sites, or Internet sites required to support research in the subject covered.**Selection of electronic resources:** Electronic resources need to be selected based on the following criterias.

- **Content.**
- **Added Value over the print material, timely access, lower costs, etc.**
- **Ease of Use.** Should be easy to use and demand minimum training. The work should provide convenient output to printers and/or users' files.
- **Maintenance.** The time and effort of the staff to maintain it, to preserve, including migration to newer formats, must be weighed against the current and future scholarly value of the resources.

- **Standards and equipments.** It should meet acceptable, commonly used technical standards, digital formats, and practices and must be operational on equipments operating systems either currently or expected-to-be available.

ISSUES OF CONCERN :

Today large volumes of information can be globally accessed instantly through electronic media. Therefore, documentation centers must be aware of the issues concerning access and archival and utilization of these resources. It is time that they realize the need for such resources, and invest the scarce finances available judiciously as per the organizational requirements.

The World Wide Web is a good source of current news, primary resources and reference information. However, organizations and individuals associated with developmental issues must think Internet as a guide and supplement and not as substitute for information on such issues. **Please see section: Using Internet for information sourcing** to learn more about these issues. They must think intelligently and judiciously before using this as the only source for extensive and detailed research information. They must not ignore and forget to use information available in gray literature, unpublished information, experiences generated from activities at the grass root level. NGOs/Voluntary organizations must therefore focus on information sourcing strategies, which contribute to a collection having a rich combination of written, informal, oral, electronic forms of information resources.

Annexures

Table1

Information TimeLine: Use in selecting materials for a resource unit

Time Period	Finding the Information
Day of the Event	Web, Radio; Television; Internet news services Internet offers some of the most up-to date information available, due to its ability to regularly and immediately upgrade Web site content. Radio programs offer a variety of informative up-to date programmes. Information about radio program schedule is available on the Internet
1-3 Days	Newspapers; radio, web; television
Week	Popular newsmagazines and journals **Newsmagazines**-They offer up-to-date analysis and reports on current issues. **Journals**- They are primary sources of information consisting of recent researches and developments on an issue
Months	Scholarly journals, books, films Books- They must be referred for in-depth, comprehensive research and views on a given topic. Book review sections in leading newspapers, journals, magazines or bookstore websites may be referred for latest publications and content reviews. Films- Some films with well researched content also provide distinct views and comprehensive information on a topic.
Libraries	Books, periodicals, Internet, research documents, first-hand reports, grey literature, etc Source of extensive information on topic/s is available at the library, as are the multiple ways of retrieving information. Books, reference materials, reports, digital databases, grey literature magazines, newspapers, films and Internet are available. Special libraries are invaluable asset to an organisation, as they are set up exclusively to meet focused organizational needs.

ACTIVITY SHEET

1. Following are some of the steps that one may take to collect materials for his/her organisation's resource centre. Please number them in proper sequence.

- Languages in which materials are preferred.
- Have a collection policy based on the above mentioned criterias
- List types of materials and their formats preferred.
- Identify nature of the activities and the timeframe required to fulfill the objectives- research, reporting, publishing, campaigning, etc.
- Follow the selection guidelines and aquire materials- purchase or free.
- Note the subjects/issues which are of interest to your organisation
- Budget
- Identify Sources – External and Internal
- Review your collections at regular intervals.

2. Internal information if the information that is generated by your organisation and is available within your organisation. Give examples of internal information available in your organisation and mention ways of aquiring them from your colleagues.

Sr. No.	Type of Internal Information material and the format	Format (Print/electronic/both)
1		
2		
3		
4		
5		

3. You have been asked to find information on the state of river pollution in India. Describe the method of finding information that you would choose for your organisation. (Ref: Table 1 in the section)

4. Why do you think the method selected by you in question 2 is the most appropriate method for your organisation?

5. List two advantages and disadvantages of the information sources mentioned in Table 1 provided in this section.

1. Internet

2. Newspapers

3. Books

5. Magazines

6.Journals

7.Libraries

6.External information is information that exists outside the organisation and needs to be aquired by a documentation centre. Various components of the society generate information in various forms (print/electronic). List examples (minimum two) for each category mentioned below that you will consider for getting information materials.

Sr. No	Examples of External Information sources	Websites
I.	Government Agencies :National	
II.	Government Agencies : International	
III.	Known societies (E.g Indian National Science Academy)	
IV	Corporates	
V	NGOs: National	
VI	NGOs: International	
VII	International Organisations (E.g World Bank)	
VIII	Commercial Information providers/ /aggregators(Gale Thomsons database, Emerald, Informatics India etc.)	

N O T E P A G E S

NOTE PAGES

NOTE PAGES

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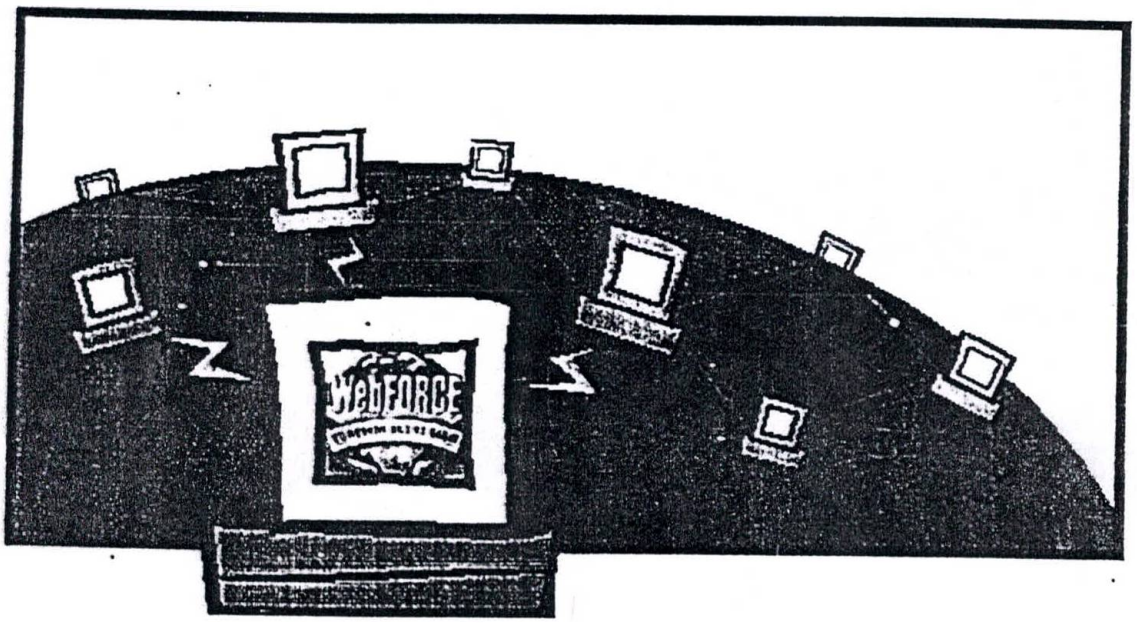
Using the Internet for Research

The internet has no manual.

In every published work of any size be it a magazine, book, encyclopedia, it always starts with a contents page. Every complex tool, either a washing machine, refrigerator also comes with an instructions manual. However the internet, the richest source of information and some might say the most complicated one comes with no instructions manual and no contents page or index to tell you what is inside.
Perhaps the rapid pace of changes on the internet, the constant addition of new sites every hour, makes it impossibly to keep track what is exactly is on the internet.
This chapter is no different, but what it will do, is explain what *kind* of resources you might find on the internet, and how best to sift through them to help you use the internet for your research.



What is out there, what resources can you access?

The five types of internet resources that will be discussed are the World Wide Web, Email, Newsgroups, aggregation sites and RSS feeds. Effectively using the internet to gather information for your organisation means deciding when to use these different resources.

Section 1: World Wide Web(The web)

The web is perhaps the most frequently used type of internet resource. It is a collection of 'websites' such as http://www.yahoo.com, http://www.rediff.com. Websites are owned by individuals companies, organizations or governments and the owner of the website has

responsibility over what is displayed on his or her website. Websites are accessed through a web browser such as Microsoft Internet Explorer, Mozilla Firefox, Opera or Safari.

There are various types of sites on the internet, news sites, scientific sites, entertainment, blogs (personal journals), government websites, company websites and many many others. Google (a popular internet search engine – more on search engines later), gives 935,000,000 pages when you search for 'India.' How do you do begin research on such a vast resource?

The first thing to keep in mind is the reliability of the information on the internet.

Tip : Favourites/Bookmarks

If you know what sites you need check frequently then the favourites, or bookmarking feature of your browser lets you shortlist your most frequently used site so that you can quickly access them without having to type in the website address every time. Setting up bookmarks will take a few minutes but save precious time later when accessing the information.

Tip : Referencing

Often web pages change frequently so if you are getting information from a website, simply giving the website address is insufficient. There are many ways to give references, One system called the Harvard style of referencing here:
http://www.usq.edu.au/library/help/ehelp/ref_guides/harvardonline.htm

Author (the person or organisation responsible for the site) Year (that the site was created or last revised), name and place of the sponsor of the source, viewed Day Month Year,<URL>.

The Body Shop Australia 2003, The Body Shop Australia, Mulgrave, Victoria, viewed 31 January 2003, <http://www.thebodyshop.com.au/>.

The important thing to note is that along with the URL, the reference includes:

- The author of the web page/article
- The date you read the webpage

The date you read the webpage is important because a website can change at any moment. To document the referencing, it might be useful to save a copy of the webpage you saw on your computer for future reference. You cannot always rely on the same information being there again, or for even the website to exist next time.
Saving a web page unfortunately can be a little tricky as images, tables graphs may not save exactly as they appeared. However the best resort is to save the webpage as an 'mht' file. Using the internet explorer browser, click on the File> menu, and then Save As>.

Change 'Save as file-type' from 'web page complete' to 'web archive – single file'. Saving in this format saves all images, etc.. in a single file. This file can be opened with any web-browser.

Website resources:
Search:
http://www.yahoo.com
http://www.google.com
http://www.msn.com
Research articles:
SARA
scholar.google.com

Section 2: Email alerts

Websites require you to go out and find information you are looking for. Several research institutions have email alert services which send you an email whenever new information, breaking news or when new research has been published. More than websites this provides a powerful way to get information because information is delivered to your email inbox without having to go out and look for it. If there are organizations, journals or publications you track periodically, find out if they have email alert services. For example CSE has a fortnightly newsletter called 'what's new'. Along with the latest events, press releases along with articles from our magazine 'Down To Earth'. Users thus don't have to come back to our website all the time to see if there is new material published. The newsletter delivered to them by email keeps updated on the latest developments at CSE. To sign up for email alerts, websites typically have a simple sign up for on their website. For example:

Section 3: Discussion groups

Discussion groups allow individuals on the internet interested in a particular topic to communicate with each other. If you sign up to a (free) service such as http://groups.yahoo.com, or http://groups.google.com, you can get access to a number of different groups holding discussion on topics such as forests, wildlife, health, education. The list is endless. Groups are useful because 'insiders' on these topics often post articles, new developments, on the groups for comment by others in the community. Groups are a great way to keep 'connected' to an issue. From the discussion you can get a sense of what people in the field are talking about, what the issues are and what people 'think' about a particular issue.

Resources:
http://groups.yahoo.com

RSS feeds

RSS (Rich Site Summary) is a new kind of internet resource. You need to download a special RSS reader (example) to access these RSS resources, called "feeds". An RSS feed gives you updated news. When you open your RSS reader software, it will automatically fetch the latest news from the sources you specify and display them on your screen. RSS feeds are denoted by links. When you see the following images on a website:

the website supports RSS feeds. You can copy this link and paste it into RSS reader. Then summary of the latest updates of the site will automatically appear in the RSS reader.

Resources:
http://Info.indiatimes.com/rss/
An introduction to RSS: http://news.bbc.co.uk/2/hi/help/3223484.stm

Bringing it all together

Now that you have the basics resources out there, the question is deciding how to organize your research strategy. If your organisation has to collecting research information from the internet on a daily basis, you need to devise a strategy to

Websites	Email	Discussion groups	RSS feeds
+Provide the richest source of information	+Easiest to use	+Keeps you in contact with people	+ See a lot of new information at one time
- Time consuming	- Clutters your inbox	- Least 'trustworthy' source of information	- New service, very few providers of the service.

Finding resources

The best way to finding the most useful internet sites, discussion groups and so on is to talk to people in the field you are interested in. For example you are looking for information on health talk to people working on health issues, what websites they trust. 'Word of mouth' is a good way to get to know where the internet hides it's best resources.

Search engines also provide a way into finding resources on the internet. Search engines allow you type in search "terms" and return web pages that contain the terms that you specified. This is an in-exact science and different search engines give you different results. In fact the same search engine can you different results on different days. The results of searches are returned in the order of "relevance" or which web pages most closely matches the terms you have specified.

The leading search engines on the internet are google, yahoo and MSN, though google is the leader in terms of the most used search engine.

How to search.

You the know the information is out there somewhere on the internet, but don't quite know where to find it. This is the situation you find yourself in most of the time on the internet. When you go to a search engine page such as http://www.gooogle.com

It presents you with a box to enter what you are looking for. Each search engine publishes 'tips' for successful searches. There are some general Tips:

- Order most important keywords first
- Leave out common and irrelevant word that are not keywords like "the", "how", "it"
- Treat capital and lowercase letters in the same way.

Advanced search functions:

You can fine tune your search using advanced search features Visit http://www.google.com/advanced_search for help on using advanced search.

"The lord of the rings"	Exact phrase match If you are looking for an exact term, enclose the terms you are looking for in quotes.
Centre for Science –environment	Negative search. Put a dash before the term you **don't** want. Looking for Centres for science but **not** environment
Star wars episode +I	Positive include The 'I' might be left out of the search because it is a common term. The '+' ensures that it is included in the search

Trusting information on the internet

Unlike publishing a magazine, a newspaper, or a book, it is very easy and cheap for anyone with an internet connection to publish information on the internet. This is what makes it a 'free' medium. The problem with this is that if you are looking for credible information, you cannot always trust what you find.

Case study wikipedia:
Wikipedia is a free encylopedia on the internet (http://www.wikipedia.org) with over one million articles built on submissions from users on the internet. Anyone with an internet connection can sign up and post articles. There is no 'editorial board' that would look at the articles or even choose who can submit articles

The John Seigenthaler Sr. Wikipedia biography controversy arose when contributor Brian Chase anonymously posted a hoax in the Wikipedia entry for John Seigenthaler, Sr., a well known writer and journalist. The post was not discovered and corrected until more than four months later. The prankster added the fake biography:

"John Seigenthaler Sr. was the assistant to Attorney General Robert Kennedy in the early 1960's. For a brief time, he was thought to have been directly involved in the Kennedy assassinations of both John, and his brother, Bobby. Nothing was ever proven."

and

"John Seigenthaler moved to the Soviet Union in 1971, and returned to the United States in 1984. He started one of the country's largest public relations firms shortly thereafter."

http://en.wikipedia.org/wiki/John_Seigenthaler_Sr._Wikipedia_biography_controversy
As seen on August 18, 2006

A friend of the famous author who noticed the article brought this to attention only 4 months after the article was posted. This occurred on a well known website with a lot of visitors so how do ensure information you find on the internet is trustworthy?

Is the Internet a reliable and credible source of information?

http://www.webcredibility.org/

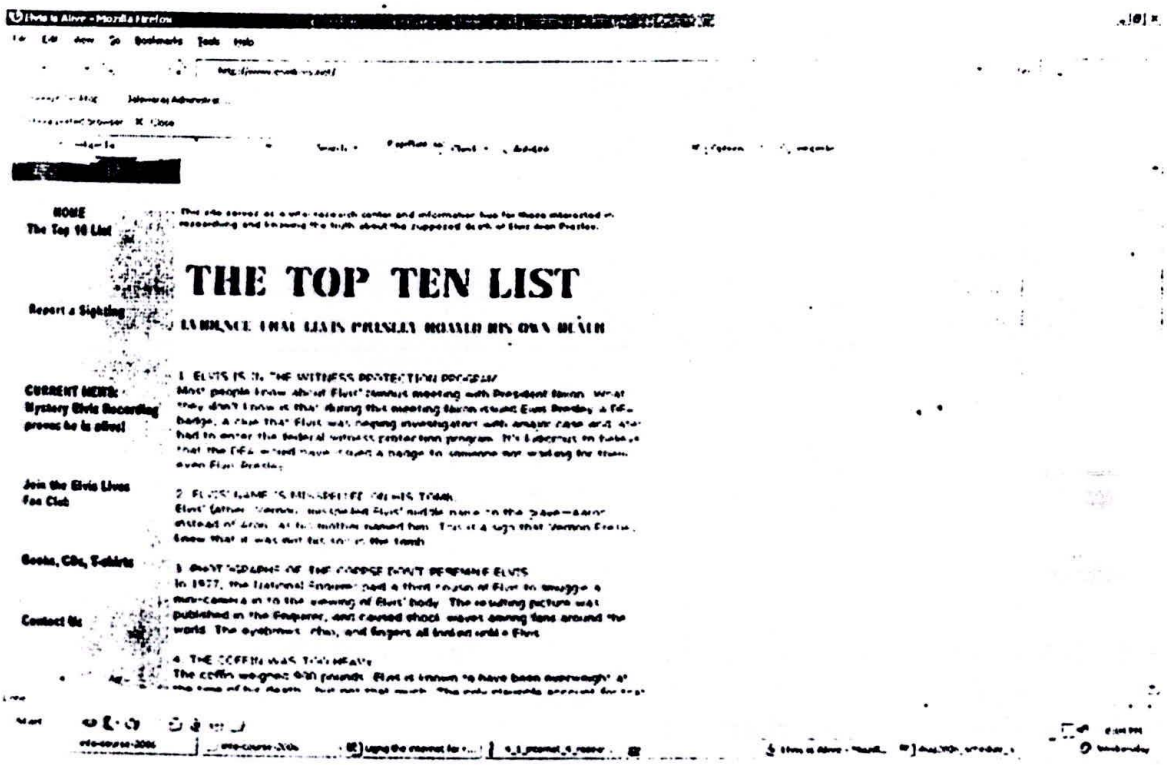
People are conditioned to trust written words, not to mention images. "I read it in the paper" or "As-seen on TV" are worn out but still effective clichés. The Internet combines both the written and the seen. It is both a textual and a visual (and audio) medium. Do people trust Internet content? Is the incredible Internet - credible?

In the "brick and mortar" world, credibility is associated with brands. A brand, in effect, guarantees the quality and specifications of a product (think McDonald's hamburgers), its performance (think Palm), level of service and commitment to customer care (Amazon), variety, or price (Wal-Mart). Brands are sustained and enhanced by advertising campaigns. The content or sales pitch of specific ads are often less important than the message conveyed by the very existence of a campaign: "This company is rich enough (read: stable, reliable, trustworthy, here to stay) to spend millions on advertising." The Internet has very few brands (Yahoo!, Amazon) - and some of them are tarnished. Some "old media" brands have entered the fray (Barnes and Noble, The Wall Street Journal, the Britannica) - hitherto without much success. The overwhelming bulk of Web content is created or disseminated by small time entrepreneurs and monomaniacs.

http://www.americanchronicle.com/articles/viewArticle.asp?articleID=11420
As seen on August 16, 2006

Suppose your director has asked you to find out if the famous American singer Elvis Presley is alive or if he is dead. If you came across the following website

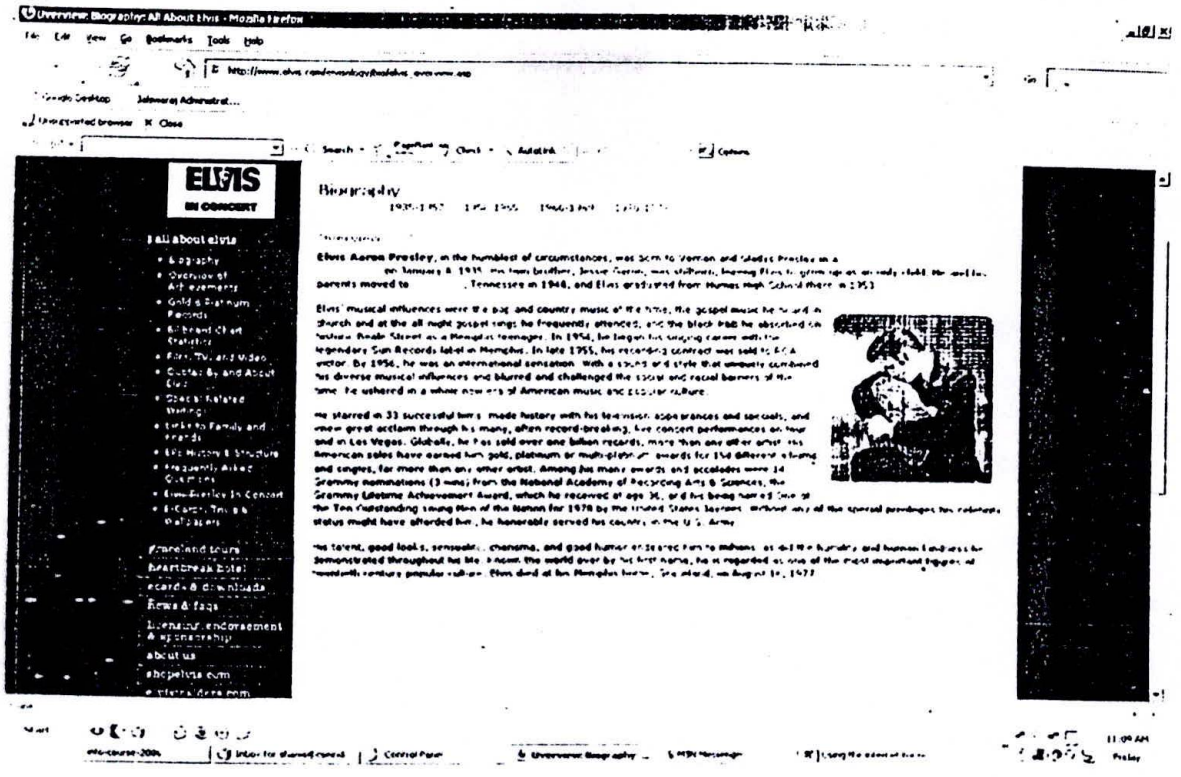
http://www.elvislives.net/


HOME
The Top 10 List
Report a Sighting
CURRENT NEWS:
Mystery Elvis Recording proves he is alive!
Join the Elvis Lives Fan Club
Books, CDs, T-shirts
Contact Us

THE TOP TEN LIST

The website gives 'evidence' to show that the singer is in fact alive. How do you cross check this information. None of the information is referenced, and the organisation called "The Elvis lives on Fan club" has no address, telephone number listed, no information about the organisation – when it was founded or who the members are.

However, take a look at this source:
http://www.elvis.com/elvisology/bio/elvis_overview.asp



Here is a biography of the singer, with a link to an 'about us' which tells you detailed information about the organisation contact information etc.. In essence it is telling you who published the information.

Just like in a scientific article, referencing (which is rarely done on the internet) is another way to verify the information you find is correct. If there is data that is unreferenced, or arguments made without source the reliability of the information is suspect.

NOTE PAGES

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Organising Information

Objectives: In this module you will learn to:

- Develop your own Thesaurus (an information organisation tool)
- Develop a classification scheme.
- Assign keywords and index information for effective retrieval.
- Develop a filing/shelving system.

An Introduction

People working in special documentation centres of the organisations face difficulty in finding specific or customised tools for organizing a range of information materials existing in various formats, on various subjects produced, collected or acquired for specific needs. They consist of a range of professionals namely archivists, special librarians, information officers, documentalists, researchers, IT and knowledge management specialists, content managers, website developers, etc. The conventional established standards for document description and organization are detailed, complex, or too expensive to install and maintain. Their efficient use demands a formal degree in library and information science and a professional background. In most of the other cases, the available systems are insufficient for a specialist environment, or don't bring the information materials together in a helpful way. A need based, purpose specific, in-house system seems to be the answer in such a scenario, but too often the skills necessary to develop or create one are lacking.

This session is therefore designed to help in understanding the criteria relevant to the selection of a subject management system, describe the characteristics of some common types of tools for this purpose, and understand the step-by step process of creating a system for a specialist environment or need specific information organisation tool. The methodology discussed is a standard technique for building a thesaurus (a master tool/master subject list), which can eventually be used to create a compatible classification or taxonomy or develop shelves (or cabinet/folders/files in case of electronic files) and also create keywords for indexing. Thus, the in-house need based thesaurus developed for an organisation is ultimately a master tool, which can be used in a variety of ways for document or information management.

Lack of professional degree is not a barrier to building up a professional resource centre, if the following basic approaches and criterias to organise the information are understood and implemented.

- Selection of a strategy/process based on internal organizational needs and focus.
- Classify information : Acc. to list of broad topics/subjects, related subjects
- Index information (what, where, who, when): Acc. to controlled list of words.
- File & Shelve : Acc to unique code assigned during classification

What is Classification?

Classification of Information Assets is a fundamental building block for designing a robust information management system. It is the foundation of information management. It is conversion of documents contents into a predefined code language. **This code language is known as the classification number.** It helps in:

- Assigning a place to the document on the shelf or in the computers (as electronic folders.

- In briefly understanding contents of the documents.

For example,
Catalogue of a Book "Managing water scarcity: experiences and prospects"

Title : Managing water scarcity: experiences and prospects
Author : Vaidyanathan, A. Oudshoom, H.M.
Publ. Plc : New Delhi
Publisher : Manohar Publishers and Distributors
Publ. Date : 2004
Pages : 434p.
ISBN : 81 7304 553 4
Class No : 104A2 MAN
Keywords : WATER MANAGEMENT;INDIA;BHAVANI;SABARMATI;URBAN WATER SUPPLY;DELHI;WATER DEMAND;PUNJAB; GROUNDWATER;TAMIL NADU;CONFLICTS;KOSI(BIHAR); KRISHNA;GUJARAT;WATER POLLUTION;ANTI-POVERTY PROGRAMMES; POLLUTION;INDUSTRIAL DISPERSAL;RIVER BASIN; EUROPE
Abstract : This book describes the nature and causes of water scarcity and conflict in selected systems across India. Focus is on overexploitation, extensive pollution of water sources, and the resultant conflicts. It also describes non-governmental, community-based initiatives to overcome water shortages due to droughts and to promote equitable sharing of water and public action to prevent and mitigate the effects of pollution. It deals with the working of laws, regulations, and institutions in managing water and resolving water conflicts in the international context mainly in Europe.
Accn Nos : 049233

Note the following: Class Number in the above example, is used to shelve this book on the stacks. Keywords describe the contents of this material and are very effective tools for retrieval of this book from the entire collection.

TIP:

- Information must be classified as per its relevance to the organisation's goals and objectives. The categories into which information is classified should be based on the organisational need for grouping the information.

- Classification is of critical importance in enhancing the value of a piece of Information. **Uniform Classification Systems** must be applied for managing information existing in different forms and in distinct locations.

1. Electronic 2. Non-electronic information data

- This is applicable to almost any information available – from one's personal file cabinets to a library. They form the framework based on which a range of information- books, documents, reports, periodicals, serials, press clippings, photographs, films, posters, contacts/addresses, conversations, exhibitions, directories, etc. are arranged.

1. Fundamentals : Approach to Categorisation and Classification of Information

What are the various approaches that one can take while deciding upon the classification systems?

Usually information materials/resources are classified into groups or sub groups based on Type/form of information, Geographical location, Time, Author/producer, Title and Subject. Classification codes/nos. may be developed using any one or a combination of more than one of the following aspects:

- **Form of information** (print, electronic, photo, film, etc.)
- **Geographical location**- it is used to classify information, which comes from diverse locales.
- **Time**- Time works best as an organizing principle for events that happen over fixed duration, such as conventions.
- **Author/Producer**- This is a good arrangement for those authors whose works have more literary value than subject value, like works written by Jane Austen, Agatha Christie, Salman Rushdie and so on.
- **Title**- The title of the book may be considered for classifying a book or other materials. But it may be noted that titles may change from edition to edition.
- **Subject/Category**- Category pertains to the organization of subjects. Most users/readers prefer to search for books/other materials on a specific "subject". This approach helps in placing together the information on specific subjects, as far as possible. This is considered to be the most ideal approach. Special libraries must remember and focus on this aspect. This module will from now onwards focus on this aspect repeatedly.

Subject Approach to Information Classification

Special libraries are set up to support the organisation's specific work areas. Hence, demand for information in such a case is mostly on specialised subjects.
Subject approach is considered to be an ideal approach for Specialist information centres. The system becomes much more useful, if it is used in combination with other items like author, title, time etc.

TIP:

It is essential to keep in mind the following criterias, while adopting the subject approach to information classfication.

- Growing size of the library/documentation centre
- The character of the library/documentation centre and its collection
- The nature of use
- Type of readers

a.Refer to the Classification system used by Environment Resources Unit of the Centre for Science and Environment, New Delhi. See Fig no. 1.3: Classification list developed with the help of CSE Thesaurus (See Fig no. 1- Structure of CSE thesaurus)

b. Visit libraries in your neighbourhood areas to understand the benefits of a range of classification schemes.

2. Choosing a Classification Scheme

Traditionally, physical holdings of information such as files, books and journals, have been classified by functional and hierarchical schemes developed by records and libraries management specialists.

There are two main types of classification scheme:

2.1Universal Classification Schemes: This includes several conventional classification schemes. This covers the entire world of knowledge and arranges it into broad subject groups. Two internationally recognized schemes, which are popularly used by public, science and academic libraries are –

Dewey Decimal Classification (DDC) - www.oclc.org/dewey
Universal Decimal Classification (UDC) - www.udcc.org

Practicing these systems efficiently and appropriately demands a thorough understanding of these schemes. Several universities and colleges run specialist courses on these. Information about these schemes is also given on their websites.

This training does not however attempt to cover the content of formal classifications as practiced by librarians and records managers, who have their own professional standards and procedures. However, much can be learnt from these areas. Organisations willing to implement these systems are advised to take the help of library and information science professionals for it.

2.2 Specialised Classification Schemes.
The conventional Universal Classification systems are complicated and very detailed. Small NGOs and resource centres with specific information needs on specific topics may find it difficult to adopt. Hence, resource centres belonging to such organizations need to often develop their own specialized classification scheme. The methodology preferred is a standard technique based on a thesaurus of subjects (a **master tool/master subject list/Institutional Authority File of Subjects**) which can eventually be used to create a compatible classification or taxonomy for managing information materials of various formats, covering a range of subject areas specific to an organisation.

For example:
CSE Classification System: An example of Special Classification Scheme on Environment and Development.

Other widely known classification schemes
- Special Classification Scheme on Health:
National Library of Medicine
http://web.dohms.gov.ae/medlib/libser/NLMTrainingCourseClassification.ppt

3. INDEXING /ASSIGNING KEYWORDS

What is indexing and why is it required?

Information can be classified in a variety of ways. For example, a book on Sanitation and Water covering Delhi, Chennai, Mumbai and Calcutta. This book can be classified and placed on a specific shelve using a classification number. If more than one person is responsible for classifying, one person prefers to classify and shelve the book under Delhi, while other person prefers to shelve the same book under Water resources.

And..... the User wants a list of information materials on Delhi at a single glance. So, how do we manage a book, which covers a range of issues on Delhi and water? We definitely need a tool to relate these two subjects or we need to do cross-referencing.

Thus, **Indexing** is an important aspect of a document description. It is understood as a method to describe the contents of a document, an object or an event by selecting the terms that most closely represent it. It is a systematic guide to the intellectual content. [Pl. see

The **aim** of indexing is to lead the users to the information they are looking for. The concepts selected for indexing should therefore indicate, precisely and in a reduced form, the contents of the material being indexed. Indexing should be done using a controlled vocabulary to provide, and assure, good information retrieval options.

Thus, there is a need for a list of **keywords,** and for describing each material using A combination of keywords from the list.

Indexing can be looked from two distinct levels.
Level 1- It is a subject indexing for document collection. It describes the subject of a document.
Level 2- It is a concept based indexing, which identifies concepts or ideas within documents. This refers to the indexing of facts or concepts.

KEY STEPS FOR INDEXING

Step 1:	Study and understand the contents of the book.
Step 2:	Identify the subjects (keywords) covered. **Ref Thesaurus/Institutional authority file of subjects**
Step 3:	Anticipate the focus of the users interest in the topic presented and identify the preferred keyword to be used. Information professional must develop his skills/ability as a researcher, be able to comprehend and reflect the main concept and the related concepts through expert indexing.
Step5:	Write the appropriate words in an appropriate place in book/other materials and in the database thereafter.

TIPS

INDEXING: What, Where, Who, When.....

Key wording> Use Controlled vocabulary (Must refer list of keywords/terms in the Institutional Authority File of subjects/ Thesaurus/Master tool.

> Ensure that keywords reflect the following information contained in the document or any other information material:

- What
- Where
- Who

And

- Why is the document important?

For example: Keywords used for documenting a book on the **State of Paint and Dye Industry in Rajasthan.**

What? GROUNDWATER POLLUTION, HEALTH EFFECTS, ENVIRONMENT, HEAVY METALS, NDUSTRIAL DISPERSAL

Who? PAINT AND DYE INDUSTRY, STATE POLLUTION CONTROL BOARD

Where? JAIPUR; RAJASTHAN; INDIA

Other aspects that make a document useful for a user? E.g. Statistics (this word is not included anywhere in the document. But has useful statistical data, which a user might be interested in.)

LET US STOP FOR A WHILE AND RECALL NOW

At this stage, we are familiar about

- Key steps required managing information assets of various formats, types and subjects.
- Conventional Universal schemes/schedules of classification.
- Relevance of Special methods/schemes for managing specific limited subject areas in Specialised documentation units.
- Relevance of Selecting subject specific strategy, creating a Thesaurus and developing a need based taxonomy or classification scheme based on it.
- Limitations of classification and the significance of Indexing/key wording
- Shelving /Filing according to class no.

So, a book can be found easily if it is assigned a

Classification no → 104B5/ GRO/48963

Groundwater quality assessment in and around Sanganer town

Keywords → Groundwater pollution,Jaipur, Health effects.....

A well classified, indexed and filed/shelved document can be efficiently retrieved and help the users as well as the resource centre staff.

4. THESAURUS BASED SPECIAL CLASSIFICATION SCHEME

Step 1:

Identifying and Selecting the approach /strategy

- Location/ geography
- Author
- Title
- **Subject / category/ class hierarchy**
- Time

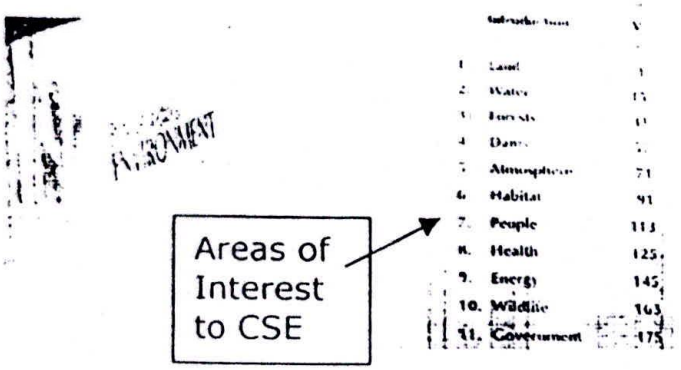
Subject approach is an ideal approach for organizing information and may be used in combination with other aspects as already specified above.
Hence, Centre for Science and Environment uses this approach to classify and keyword and has developed a Thesaurus (**An Institutional Authority file)** to incorporate different terms and words to be used for classification and keywording.

- CSE Thesaurus is a Mini Atlas/directory (of subjects which are of interest to CSE) [Ref fig No. 1]
- It is used to develop a need specific Classification scheme and for indexing/key wording.

Step 2: Constructing a Thesaurus (An Institutional Authority file of subjects)

Step 2.1: Identify organisation's focus (mission and objective) and the key Areas of Interest based on them.

Example:



Action Point:

Building an Institutional Authority file of subjects
Identify your organizations work areas, objectives, activities and list them as the key Areas of Interest.

1.
2.
3.
4.
5.

Step 2.2: Pick up each Main work area and collect relevant terms, which belong to it.

For example:

Main subject areas of interest (one of the main subjects areas of interest)

Main Term: Water

Other terms which belong to it:

Surface water, glaciers, rivers, lakes, ponds, freshwater resources, streams, tanks, reservoirs, groundwater, glaciology, human made lakes, etc.

TIPS

While developing a master list of subject (master classification scheme), it is useful to work with a group of internal subject experts, members of the resource centre advisory committee, library committee, and/or other expert users, as these people will have knowledge of the specific subjects.

Relevant terms may also be collected from dictionaries, encyclopedias, and subject experts. These are useful in deciding upon the relationship also between the terms.

It is also useful to refer the existing Thesaurus. Ref. .....for a range of existing Thesaurus.

Action Point

Main Term 1(Work area):

.....

Other terms which can come under it:

.....

.....

Main Term 2(Work area):

.....

Other terms which can come under it:

.....

.....

Step 2.3: Develop a Geographical Authority file (GAF) of subjects (A list consisting of continents, countries, states and districts.

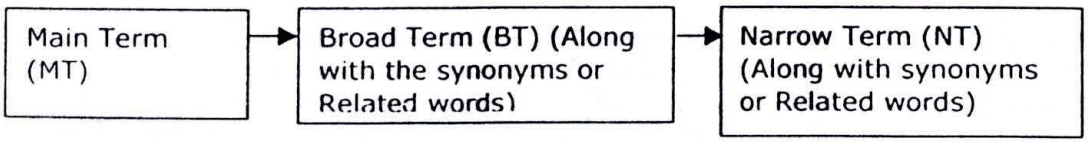
Step 2.4 Once the list of subjects has been agreed, prepare a list and allocate a number to each Main subject.

[Note- See Table No. 1: Main terms used by CSE and nos. allocated to them. **(See Table No. 1)**]

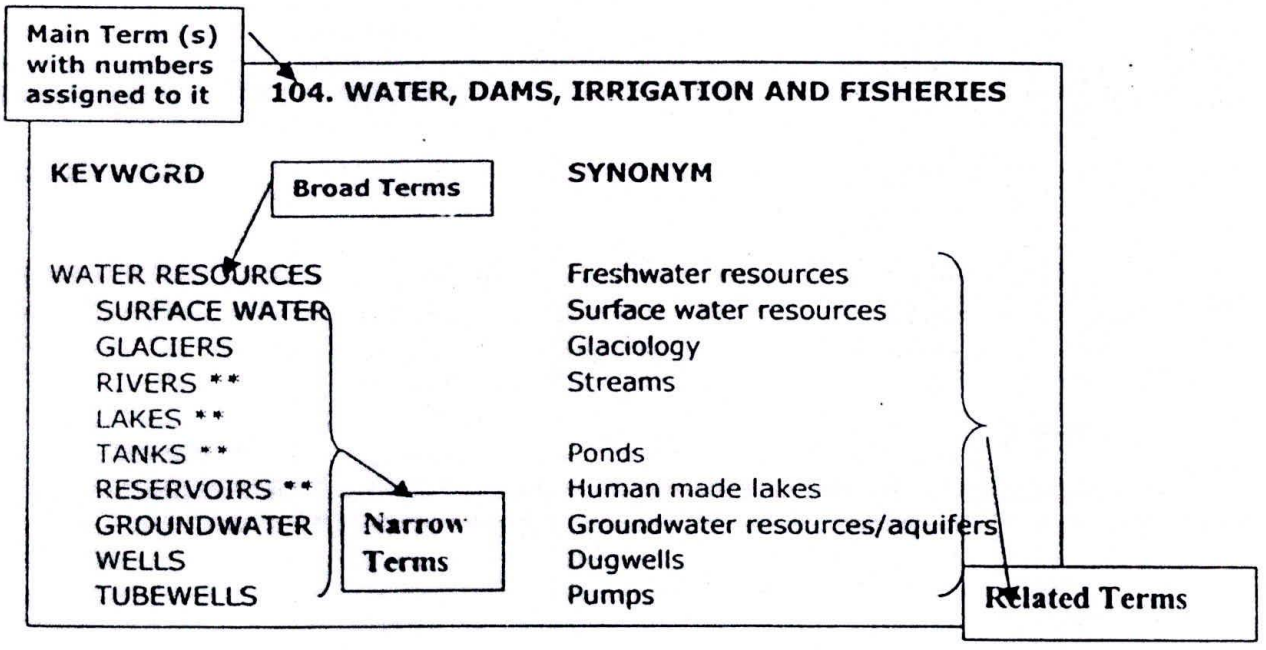
Class No.	Main Terms		Class No.	Geographical Terms

Step 2.5: Collate the preferred subjects collected (See Step 2.2) and Classify them

- Place the narrow terms and related terms systematically (hierarchically) for each of the Main term identified and coded above.
- For this one needs to Re-Arrange the subjects ranging from Main, broad subjects to narrower subjects. (General terms ⟶ to Specific terms)



For example: **See Fig No. 1. 2** For the complete Master Subject list on Main term **WATER, DAMS, IRRIGATION AND FISHERIES**



Step 2.6: Prepare a Reference list for future reference. This is a list of terms, which can be used to refer and build up, or expand the subject terms, geographical terms and other terms- names of rivers, lakes, trees, flora, etc. It is not of immediate interest, and may be useful for building up or expanding the existing sections/terms. **(Section C of CSE Thesaurus : Fig No. 1)**

Step 3: Combine all terms - subjects, geographical terms and arrange them alphabetically.

Step 4: Mention the respective Subject Code No. against each term in the alphabetical list. For example, **Section A: (a part of CSE Thesaurus) : Fig No. 1**

Step 5: Final Product (Hard and/or soft Copy)
(Ref Structure of CSE Thesaurus (FigNo.1)

Hard copy can be presented in the following manner:

Section 1 - A-Z - Alphabetical listing of all broad and narrow terms (along with respective subject Code No. as in Section 2)

Section 2 - Subject-wise listing of main, broad and narrow terms as in Stage 2.

Section 3 - Listing of geographical areas (as required - continent- country- state- district etc.) & Other terms (rivers, trees, dams, thermal power plants, etc)

Section 4 - List of references (on geographical terms and other terms) from where more terms can be collected to build Section 2 and 3, as and when required while expanding the Thesaurus.

5. How to Use Thesaurus (Master List): To assign code/classify

Using the Master List to Develop Classification List /Scheme and Assigning A Code

	Steps	Example
Source: Master List of Subject terms →	Pick up Main subject areas along with the no. assigned to it (from **Master List of Subject terms)**	**104 (Main Term):** Water resources, dams, rivers & fisheries
	Pick up broad term under it.	**104A (Broad Term):** Water resources
Source: Master list of Geographical terms) →	Pick up narrower terms under it + Geographical Location (from **Master list of Geographical terms)**	**104A.5** (Narrow Term) + **Global** (Geographical term) **Or** **104 A.6** (Narrow Term) + **India** (Geographical term)

Hence, the book is assigned the code number **104A.6.** This code is also called the classification number.

Output: Classification list on a subject **(A subset of Thesaurus, the master list)**

Example 1: Refer CSE Classfication list on the Main term "Water" (Fig no.1.4) prepared with the help of CSE Thesaurus

104	represents the Main Term	***WATER***
A	represents the Broad Term	***Ground water***
6	represents the geographical term	***INDIA***

This code number is also called as **classification number.** Hence, a book covering the subject "Groundwater of India" will be assigned a code no. as **104A6.**This is also known as the call no. or the classifcation number.

6. SHELVING : REFINING THE CLASSIFICATION CODE

The Classification list/scheme developed with the help of Thesaurus (Master tool) can be used for shelving too.

For example,
Title of the book: Ground water resources of India

***Step 1**: Assign the classification number using classification list.*
The book has code number as **104A6**

***Step 2**: There may be many books under this class no.*
We use the **first three characters** of the book title to add more information to the code.
Now the code becomes 104A6/GRO

***Step 3:**There may be many book titles with first 3 characters as GRO*
We therefore add a **UNIQUE serial number**
Now the code becomes 104A6/GRO/48963
- This number is the Identification/accession number serially generated manually or automatically. In this case, the number 48963 has been generated by the library database and is unique to this book.

Output: 104A6 / GRO/ 48963 (Number to be used for shelving)

7. INDEXING- ASSIGNING KEYWORDS USING THESAURUS

Indexing of information

Providing the right information to the right user at the right time is not an easy task. Therefore we need tools and aids to guide both information manager or the documentalist and end users in the proper direction.

Indexing is a tool, which does precisely this. It is one of the most important elements along with the classification number required for organizing an information material.

Indexing is done by assigning keywords using the master alphabetical list of terms in the Thesaurus. It may be recalled that this list was prepared by combining and listing all **broad terms, narrow terms geographical terms & other terms (organisation, people, etc).** In CSE Thesaurus, Section A consists of all keywords used to index books, documents, newsclippings, research papers, films, photos, slides and even the addresses. **Ref Fig No. 1** (Structure of CSE Thesaurus)

TIPS

Why is a controlled vocabulary required for key wording?

More than one person within one organisation is responsible for indexing. For example, one person may say that a book is about New Delhi, and the other may say that it is about Delhi and index accordingly.

As a result.....,

User searching for information on Delhi will not find it at the first instance. Therefore a controlled vocabulary is useful as it provides and assures effective information retrieval options.

The terms/concepts selected for indexing indicate, precisely and in a reduced form, the contents of the material being indexed.

Appropriate indexing limits "noise" (information not responding to the question) as well as "silence" (lack of response) during retrieval across a collection of large number of documents.

8. MAINTENANCE OF THESAURUS (MASTER SUBJECT LIST)

Maintenance of Thesaurus

It may be noted that thesaurus of subjects is an asset. A Thesaurus, which is Not updated and maintained becomes a liability rather than an asset. Therefore it is essential to be aware of organizational work areas, understand organizational needs review thesaurus and update/maintain it regularly.

Step 8.1 : Add a new term or modify an existing term according to the changing information needs and in consultation with subject experts in your organisation.

Step 8.2 : Research and Check for accuracy and meaning of the term.

Step 8.3 : Decide whether it is a broad subject or a narrow subject and assign an appropriate location to it in Section 1 and Section 2 appropriately.

Step 8.4 : Include in the alphabetical list (do not forget to mention the respective Subject Code)

Step 8.5 : Find the most appropriate place in the Thesaurus and add a new term or modify an existing term.

Fig No.1

Structure of CSE Thesaurus

Section A: Alphabetical listing of Keywords with synonyms
Section B1: Subject-wise Keywords Environmental Terms
Section B2: Subject-wise Keywords – Geographical, & other terms like organisation, people, dams, river, power projects
Section C: Supporting information and reference list – names of rivers, dams, trees etc. which are not of immediate interest but could help build section B1 & B2

	Environmental Terms
000	Reference
101	Environment & Alternative Lifestyles
102	Land, Agriculture & Animal Care
103	Mining And Mineral Based Industries:
104	Water, Dams, Irrigation & Fisheries
105	Forest And Trees
106	Atmosphere
107	Natural Disasters
108	Habitat
109	People
110	Health & Family Planning
111	Occupational Health & Safety
112	Hazardous Products & Pesticides
113	Energy
114	Living Resources & Wildlife
200	Industrial Economy
300	Science And Technology
500	Agents Of Change
600	Peace And Disarmament
701	Gandhi
702	Society & History

	Geographical & Other Terms
001	Continents
002	Countries
003	States & Union Territories
004	District
005	Towns
006	Physiographic Regions & Major Features
007	Livestock
008	Oceans And Seas
009	Rivers
010	Wetlands
011	Dams
012	Trees
013	Tribes
014	Diseases
015	Disasters
016	Pesticides/ Insecticides/Weedicides
017	Nuclear Power & Institutions
018	Thermal Power Plants
019	Fauna
020	Birds
021	Flora
022	National Parks & Sanctuaries
023	Government Agencies
024	United Nation Agencies
025	Companies
026	Non Governmental Organisations
027	Laws
028	Items Of Special Interest

SECTION C: REFERENCE

1. Statewise List of Districts, Towns and Talukas
2. Basinwise List of Rivers
3. Statewise List of Dams/Irrigation/Hydel Projects
4. List of Dams By Year of Completion
5. Government Agencies
6. Non Governmental Agencies
7. Comprehensive List of Sanctuaries & National Parks

Fig 1.2

SECTION B1: ENVIRONMENTAL TERMS

104. WATER, DAMS, IRRIGATION AND FISHERIES

KEYWORD	SYNONYM
WATER RESOURCES	Freshwater Resources
SURFACE WATER	Surface water resources
GLACIERS	Glaciology
RIVERS ••	Streams
LAKES ••	
TANKS ••	Ponds
RESERVOIRS ••	Human Made Lakes
GROUNDWATER	Groundwater Resources/Aquifers
WELLS	Dugwells
TUBEWELLS	Pumps
HYDROLOGY	
FRESHWATER ECOSYSTEMS	
ESTUARIES	Estuarine Ecosystems/Brackish Water Ecosystems
WETLANDS	Wetlands Ecosystems/Marshes/Swamps
MARINE ECOSYSTEMS	Coastal Ecosystems/Sea Bed
MARINE RESEARCH	
MARINE LIFE	Marine Living Resources
MANGROVES	
COASTAL DEVELOPMENT	
COASTAL EROSION	
SEA SHORES	
BEACHES	
DEEP SEA MINING	Sea Bed Exploitation
LAW OF THE SEA	
SHIPPING	
PORTS	Harbours
AQUATIC PLANTS	
SEA WEEDS	
AQUATIC ANIMALS	
DOLPHIN	River Dolphin
WHALES	Whale Fisheries/Whaling
BIVALVES	Mussels/Oysters
CRUSTACEANS	rawns/Shrimps
CORALS	
FISH •	
MAHSEER	
HILSA	
WATER MANAGEMENT	
WATER POLICY	
WATER DISTRIBUTION	
WATER CONSERVATION	

KEYWORD	SYNONYM
WATER TECHNOLOGY	
WATER TREATMENT TECHNOLOGY	
WATER HARVESTING	
URBAN WATER HARVESTING	
ROOF TOP WATER HARVESTING	
RURAL WATER HARVESTING	
CHECK DAM	
KUNDI	
FARM POND	
PERCOLATION POND	
TANKS	
STEPWELLS	
KHADIN	Johad
GROUNDWATER RECHARGE	
WATER DEMAND	
INLAND WATERWAYS	Inland Water Transport
WATER POLLUTION	
WATER QUALITY	
WATER POLLUTION CONTROL	
RIVER POLLUTION	
LAKE POLLUTION	Reservoir Pollution/Tank Pollution/Pond Pollution
GROUNDWATER POLLUTION	
MARINE POLLUTION	Ocean Dumping/Dumping At Sea
OIL POLLUTION	Oil Spils/Pollution By Oil Tankers
URBAN WATER SUPPLY	
WATER PRICING	
WATER PRIVATISATION	
RURAL WATER SUPPLY	
DRINKING WATER	Drinking Water Programmes/ Drinking Water Demand
DRINKING WATER SCARCITY	
DESALINATION	
DAMS	
DAM FAILURE	
GOPINATHAM DISASTER	
MORVI DISASTER	
DAM SAFETY	
RESERVOIRS	Human Made Lakes
IRRIGATION	Irrigation Project/Irrigation Policy
SURFACE WATER IRRIGATION	
TANK IRRIGATION	
STEPWELLS	
KHADIN	Johad
CANAL IRRIGATION	
GROUNDWATER IRRIGATION	Tubewell Irrigation/Well Irrigation
DRAINAGE	

KEYWORD	SYNONYM
WATERLOGGING	
URBAN WATERLOGGING	
SEDIMENTATION	
SEDIMENT TRANSPORT	
DREDGING	
FISHERIES Management	Fisheries Development/Fisheries
MARINE FISHERIES	
WHALES	Whale Fisheries/Whaling
INLAND FISHERIES	
ESTUARINE FISHERIES	
RESERVOIR FISHERIES	
AQUACULTURE	Municipal Fisheries/Fish Farming/Sewage Fisheries
AGRI-AQUA SYSTEM	Paddy-Cum-Fish Cultivation/Integrated Agriculture-Aquaculture System
MIGRATORY FISH CONVENTION	
FISH PROCESSING	
FISH TRANSPORT	
FISHING TECHNOLOGY	Fishing Gear
FISHING BOATS	Fishing Boat Design
FISH POISONING	
RIVERINE ECOLOGY	
RIVER BASIN	
LIMNOLOGY	

Note: * All fishes except Hilsa and Mahseer

** Pl. see separate lists for proper nouns

Fig No 1.3

Subject Classification list on Main Areas (Subset of Thesaurus -classification list actually used in CSE for classifying and shelving)

000 **REFERENCE DOCUMENTS**
001 STATISTICAL REFERENCES
002 YEARBOOK, WHO'S WHOS & DIRECTORIES
003 PLAN DOCUMENTS
004 INDIAN CENSUS DOCUMENTS
005 STATE OF ENVIRONMENT REPORTS
006 SPECIFIC REPORTS
007 BIBLIOGRAPHIES
008 GAZETTEERS
100 **ENVIRONMENT**
101 ENVIRONMENT & ALTERNATIVE LIFESTYLES
102 LAND, AGRICULTURE AND ANIMAL CARE
103 MINING & MINERAL - BASED INDUSTRIES
104 WATER, DAMS, IRRIGATION & FISHERIES
105 FORCTS & TREES
106 ATMOPSHERE
107 NATURAL DISASTERS
108 HABITAT
109 PEOPLE
110 HEALTH & FAMILY PLANNING
111 OCCUPATIONAL HEALTH AND SAFETY
112 HAZARDOUS PRODUCTS AND PESTICIDES
113 ENERGY
114 LIVING RESOURCES AND WILDLIFE
200 **INDUSTRY AND ECONOMY**
201 INTERNATIONAL ECONOMY AND DEVELOPMENT
202 NATIONAL ECONOMY AND DEVELOPMENT
300 **SCIENCE AND TECHNOLOGY**
301 PHYLOSOPHY AND HISTORY OF SCIENCE
302 SCIENCE, TECHNOLOGY AND SOCIETY AND DEVELOPMENT
303 APPROPRIATE TECHNOLOGY
304 NEW TECHNOLOGIES
305 SCIENTIFIC REPORTS
306 SCIENTISTS
400 **SPECIAL ECOSYSTEMS**

401 HIMALAYAS
402 ANDAMAN AND NICOBAR ISLANDS
403 LAKSHADWEEP ISLANDS
404 WESTERN GHATS
405 EASTERN GHATS
406 ARAVALLIS
407 COLD DESERTS (LADAKH, LAHAUL AND SPITI)
408 ANTARCTICA
409 AMAZON BASIN
410 SAHEL
411 RANN OF KUTCH
412 SHIVALIKS
413 CHOTANAGPUR
414 KUTTANAD
500 **AGENTS OF CHANGE**
501 UNION GOVERNMENT
502 STATE GOVERNMENTS
503 INTERNATIONAL ORGANISATIONS
504 NON-GOVERNMENTAL ORGANISATIONS
505 INFORMATION/SOCIAL INTELLIGENCE/KNOWLEDGE
506 PRESS & COMMUNICATIONS
507 EDUCATION
508 LEGISLATION
509 TRADE UNIONS
510 POLITICAL PARTIES
511 CONSUMERISM
512 CO-OPERATIVE MOVEMENTS
600 **PEACE AND DISARMAMENT**
601 PEACE AND DISARMAMENT - GLOBAL
602 **PEACE AND DISARMAMENT - INDIA**
700 **CULTURE AND SOCIETY**
701 GANDHI
702 SOCIETY AND HISTORY
703 PERSONALITIES
1000 **MISCELLANEOUS**
1001 BOOK CATALOGUES
1002 POSTERS
1003 PICTURES
1004 ADDRESS LISTS

FIG NO.1 4

A section of Subject Classification list on Main Areas (Subset of Thesaurus - classification list actually used for classifying and shelving)

104. **WATER, DAMS, IRRIGATION & FISHERIES**

104.A. WATER RESOURCES & RIVERS

1. Water Resources & Management - General/Global
   a) Water in Arid Lands
2. Water Resources & Management - General/India
3. Surface Water Resources - General/Global
4. Sufrace Water Resources - General - India
   a) Ganga & Brahmaputra Basins
   b) Water in Arid Lands
   c) Sabarmati Basin
   d) Kosi
5. Groundwater Resources - General/Global
6. Groundwater Resources - India
7. Wetlands
8. Desalination
9. Conflicts Over Water Resources
   a) General/Global
   b) Indian Subcontinent
      1. Farakka Barrage
   c) Indian States
      1. Cauvery Waters
10. National Water Policy

N O T E P A G E S

N O T E P A G E S

N O T E P A G E S

NOTE PAGES

MANAGING AUDIOVISUAL RESOURCES

Objectives:
In this section you will be able to:

- Identify various types of audio-visual resources and storage media
- Identify the essentials for building up a resource centre for various audio-visual formats, including film, audio recordings and still photographs
- Understand various functions and services of an audio visual centre
- Selecting new resources and building up the collections
- Learn about the preservation techniques
- Learn documentation and classification of the collections

INTRODUCTION

Most of us have greater expertise with words since we are trained to read and to write from an early age. The use and interpretation of graphics and sound is a more neglected skill.

Often graphics and sound in instructional materials are after thoughts used to add visual or sensory interest to the product. Consequently, the power of illustrations and sound to promote learning is often unrealised.

Therefore for any organisation it is important to understand as to how effective a role can audio visual aids play in its reference and training materials.

Audio visuals are often more expensive to produce and store than words and therefore the financial aspects of setting up an audio visual resource centre also need to be looked at.

It has been established that audiences remember-
20% of what they HEAR
30% of what they SEE
50% of what they **SEE & HEAR**

To achieve a return on investment from your visuals or work aids, you must be sure that they fill a gap in knowledge or skills or support work tasks that align with organisational goals. And this can be done only if you have archived your audio and visual materials in a proper fashion so that you are able to use them in the future.

Need for setting up an Audio Visual Resource Center

Why? One may ask does an organisation need to set up its own AVRC when everything is available somewhere or the other and can be acquired as and when required. The simple answer to this question is; because time is precious and need is specific.

Consider the hypothetical situation. Your organisation is publishing a booklet on an original research on the 'Effects of watershed management in Ralegan Siddhi village'. You may have during your research, acquired photographs depicting prosperity in the village to ubstantiate your assertions. However if you do not show what the condition of the village and its denizens

was, prior to the undertaking of the watershed management initiative, your work is only half done.

Now where in the world will you find photographs for a report that is original? Once again you will need to do research on where you are likely to find those photographs, if at all they exist. This is time consuming. And suppose you find a photographer who has the photos you require you will have to spend considerable amount of money to procure these photos. And in the end you may not get what you specifically require.

It is here that the need for an AVRC is heightened. Had the author of the study taken photographs of the village at the beginning of the project and preserved them till the time the research was published, the report would have provided the readers with an excellent comparative view of the before and after situation in the Ralegan Siddhi village.

As Social Wealth

For any organisation working in any field it is a duty and an obligation to preserve and protect all the resources that it has in its possession as the property of the society from where it draws its sustenance and which in turn it nurtures. An organisation is both recognised and respected for the quality and quantity of resources it holds and more so if it shares these resources with others.

As an agent for change

More than just preserving resources efficiently, it is of prime importance that an AVRC uses or facilitates the use of, its resources for bringing about change. Change, that, it thinks and believes, will transform the society by bringing to it multiple benefits. This it can do by sustained outreach whereby it makes people aware of the resources in its possession and creates the necessary infrastructure, which makes it convenient and interesting for them to utilise the resources.

An educational tool

Audio-visual resources are considered a most effective tool for aiding and inspiring education. The phrase -'A picture says a thousand words' describes this best. What is sometimes difficult to express in words can easily be explained by means of a film or photograph. Today no publication is complete without visuals and authors now depend upon photographs and drawings etc. to illustrate their writings in order to both put across their message in a simple and effective fashion as well as maximise understanding.

Tool for campaign, advocacy and awareness creation

For an organisation, to be able to make an impact on the society, within which it functions, it is imperative that it puts its ideas and programmes across effectively. In order to do so it may have to present itself and its objectives in such a manner that in the least possible time it is able to say or achieve what it set out to. And the only means of doing it is through the efficient use of audio-visual aids.

AUDIO VISUAL RESOURCE TYPES

An audio-visual resource can be described as any material, other than written or printed text (that material would normally go into a regular library), that can either be heard or viewed. It can be a photograph, sound recording, motion picture film, video recording, pictorial record, painting, print, map, plan, blueprint, architectural drawing and other sound, film, video, photographic, or cartographic material.

TYPES OF AUDIO RESOURCES

Voice and Sound Recordings

Interviews

An organisation, which, brings out a newsletter or a full-fledged magazine would have reporters taking a number of interviews of prominent people, working in various fields, for publication. Most of these recordings are likely to be erased after transcription but there would definitely be some, which are not immediately used. These may have to be stored till a time they are used or transcribed and therefore will have to be temporarily archived.

Lectures, debates and discussions

Any active organisation would routinely invite experts and organise lectures, debates or discussions on a variety of subjects and issues. The normal practice is to record these and many a times transcribed for use in a post programme or conference publication. People within the organisation who are not able to attend the programme may want to listen to the proceedings and therefore they will, have to be preserved or archived till that time.

Sounds around us (vehicles, machinery, noise etc.)

A number of organisations produce films or multimedia presentations on subjects and issues of their interest as a means of communicating with others. A variety of sounds may be recorded for any such project. These are liable to be preserved in an AVRC for future use.

Music recordings

(Songs for campaigns, songs by campaigners, music for films etc.)

Grassroots organisations, in particular, use songs for their campaigns. These are directed towards communicating with rural or illiterate populations with great effect. A lot of effort goes into creating these songs right from writing the lyrics to composition of music and the performance itself. These recordings have to be preserved, as they will definitely be used frequently by various people. An organisation which itself doesn't produce song or music compositions may acquire recordings from other organisations or individuals and these will come to the AVRC for archiving.

Audio Recording Media

Audio tapes

The audiocassette is a most common magnetic media due to its low price range and easy availability. Usually the cassettes are identified by a code indicating the recording time in minutes. They are available in 60, 90 and 120 minutes (both sides) recording time. The cassette contains a tape of 4mm width. Longer duration, professional application open reel tapes for audio recording are also available with tape widths ranging from 0.25 inch to 2 inches. The length of the tape in this case varies and the spool sizes range from 5 inch to 10.5 inch diameter.

Audio CDs

In the early 1980s optical storage media that used lasers to record and retrieve information were developed. They offer much higher storage capacity than magnetic media. Depending upon the equipment and technology used they can store text, images as well as sound to work as a multimedia information system.

At present three types of disks are available in the market. These are:

1) Write Once Read Many (WORM), commonly called 'write once',

ii) Rewritable; and
iii) Read Only, better known as Compact Disk-Read Only Memory (CD-ROM).

Gramophone or phonograph records
It is composed of a strong plastic material on which audio recordings are made. The disks are marketed in 17.8 cm (7"), 25.4 cm (10") and 30.5 cm (12") diameter size. The disk has a central hole, which fits into the spindle of the turntable. The inter-table provides for 33 1/3, 45 and 78 revolutions per minute (RPM).

TYPES OF VISUAL RESOURCES

Films
Film has always been considered the most effective medium of communication. A number of individuals and organisations make films on issues of their own interest and as a means of putting their word across to other people. All the films either made by the parent organisation or acquired from other sources have to be archived.

Video recording media:
35mm motion picture spools
These rolls of traditionally used cinematographic film take up large amounts of space and require proper protection. They require heavy equipment for projection and therefore are not normally found in AVRCs that do not produce such films themselves.

Video tapes
(NTSC, PAL and MESECAM) and broadcast quality tapes (digibetacam, DV, mini DV, betacam-SP, betacam-LP and U-matic)
The most popular type of film storage media is videotapes. They come in a variety of sizes depending upon the camera or recording equipment. With great technological advancement, size of videotapes is becoming smaller without compromising on quality.

DVDs and VCDs
Digital media has taken the world by storm and large amounts of data (in this case film) can be stored in a small disc that can be replayed on a computer or a small, dedicated player. It was initially believed that these are virtually indestructible, easy to store and need little care but these claims have proved false. They need as much care as any other media if not more.

Photographs
Prints of different sizes (colour and black & white)
There is an immense variety of photographic paper and sizes. As the technology gets advanced costs get lowered and the same size of photographs that could not be once printed, technically or because of huge costs are now common.

Slides/transparencies (large format and 35mm)
The choice of most professional photographers who want their photographs to be printed or shown to large audiences (in a slide show), slide or transparency film is expensive and sensitive to dust, harsh light and poor handling. An AVRC may have to archive slides in various sizes and very rarely antique glass slides used by the 19th and early 20th century photographers. A slide projector becomes a necessity if an AVRC archives slides. Making prints from slides is still a lengthy and expensive process.

Negatives (colour and black & white)
Negative film being cheaper is the preferred medium for photographers who want to make prints from their photographs. Comes in both black & white and colour formats.

Contact sheets (colour and black & white)
Contact sheets are positive prints of a roll of film. These are no larger in size than the negative itself and the entire set of frames in a roll of film can be put onto a single sheet of paper.

Digital images (low resolution and high resolution)
Digital images are images taken by a digital camera or digitised with a scanner. These can be low resolution (fit for viewing only) or high resolution (fit for publishing).

Posters
Posters are usually created by any organisation as part of a campaign or otherwise to publicise an event or a programme. A poster may be only a simple set of words put on a piece of cardboard, a work of art printed on good quality paper or part of a series in an exhibition. Either way a poster has meaning and therefore an extremely popular means of communication. Posters are rarely preserved beyond the designated period of use but if they are they can provide inspiration to creating better and more effective posters. Several AVRCs that may or may not create their own posters, routinely collect posters to enhance their own creativity as well as to use them for their own programmes.

Illustrations
Drawings, graphics, paintings, cartoons etc.
Depending upon the interests of an organisation, a variety of drawings, sketches and paintings may be acquired. They are difficult to preserve and restore. Cartoons are another means of effectively putting across a message that may otherwise be dull or difficult to comprehend. They may be generated during publication of a magazine, book, poster or brochure and need to be preserved as any other audio-visual material.

Maps, Plans, blueprints and architectural drawings etc.
These come to an AVRC in any organisation and have to be preserved in the same manner as books and documents. Some of them can be displayed effectively to create interest among potential users.

SETTING UP AN AUDIO VISUAL RESOURCE CENTER

The requirements for setting up an audio-visual resource centre are slightly different from a library of books. This is mainly due to the delicate nature of the storage media and the need to protect them from the elements at all times.

INFRASTRUCTURE

Separate area or room
Ideally audio-visual resources should be housed in an exclusive area. This is to take care of the temperature and environmental control which is extremely necessary keeping in mind the delicate nature of the storage media. However if a separate room can not be allocated for audio visual resource storage at least an area with adequate protection from light, dust and moisture can be allocated.

Storage space
Cupboards or filing cabinets –
Dust and moisture can creep into even the best protected areas and cupboards provide some additional protection.

Controlled environment
Temperature control - Air conditioning is advised for controlling temperature variations.

Light - Soft lights should be used and no direct sunlight should be allowed to enter the storage area

Dust - Can be controlled by installing an air Curtain, by regular dusting manually or with a vacuum cleaner

Pests – Pest control exercise should be regularly done.

Humidity - Since humidity can virtually eat into paper and magnetic media all precautions should be taken. A dehumidifier can be installed. If all that is not possible just some silica gel, easily available from chemists can be generously scattered inside the storage space.

Hardware

Some basic hardware is required for every AVRC. Depending upon the resources in an AVRC a choice can be made from the following equipment list.

OHP projector – For viewing transparencies in presentations for larger audiences.

Slide projector – For viewing slides and presenting slide shows.

LCD projector – For digitised presentations. An expensive piece of equipment but can be hired.

Videocassette, VCD player – For viewing films

Television – For showing films to smaller audiences.

Sound system – For conferences and meetings.

Dictaphones – For recording interviews and conference proceedings

Cameras – For building up resources and documenting events

Light table – For viewing slides. Can be fabricated to suit the available space.

Eye glass – For magnified viewing of slides. A 10x magnifier is appropriate.

Cleaning equipment – Required for slide cleaning, recording and playback head cleaning etc. Special liquid cleaners are available in the market.

Digitisation Hardware

Computer – No digitisation can take place without one. It should be capable of handling large image files and have sufficient storage space.
Scanner – Is required to digitise prints and slides. One that does both is better.
Colour printer – To print digitised photographs
Digital camera – To take photos that can be directly stored in a computer. Should be capable of taking photos that can be enlarged according to the products of you organisation.

Digitisation software

Scanning software – Comes with the scanner and has to be installed on to the computer.
Image processing software – Required for improving scanned digital photographs. Popular softwares includes Adobe Photoshop and Corel Draw
Internet – Is required to display contents of the AVRC to external users
Email – To send photos to external users. Pegasus mail, Yahoo, Hotmail etc. are popular

Functions of an audio visual resource center

An audio-visual resource centre is a proactive repository or archive. It is a multifunctional facility that collects, stores and distributes resources in the form of audio and visual media. However in the present context this definition has changed. An AVRC or for that matter any documentation facility, is an information service unit attached to an organisation where the emphasis is towards provision and dissemination of information contained in the archived materials.

Today an AVRC is as much a necessity for an active organisation as a library if not more. Audio-visual resources of all kinds need to be preserved for posterity and used intelligently for achieving positive results from all the work undertaken by an organisation.

In any resource centre development, it is important to have a clear initial plan. Careful planning of the design of the resource centre should be done before the installation is started, so that decisions about what material will be archived and how the materials are to be delivered to the user can be taken into account during the process. You should also know before embarking on the project the technology and human resource implications of creating and supporting the resource centre.
Once that is clear, one can think about the hardware that is required to set up such a facility.

Therefore the three main functions of an AVRC are:

- Identifying,Selecting and documenting and arhiving resource materials.
- Dissemination through value added services and products.

SELECTION AND COLLECTION OF MATERIALS:

An organisation may think of establishing an AVRC for two reasons. One to safely store and use already existing resources or secondly, to collect various audio-visual resources and then create an AVRC for use by its members or for distribution. Whatever be the reason, an AVRC can not survive without adding to its collections.

The various means of acquiring these resource materials are:

Selection by dedicated AVRC staff:
Audio-visual resources can be collected from a number of sources depending upon the needs of an organisation but what is more important are the people who have been assigned this task. It is essential that the staff responsible for selecting, acquiring and disseminating the information should be well acquainted with the relevant sources of audio-visual resources, aware of the interests and activities of the organisation they serve and understand their user's needs.

Criteria for selection and archiving
Space is always constraint for any active AVRC and more so for a progressive one. Therefore, it needs to be reserved for only the best resources. Otherwise a lot of material that may never get used will get archived and take up space thus preventing an AVRC from archiving important additions to its resources in the same qualitative manner as it is designed to preserve them. In doing so the two most important things to keep in mind before a resource is catalogued and archived permanently in an AVRC are:

Depending on the type of material being considered and the particular subject area, criterias may include:

(a) The nature or content of the resource
An active AVRC receives a lot of material and the initial selection is done on the basis of whether the resource will be of relevance to the actual or potential needs of the organisation. This a trained AVRC staff can do with experience. However as important if not more is the process of running a check on the physical quality of a resource.

(b) Physical and technical quality of the resource
Physical quality implies the actual perceptible condition of a resource. An AVRC needs to develop a set of guidelines to assess this and a resource has to be judged on that basis.

Photographs in the form of slides, negatives and prints
These are among the most delicate resources an AVRC can have. They need to be checked for:

1. *Whether an image is in focus or not* -
Although opinion may differ on this, most images where the subject is not sharp, are never used. These images are a result of inadvertent error by the photographer while using the camera. Some photographer deliberately shoot out of focus picture but only if they have a specific use for it. Other images may be shaken and lacking clarity, again due to mishandling of photographic equipment.

2. *Scratches and other physical damage* –
Even with the greatest amount of care, a slide or negative can easily get scratched due to mishandling. Scratches can occur at all stages right from loading the film on camera, while it moves inside the camera, while it is processed, while being mounted as in slides and every time it is viewed. The thing to check here is whether the scratch is on the emulsion side of the film or not. A scratch on the non-emulsion side can be ignored, as it will not show up while an image is viewed or published. However a scratch on the emulsion side of a slide or negative will definitely show up at all stages.
Here again a trained AVRC person will know that minor scratches and small damage to the emulsion can be corrected if the image is digitised.

3. *Fading or discoloration* -
This may occur due to age, undue exposure to light or poor processing of an image. A variety of photosensitive chemicals are used in the lab for processing and fixing an image on film or paper and all these need to be washed away with water. However if even a tiny amount of chemical is allowed to stay on the surface of the film it will cause discoloration over a period of time.
A trained eye can easily detect these abnormalities.

Magnetic tapes in cassettes

The same set of guidelines as above can be applied to this category of resources too. The only additional checks required are for breakage of external casing and damage due to poor quality and maintenance of recording and playback equipment.

1. *Breakage* -
Magnetic tape is usually housed in plastic and mishandling can lead to breakage of the outer casing. It needs to be ascertained whether any broken pieces are coming in contact with the tape inside. If they are then the tape will definitely get scratched leading to disturbance in recordings. The tape may even get torn if the edges are sharp and become useless. Such tapes should not be archived and if it is not possible to discard them remedial measures to preserve them should be adopted.

2. *Damage from recording or playback equipment* -
Magnetic tapes can also get damaged due to the poor quality and maintenance of recording or playback equipment. A dirty or damaged head can cause scratches on the surface and lead to poor sound and picture quality.

Motion picture film

Common sorts of film damage are shrinkage, brittleness, buckling, scratching, and perforation damage. Nitrate and acetate films can shrink or become brittle or both, through loss of moisture, solvents, or plasticizer. Shrinkage and brittleness can be reversed temporarily; buckling is difficult to cure and therefore motion picture film should be checked for all these.

Printed resources

Paper also tends to deteriorate with age and poor handling. Damaged resources like posters, illustrations, maps etc. should only be archived if they can be repaired or till the time a good duplicate can be created.

Participation of users in stock selection:
It is extremely important to consult professional colleagues within the various sections of the organisation on their specific requirements. These are people who are constantly in touch with sources within their fields of work and interest and can provide vital inputs.
For example, the Health and Environment unit, in an organisation like say CSE, can inform the AVRC of any new films on the issue that they may have had the opportunity of seeing or even reading a review of in a medical journal. If the unit is really proactive they can even procure the resource for the AVRC on a complementary basis. However since the user's interest may be constantly changing, the AVRC will need to keep abreast of new and forthcoming materials in order to keep the collection up to date.

Selection of new and forthcoming materials:
Information about new and forthcoming materials must be compiled regularly. There are various sources available for doing so. While newspapers and journals are the most obvious source,

information about materials can be gathered from a number of other sources also. **(Ref: Section on Information Sourcing)**
Institutions that create or distribute audio-visual material provide some sort of announcement service for new materials. These should be subscribed to and regularly scanned.
Another important means is exchange of lists with other AVRCs, which have similar interests. For doing so a network needs to be established and maintained. Material can also be exchanged with network associates.

Collection from photo exhibitions, conferences and film shows:

Obtaining advance knowledge of various events such as exhibitions, conferences and shows etc. and participation should be ensured in order to view and select resources of interest. More contacts can be established at these events with both producers and users of audio-visual material.

Collection through Internet:

The most recent and also the most convenient means of selecting and collecting resources is the Internet or the World Wide Web. Day by day more and more organisations and individuals are putting up their resources on the Internet for distribution and sale. By carrying out a simple search for materials of interest, an AVRC person can view and choose from a huge selection that immediately becomes available at his/her fingertips. Most websites offer email alert services, which can be subscribed to for regular updates on products or services etc. An active AVRC staff should search for useful websites and maintain a database of such addresses. Especially those, which provide free material. The Internet is an excellent means of establishing contacts and regularly interacting with other organisations of similar interests.

Networking with experts and material providers:

An AVRC can make excellent use of this tool in procuring information about the resource as well as ordering for the material itself. For this an AVRC needs to develop a database of people and service/product providers who can be contacted within the shortest duration for a particular requirement. An expert database would provide a list of persons who are abreast of the latest happenings and information on a particular subject or issue that your organisation would be interested in. This list should include people who have their own databases on relevant subjects or issues and are willing to share it with you for or without a consideration.

However with increasing use of Internet, the demands upon the AVRC, in terms of reduced time and choice allowed for making material available have also become more stringent.

Besides these, the following also need to be considered by an AVRC.
Creating and maintaining a database:
- FM Pro
- SQL

Records
- Incoming material
- Material issued to users
- Equipment issued to users

Accounting
Raw material purchase and inventories

Equipment purchase and maintenance
Processing of photographs
Duplication of films

The essence of preservation management is resource allocation. People, money, and materials must be acquired, organised, and put to work to ensure that information sources are given adequate protection.

Cost-effective preservation action cannot take place without compromising ideal outcomes. Preservation management encompasses all the policies, procedures, and processes that together prevent further deterioration of physical objects, renew the information they contain, and increase their functional value. This distinction between the value of the content (usually text and illustration) and the value of the artefact is at the heart of a decision-making process that itself is central to effective management.

Preservation management includes an ongoing, iterative process of planning and implementing prevention activities (e.g., maintaining a stable, safe, and secure environment, ensuring disaster preparedness, and building a basic collection-level maintenance program) and renewal activities (e.g., undertaking conservation treatments, replacing the content of library materials, or reformatting them on microfilm).

Over time, all objects change or deteriorate as a result of environmental conditions, use, accidents, and natural forces of decay. How an object is handled, displayed, and stored can mean the difference between preserving it for many years or for only a short time. You can take an active role in preserving special objects for your own enjoyment and for future generations to appreciate.

The Nature of Things

The objects in your collection may be damaged either by external forces such as mishandling, an unstable environment, or by the intrinsic nature of the materials used to make them. Some materials are much more fragile than others and may have special requirements for care. By becoming familiar with the materials used to create your artefacts and the hazards that may affect them, you will be better able to care for them.

There are two basic types of materials: inorganic and organic. Inorganic materials-nonliving substances such as stone, glass, ceramics, and metals-are generally considered to be very durable and stable but not immune from damage. Organic materials include those made from animal products, such as leather, fur, horn, feathers, ivory, or wool, and those made from plant products, including wood, paper, and fibbers. These materials are more susceptible to environmental damage than their inorganic counterparts. Colorants and coatings can also be organic materials. Synthetic materials, such as plastics, are also typically organic. Plastics have been produced for more than 100 years and are increasingly popular with collectors. Some synthetic materials tend to be unstable and deteriorate quickly.

Inorganic materials may be easily broken, scratched, cracked, and worn by exposure to harsh weather. You may notice building facades or garden sculpture worn away by acid rain or stained by the growth of moss or lichens. Glass may appear cloudy or drizzled (covered by a network of fine cracks), or it may occasionally even have moisture droplets on its surface, appearing to "weep."

High light levels, drastic humidity fluctuations, and pests can be especially damaging to organic materials. Excessive light may cause fading in textiles or in watercolours painted on paper. Pulp paper products such as mats and cardboard storage boxes may yellow, and their colour may "migrate" into the matted work of art on paper or the stored textile. Excessive humidity may cause molds and fungi to grow on certain organic materials. You may see mildew on textiles or baskets stored in a damp basement or spotting ("foxing") on works of art on paper hung on a damp exterior wall. In a painting, you may see surface darkening, colour changes, or

cracking, buckling, or flaking. You may see "flyspecks" or holes chewed in objects made from paper, textiles, or plant fibers.

Photographic images such as daguerreotypes may tarnish; the paper other photographic images are printed on may yellow or imbrittle due to acidic vapours in the environment.

The Environment and Your Collection

The major environmental factors that affect the long-term preservation of objects are light, relative humidity, temperature, air pollution, pests, and human error.

Radiant energy, the most familiar type of which is visible light, can initiate or accelerate damage by chemical reaction, especially in organic materials. The three types of radiant energy most likely to effect objects are: ultraviolet light, infrared radiation (heat), and visible light. Ultraviolet light is the most harmful, causing irreversible damage by initiating chemical reactions on a molecular level. Both fluorescent lamps and daylight may contain high levels of ultraviolet light. Daylight also contains infrared radiation, or heat, which can initiate and accelerate damaging chemical reactions. Visible light includes all the wavelengths of radiant energy that let us see colour.

Relative humidity refers to the amount of moisture in air. It is stated as a percentage, with 100% being air fully saturated with water vapour. Organic materials absorb or give off moisture in a continuous attempt to achieve equilibrium with the atmosphere. These materials tend to be more stable in a moderate relative humidity (45%-55%), a condition rarely present in normal exterior or interior environments. Inorganic materials usually are not affected by relative humidity levels unless they contain salts or are otherwise unstable. Serious damage can occur when materials are subjected to dramatic, sudden changes in relative humidity over short periods. Prolonged exposure of organic materials to relative humidity above 60% - 65% will encourage the growth of molds and fungi.

Temperature is significant because it affects relative humidity. When moist air is heated, the relative humidity decreases; when it is cooled, the relative humidity increases. Temperature is also important because deterioration progresses much more quickly at higher temperatures than at lower ones. Exposure to heat can drastically accelerate the ageing of organic materials and of many modern synthetics.

Air pollution can be generated inside buildings as well as outside. Its components include acidic gases, particulate material, and ozone. Many of the chemicals known to cause human health problems can also harm objects. Indoor sources of air pollution include smoke, dust, paints, stains, cleaning agents, and new synthetic materials such as insulation or carpeting. Both inorganic and organic materials can be damaged by exposure to pollutants. The effects of indoor pollutants, such as acidic gases from wood products or coatings, may be intensified when they are allowed to build up inside cabinets or other closed environments over long periods.

Pests vary widely in nature and size, from insects to rodents. Textiles paper, photographs, books, leather, and especially organic substances with food residues are very attractive to insect populations. High relative humidity may encourage the propagation of insects. Low temperature may make them dormant but probably will not kill them.

Human error also affects the long-term preservation of special objects. Mishandling may lead to irretrievable loss. Breakage is the most obvious form of damage, but you may also see fingerprints etched into highly polished metal surfaces, smudged pigments, torn canvases, pulled or torn textile fibers, and accidents that could have been prevented with forethought.

STEPS FOR PRESERVATION

General guidelines to follow to help preserve your collection:

Minimise the effects of light

Avoid displaying organic materials in direct sunlight, even for short periods. Block ultraviolet light from fluorescent bulbs and windows with ultraviolet filtering transparent films. Use incandescent lighting when possible. Halogen light is higher in ultraviolet radiation than incandescent light but much lower than daylight. Do not exhibit works of art close to incandescent bulbs, which give off heat. Avoid using frame-attached incandescent lamps on your paintings. Because light damage is cumulative and irreversible, your most sensitive objects should not be on display all the time but should be rotated periodically.

Provide stable, moderate relative humidity and temperature

Extremes in temperature and relative humidity probably occur most often in basements, attics, and garages. Store important objects elsewhere, such as in an internal closet. Do not place sensitive objects over active fireplaces, next to heating or cooling vents, in direct sunlight, or in bathrooms. To prevent the growth of mold and mildew and to discourage insect activity, keep organic materials in stable conditions, around 50% relative humidity. Provide cooling and good air circulation in the hotter summer months; use a dehumidifier in humid areas. In dry climates and during the heating season, use a portable evaporative-type humidifier. Make sure framed works of art are not in direct contact with the glass by using window mats made of archival quality (rag) paper products.

Minimise the effects of air pollution

Reduce the amount of dust in your home by upgrading and cleaning the filters in heating and air conditioning units regularly. Framing works of art on paper and small textiles behind glass will protect them from the acidic, abrasive effects of dust. Avoid exhibiting objects where cooking or other combustion takes place. Limit the use of new wood products, coatings, adhesives, new carpeting, and chemicals around your collection. Avoid using spray polishes, commercial cleaners, or products containing silicone on important objects; use paste wax no more than once a year on furniture. Slightly damp cotton cloths, magnetic wiping cloths, or soft natural bristle brushes are appropriate for routine dusting.

Minimise pest activity

Good housekeeping and proper storage can help keep your collection free of pests. Display or store organic materials away from sources of food and excessive dampness. Inspect objects both on display and in storage at least once a year for the signs of insect activity: adult insects, small wormlike juvenile insects, powdery deposits, and small holes or missing areas. If evidence is found, place the object in an airtight plastic bag immediately and call a conservator for advice.

Know how to handle your objects

Many objects are much more fragile than they appear. Observe carefully the condition and size of the object before you attempt to move it. Be sure that you can carry it alone, or arrange for help. Before you begin, clear space to set the object down. Move small or light objects in a padded tray or basket. Always handle objects with clean, dry, lotion-free hands or preferably with clean cotton or plastic gloves. The acids, oils, and salts in human skin will tarnish and corrode metals and may damage lacquer and other materials such as porous ceramics.

Move framed works of art in a vertical position by handling secure areas of the frame, supporting the bottom and side. Support paper or textile objects from underneath on a sheet of acid-free white mat board or white blotter paper.

Do not touch the front or back surfaces of oil paintings; touching can cause cracks and other damage. Never apply cleaning solutions, sprays, alcohol, or insecticides near any work of art. Use a soft natural-bristle brush to clean objects and paintings when the surfaces are in good

condition. Feather dusters are not recommended, as they can catch in small cracks and dislodge fragments of paint or surface.

Remove jewellery and watches before handling your collection. Make sure buttons, belt buckles and other accessories will not contact the object as you handle it. Avoid the presence of food or drink. Keep work surfaces clean and free of extraneous objects such as keys, paper clips, tools, and writing implements.

Know how to display your objects

Be sure that the hanging devices on paintings and other framed pieces are strong and secure. Use wall hangers appropriate to the weight of the work of art and the nature of the wall on which it will hang.

Locate fragile and breakable objects away from areas of activity where they may be bumped or knocked over. Protect objects in vitrines or under glass or acrylic. Avoid the use of sticky substances other than microcrystalline wax to secure unstable inorganic objects on shelves or other surfaces. Ask a conservator to help prepare mounts for objects.

Know how to store your objects

Choose the materials you use for display and storage carefully to ensure that they are compatible with the objects. Wood, wood products, and many paper products made from wood contain harmful acids and should not be used with artefacts because they can accelerate damage and cause staining. Archival-quality storage boxes, mats, and wrapping tissue made from cotton fibers (rag) or from purified wood pulp are a better choice. These products are available in buffered or unbuffered form; both are acid-free, but buffered products contain a reserve calcium carbonate, or chalk, which can neutralise acidity in the object or the environment. While buffered products are the best choice for many paper objects, unbuffered products should be used for photographs, wool, silk, and leather, which are somewhat acidic by nature.

Use archival-quality materials sold by companies recommended by conservators or museum staff. Have your framer use archival-quality mat board, and insist that archival framing procedures be followed. House photographs in archival albums or inside inert plastic envelopes. Make sure to record the significance of each of your objects.

Some types of plastic storage products, such as page protectors, photo sleeves, and albums, can be harmful to your photographs, slides, and negatives. Choose stable materials such as polyester (Mylar D), polyethylene, polypropylene, and polycarbonate. Avoid polyvinyl chloride plastics and self-adhesive photo pages. Photo corners on archival paper are a better choice.

Objects should not be in direct contact with rubber bands, paper clips, rubber cement, or other adhesives; self-adhesive labels or papers; plasticine or other clays. Do not use bubble wrap, rubber, polyurethane foam rubber, newspaper, or excelsior to wrap or pack objects. Safe polyethylene foams are available through conservation suppliers.

Store three-dimensional objects in labelled boxes that are sufficiently large. Do not overcrowd the objects in a box. Separate them with neutral pH tissue or with unbleached cotton muslin that has been machine-washed in hot water (once with soap and once without) and dried. Place heavier and less intricate objects on the bottom. If textiles must be folded, pad the folds with tissue to prevent permanent creasing.

Protect large, unboxed objects in storage with soft, prewashed muslin cloth or neutral pH tissue and drape them loosely with polyethylene sheeting. Framed paintings and framed works of art on paper can be stored vertically, edges protected with padding, and protected from one another with archival cardboard.

Pastels, charcoal drawings, and other objects with delicate surfaces require specialised handling; consult a conservator.

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STORAGE AND PRESERVATION OF DIFFERENT MEDIA

PHOTOGRAPHS

In caring for a photographic collection, it is important to know that various components create a photograph. The interaction of these components, with each other and with their environment, has a lasting effect on the longevity of the image. Most photographs consist of a final image material, a binder layer, and a primary support. The final image material - commonly silver, platinum, organic dyes, or pigments creates the image we see. The binder layer is a transparent substance albumen, collodion, or gelatine in which the final image layer is suspended. The binder and final image material are applied to a primary support, usually paper, glass, metal, or plastic. Although many photographs have this three-part structure, individual images may have additional components. For instance, applied colour or coatings and original frames or cases need to be considered as part of the photographic object.

Care:

Photographic materials require a cool, dry, well-ventilated storage environment. High temperature and relative humidity increase deterioration and promote the growth of mold and mildew, which could mar surfaces and break down binder layers. Avoid storing photographs in the attic, the basement, or along the outside walls of a building, where environmental conditions are more prone to extremes and fluctuations and where condensation may occur. In some storage situations, seasonal adjustments such as dehumidifiers in the summer or fans to promote air circulation may be necessary to improve problematic environmental conditions.

The ideal storage conditions for most photographs are a temperature of 68 F and relative humidity in the range of 30 - 40%. Film-based negatives and contemporary colour photographs benefit from storage in cooler environments of 30 - 40 F and 30 - 40% relative humidity

Choosing storage enclosures

Keep photographic materials in enclosures that protect them from dust and light and provide physical support during use. Chemically stable plastic or paper enclosures, free of sulphur, acids, and peroxides, are recommended. Plastic sleeves should be constructed of uncoated polyester, polypropylene, or polyethylene. For most photographic materials, unbuffered paper enclosures are preferred over buffered enclosures. Alkaline buffering is added to archival storage papers to absorb acidity from the stored material or the environment surrounding it. However, some photographs may be altered by the buffering in alkaline papers, so unbuffered paper is recommended for most processes. Film-based negatives, which can produce acidic gasses as they age, should be placed in archival, buffered enclosures and stored separately from other photographic materials. Store cased objects, such as daguerreotypes and ambrotypes, in their original cases or frames with the addition of custom-made, four-flap paper enclosures to reduce wear and tear on fragile cases. Place individually housed prints, negatives, and cased objects in acid-free, durable boxes that will afford further protection from light, dust, and potential environmental fluctuations.

The storage of photographs in albums serves the dual purpose of organising groups of images while protecting them from physical and environmental damage. Albums can be wonderful sources of historic and genealogical information. Preserve them intact when possible and store them in custom-fitted archival boxes. For the storage of family photographs, albums constructed with archival materials are available from conservation suppliers. Magnetic or self-adhesive albums can be detrimental to photographs and should not be used.

Displaying photographs

Photographs should be protected from extended exposure to intense light sources. Limit exhibition times, control light exposure, and monitor the condition of the photographs carefully. Prolonged or permanent display of photographs is not recommended. It is important to note that a microenvironment is created when a photograph is placed in a frame for exhibition. Use unbuffered ragboard mats, and frame photographs with archivally sound materials. Use ultraviolet filtering plexiglass to help protect the photographs during light exposure. Reproduce vulnerable or unique images and display the duplicate image; in this way, the original photograph can be properly stored and preserved.

Housekeeping guidelines

An overlooked area of collection maintenance is keeping the areas where photographs are handled or stored clean and pest-free. Paper fibers, albumen, and gelatine binders are just some of the components in photographic materials that provide an attractive food source for insects and rodents. It is vital that collection areas be free of debris that might encourage pests. Food and beverages should not be allowed. Apart from the potential for attracting pests, accidental spills can irreversibly damage most photographic objects.

Handling procedures

Most damage to photographs results from poor handling. A well-organised and properly housed collection promotes respect for the photographs and appropriate care in handling. When images can be located quickly, there is less possibility of physical damage. The enclosures should be designed in relation to the intended use of the photographs, as well as their type and condition. Establish handling procedures and adhere to them whenever photographs are being used. View lessen the possibility of leaving fingerprints and soiling the materials; however, gloves may reduce the manual dexterity of the user. Support photographs carefully and hold them with both hands to avoid damage. Keep photographs covered when they are not being viewed immediately. Do not use ink pens around photographic materials. Mark enclosures with pencil only. If it is necessary to mark a photograph, write lightly with a soft lead pencil on the reverse of the image.

Disaster preparedness

Disaster preparedness begins by evaluating the storage location and the potential for damage in the event of a fire, flood, or other emergency. It is important to create a disaster preparedness plan that addresses the specific needs of the collection before a disaster occurs.
The location and manner in which photographs are housed can be the first line of defence. Identify photographic materials that are at higher risk of damage or loss. Remove all potentially damaging materials such as paper clips and poor-quality enclosures. Store negatives and prints in separate locations to increase the possibility of an image surviving a catastrophe. If a disaster occurs, stay calm. If possible, protect the collection from damage by covering it with plastic sheeting and/or removing it from the affected area. Evaluate the situation and document the damage that has occurred. Contact a conservator as soon as possible for assistance and advice on the recovery and repair of damaged materials.

Common concerns and solutions

The following problems are commonly encountered in photographic collections:

Broken, torn, or cracked photographs:
If the primary support of a photograph sustains serious damage, place it carefully in a polyester sleeve with an archival board support. If a photograph has a flaking binder layer or friable surface

treatments, such as the pastel colouring often seen on crayon enlargements, place it in a shallow box, not a polyester sleeve. Do not use pressure-sensitive adhesive tapes to repair torn photographs. Consult a photographic materials conservator to perform repairs.

Soiled photographs or negatives:
Brush soiled photographs carefully with a clean, soft brush. Proceed from the centre of the photograph outward toward the edges. Do not attempt to clean photographs with water- or solvent-based cleaners, such as window cleaner or film cleaner. Improper cleaning of photographic materials can cause serious and often irreversible damage, such as permanent staining, abrasion, alteration, or loss of binder and image.

Photographs or negatives adhered to enclosures:
High-humidity environments or direct exposure to liquids can cause photographs to adhere to frame glass or enclosure materials. This is a very difficult problem to resolve, and great care must be taken to reduce the possibility of further damage. If a photograph becomes attached to adjacent materials, consult a photographic materials conservator before attempting to remove the adhered materials.

Deteriorated negatives:
Chemical instability is a major factor in the deterioration of early film-based materials. If film-based negatives are brittle, discoloured, sticky, or appear wavy and full of air bubbles, separate the negatives from the rest of the collection and consult a photographic materials conservator. A conservator will be able to help identify these materials and make recommendations for their safe storage and/or duplication.

MOTION PICTURE FILM

Film should always be held by its edges to avoid leaving fingerprints on picture and sound areas.

All film is subject to fading, particularly integral tri-pack colour positives, such as Ektachrome®, Ansco®, or Agfa®. As with all other materials, this fading -- as well as other chemical and physical deterioration -- are impossible to stop entirely. With proper care, handling and storage, the rate of deterioration can be slowed and the usable life of a film can be extended significantly, over several decades.

For 35mm nitrate-based film, as for all other materials, the rate of deterioration depends largely on the conditions under which it is stored, how it is handled, and on the ingredients and care used in manufacturing its base. If a film is not marked as safety film, it should be considered to be nitrate until examined for nitrate markings or tested chemically.

Nitrate film should be copied onto a new base before deterioration starts. Cans of nitrate film that have remained closed for some time should be opened in unconfined, well-ventilated spaces. If gasses given off by decomposing nitrate-based film are trapped in a confined space -- such as in a sealed can -- they can ignite at temperatures above 100° F. Nitrate film is highly flammable, ignites easily, and cannot be extinguished after burning has begun.

Ideally, temperature and humidity levels for storage should be kept constant and at a maximum of 50° F/10° C and 50% RH.

Acetate film, like nitrate film, is subject to continuous decomposition, especially if kept under poor storage conditions. Eventually acetate-based film will suffer from the so-called "vinegar syndrome," derived from the strong acetic acid (like vinegar) smell the film emits as it deteriorates. One advantage acetate film has over nitrate film is that it is not truly flammable; if subjected to a flame it just smoulders.

Polyester-based film is chemically more stable than nitrate and acetate film. The emulsion layer on all film bases can shrink over time, especially on the bases of nitrate and

acetate film. Since polyester bases do not shrink as much as the emulsion layers, a concern exists that expansion and contraction of the emulsion layer on a polyester base will eventually cause it to separate from the base.

Unlike Technicolor® film prints, tri-colour pack film prints produced since the early 1950s, such as Ektachrome®, Ansco®, and Agfa® can fade in less than ten years. For optimum long-term storage of such tri-colour films, keep them at temperatures of less than 0°C and with an appropriately low level of relative humidity.

Kodachrome® , (made by Kodak after 1940), and mainly used for films sold to the home market (16mm, 8mm), has faded relatively little. Integral tri-pack reversal positive film, also used primarily in the home market, has faded far less than negative-positive film stocks used commercially since the early 1950s.

Although fading is less of a problem for black-and-white projection copies on acetate or polyester film base, deterioration can begin within little more than a decade. Storing them at the lowest humidity and temperature achievable with constant stability is recommended. At the minimum, printed copies should be kept under conditions that do not exceed 50° F and 50% RH. Ideally, they should be stored at 37° F and 20-30% RH. It may be better to store films in an insulated storage unit with its own conditioning plant. Humidity levels are often easier to maintain in a unit of this kind than in an ordinary room and it is also less expensive in terms of electricity required.

Films should always be wound evenly, and never too tightly, with the emulsion side out. Metal film storage cans or plastic boxes should be uniform in size, stored flat, and never stacked more than twelve inches high. Never put paper or any other loose material in the film storage can or box. Decomposing nitrate films and acetate films suffering from the vinegar syndrome must always be stored separately from one another and apart from other films.

Common sorts of film damage are shrinkage, brittleness, buckling, scratching, and perforation damage. Nitrate and acetate films can shrink or become brittle or both, through loss of moisture, solvents, or plasticizer. Shrinkage and brittleness can be reversed temporarily; buckling is difficult to cure. Scratches can be minimised. -

Perforations are subjected to considerable stress and are often damaged. Two or three missing perforations can be patched with a special polyester adhesive tape made for the purpose. If more than a few perforations are missing, and if the original film is shrunken, it can only be patched by cementing in an undamaged section from a film with the same shrinkage level. (These remedies, as with most restoration efforts, should only be undertaken by a trained professional).

MAGNETIC MATERIALS

The stability of recorded information in magnetic media is vulnerable to damage due to its inherent magnetic nature as well as due to various external conditions and events. Inadvertent erasure can lead to loss of vital information. Inter-layer transfer and wear can effect the usability of the media. Similarly careless handling and improper storage would damage recorded information. There should always be 2 copies of magnetic media-one storage copy and the other working copy.

TAPES:

The tape is made of polyester base to which oxides of iron and chromium are attached. Magnetisation and rearrangement of the magnetic fields borne by these oxides record a message on the tape. This message (sound or video) can be 'read' by a device in the playback machine.

Care

All tapes should be played periodically to prevent the magnetic print-through of the message from one layer to the next.

The tapes should be quite flat on the reel. No part of the tape should be twisted, bent or erased. The tapes should be tightly rewound when not in use to prevent this kind of damage.

Handling

Tapes should be touched as little as possible

Tapes should never be dropped or subjected to excessive vibrations, which can cause irreparable damage.

Storage

High humidity causes dampness to form between the layers of the tape, which encourages growth of fungi and the tape layers tend to stick together. Storage area should be properly air conditioned with a temperature of 17-20 degrees Celsius and relative humidity ranging from 35-45 per cent.

Tapes should be stored in dust proof containers. Storage area should be cleaned using a vacuum cleaner.

Tapes should be kept away from magnetic fields such as those created by high power electric motors. While in transit at least 3-inch gap should be maintained between magnetic media and external magnetic fields.

Should be shelved in the upright, vertical position and should not be stacked horizontally.

PLASTIC MATERIALS

Transparent plastics:

These are flat, transparent acetate or polyester sheets and are available in various thicknesses commonly ranging from 0.05 mm to 0.25 mm.

These sheets are used for projection with the help of Overhead Projectors. Text can be written on them with quick drying ink. These plastic sheets can be printed by photocopier, laser printers and standard printing processes.

Vinyl disk:

It is composed of a strong plastic material on which audio recordings are made. The disks are marketed in 17.8 cm (7"), 25.4 cm (10") and 30.5 cm (12") diameter size. The disk has a central hole, which films with the spindle of the turntable. The inter-table provides for 33 1/3, 45 and 78 revolutions per minute (RPM).

Care:

Plastic sheets are not generally used for any long lasting purpose. So long as the document printed or written on them are in need, the sheets are kept flat to avoid wrinkles. These are kept free from moisture to avoid sticking together. If several sheets are kept together one above the other, it is necessary that sheets of paper kept in between separate them.

On the other hand plastic material, from which disks are made, is fairly strong. The major care, which the disk will need, is to protect the grooves on it from dust and dirt, and to clean the surface, as well as the stylus of the player before using the disk each time. The pick-up stylus physically vibrates along the grooves as the disk is played. As a result, the grooves gradually wear out. This is a natural process of decay. The less number of times a disk is played, the longer it lasts. Use of worn out stylus quickens this process of decay. So the use of such stylus should be strictly avoided.

Handling:

Careful handling of disks to avoid dropping down or scratching on their surface is essential. The disks should be as level as possible on the turntable, when played.

Storage:

Bending and warping due to exposure to heat and dampness are very common. Such damage may also be caused as a result of uneven pressure on the surface.

Disks should, therefore, be stored in controlled temperature and humidity. Each individual disk should be placed in the paper sleeve, the opening of which should be against a sealed edge of a cardboard cover in which it is placed. The disks, so covered, are stored vertically, not leaning in any direction.

OPTICAL STORAGE SYSTEMS:

The disk is made of plastic material. On the plastic surface there is a spiral of pits backed by an aluminised reflective surface. A strong transparent layer of lacquer protects the surface. The recording is either an analogue or a digital version of the original. In either case the presence or shape of the pits is 'read' by a laser beam reflected from a mirror-like surface. In this process of reading there is no physical contact with the surface of the lacquer. As such no damage can occur through use of the disk.

As it appears disks are virtually indestructible. Handling them or even scratching the surface do not interfere with the quality of the recording as only the protective layer of lacquer is affected at the most. The laser beam itself focuses through this and therefore, is not affected by anything on the external surface.

But this is a new technology and it will take time to ascertain likely causes of damage. Therefore the method of proper preservation is yet to evolve.

Care and handling:

Though optical media can withstand high wear, proper storage conditions and handling is essential for their life span. The stability of optical disks are in an office environment but environmental precautions are necessary as oxidation and corrosion may destroy the protective layer and subsequently damage encoded information. The potential damage to optical disks can be minimised by carefully implementing the following points:

Optical disks require minimum climate control and can be stored in temperature between 5-50 degrees Celsius and 10-90 percent humidity.

Storage and work area should be regularly cleaned. Disk drives should be cleaned before use. If rewritable optical disks are stored, magnets should not be allowed in the storage area.

Optical disks should be kept in their plastic cartridges. Shelving must be done in a vertical, upright position. Heavy objects should not be kept on the top of optical disks.

For removing dust from the disks, soft lint-free cloth should be used and wiping must be done in a circular motion from the centre to the outer edges.

Optical disks should regularly be visually inspected for corrective action.

Optical disks containing valuable information meant for long term storage should be copied from time to time to increase their estimated life span.

All equipment used for optical disks should be in proper operating condition. Defective instruments should not be used and repaired immediately.

NOTE PAGES

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NOTE PAGES

DOCUMENTATION OF STILL IMAGES

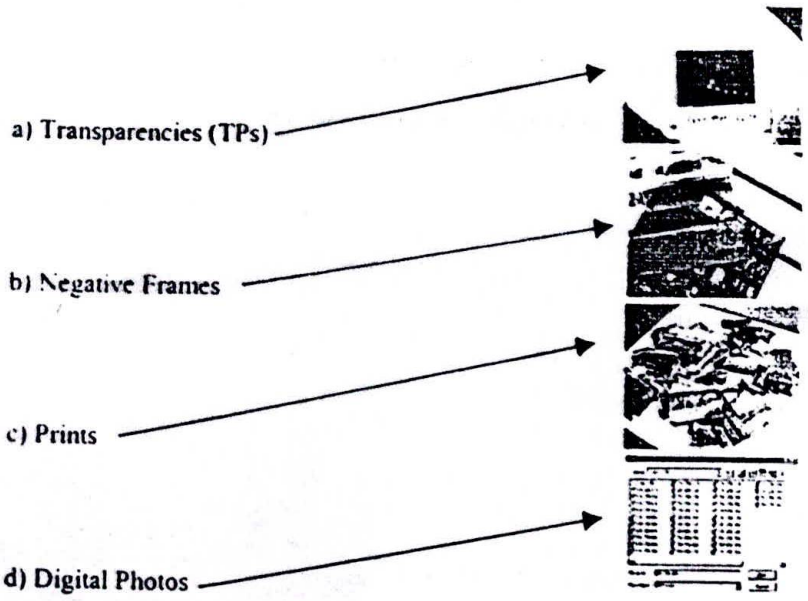
Objective: In this section you will be able to

- Know about the various kinds of still image resources
- Appreciate the different approaches to cataloguing different still image resources
- Learn to catalogue still image resources
- Create, update and maintain still image databases in FileMaker Pro (database programme)
- Understand basics of Photoshop – the photo editing software

Introduction

An Audio Visual Unit receives resources in a variety of formats such as still images, videos, posters, audio materials etc. Within each format, there are several sub formats. All these resources are required to be recorded in a fashion so that the retrieval becomes fast and accurate. This section deals with documentation of still image resources.

The four commonly received still image resources are



Cataloguing of Still Image: Different approach for different materials
For the sake of filing, retrieval, and maintenance, the transparencies, prints, negatives, digital photos are catalogued and filed in different manners. For example, TPs are filed geographically. Prints are filed subject wise. Negatives and Digital photos are filed serially.

Metadata

Metadata is data about data. In case of still image resources, it is information about an image. A still image will ideally have information on these heads and their subheads. For each kind of format, numbering scheme is different. All other things are common.

A. TYPE

1.Format

B. NUMBERS

2.Accession Number

3.Supplementary Accession No is Additional Accession Number in case of TPs / Frame Number in case of Negatives / Negative Number in case of Photographs / File name in case of Digital Photos

4.Class Number

5.CD Number (TPCD for scanned TPs, NECD for scanned Negatives, PHCD for scanned photos and DPCD for Digital Photos)

C. CREDITLINE

6. Photographer Name
7. Source Name (if photographer's name is not known)
8. Copyrights

D. DESCRIPTION OF THE PHOTOGRAPH

9. Caption
10. Keywords

E. GEOGRAPHICAL INFORMATION

11. Village / Town / District / City
12. State / Country

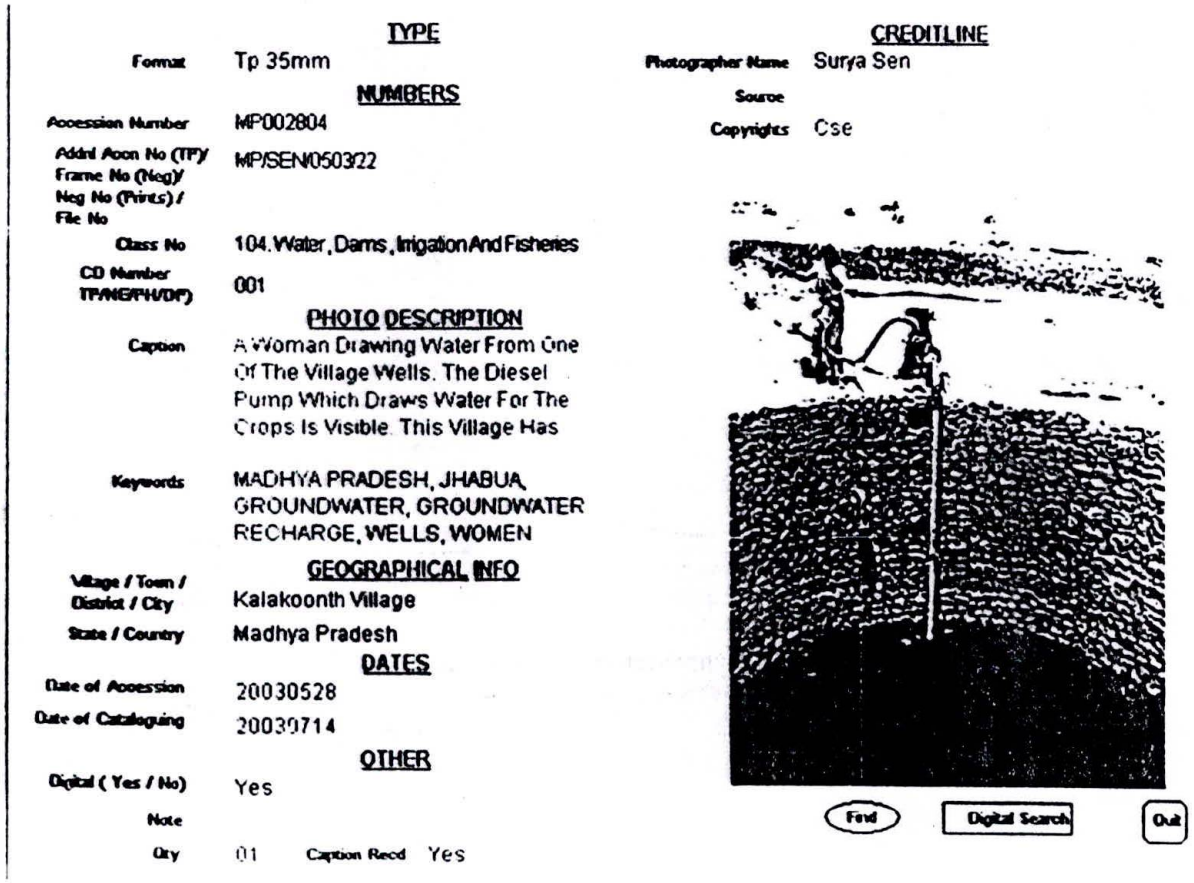
F. DATES

13. Date of Accession
14. Date of Cataloguing

G. OTHER

15. Image Preview
16. Digital (Yes / No)
17. Note

A well-catalogued photo will look as shown in the picture below



Metadata mentioned earlier are explained in detail below.

A. TYPE

1.Format – this field gives information about the physical properties of the resource. This is important as different items are classified and shelved in different ways. The format information helps in physically retrieving a still image.

B. NUMBERS

Any kind of still image resources acquired by the library needs to be recorded. Thus a record number is created for each image. CSE adopts different techniques for numbering different objects. The numbering system takes into account

- Physical properties and characteristics of the still image

This is explained with the help of a chart shown below

Resources Type / Numbering System	Accession Number	Supplementary Accession Number	Class Number	CD Number
35 MM Transparencies	**MP002804** (Place Code)	**MP/SEN/0503/227** Place Code /Photographer Code/MMYY/SNO	**104**	**TPCD#001**
Negatives	**CN1393** CN / BN (for Colour and Black and White Negative respectively)	**27A** Frame Number	**104**	**NECD#009**
Prints	**COL01089** COL / BW (for Colour and Black and White Prints respectively)	**CN1295**	**104E10**	**PHCD#001**
Digital Photos	**DIG000232**	**assam.jpg**	**104**	**DPCD#001**

However, the thumb rule for any good accessioning methodology is that, the system gives birth to an identification number, which is unique. ***The numbering scheme for different still image resources has been explained in detail as under starting with Transparencies and ending with Digital Photos.***

There are four sub-headings under this Head viz

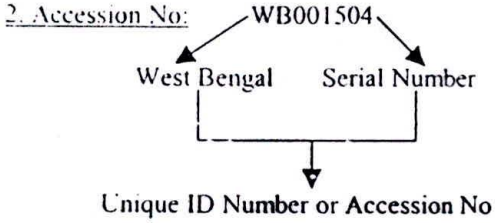
2. Accession Number
3. Supplementary Accession No is Additional Accession Number in case of **TPs / Frame**
4. Number in case of **Negatives / Negative Number in case of Photographs / File name in case of Digital Photos**
5. Class Number
6. CD Number (TPCD for scanned TPs, NECD for scanned Negatives, PHCD for scanned photos and DPCD for Digital Photos)

Each of these have been explained for all the four kinds of resources.

Numbering

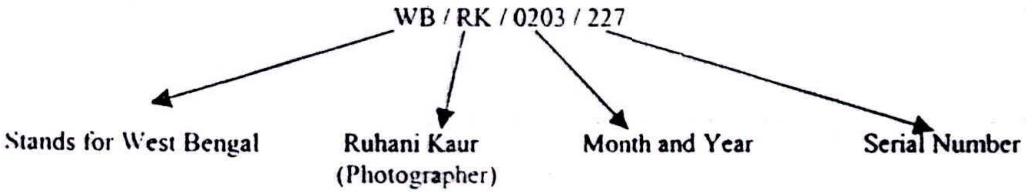
Each TP is provided a pair of unique alphanumeric accession numbers. Significance of the various components of the accession number is explained with an example

2. Accession No: WB001504
3. Supplementary Accession (Additional) No: WB/RK/0203/227
4. Class Number: 103
5. TPCD Number: 004



Thus, WB001504 is the serial number for a slide, which was shot in West Bengal. Six digits serial will give the flexibility to accommodate as many as 999999 slides from one state. The next slide acquired from West Bengal will be numbered as WB001505 and so on and so forth.

3. Supplementary Accession No: WB/RK/0203/227. This number can best understood as under



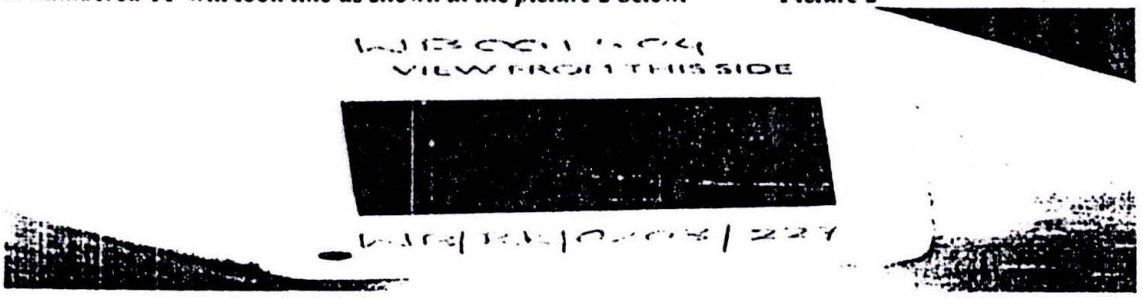
4. Class Number: 103. Each TP belong to a particular subject. Thus a class number is assigned to every TP. The Class Number helps in filing and retrieving the resources. Please refer to the Module on Classification. CSE uses the same thesaurus for classifying and keywording books and non-book materials.

5. TPCD Number: 004. Image files of Scanned TPs are maintained in CDs. This number suggests that a TP whose accession no is **WB001504** is available in soft format also in the TPCD#004.

The above slide can be summarized as under

TP having Accession No: WB001504 and Informative Accession Number WB/RK/0203/227is the 1504th slide acquired from the state of West Bengal by CSE's Audio Visual Resource Centre as on February 2003. This TP was sho. by Ruhani Kaur and it was her 227th TP taken in a particular series. This TP is scanned and its soft file is stored in TPCD#004.

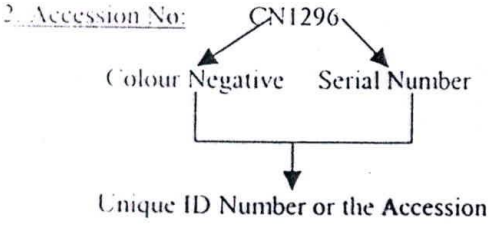
A numbered TP will look like as shown in the picture 2 below. ***Picture 2***



Numbering Negatives

Each Negative is provided unique alphanumeric accession numbers or call numbers. Significance of the various components of call number is explained with an example

2. Accession No: CN1296
3. Supplementary Accession (Frame) No: 01
4. Class Number: 109
5. NECD Number: 004



Thus, CN1296 is the serial number of a processed Colour Negative Reel.

3. Supplementary Accession (Frame) No: 01. The number 01 is the frame number printed on a particular frame in the processed negative reel. Usually this number starts with 0 and progresses like 1, 2 ...36, and E.

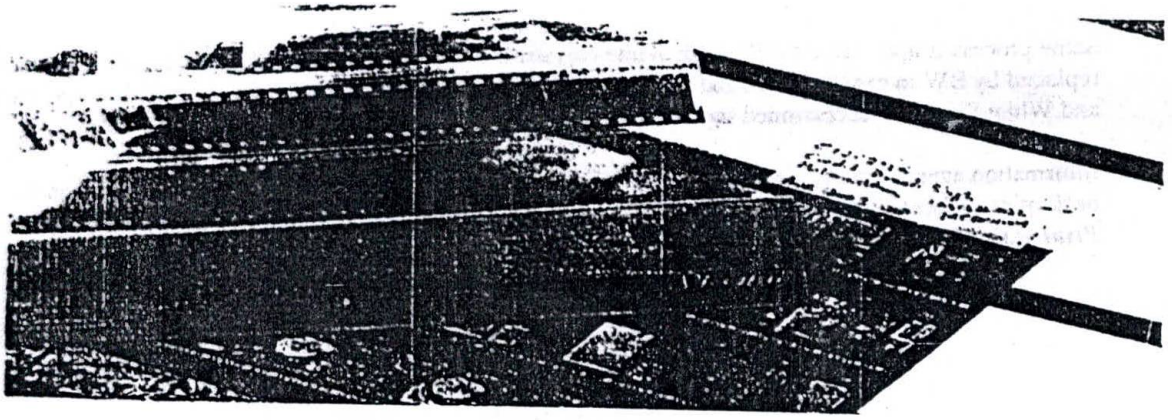
4. Class Number: 109. Each Negative Frame belong to a particular subject. Thus a class number is assigned to every TP. The Class Number helps in retrieving resources under a particular Class No. Please refer to the Module on Classification. CSE uses the same thesaurus for classifying and keywording books and non-book materials.

5. NECD Number: 004. Image files of Scanned Negatives are maintained in CDs. This number suggests that a Negative whose accession no is CN1296 and supplementary accession number (Frame No) 01 is available in soft format also in the NECD#004.

Same process is applicable for Black & White Negative. The only difference being the acronym CN which is replaced by BN in case of Black and White Negative.

Frame-by-frame information is keyed in the Negative Catalogue. Processed Negative Reels are labelled with very basic information and looks as under in Picture 3.

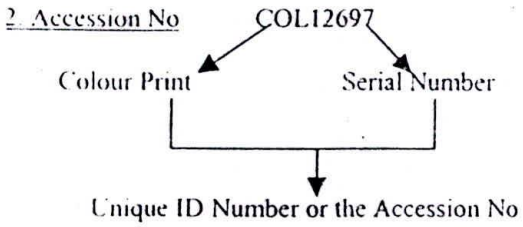
Picture 3



Numbering Prints

Each print is provided unique alphanumeric accession numbers. Significance of the various components of call number is explained with an example

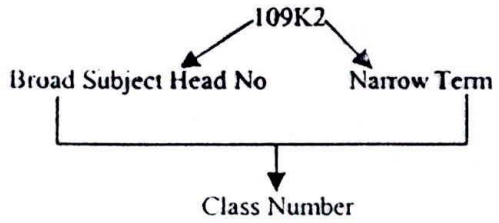
2. Accession No: COL12697
3. Supplementary Accession (Negative) No: CN1296
4. Class Number: 109K2
5. PHCD Number: 004



Thus, COL12697 is the serial number of a color print

3. Supplementary Accession (Negative) No: CN1296. The number CN1296 is the serial number of a processed Colour Negative Reel from which a print was developed whose Accession Number is COL12697.

4. Class Number: 109K2. This is explained with the help of the diagram below



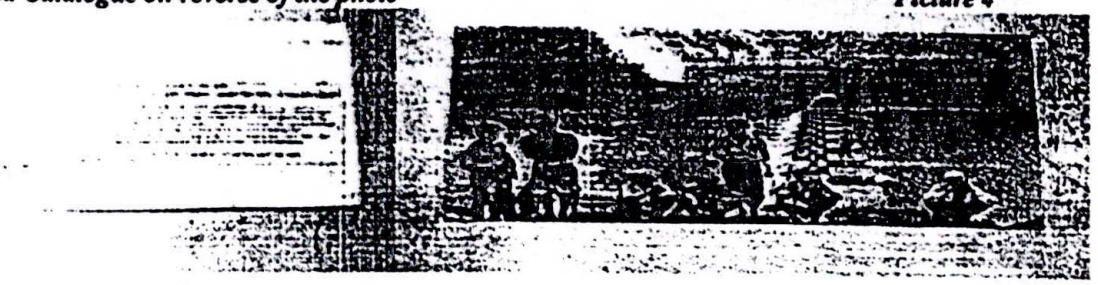
Each Print belongs to a particular subject. Thus a class number is assigned to every Print. The Class Number helps in filing and retrieving the Prints. Please refer to the Module on Classification. CSE uses the same thesaurus for classifying and keywording books and non-book materials.

5. PHCD Number: 004. Image files of Scanned Prints are maintained in CDs. This number suggests that a Print whose accession no is **COL12697** and supplementary accession number (Negative) is CN1296 is available in soft format also in the PHCD#004.

Same process is applicable for Black & White Negative. The difference being the acronym COL which is replaced by BW in case of Black and White Print. It is important to remember that both Color and Black and White Prints are accessioned separately and therefore have different series.

Information against every print is keyed in the Print Catalogue. Informative slips are also pasted on the back of every print as shown in the picture 4 below

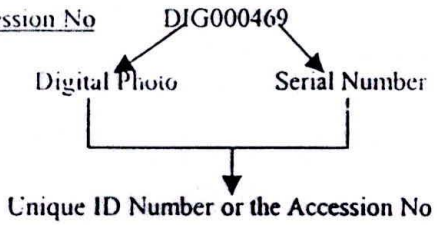
Printed Catalogue on reverse of the photo ***Picture 4***



Numbering Digital Photos

Digital Photos are the photos clicked using Digital Camera. Each Digital Photo is provided unique alphanumeric accession numbers or call numbers. Significance of the various components of the call number is explained with an example

2. Accession No: DIG000469
3. Supplementary Accession (File Name) No: MVC96.jpg
4.Class Number: 109
5. DPCD Number: 004



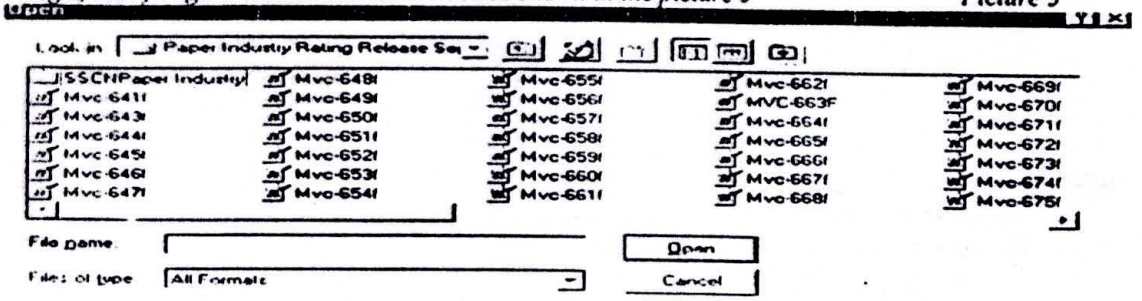
Thus. DIG000469 is the serial number of a digital photo

3. Supplementary Accession (File Name) No: MVC96.jpg The number MVC96.jpg is the name of the soft file of the image whose accession number is DIG000469.

4. Class Number: 109.
Each Digital Photo belongs to a particular subject. Thus a class number is assigned to every Digital Photo. The Class Number helps in retrieving image belonging to a particular subject head. Please refer to the Module on Classification. CSE uses the same thesaurus for classifying and keywording books and non-book materials.

5. DPCD Number: 004. Image files of Digital Photos are maintained in CDs. This number suggests that image file of the Digital Photo whose accession number is DIG000469 is stored in the DPCD#004.

Image files of Digital Photos are maintained as shown in the picture 5 **Picture 5**



C.CREDITLINE

Barring the numbering system, the cataloguing system of all kinds of still image resources are same. We now learn about the significance of the other heads and their subheads.

Creditline is very important information pertaining to pictures. Ethics demands that photographer should be acknowledged whenever and wherever his photos are used. Creditline for still images are maintained under these heads

6.Photographer Name – name of the person/ corporate body responsible for the creative content of the resources
7.Source Name (if photographer's name is not known) – Many agencies such as the UN, PIB, etc provide photographs for free. Photos received from such sources are often not accompanied with name of the photographer etc. In such cases, the source of photograph becomes crucial.
8.Copyrights – name of the person or the corporate body possessing the ownership of the still image

D. DESCRIPTION OF THE PHOTOGRAPH

9.Caption - should be small but comprehensive and should include those elements, which cannot be captured in the Keywords. For example, a man on a hospital bed dying from blood cancer. He worked for 27 years in a tannery / nuclear power plant / chemical plant etc. Captions should be obtained from the photographer in the following format. This format will help in extracting maximum possible information

Accession Number (to be provided by documentation staff)	Who (name of personality etc.)	What (name / type of monuments, structures etc.)	Where (place village to the state and country level)	Caption (detailed description of the photo)

10.Keywords - Keywords should strictly be as per the visual elements in the picture. For example it cannot be established from a picture whether a man is dying from cancer or AIDS. Therefore the keyword CANCER cannot be given. At the most HEALTH CARE can be given as the surrounding environment is of a hospital). CSE library uses the same set of keywords for print and non-print materials.

E. GEOGRAPHICAL INFORMATION

11.Village / Town / District / City – this field should give complete information about where the still image was shot. Preferably up to the village level.
12.State / Country – this field is for recording the name of the state in case of India and name of country in case of foreign countries

F. DATES

13.Date of Accession – this field should contain the date on which the still image was acquired / received by the institution
14.Date of Cataloguing – this field helps in monitoring the monthly output of a documentation staff

G. OTHER

15. Image Preview - this field contains thumbnail of the still image
16. Digital (Yes / No) – this field tells whether a digital image is available or not
17. Note – this is a field for special remarks.

Step 1. Click open FileMaker pro, go to [redacted], click new and give a file name to save

A window will open and would ask for creating and defining fields. After giving a field name, define the field type. Field types could be

1. Text – for defining all other fields except image preview, quantity and quantity total
2. Number – for quantity field
3. Date – for entering date (use field type *text* for flexibility and efficient search results)
4. Time – for entering time (not necessary, can be left out)
5. Container - for defining image preview field

Explore other features using the menu bar or advanced functionalities using the Help menu. *The front-end of the catalogue can be organised* using ***Step 2***.

Step 2. Select Mode from the menu bar and click *layout*. Select the field boxes and filed name and use the mouse or the arrow keys to adjust its position, height and width.

Each field can be assigned a value or list of values. This is explained with the help of **Step 3**.

Step 3. Select Layout from Menu bar

Step 3.1 - Select the field box for which values have to be created
Step 3.2 - Select format from the menu bar and then click on field format in the drop down menu
Step 3.3 - Click on the pop-up-list button
Step 3.4 - Click on the pop-up-list button
Step 3.5 - Also check Edit item to allow editing of value list in future
Step 3.6 - Select Define value list
Step 3.7 - Write the name of the field for which you want to create a value list and click create
Step 3.8 – Write the values in the box and then press done

After having saved the value list press Ctrl B or select mode from the menu bar and click on browse in the drop down menu

Basic Features of FileMaker Pro

1. Catalogue photos, films, contact address, inventory etc
2. Generate report
3. Data from Filemaker pro can be imported in excel programme and exported back to FileMaker pro

NOTE PAGES

N O T E P A G E S

N O T E P A G E S

N O T E P A G E S

Going Digital

The less money (and time) you have, the more important it is to plan carefully. And planning, unlike almost everything you will need to build a website, is free!

Start with measurable goals...

Every successful Web initiative out there started with very clear, measurable goals. Building a website should never be a goal. How your website fits in to your larger communications or advocacy plan is closer to a goal. But even this is not clear enough. In its broadest sense, planning a Web site is a two-part process: first you gather your development partners, analyse your needs and goals, and work through the development process outlined below to refine your plans. The second part is creating a site specification document that details what you intend to do and why, what technology and content you'll need, how long the process will take, what you will spend to do it, and how you will assess the results of your efforts.

Be clear why you want a Website
Some features of online communications, independent of technology:

Cheap
No boundaries
Reaches both Global & Targeted audience
Visitors have short attention spans. Have more control over their own experiences, and more choices.
Interactivity, multi-media: Websites aren't simply looked at - they are interacted with
Faster response time for updating information & corrections. Every minute is a new beginning on the Web
Fewer copyright issues
Potentially unlimited space
24 X 7: the Web never sleeps (unless you have an inefficient Web server host!)

Some Challenges

Lack of Trust: First build credibility

Poor Business Models

Digital Divide: Poor infrastructure

Preaching to the converted: Your message is going out to a select audience (English speaking, of a certain socio-economic class)

Website Promotion could be costly & time consuming

Your website could be put to use for...

- Membership development
- Fundraising
- Advocacy campaigns
- Getting feedback on programs and services
- Publicising an event
- Online registration for conferences
- Sharing best practices
- Updating mailing lists
- Freeform discussion and facilitated dialogue
- Managing collaborations
- Highlighting successes
- Building awareness around an issue
- Providing access to searchable databases
- Cost effective distribution of collateral (newsletters, publications, brochures, etc.)
- Marketing fee-based services
- Creating organisational photo or art galleries
- Building support through multimedia storytelling
- Addressing the needs of niche constituencies
- Enhancing media relationships
- Archiving Frequently Asked Questions
- Useful for organisational memory
- Possible recruiting tool

From Making the Net Work: http://www.makingthenetwork.org

Some guidelines to get you started...

> Unfortunately, Web projects are often approached as a "technology problem," and projects are coloured from the beginning by enthusiasms for particular Web techniques or browser plug-ins (Flash, digital media, XML, databases, etc.), not by real human or business needs. **People** are the key to successful Web projects...
>
> **Source:** http://www.webstyleguide.com

Goals: A short statement identifying two or three goals should be the foundation of your Web site design. The statement should include specific strategies around which the Web site will be designed, how long the site design, construction, and evaluation periods will be, and specific quantitative and qualitative measures of how the success of the site will be evaluated. **Building a Web site is an ongoing process, not a one-time project.** Long-term editorial management and technical maintenance must be covered in your budget and production plans for the site.

Audience: Identify the potential readers of your Web site so that you can structure the site design to meet their needs and expectations. Do you want your site to be equally inviting to the novice (in terms of the user's knowledge, background, interests, and needs) and to experts in your field? Will your users be internal to the organisation or external or both? Evaluate the type of information they'll come to your site for. It is interesting to prepare 3-4 "ideal types" of visitors, such as Will they buy? Audience demographics? How many times will they visit? Will they need to talk with you?

Design: always from users' point of view. Visit sites you like and admire. Note down what aspects of which sites you like best, and why. Were they things you did *not* like? Involve your colleagues in your discussion on 'good' design. Remember, design is far more than images and graphics. It also involves such things as the manner in which information is structured on the site. How would you like to project your organisation's image on the Web?

> All websites involve a mixture between print publishing and software development, between marketing and computing, between internal communications and external relations, and between art and technology.
>
> **Source:** Roger S. Pressman, *Software Engineering: A Practitioner's Approach* (5th ed., 2001)

Content: It's a good idea to begin with a content-audit, and then plan the look-'n-feel of your website. Otherwise, you will need to constantly worry whether the available content will 'fit' the website design. For instance, there's no point in having a 'Press release section displayed prominently on your site, when you know your organisation will have very few press releases or media announcements over the year. A content audit helps you carefully evaluate your existing content resources. Start with a little, but can you keep feeding content to your site? Who will be responsible after you build the site? How will content be routed to the person-in-charge? Also realistically assess whether other teams in the organisation would be willing to periodically supply content? There's nothing worse than a well structured, but empty website.

Budget for...

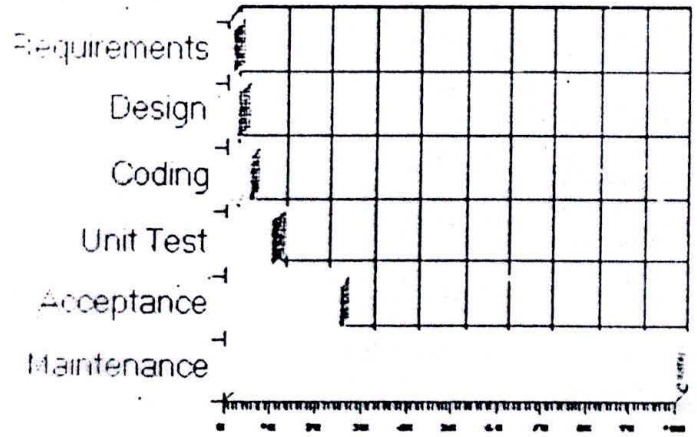
- Salaries and benefits for short and long-term development & support staff;
- Hardware and software for team members; staff training in Web use, database, Web marketing, and Web design
- Outsourcing fees: Site design and development; Technical consulting; Database development,
- Site marketing;
- Ongoing server and technical support
- Database maintenance and support

From idea to reality, a website has to go through at least **six major stages**. The requirements for each stage need to be well thought out, and each stage requires careful planning. These include: site planning (the planning process itself); information architecture (how information on the site will be 'structured'); site design (including design principles and themes, page design, layouts, and your approach to images and graphics); the actual site construction and testing process; website promotion after the site goes 'live'; and tracking, evaluation and maintenance.

Develop a user requirements specification:
The result of all your thinking and planning is a User Requirement document, which, as an information manager, is probably be the most important document you will prepare and present to your senior management and/or technical team. This planning document incorporates details on all the above considerations, plus carry a concise statement of core goals, values, and intent. As is obvious, user requirements specs require frequent revisions. This document helps define the project scope, budget, schedule, maintenance, management and technical aspects of your new website. It acts as a compass to keep you focused on your ultimate goal.

Requirement specification is...
...the orderly transformation of an end-user problem into a complete specification of the desired external behaviour of the software system to be built. It is to structure ideas into a complete, correct and unambiguous statement of requirement.

Relative cost to repair bugs resulting from defective requirements by project phase



Source: http://www.chambers.com.au/Marketing/urs_w.htm

Choosing the 'type' of site you want to construct

Static: those that use static HTML to present content. Typically, these sites do not offer any way to interact on the site (unless bolstered by some "active" elements.). Great for getting traffic through Search engines; greater design flexibility, but if a large site, a big headache to maintain.

Dynamic: sites where users not only can read but also participate or interact with the site, such as discussion boards, like Yahoo!, which provide dynamic content continuously and let users customize their Web page content, layout and colours.

Static (HTML) Vs. Dynamically-generated website

	Static	Database driven
What is it?	Content is stored in a series of individual html-based pages.	Content is stored in a database.
Is it good?	Yes for, Smaller sites (max 50 pages) Static content (i.e. does not need to be changed regularly Organisations where technical expertise is available	Yes for, Larger sites (more than 50 pages Content that needs to be changed regularly Organisations where technical expertise is limited Keeping the responsibility for content within the organisation
Is it expensive?	Set-up: cheap Maintenance: Expensive because requires expertise Hosting: cheap	Set-up: expensive Maintenance: cheap because only requires human resources for content updates. Hosting: cheap
Content sharing capability	Difficult because information is stored within html coding	Easy because information is stored in a structured database

Source: http://www.brettonwoodsproject.org/strategy

Basic requirements...

- Choose & register domain name (http://www.nic.net). Is the URL meaningful to humans? Will people remember it easily?
- Obtain Web server space (discussed in detail in next chapter, *Build, Buy or Outsource*)
- Sign up with Internet Service Provider (ISP) (discussed in detail in next chapter, *Build, Buy or Outsource*)
- Hardware requirements: Standard PC
- Software for Static Pages: HTML Editor (usually, FrontPage or DreamWeaver)
- Software for Dynamic Pages: a) For Microsoft Technologies: ASP with SQL server as backend (database); b) For Linux Technologies: PHP with MYSQL as database
- Design Software: Photoshop and Illustrator used to design and manipulate images
- Animation Software: Flash, GIF Animator
- Free Software for HTML Search: Google is widely used
- Software to track visitor activity: Web counter. Has your Web server host installed tracking software? Raw logs are provided free, but expect to pay more for more user-friendly analytics software, such as WebTrends
- FTP software to upload completed text, image, multimedia files on the Web server

Flowchart of the implementation process

Brainstorm with colleagues and prepare concept note

a) Reasons for new/enhanced website (what do you want your site to achieve? This is different from what you want your site to do
b) List the problems faced in current site (if you already have a website)
c) How will the website help? Can't the problem be fixed otherwise?
d) How will your site fit in with your overall communications strategy? For instance, will you need to integrate with e-newsletters?
e) Prepare a wish list. Visit sites you admire. Note down the features you most admire.
f) Prepare a rough content audit: Major information blocks, features, sources, content flow
g) Project how the site will serve your organisation's needs two years later (scalability)
h) Do you have the internal capacities to maintain the site? Extent of external help needed?
i) Fix website ownership responsibilities: Create incentives. Think of making it part of each staff person's workplan.
j) Write notes on your targeted audience: demographic, economic and technological profile
k) Draw a rough 'site map' that clearly shows how your site should be structured
l) Project and set rough benchmarks and targets for quality, traffic, revenues
m) Outline your site promotion plan

DOCUMENTATION: Concept note

↓

User and System Requirement Analysis (usually done by the 'techies')

a) Evaluate whether static or dynamic site needed
b) Hardware/software requirements and needs
c) Content and information management flow
d) Data integration with the existing applications
e) Final scope of the project established
f) Costing (monetary & staff time)

DOCUMENTATION: Requirement analysis, flow chart, business logic, etc.

↓

Build in-house or Outsource?

a) Assess in-house team's capabilities, prior time commitments and skill sets. Is it cheaper and less of a headache to just pay someone to build your website?
b) Build internal capacities or just leave the exercise to someone from outside?
c) How much external help is required after the site goes live?
d) If buying or outsourcing shop for vendor: cost, reputation, service contract, after sales service, documentation

↓

Design

a) Site design templates
b) Design theme (colour, typography)
c) Content packaging
d) Synergy with rest of site

Documentation: Design Brief for designer(s)

↓

Develop Testing Protocols

Develop detailed testing methodology. How you plan to benchmark quality

Documentation: Testing protocol

↓

Integration of Design + Coding

Documentation: Coding documentation and comments maintained

↓

User Testing

Documentation: Meeting notes, modifications post-testing

↓

Final Testing (together with users)

Testing entire project / site according to benchmarks and protocols established earlier. New requirements & action points noted.

Documentation: User Acceptance

The software might be complete, but consider the maintenance cost of the system. Maintenance,fixing issues, adding new features after product delivery involves significant time and cost.

Chapter 2: Going digital - Build, Buy or Outsource?

Knowing exactly what you want, and clearly assessing your audience and organisation's needs should remain uppermost in your priority, regardless of whether you choose to build an application in-house or outsource the project. This allows you to retain control over 'your' application throughout the life cycle of its development and deployment.

Q. Who is going to build the system?
Three options present themselves to an organisation going in for a new software application (such as a new website, a contact database, etc). You could opt to build the application in-house, using the expertise of your IT/Web teams; you could outsource the project development (or a part of the application) to a vendor; or you could just purchase an off-the-shelf software application that best fits your needs. Each option must carefully be evaluated. For convenience, this section treats outsourced and off-the-shelf applications as one category.

A. Outsource to vendor and / or buy an application

An organisation can define its requirements and then comparison shop to find the right tool or vendor. The advantages of this approach are numerous:

- The tool exists and already has many of the functions and features needed.
- The tool is largely tried, tested and debugged.
- Many times, the tools have more features that you could possibly use. In fact, one sometimes gets fresh ideas on how to use the application more effectively.
- With outsourcing, the vendor is regularly updating and improving the tool: after all, the tool has to be sold to other, demanding customers
- The vendor can provide training, user manuals, and ongoing support.
- Often, there is a user community around the product, which can be a resource for solving problems.
- As a last resort, your 'off-the-shelf' or outsourced application can be tailored fit your specific needs.

Some typical problems that arise when you depend upon an external company/vendor:

- Vendors and/or their companies can vanish on very short notice, so conduct a detailed background check before you sign the contract.
- Integration issues: Often, small and medium sized organisations have a several small applications developed by numerous vendors over a period of time. If you want your new, outsourced application to be well-integrated with pre-existing applications, this could be prohibitively expensive.
- Customisation: Also, if you need to customise an application to fit a pre-existing application, this often turns out to be more expensive that a newly developed, or bought off-the-shelf application
- Unclear contracts: Don't sign any contracts with the vendor before clearly understanding and negotiating the terms.
- Often, the vendor will refuse to give you the 'source code', as this ensures your dependence on that specific vendor

B. Build in-house

Many organisations have needs that can't be easily met by an existing package and therefore have little choice but to create their own. Now, one can customise an existing, available tool, the advantage being that the tool already has some basic, ready-to-use features. The principal advantage of developing your own software is that it is designed to fit your needs.

The downside is that you become solely responsible for your application. To put it even more bluntly, do you have the domain knowledge, experience and confidence required to undertake such a project? Are you ready to perform these tasks provided by a vendor:

- Delegate to yourself the role of a project manager: Carefully, and in detail, define the requirements and specifications (what you need the application to do). Schedule tasks and maintain a grip on time, budgets.

- Create the software (or hire a developer): Take the specifications and turn them into a working software with all the defined bells and whistles.

- Prepare detailed documentation: Anything from writing the user manuals to training your staff on the new software/website. Technical documentation includes such things as coding documentation that in future will help a developer to modify the system.

Other considerations:

- IT staff are very hard to retain. You could easily build an application in-house, but a high turnover in your IT department may lead to confusion and poor quality of the end product, unless you have detailed documentation and a process-driven management environment in your organisation. Does your organisation fit the bill?

- Is your IT department willing to provide ongoing support? Despite the best training, users will have questions as they encounter new wrinkles. Even the best software will have bugs and problems that will need to be resolved. Someone will need to be available to answer questions and troubleshoot issues. One option is to build yourself but outsource the needed support, but this is rare, and only a small organisation will have the gumption to adopt this approach.

	Control	Cost	Features	Reliability
Off the shelf	None	Low	Rich but fixed	High
Build in house	High	High	Flexible	Risky
Outsource	Medium	Medium	Flexible	Risky

Budgeting for your site: Two common approaches

a) Work from fixed budget, and then plan your site

b) Plan the site to a reasonable degree of detail, and approach the budgeting exercise at that point of time. It is highly advisable to create a project blueprint that will define the project scope and the technical, structural and content elements, and therefore provide a more accurate costing of the site.

..in brief: Budgeting for a website

1. Number of required features
2. Complexity of each feature
3. Single user or multi user system
4. Web server host + Internet Service Provider (ISP)
5. Type of security
6. Web hosting charges

Think of a web site as a continuing communications expense, rather than a one-time cost. Before designing your site, consider how much you are willing to spend on annual staffing and maintenance **after** the web site has been launched.

If your agency can't afford to assign a staff person to write and post new content every month, or to monitor and respond to discussion boards, try to create a site that is updated only once or twice a year.

Source: Gillian Kerr:http://www.charityvillage.com

For STATIC sites (.html), costs are based on:

a) Domain registration and server space (based on the total quantum of data to be stored on the site, plus the number of site e-mail IDs and their total storage requirements)
b) Concept and design
c) Extent of editorial work needed from vendor
d) Production and authoring (based on the total number of pages one expects to have)
e) Programming (for forms or any other common dynamic features such as searches, etc).
f) Site management plan (management of mail and form feedback; updates; statistics) and a site promotion plan – these usually become clear late in the life of the project.

For a DYNAMIC site (that require a database), besides the above, one should also budget for the following:

a) Hosting (a database will take up additional space on the Web server)
b) Database design and development (based on the complexity of the database function and design)
c) Back-end admin panel programming (based on the features which need to be built into this).

Outsourcing considerations...

Any project that you outsource will closely follow the basic planning and development stages, detailed in the previous chapter, *Planning*. It is vitally important to understand what to expect and demand from your vendor during the process of Web development.

A. Software development

User Analysis: Is the vendor capable and willing to conduct a detailed User Analysis? This should be clearly understood not only by the 'techies' in your organisation, but to the layperson. Using flow charts and diagrams, it should clearly document the flow of existing and proposed process. It should include a concise statement of core goals, values, and intent.

Site Specification: Once the user analysis is complete (and is thoroughly reviewed by all), the vendor will present you with a proposal that details the site specification. The 'site specs' will ideally include the content scope, budget, schedule, and technical aspects of the Website, including MIS reports that allow you to keep a finger on the pulse of your system. This is also the stage susceptible to **scope-creep**, which your vendor will try her best to prevent. Negotiate hard. It is always better to admit changes in project scope early in the project development cycle. At this stage, the vendor should also provide you with a detailed project timeline.

Coding: How dependant do you want your organisation to be on the vendor? How willing is the vendor to hand you the **source code** of the developed application? Also, evaluate the vendor's

past projects to figure out whether s/he is capable of **writing clear, well-documented code**. This is vitally important, as no two pieces of code written by two different programmers, even if created for performing the 'same' function, are the same. Often, even experienced programmers cannot understand the programming of a colleague! Well-documented coding allows for a smooth transition and and-over from the vendor to your own IT department, which is most likely to further develop and maintain the software.

User training and documentation: Some applications / software will require training of some kind or the other. Is the vendor prepared to conduct workshops on the use of the new software? Is there any need for a user manual?

Testing & Implementation: Ensure several sessions of user 'testing' to quickly identify and fix bugs on your system before final implementation. Ensure you are present and fully involved in the testing of your new site/software.

Site Promotion plan: Not a very good idea to outsource this component, but if you have little technical expertise in-house, then ensure you fully participate in developing your site's promotion plan and strategy.

B. The Contract

Negotiating a contract: Closely evaluate the vendor's past work, current projects in hand, market reputation, similar projects; employee strength, stability of company (you don't want to be stuck with a company that is likely to pack up and leave at short notice), and level of support they're prepared to offer.

Before you sign on the dotted line...

Essentials of a Vendor contract

- Features list with detail specifications (+ MIS reports)
- Hardware and Software requirements
- Estimated cost of Web development
- Implementation at client side and smooth, error-free system
- User training
- Data import and export, if any, from the existing system
- Interface with other system if required
- Time line for the project with clear deliverable for each stage
- Penal clauses: Can be mutually agreed upon
- Privacy, Indemnity and copyright clauses (important for mailing lists)
- Annual maintenance contract (AMC): Post-upload support normally includes:
  a) Upgrades: Software vendor keep modifying there software to perform better and if you have signed an AMC with them these revised version are given under the AMC price
  b) Hardware maintenance
  c) Data backups, Security

Q. Who is going to host the solution?

Once the 'website' or application is ready, it needs to be 'hosted' on the internet. You have to find a "web hosting company" who will put your site on the internet so that users around the world can get access to it. A typical small NGO should expect to pay an annual charge of between $US50-100 to host a website.

Finding the right host

Base your choice of a vendor to 'host' your site on a Web server on three parameters: Cost, reliability and features.

Costs: will depend upon whether you go in for a dedicated or **shared server**. Prices range from as low as US $2/month for a shared server.

Shared servers are much cheaper than dedicated servers. Most small to medium organisations in both the corporate world and NGOs have their websites and other Internet tools on shared servers.

Costs for your Web server also depend on the amount and frequency of server maintenance (such as proving frequent updates, security patches, configuring anti-spam software on your mail management system, other updates, etc).

Ask how much of the following is your host offering you...

- Amount of disk space
- Number of mailboxes
- What types and number of pre-configured databases
- Content Management Systems (CMS)
- Scripts (such as shopping cart, guest books, mail forms, etc)
- Other pre-packaged software (photogalleries, bulletin boards/forums, chatrooms, etc)
- Data security & backups
- Web analysis software to help you monitor your website
- Mailing list software
- Are these features easily available through a user-friendly Control Panel?
- How much control is the host willing to give you to manage your 'share' of the Web server? Will your host give you access to raw logs?

A **dedicated** server is considerably more expensive, but is your own. Some basic server management tasks (setting up new mailboxes, setting up a mailing list, etc) are controlled through a simple Web interface, which even your organisation's Webmaster can easily handled. However, only opt for a dedicated, **unmanaged server** if you have internal tech capacities for server maintenance and management. You could also choose a dedicated, fully managed server at an approximate cost of US $300/month.

Reliability: Closely evaluate the reliability of your host. Demand testimonials from existing customers. Check how many other sites are already hosted on the server. If at all possible, ask for downtime/uptime summaries for the past month (most fly-by-night hosts don't maintain such stats). If the targeted audience is primarily based in your own country, then it's best to host with a local (physically located in your country). But this will certainly be more expensive than a US-based server. The principal advantage of a local host is of ready and cheap support.

N O T E P A G E S

NOTE PAGES

N O T E P A G E S

NOTE PAGES

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Managing the Web – The Essential Webmaster Skills

This chapter explores the diverse roles of a webmaster while managing the Internet presence of a small organisation or an NGO.

Wearing different hats

A webmaster is a person responsible for designing, developing, marketing, or maintaining Web site(s). Also called a system administrator, the author of a site, or the Web site administrator, a webmaster is typically a generalist, adept at the art of Web communication. A good webmaster is capable of overseeing, managing all aspects of Web operations -- from coordinating planning, coding, production, and user interface, in addition to content.

> "All websites involve a mixture between print publishing and software development, between marketing and computing, between internal communications and external relations, and between art and technology".
>
> Source: Roger S. Pressman, Software Engineering: A Practitioner's Approach (5th ed., 2001)

As larger websites necessarily need a larger team, the webmaster's role transforms to that of a site manager or online producer, leading a team comprising web developers, designers, programmers, usability experts, among others.

Ideally, a webmaster must also be marketing-savvy, selling products and/or services online. Increasingly, the role encompasses the role of an information architect, where web site navigation, appearance and usability are also part of the new job description. Being the 'public' face of the organisation, the webmaster's ole also includes reading and responding to user feedback and complaints about site functionality. We will begin by discussing each role in greater detail.

The Web is a passive medium. So, while a simpler medium, such as e-mail almost makes certain that -- if you follow good email practices – one reaches one's potential audience, there's no guarantee that potential visitors will take notice, and have the interest or time to visit *your* website, one out of millions other, competing websites.

The webmaster's job is therefore particularly challenging. They have to constantly innovate to make their websites more popular. Fortunately, there is considerable help available, extended by search engines (which most people use to 'find' information on the Internet). Much time is spent in optimising web pages for search engines.

Generally, webmasters have to put in the effort to attract visitors to their site, keep them there for long (site 'stickiness'), make the experience useful, hassle-free and memorable, and in turn use the opportunity to make money, get publicity or build lasting relationships with visitors. To accomplish this, webmasters serve up content in various formats (podcasts, RSS feeds, video files, etc.), provide a forum for people to discuss things (by making their website more interactive and encourage feedback), and attempt to make visitors recommend their sites to others (email article, recommend site, etc.). It is in the Webmasters' job description to make it easy for visitors to do things with web content (Print, email, customise homepage, bookmark page, etc.). Webmasters also seek to leave a lasting imprint on their visitors' memory (make visitors sign up for services, e-newsletters, which periodically remind them of their association with the website).

The primary job of the webmaster is to make the organisation's Web initiatives *more visible* – to human visitors, and, perhaps more importantly, to search engine spiders. This chapter will begin by discussing techniques Webmasters use to attract search engine 'spiders' (automated software programmes) that 'crawl' websites to gather, store and index information on a host of parameters, and 'serve up' relevant content to those using search engines.

1. Understanding how search engines work

Most visitors (more than 70 per cent, according to some estimates) rely on search engines to find information on the Internet. In a highly competitive and rapidly evolving technical environment, Webmasters have to constantly keep themselves updated on search engine technology and how it can be harnessed to increase the visibility and 'rank' of their web pages. This section introduces search engines and explains how they each work.

1.1 Search engine 'types'

The term "search engine" is often used generically to describe both crawler-based search engines and human-powered directories.

Crawler-based search engines

Crawler-based search engines use computer programs ("spider") to browse through the entire Internet, read pages, and automatically 'index' (categorise) the content into large, distributed, online, searchable databases. Google, for instance, creates its listings automatically. Therefore, webmasters use 'on-page optimisation techniques' to make web pages more friendly to search engine crawlers. These techniques include tweaking the 'hidden' text in the meta tags of the code (such as the words written in page titles, body copy and other elements) to make the Web page more searchable.

Human-powered directories

A human-powered directory, such as the Open Directory (www.dmoz.org), depends on humans for its listings. Webmasters submit a short description of the site to the directory. Editors employed by the search engines then categorise the site in appropriate categories. The site description needs to therefore be convincing and clear enough for the search editors to appropriately index the site. Making optimisation changes to a Web page has no effect on your listing.

"Hybrid search engines"

In the web's early days, search engines either presented crawler-based results or human-powered listings. Today, it is more common for both types of results to be presented. For example, MSN Search will first present human-powered listings from LookSmart, but also present crawler-based results as provided by Inktomi.

1.2 Parts of a search engine

Spidering and creating a search index: A spider is a computer program that browses the Web to discover and to store Web page contents. Spiders find Web pages by following the clickable text links on known Web pages.

Spiders "crawl" or analyse the words on a page and the meta-data in the code that produces the page. The information retrieved is stored in a database called the "search index" or "search catalogue," which typically contains several billion Web pages. Sometimes it can take a while for new pages or changes that the spider finds to be added to the index. Until a Web page is indexed (added to the index), it is not available to those searching with the search engine.

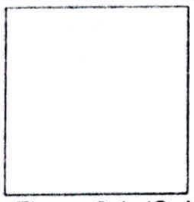


Figure 8.1: **'Spiders' bring back information about Web pages**

Search indices/directories also maintain a separate "paid index" or "paid catalogue" of Web pages. Website owners pay for inclusion in this database to ensure that their pages are always considered by the search index. Paying for inclusion prioritises the spider's tasks to frequently crawl the paid index, typically daily.

Generating search results: Search engines, the sites used to find content based on keyword phrases, make requests to the search indices for results. When a result set is requested, the search index evaluates the content in the Web index and the paid index.

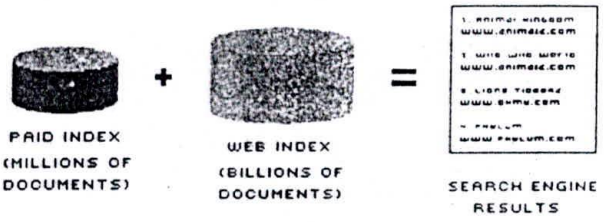


Figure 8.2: How search engines display the results

The search result set returned to the search engine is a blend of the paid and the web index, ordered based on a complex algorithm. The algorithm does not favour paid listings over unpaid listings.

Box: **How search engines 'rank' pages**
Search queries are 'matched' and ranked, so that the most 'relevant' appear first. Of course, the search engines don't always get it right - non-relevant pages also make it through.
As WebCrawler founder Brian Pinkerton puts it, "Imagine walking up to a librarian and saying, 'travel.' They're going to look at you with a blank face." OK -- a librarian's not really going to stare at you with a vacant expression. Instead, they're going to ask you questions to better understand what you are looking for.

Unfortunately, search engines don't have the ability to ask a few questions to focus your search, as a librarian can. They also can't rely on judgment and past experience to rank Web pages, in the way humans can. So, how do crawler-based search engines go about determining relevancy, when confronted with hundreds of millions of Web pages to sort through? They follow a set of **very** closely guarded secrets, known as an algorithm. However, here are some general rules:

Location, location, location...and frequency of keywords on a Web page: Pages with the search terms appearing in the HTML title tag, and keywords that appear near the top of the Web page are often assumed to be more relevant. A search engine will also analyse how often keywords appear in relation to other words in a Web page; those with a higher frequency are often deemed more relevant than other Web pages.

Off-the-page factors
Link analysis: By analyzing how pages link to each other, a search engine can both determine what a page is about and whether that page is deemed to be "important".
Clickthrough measurement: A search engine may watch what results someone selects for a particular search, and give a higher rank to the pages that are attracting more clicks.
Spice in the recipe: Just like cooks like to add their own secret ingredients, in the same way, search engines add spice to the location/frequency method - nobody does it exactly the same way.

Source: http://searchenginewatch.com

1.3 **Understanding how different search engines rank Web pages**

Google

Google maintains its own spider-based index. Google basically ranks Web pages according to its link popularity technology, with particular emphasis on keyword-content match and link popularity. Google's Web 'crawler' (also called 'spider', a software that 'crawls' the Internet to discover searchable Web pages) only views the visible text on your page; META descriptions and keywords have little influence on Google's rankings. Google looks at the link interconnectedness among pages. If other pages don't link to your website, you will get a poor ranking. Google has quoted in the past "Basically, Google's position is that we prefer no hidden links, no hidden text, no automatic tools used for positioning, and no cloaking. We prefer that Googlebot get the exact same page that users see." It takes 3-6 weeks for your site to be listed in the index after submission.

YAHOO! search

Besides a crawler-based search, Yahoo also maintains its own independent "directory" of web sites, which are compiled by its human editors. Yahoo has two submission options: "Standard," which is free, and "Yahoo Express," which involves a submission fee (approx. US $299). How do you submit to Yahoo? Click on the "Suggest a Site" link that appears at the top right-hand corner of category page. That will bring up a submission form. Fill it out, and you're done.

Yahoo also has **crawlers** that will list your site on their own. Yahoo is important because it 'powers' the results of several other search services (such as Inktomi). As with Google, building links is the best way to get listed for free. Yahoo's crawler incorporates technology from three different crawlers that it purchased in 2002 and 2003: Inktomi (formerly 'powered search for Lycos, Rediff, Hotbot and MSN), AltaVista and FAST's AllTheWeb.

Box: **Jargon buster...**
Search Engine Submission: getting listed
"Search engine submission" refers to the act of getting your web site listed with search engines. Does not automatically ensure a higher rank.

Search Optimisation: Improving the odds
"Search engine optimisation" refers to the act of altering your site so that it may rank well for particular terms, especially with crawler-based search engines.
Source: http://searchenginewatch.com

Submitting to the Open Directory: The Open Directory is a volunteer-built guide to the Web, and is provided as an option at many major search engines, including Google. Being listed with the Open Directory is essential to any site owner, and submission is absolutely free, but may take several weeks for a site to be indexed. To submit, locate the category you want to be listed in. Then use the "add URL" link that appears at the top of the category page. Fill out the form, and that's it -- you've submitted.

Box: **Tips to get listed in directory-based search**

25-word (max.) description of your website. Include 2-3 key terms. Don't guess. Research and include only your 'target keywords'. Do not make use of marketing language. "Just the facts":
Purchase athletic shoes, running shoes, hiking boots and other footwear plus try our cross country trail finder.
NOT
World's LARGEST online shoe store with the best prices from the greatest brands!!!!
Source: Danny Sullivan: http://searchenginewatch.com

Ask Jeeves

Teoma is an important crawler-based search engine because it powers the main of the results that appear at the popular Ask Jeeves web site. In fact, Ask Jeeves owns Teoma. Teoma has no free Add URL page, but if you have links pointing at your web site, you may be indexed.

1.4 Search engine submission: Best practices

Avoid spamming search engines: Search Engine spamming is seriously injurious to the health of your website. If such practices are detected, search engines will penalise or ban your page from their listings. The content of most Web pages ought to be enough for search engines to determine relevancy.

It's silly for Webmasters to repeat keywords for no reason other than to try and "beat" other Web pages. Webmasters that adopt search engine spamming techniques degrade the value of search engine listings.

Submit only key pages: Search engines are not perfect. They may miss indexing your complete site. So it's a good idea to submit the top two or three pages. Don't trust the submission process to automated programs and services. Major search engines are too important. There aren't that many, so submit manually. Also, don't bother submitting more than the top two or three pages. It doesn't speed up the process. Submitting alternative pages is only insurance. Be patient. It can take up to a month to two months for your "non-submitted" pages to appear in a search engine.

Verify and maintain your listing: Check on your pages and ensure they get listed. Monitor your listing every week or two. Strange things happen. Pages disappear from catalogues. Links go screwy. Watch for trouble, and resubmit if you spot it. Resubmit your site any time you make significant changes.

Box: **Some free search engine submission sites**

http://www.dmoz.org (Largest free directory listing on the Web)
http://www.opendirectory.org/s?k=submissions&m=t (good starting point)
http://www.pcdigest.net/free_web_service/en/subhand.shtml
http://www.afterzed.com/submitfree/
http://www.submitplus.com/freeprograms.php?b=top10
http://wsabstract.com/webresource/search.htm
http://www.addpro.com/search_engine_registration.htm
http://www.nowsell.com/web-marketing-directory/ free-search-engine-submition.html
http://www.evrsoft.com/fastsubmit/myezsubmit.cgi
http://www.nowsell.com/web-marketing-directory/free-search-engine-submition.html

2. Optimising page visibility

This section discusses what, precisely, Webmasters do to make their Web pages more attractive to search engine spiders. Also included are tips on good and bad optimisation practices, search stumbling blocks and off-page website promotion techniques used by webmasters the world over.

We've already learnt that visitors aren't the only ones to read Web pages; search engine spiders (or crawlers) do so too. Web writers need to ensure that the pages are inviting for search engines. This is achieved by search engine optimisation.

"There are no search engine optimisation secrets – just ranking and promotion methodologies to follow in order to beat your competition in obtaining a high ranking for desired search keywords."
Source: Bruce Clay, SEO guru

Why optimisation is important: Research has shown that an overwhelming majority of all Web traffic is generated through a search engine. A search often turns up thousands or even millions of matching Web pages. In many cases, only the 10 most 'relevant' matches are displayed on the first page. How many times have *you* ever gone

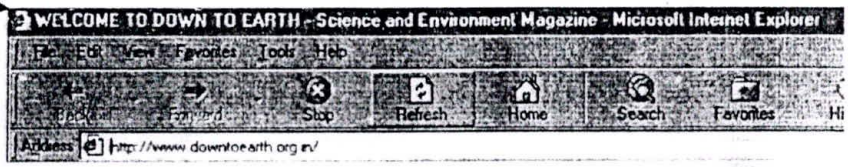
beyond the first search page results of a Google search? Naturally, you would want to be in that top 10 list.

What optimisation aims at: The objective of search engine optimisation is to increase visitor counts by ranking high in the search results (of Google, etc). 'Ranking' refers to the position on the results page of a search engine on a given search term (or keyword). An important way to achieve this through the use of Meta tags.

2.1 **Understanding Meta tags**

Meta tags are parts of an HTML document that are used to describe the page content for search engines. Meta tags are placed within the 'head' area of an HTML file. There are several types of Meta tags, but three seem most important: title tag, description and keywords tags. Except for the title tag, visitors do not see the rest.

2.1.1 The title tag:
The title tag describes a Web page to search engines and plays a crucial role in how search engines rank and list the Website.



Most major search engines use the title tag in some way and many use it to compose the headline in their listing. The title tag is also used as the text to describe your page when someone adds it to his or her favourites list and it displays in the title bar of their browser, so, it is important to make it clear and descriptive.

Tips for writing a good title: A title should be between 6-12 words and no more than 63 'characters'. This is important also because the title should remain meaningful even when the window is 'minimised' on the desktop. Include 'primary keywords'. Ideally, keyword density in a title tag should be 20-35 per cent. (If the title is six words long and a keyword is used twice, then the density is 33 per cent.) Make certain that the title accurately describes the Website or page. *Bottomline*: Write an interesting title that contains at least a few keywords

2.1.2 The description tag: The description tag includes a short description of the page. Google, however, ignores the description in its site rankings. Yahoo, AltaVista, AllTheWeb, Teoma, etc do consider the description in their rankings. Site descriptions are important for Directory-based searches.

> "You can never go wrong by using meta tags, and only hurt yourself if you don't use them."
> Source: http://www.bruceclay.com

Writing a good site description:

- Limit the total description to about 200 to 250 characters. Although some search engines may support more when indexing the page, they may only display a smaller number of description words.
- Use at least one of your keywords at the beginning of the description.
- Include 12 to 24 words (and not exceeding the character limit), which is a safe display limit for most search engines.

Box: **Choose the right (key)words...**
Why use keywords that nobody uses in searches? Research shows that 31 per cent people search for two-word phrases, 25 per cent use three-word phrases and only 19 per cent try searching with a single word query. Why? Because people want relevant results. This is a good enough reason to ensure your keywords are **specific** and **targeted**.

Some tips:
- Make a list of as many keyword combinations for your site. This list could be up to 100 keywords or more.
- Do a pre-test to find out how many people are searching using the various combinations.
- Then rank the words according to the numbers.
- To select top keywords, cross words off your list that are not highly relevant to your content.
- Cross words off your list that are too broad or general.
- Cross words off your list that are too saturated with competing listings.
- From the words left on your list, select the ones that have higher numbers of people using them in searches.

2.1.3 The keyword tag: The Meta keyword tag is a list of the keywords – words that visitors may use while searching for the information contained in the Web page.

Of the major search engines, Inktomi and Teoma take this tag into consideration while ranking pages. Most others also match the keyword tags to the words on the page to ascertain their relevance.

Tips to writing a good keyword tag:
- List the primary keywords that pertain to the page.
- Put the most important words at the beginning of the tag.
- If you don't use your keywords within the viewable text of the page, then just adding them to the Meta keywords tag is unlikely to help with rankings. Also, list alternative spellings and common misspellings as part of Meta keyword tag. It is not clear whether this helps or not, but it won't hurt.
- This tag shouldn't be used to "stuff" or repeat keywords. This doesn't help and could hurt with some search engines.
- Each page in your web site should have different keywords that reflect the page's content.
- The last keyword should be the site identification taken from the URL. Be sure that this string appears as visible content to avoid being branded as spam (It can be placed along with 'mail to' button at the bottom of the page).
- Experts also suggest that the optimal number of keywords should be between seven and 48 words (about 900 characters). This is the most acceptable figure for all search engines.

Box: **Meta tags in order of importance**
- Title Tag
- Meta Description
- Meta Keyword Tag
- Heading Tags <h1> to <h6>

Box: **Quality of content still rules...**

Writing good Meta tags is only a small part of optimising Web pages for higher ranking. There are many pages in search engine indices that rank high without having Meta tags at all. There's no better way to achieve higher search rankings than having relevant content, and having the appropriate keywords dispersed throughout the 'visible' part of your Web page. A good strategy is to use three keywords per page and then use those words in the title, Meta tags and in the viewable text on the page.

2.1.5 Other meta tags: There are many other Meta tags besides the ones mentioned above. Most of them, however, do not impact search engine ranking. Some are for internal searches and some (such as the revisit tag) have no effect on search engines. In fact, meta tags like the "refresh" tag have been used to "trick" search engine spiders and are now regarded as redundant.

2.1.4 Alternative (ALT) tags

The Web was built to share and enable access to all. Search engine optimisation practices should therefore allow all people, regardless of physical or technological readiness, to have *equal* access to information on the Internet.

Guidelines issued by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C) make an effort to allow physically challenged users to have equal access the Internet. All professionally designed websites are expected to meet at least the minimum WAI accessibility standards. The W3C website <http://www.w3.org/WAI> has extensive information and details on how to make your site reasonably accessible to blind, deaf, or other challenged users.

Box: **More about ALT tags**

ALT tags are HTML tags that provide alternative text when non-textual elements, like pictures and images, cannot be displayed. ALT Tags are commonly omitted from Web pages. Yet, if properly used, ALT tags can be quite useful. They:

- describe an image or the destination of a hyperlinked image
- enable people with various disabilities to know what the graphic, image or video is about. (Specially designed software can 'read out' the message in the ALT tag to the visually challenged)
- provide information to people with non-graphics browsers
- assist in navigation when a graphics-intensive site is being viewed over a slow connection, enabling visitors to decide if they want to wait for the image to download

Writing ALT tags

- Describe the image's contents, not its form
- For images, try to be brief. Charts and graphs may need to be slightly more descriptive
- Use verbs to describe action in pictures

If you provide information in any medium besides plain text, you should always provide an alternative.

ALT tags use the Web and HTML's ability to provide 'alternative' text descriptions to help users without graphics capabilities understand the function and role of graphics on your pages. This is of special significance to the visually challenged, users with text-only browsers or those who browse the Net with their image display turned off.

Alt tags should be used for all non-text elements, including images, graphical representations of text (symbols), image map regions, animations (e.g. animated GIFs), applets and programmatic objects, frames, scripts, images used as list bullets, spacers, graphical buttons, stand-alone audio files, and audio/video tracks.

Box: **Other accessibility guidelines**

- Always check your page designs on typically sized display screens (800 x 600 pixels) to be sure that all major navigation and content areas fit well within the horizontal area of the screen. Usually that will limit your page layouts to no more than 760 pixels in width.
- Use blank ALT statements (ALT="") to hide irrelevant graphics or spacer graphics from text-only browsers.
- Do not produce websites that depend on one browser technology or browser plug-in ("*This site is optimised for Internet Explorer 5.5 and Macromedia Flash 5*").

2.1.5 Validate code: Markup Validation allow webmasters to check whether the page code is syntactically correct, as per the W3C standards (a standard set of protocols and rules set up by the World Wide Web Consortium to ensure standardisation of Web pages on the Internet) Validity is only one quality criteria for a Web page; there are many others. In other words, a valid Web page is not necessarily a good web page, but an invalid Web page has little chance of being a good web page.

3. **'Link' for visibility**

3.1 External links: All major search engines use 'link analysis' as part of their ranking procedure. The folks who design search engines know that although webmasters fake keywords, it's not easy for them to 'fake' good links. Link analysis therefore gives search engines a useful means of accurately determining the rank of the most relevant pages. Keep in mind that link analysis is not about popularity.

> Popularity is good. Popularity with well-respected sites is better. If that site has a lot of quality sites linking to it and it links to you, you get a lot of points. A link from Microsoft.com would be worth more than a hundred links from uselesssites.com. But make sure that there is a similarity between the contents of your site and the site you are linking to (or the one that is linking to you).

Finding good links can be really simple: All you need to do is run a search for your keywords on a couple of good search engines. Look at the pages that appear in the top results. Now, for the difficult part: Visit those pages and ask the site owners if they will link to you! Some webmasters will agree to a link exchange.

3.2 Include HTML links on your page: Often, designers create only image map links (you need to click on an image) from the homepage to the inside pages. A search engine that can't follow these links won't be able to get 'inside' the site. Unfortunately, the most descriptive, relevant pages are often the inside pages, and not the homepage. Always add some HTML hyperlinks from the homepage to major inside pages or sections of your website. Ideally, they should be put at the bottom of the page.

3.3 Site map with text links is crucial: Consider making a site map page with text links to everything on your website. You can submit this page, which will help search engines locate pages within your website.

> **"Google Sitemaps"** allows webmasters to provide information on pages they'd like to have included in Google's search index. Webmasters create simple XML files containing the URLs they want crawled, along with optional hints about the URLs such as things like when the page last changed, and the rate of change. They host the Sitemap on their server and tell Google where it is. Google provides an open-source tool called Sitemap Generator to assist in this process. Feeds also let site owners indicate how often pages change or should be revisited.

3.4 Internal links: Be sure that your website has pages that link internally to other pages. Search engines usually follow these links to find more information on your website.

3.5 Style sheets: Website content can be made more accessible by the use of Cascading Style Sheets (CSS). With CSS-styled pages, users can easily apply personalised formatting to Web documents. This is of special significance to people who are colour blind. A page designed using red text against a green background, for example, presents a problem for users with red-green colour blindness: the contrast between text and background may not be great enough for the text to be distinguishable. If the colours are set via a style sheet, users can set their browser preferences to override your settings to apply their own style sheet to the page instead.

4. **Avoid search engine stumbling blocks**

> "It is not the job of SEO to make pigs fly.
> Its job is to genetically re-engineer the Website so that it becomes an eagle."
> **Source:** http://www.bruceclay.com

4.1 Pictures and graphics: Unlike humans, search engines can't see pictures. So, while pictures and graphics may prettify a website, such eye candy is not visible to search engines. That's why you need HTML text on your page. Sometimes sites present large sections of copy using graphics. Search engines can't read these either. That means they miss out on text that might make your site more relevant. To be safe, use HTML text whenever possible. If you absolutely have to use large pictures, ensure you include appropriate descriptions of the images in the ALT tags (discussed below).

4.2 Frames: Major search engines cannot follow frame links. Make sure you provide an alternative method for search engines to enter and index your site. Hint: Providing a detailed site map in HTML.

4.3 Tables: Tables can push your text further down the page, making keywords less relevant to search engines because they appear lower on the page. This is because tables break apart when search engines read them. There's no easy way around this, except to simplify the table structure.

4.4 JavaScript: Large sections of JavaScript can also have the same effect as tables. Search engines read this information first, which causes the normal HTML text to appear lower on the page. So, if you have to use JavaScript, place it down on the page, whenever possible.

4.5 Dynamic pages: If you are generating pages via a database, it is possible that some search engines won't be able to index them. Ensure that your Web designers stick to static pages whenever possible, perhaps using the database to update the pages, not to generate them 'on the fly'. Also, avoid symbols in your URLs, especially the ? (question mark) symbol. Search engines tend to choke on it.

5. Poor search engine optimisation practices

There are different opinions about what constitutes bad search engine optimisation practices: "spam" and "cloaking" seem to be the leaders. Essentially, these are underhand techniques used to fool search engines so that the pages get a high ranking. Over the years, a majority of search engines have devised ways to identify these unfair techniques and have started to penalise offenders.

> "For too long, many SEO practitioners were involved in an **'arms race'**, inventing more and more devious technology to trick the search engines. With the aggressive anti-spam programs now emerging, the news is out – if you want to get rankings for your clients you have to play well within the rules. And those rules are absolutely "no tricks allowed". Simply put, work on honest relevancy and win. All others will fade away."
>
> – Bruce Clay

5.1 Transparent, hidden, misleading, and inconspicuous links: The use of any fully transparent image for a link, the use of hidden links, any link to a graphic without words or symbols that can be interpreted of a link are recognized as 'spam' and may lead to the removal of a Web page from a search engine index.

5.2 Invisible keywords: Some designers try to spam search engines by repeating keywords in a tiny font or in the same colour at the background colour to make the text invisible to browsers. Search engines are catching up on these tricks.

5.3 'Machine generated' pages: There are certain programs that create pages with minimal or no content. The sole purpose of such pages is to get a user to click to another page. Those Webmasters who are not adept to HTML, DHTML or CSS tricks may try simpler techniques like this one. This is often an attempt to stretch a minimal amount of content across thousands of pages. The pages are built with templates and the sentences within them are basically shuffled from one page to the next. Also, unique title tags are plugged into each page that is generated. This technique basically sees the same page repeated hundreds, or thousands of times. It can even be done using a computer program that systematically stuffs the text sentences, paragraphs and headings, including keywords, into pages. This technique is most often used with e-commerce sites that have a limited range of products for sale.

5.4 Cloaking: This is a very deceptive process that involves delivering one version of a page to the visitor and another version to a search engine. Unless the stated objective for doing this is to facilitate the delivery customised content based upon visitor/search engine identification

processes, the technology is considered bad. Although not all engines can detect cloaked sites, and some may choose to allow it, cloaked sites are considered spam in most cases. Google has stated that they have a tool that can detect such pages and is removing cloaked sites from their index where deception is involved.

Table: **Essential checklist for search engine optimisation operation**

To perform every 2-4 weeks	*Done?*
Added new keywords related to newly-added content? Deleted irrelevant keywords?	
Proofreading ALL meta tags: Spelling, punctuation + all keywords in upper-lower case	
Are your 'target' keywords also used in the upper, more visible portion of your page?	
Deleted repeated keywords from the meta keyword list?	
Checked and added keywords from competitor sites?	
Is the last keyword in the list the URL site identification?	
Ensured plural forms + common misspellings of keywords, plus their variants (forest and forests; sustainability as well as sustainable development)?	
Checked *title* to ensure that 4-5 *currently* most important keywords are there?	
Added links to other popular and relevant sites *from* your site?	
Submitted newly added Web pages to the major search engines? [initially, submit all]	
All mouseovers enabled?	
Do all images and relevant copy include ALT tags?	
Included an accurate site description in the meta tag?	

6. Off-page website promotion

Tweaking code on their Web pages is only one activity webmasters use to make their content more visible. Webmasters (and here they wear the marketing hat), have to make serious efforts at marketing and promoting their websites (off-page promotion techniques). This section discusses some useful 'off-page' strategies.

If you build it, they will come...But will they?

6.1 Reciprocal links: These are one of the most common and most effective forms of website promotion. The type of promotion operates on 'you link to my site, I'll link to yours and we'll both get an increase in traffic' principle. But beware of linking to www.useless.com sites. The first rule of improving your off-page optimisation is to have a great site. The simple point is that good sites attract more links, which boosts their link popularity. Such sites also have the edge with search engines that use click popularity to determine page rank (after all, users are likely to spend more time on a good site than on a bad one.).

6.2 Become a content 'destination' site: A good way to attract visitors is to become a 'destination' site. The Web is littered with millions of 'trafficator' sites, with hundreds of links pointing in and out to other, related (many times, unrelated) sites. Have content that entices people not only to visit, but to stay on your site.

6.3 Meet a 'typical' visitor's needs: The overwhelming majority of people are actively looking for specific information or a specific service. The word 'jobs' is probably the most searched term on the Web (after the word sex). Even a simple listing of jobs (preferably in a related sector), or volunteering opportunities attracts a huge volume of traffic. One good way to ensure this is to include perspectives, opinion pieces, and other in-depth content, such as downloadable research papers, .pdf files, etc. Remember also that your content needs to serve the needs of your visitors; don't expect people to come to your site to learn about you.

6.4 Drive traffic through e-mails and e-newsletters (*See chapter on Email, below*)

6.5 Organisation's collateral: One good way to promote your site is to make sure your URL gets listed on your organisation's visiting cards, letterheads, press releases, e-mail signatures, bills and statements; product packaging, and all other promotional materials. It's even better to provide specific URLs (or of sub-sites) for specific campaigns. CSE's Jal Swaraj Campaign (campaign for participatory water management) members carry the rainwaterharvesting.org site's URL on their promotional and other collateral.

6.6 Deploy RSS: An RSS (Really Simple Syndication) feed is a great way to attract more traffic. It's also an easy way to distribute your news. RSS is (in a lightweight XML format) designed for sharing headlines and other Web content. Think of it as a distributable "What's New" for your site. Have your web developer configure this feature on your website.

6.7 Website awards: Guess who's really winning? Website awards are a bit like trophies from sport events - one would easily believe that they have no actual purpose and are just designed to look good and to make the owner proud of him or herself. Website awards actually benefit the person giving out awards - there's very little in it for the one winning the award. The person 'winning' the award is given a small graphic to paste on his/her site. This graphic is linked to the award-giving site, helping it boost its own link popularity (and therefore boost its search rankings too). In fact, it's a good idea to start giving out your own awards! Just make sure the award is targeted at similar sites.

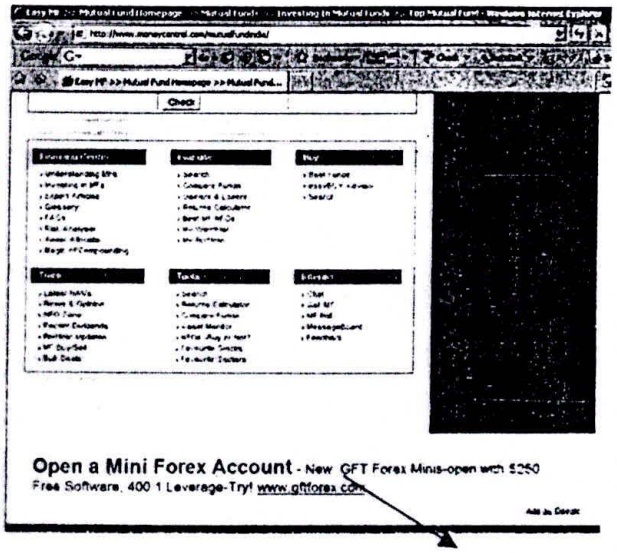
6.8 Using newsgroups and e-groups: The first thing you must do is find newsgroups that are about the same topic as your site. One can also search for newsgroups using keywords. Make a note of the newsgroups that seem to closely match the topic of your site. You can then post a message informing members of the group about your site. Be warned: not all groups like promotional materials plastered to all members. The moderator may disallow such postings. It's always good to ask.

Box: **More on banner ads**

- Banner ads aren't about cool design or fancy graphics
- Including the words 'click here' improves click through ratio
- Use large text, short copy and clear instructions in your banners

6.9 Newsletter articles: Having newsletters publish your articles is a great way to promote your site. It's important to write only about the topic of your website – or areas closely related to it. You should also be careful about selecting the newsletters for which you want to write – it should not be too far removed from the topic of your website. Do not forget to request the editor of the newsletter to mention your websites along with your byline (a journalistic jargon for your name!).

6.10 Banner ads: Banner ads used to be a very popular form of advertising till the late 1990s. Most users today tend to ignore the blinking animations or merely give them a glance. But used properly, they still retain the power to attract a few users. Plus, banner ads on heavy traffic sites tend to be expensive.



6.11 Participate in Google's suite of advertising tools: In particular, Two Google tools are in particular, interesting options for webmasters seeking to ride the popularity boom of the world's leading search engine. The first, *AdWords*, allows webmasters to display their site's ads on Google. When people search on Google using any of the keywords (words used in the text of their ad), the ad appears next to the Google search results. Interestingly, webmasters pay only if people click their ads. The other, AdSense lets web publishers display relevant ads (someone else's) on their site's content pages, and even earn money. Google will display only those ads which match the content of the host site.

Figure: Google's AdSense will match the site's content and select the most appropriate ad to display. The Ad's placement is decided by the webmaster or site publisher.

7. Tips to monitor website visitors

Perhaps the most important role Webmasters play is in keeping tabs on their audience, monitoring and keeping track of their behaviour. Monitoring visitors provides helpful insights to formulate an organisation's communication strategy. Formally called Web analytics, this section will familiarise you with the strategies, terms and tips on some useful behaviours and patterns to monitor also find an extremely useful glossary at the end of the chapter.

7.1 Monitoring user behaviour: The Web is perhaps the most accountable of all media. One can track virtually everything. Even 'raw server 'log data' provided by your host contains a wealth of information. What is the impact of your website? Remember, the goal is conversion: how many visitors could you sell things to; how many could you convince to download data from your site?

Box: **Monitor to distribute Web ownership...**
As information managers, you may have found it difficult to convince and enthuse your colleagues in other departments to take the website seriously, here is a clear winner – Simply presenting your colleagues with real time Web activity data is a great way to convince them to take "their" site more seriously.

It is possible to precisely monitor visitor behaviour on your website: How many visitors visited which part of your site, how many visits did each on average make, How did they reach your website; how long did they stay on which page. Other parameters, such as which are your site's most popular & unpopular pages; how many downloaded data and other information from your Website.

7.2 Introducing Web analytics: Broadly, the craft of monitoring visitor and server behaviour is called 'Web Analytics". Web analytics allow you to move from a trial and error approach to trial, measure and improve approach. This has been elevated to a form of science metrics – much money and **reams** of marketing strategy relies upon how you report and log visitor activity on your website. Web analytics is particularly powerful when combined with other MIS reporting, such as the quantity and quality of feedback from your Web-based forms and your e-commerce data.

For each use a website is deployed, there are specific needs to be met. For advocacy sites, it is to increase lead-generation, measure research paper downloads, newsletter opt-ins, how many

people have signed up for your online petitions, etc. For content sites, it's readership and time spent on the site. In the case of e-commerce sites, it is to increase sales, decrease expenses, and improve "conversion rates" (how many people could you 'convert' from a visitor to a buyer?).

It has long been said that you cannot manage what you cannot measure. Nowhere is this more true than on the Web. But to make data into useful information, it is important to start with clearly defined and measurable objectives. What will you do with the information? What kind of action will I take based on this information?

Box: Why monitor? Because accurate information = great strategy
It is very important to statistically track visitors to your website. Web tracking software provides a wealth of information about website visitors that can help you improve your Web content, navigational structure and "stickiness", or how much time are your visitors spending on your site or Web page.

A good hit tracker provides answers to the following types of questions:
- From which countries did my website visitors come from?
- Which search engine did they use to find my site?
- Which words or phrases did they search on?
- Which sites and URLs are sending me traffic?
- How did my visitors navigate through my site?
- Which of my pages are the most and least popular?

Broadly, webmasters monitor traffic-related (visitors' behaviour) or server performance-related (technical) aspects on their websites.

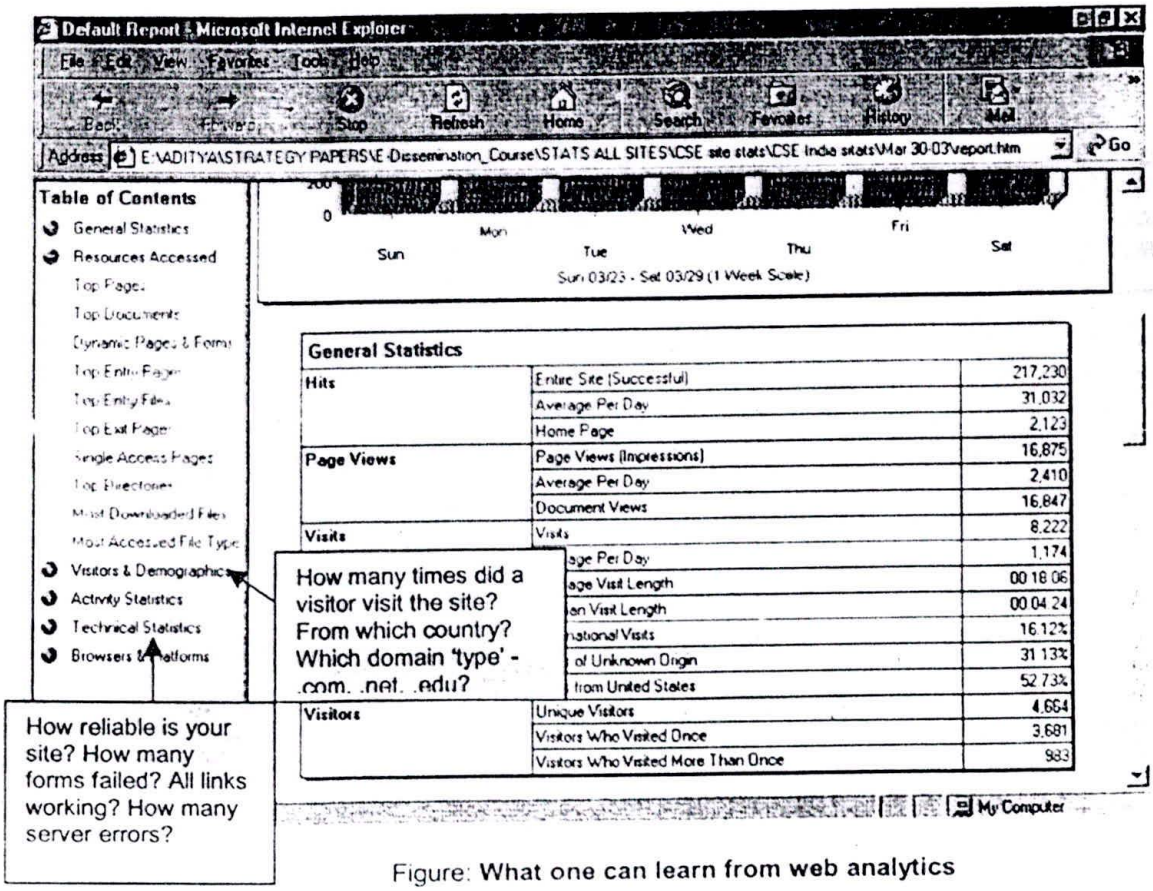


Figure: What one can learn from web analytics

It is important to use the information to refine your meta tags and develop strategies that will improve your site's visibility in the major search engines. In the next section, we will explain simple strategies and essentials of getting more visibility for your site.

7.3 Essential Glossary

Page Views: Any document, dynamic page, or form. Documents typically include all static content, such as complete html pages. Supporting graphics and other non-page files are not counted.

Visits: these are all requests made by a specific user to the site during a set period of time. The visit is ended if a set period of time (say 30 minutes) goes by with no further accesses. Users are identified by cookies, username or hostnames/IP addresses

Average Visit Length: Average of non-zero length visits in the log. Average view times can help determine which content is most important to your visitors.

Number of Visits/Day: a) Visitors who visited once: Number of individual visitors who appear only once in the log file. Individuals can be tracked by IP addresses, domain names, and cookies. Cookies provide the most accurate count; b) Visitors who visited more than once: Number of individual visitors who appear more than once in the log file.

Multi Visits (Also termed 'Visitors by Number of Visits'): Number of unique individuals who came to your site the amount of times specified. This page shows the distribution of visitors based on how many times each visitor visited your site.

Top 5 Pages: This identifies the most popular Web pages on your site, shows you how often they were viewed, and displays the average length of time the page was viewed.

Top 3 Entry Pages: This page identifies the first page viewed when a visitor visits your site. The most common entry page is usually the homepage, but other common entry pages include specific URLs that go directly to a particular page. This information can help you optimize the pages where your visitors are entering. It can also help you determine which external links are most effective. Consider updating meta-tags/links.

Top 3 Exit Pages: This page identifies the last page visitors viewed before leaving your site. Denotes visitors' satisfaction with their visits. Visitors may have left after viewing a specific page because they found what they were looking for, lost interest, determined the content didn't apply to them, or for many other reasons. If your top exit page is your homepage, this may indicate that you are alienating a lot of first-time visitors.

Top 3 Single Access Pages: This page identifies the pages on your Web site that visitors open, then exit from, without viewing any other page.

7.4 E-Newsletter analytics: What to measure: Webmasters seek to also harness the power of email-based communication, the easiest and perhaps the most familiar of all internet media. Although email-based communication merits its own discussion (*see chapter on Email, later in this manual*) this section will broadly provide some parameters that information managers could use to track the effectiveness of their organisation's email-based communication.

- **Landing page views**: Number of newsletter subscribers who click a link in the newsletter to read an article on your website
- **New subscribers** to newsletter, measured per mailing cycle

- **Total number of Unsubscribes** per mailing
- **Deliverability rate** (hard bounce vs. soft bounce).
- Which part of the organisation's campaign/area is receiving the most feedback
- **Number of 'opens'** & CTR (Click-Through-Rate): Only possible in HTML-based mails.
- Comments and **feedback from people not on your list** (shows your newsletter is being circulated)
- **Rough correlations** between sending out e-newsletter and increase in sales, amount of feedback received

Box: **Cleaning house: Webmaster's regular maintenance tasks**

- Regularly check for errors on the site (check whether all forms are working)
- Regularly check for common Internet Protocol error codes (404s, 400s & 500)
- Regularly take backups of all web content
- Adjust server settings
- Ensure all links are in working order: Tools such as the Link checker allows webmasters to easily check for broken links and 'missing' pages in their websites.
- Regularly Generate Google sitemaps
- Folder structure of entire site
- Renewal: Domain registration & maintenance + DNS stuff
- Compliance with W3 standards

NOTE PAGES

N O T E P A G E S

N O T E P A G E S

N O T E P A G E S

Basics of a Digital Library

Objective: This module will help you to -

- Understand the concept and purpose of a digital library
- Differentiate it with the traditional library and understand its advantages over it.
- List key components of digital library
- Understand the process: Content creation and data management.
- Understand myths/challenges and the approach to be taken for digitization
- Identify the limitations/problem areas and be aware of strategies to overcome them.

Introduction and Background

The term "Digital Library" has a variety of potential meanings, ranging from a digitized collection of material that one might find in a traditional library through to the collection of all digital information along with the services that make that information useful to all possible users.

A digital library has material stored in a computer system in a form that allows it to be manipulated (for instance, for improved retrieval) and delivered (for instance, as a sound file for playing on a computer) in ways that the conventional version of the material cannot be.

The **digital library** is

1. Collection of services,
2. Collection of information objects,
3. Supporting users with information objects,
4. Organization and presentation of those objects,
5. Available directly or indirectly, and
6. Electronic/digital availability,

The collection of services

A digital library is much more than just the collection of material in its repositories. It provides a variety of services to all of its users (both humans and machines, and producers, managers, and consumers of information).

The collection of information objects

The basis for a digital library, however, must be the information objects that provides the content-print and electronic.

Supporting users deal with information objects

The goal of the digital library is to assist users by satisfying their needs and requirements for management, access, storage, and manipulation of the variety of information stored in the library.

- Documents, such as articles, preprints, working papers, technical reports, conference papers
- Books
- Theses
- Data sets
- Computer programs
- Visualizations, simulations, and other models
- Multimedia publications
- Administrative records

Users may be"end" users (those not involved in the management and operation of the library but rather are the customers), library operators, and information "producers" who want their material available through the library.

The organization and presentation of those objects

The key to effective collections management is to structure it in a way that the users can understand easily and use.

Available directly or indirectly

These information objects may be digital objects or they may be in other media (e.g. paper) but represented in the library via digital means (e.g. metadata).

Electronic/digital availability

Although the objects may not be electronic, and may not be available directly over the network, they must be represented electronically in some manner through, e.g., metadata or catalogs. Otherwise, we would not consider the objects to be part of the *digital* library.

Digital library therefore is a combination of

- Services
- An architecture
- A set of information resources, databases of text, numbers, graphics, sound, video, etc.
- A set of tools and capabilities to locate, retrieve and utilize the information resources available (Borgman, 2000)

Can we call an automated library as a digital library?

An automated library is not, per se, a digital library as a library consisting entirely of conventional physical material (such as only printed books) may be very highly automated. This automation does not make it "digital" in the sense we are considering here.

However, it is true that a digital library must be automated in some of its essential functions. Because the material is in digital (or computer readable) form, some new possibilities are opened to the digital library that are not there for a conventional library, even one with the same material.

An example: the material delivery process can be very different from the removal of a book from a shelf and checking it out. Because the "book" in digitized form can be copied to a user's computer for reading, but still remain in the computer "stacks," it can immediately be "loaned" to another user. Ownership, rights management, and commercial considerations become much more complex in this environment.

Objectives of a Digital Library

1. To expedite the systematic development of the means to collect, store, and organise information and knowledge in digital form. To convert the existing print documents into digital form with the help of information technology.
2. To promote the economical and efficient delivery of information to all sectors of the society.
3. To encourage cooperative efforts which leverage the considerable investment into research resources, computing and communications Network
4. To strengthen communication and collaboration between and among the research, business, government, and educational communities

Digital face of traditional libraries

Digital library includes both digital collection and traditional fixed media collection, so they encompass both electronic and paper materials. Digital libraries also include digital material that exists outside the physical and administrative bounds of any one digital library. Digital libraries will also include all the processes and services that are the backbone and nervous system of libraries. However, such traditional processes, though forming the basic digital library work, will have to be revised and enhanced to accommodate the differences between new digital media and traditional fixed media.

Is a library consisting of digital collections a digital library in true sense?

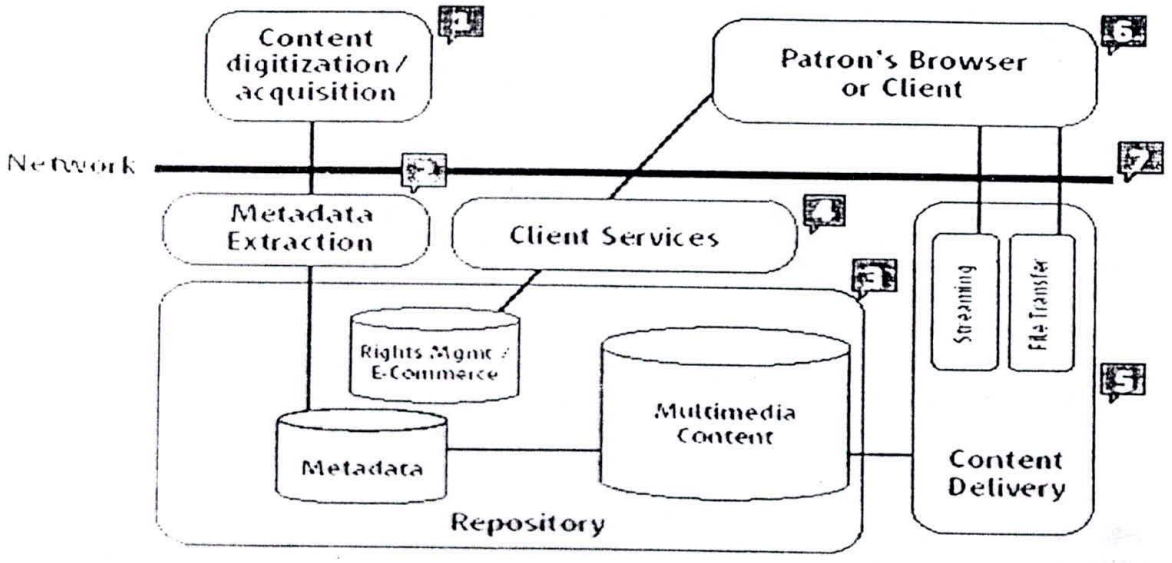
Digital collections are "raw content," while "digital libraries [are] the systems that make digital collections come alive, make it usefully accessible, useful for accomplishing work, and connect them with communities."

The collections gain value only when these are surrounded by a matrix of content and interpretation that makes them useful. Therefore it should be ascertained that we develop digital libraries, not just digital collections.

Care should be taken to surround collections with appropriate metadata supplying context and interpretation, to develop synergy.

Three general characteristics of the digital library of the future are:

- A comprehensive collection of resources important for Scholarship, teaching, and learning;
- Readily accessible to all types of users
- Managed and maintained by professionals



Creation of Digital Libraries

Step I: Building Digital Collections

There are essentially three methods of building digital collection.

1.Acquisition of original digital works created by publishers, Institutions and other scholars like electronic books, electronic Journals and data set.

2.Access to external materials not held .in house by providing pointers to web sites, other collections or publishers' services.

3.Digitisation - converting paper and other media in existing collection to digital form.

Digital resources for a digital library can be categorised under following categories: **Legacy, Transition, Born digital.**

Legacy resources are largely non-digital resources including manuscripts, prints, slides, maps, audio and video recordings. Attempts are being made to digitise these resources.

Transition resources are primarily designed for another medium (mostly print). These are being or have been digitised, making the transition into the digital world..

Born digital/New digital resources are either deliberately created as digital or are created in parallel to print. Publishers are increasingly moving to XML or SGML format. This includes electronic journals, electronic books, etc. **Ref:** The web for publishers and list of E-journals and books.

Some of the important points to be considered in developing a digital library are:

- Acquisition of Digital collections (of various forms and types)
- Conversion of existing print material into digital format: options for conversion
- Archival of digital collections and storage media
- Integrated access

The following in-house resources can be selected for the digital library.

1 . Internal reports and theses, which require no copyright from the publisher/author.

2. Research papers published/presented by Organisations at various forums.

3. Proceedings of the conferences/seminars/symposia/workshops/ tutorials conducted by the Organisation.Invited lectures delivered by eminent speakers.

4. Policies and plan documents.

5. Photographs shot and films produced by the organisation.

The four important steps involved in the process of digitisation are- scanning, indexing, storage and retrieval.

Scanning and capturing the essential components of the original material in digital form is the heart of the process of setting up a digital library. The creation of digital information from conventional is generally a two-stage process.
The first stage is digitization. This is essentially the conversion of the physical medium into a digital representation of that physical medium.

The **second stage** of the digitisation process is to have the computer extract information from the digitized image. For text this is done by Optical Character Recognition (OCR) software that recognizes the shapes of the letters of the alphabet and produces a file exactly the same as one produced by a word processor used to type in the same text. This stage allows some of the information from the original page to be made available to the computer. Thus, it is now able to index the text for retrieval and is also able to reformat the text for different forms of output.

1.3 Tools of Digitisation

The important machines and tools needed for digitisation include.

- Computer
- Scanners and scanning software
- Storage system Network
- Display system

a. Computers
There are two components to any modern distributed client/server system;

- the server and
- the clients.

Clients are the machines that reside on the user's desks. The library's system can contain a recommended minimum level of equipment (and software) for the user to correctly and efficiently interact with the digital library.
Servers
The server(s) for the digital library are pieces of hardware where the library has control. The number and power of the servers needed must be addressed for each installation.

Tip: Servers are basically specialized into three classes:

- Database servers with large high speed disks and very fast local communications.
- Applications servers with fast processors.
- Communications servers with fast communications peripherals.

They are usually adaptations of the same basic range of machines with specialist equipment and larger capacities added. This means a good basic platform can be utilized for all three classes. If the basic platform server is scalable then each of the specialist ones will be and the library will be able to grow in the areas where it needs to.

Since digital libraries do require large amounts of storage whatever their content, it is a good idea to pay particular attention to the storage solution. Particularly important is the future flexibility of the subsystem. This creates the data as an independent resource, which can be accessed (with permission) from any system.

Scanners are used to transfer an existing paper image or document into a digital format after which the scanned documents will be manipulated using an imaging software program.

Type of Scanners

- Flatbed scanner
- Slide scanner
- Microfilm scanner
- Drum scanner
- Sheet fed scanner
- Digital camera

Scanner Software

There are two types of software that you will need for most digital imaging jobs.

- Scanning software that comes with the scanner.
- Image editing software, normally applied to the image after it has been scanned.

Optical Character Recognition (OCR) Software

Once the text has been scanned it needs to be run through the OCR program to convert it to a machine-readable encoded form. It allows to scan printed, typewritten or hand written text (numeral, letters or symbols) and/or convert scanned image to a computer readable format, either in the form of a plain text or a word document or an excel spread sheet, which can be used or reused in other documents. **(Tip: See tips on indexing also to decide what and what not to OCR)**

OCR: Its Limitations

1. The problem is that the quoted conversion rates of "better than 95%" is just not true. Proof reading is must for this stage of the work. That is why specialist conversion services exist.

2. Once the OCR has been run then the text exists in machine-readable form and can be indexed by a digital library system and used for retrieval (free text search only). If the OCRed material is not proofread, the spelling mistakes get into the index. This leads to confusion for the users.

3. Obtaining OCR programs for our regional languages is being tested upon. Organisations like Centre for Development of Advanced Computing (CDAC) Noida have realised this and are working on this.

What to Capture?

Consider Content Capture from a normal printed book or report.

It has both text and images: Ask the following

Are both of these important? Is it worthwhile capturing both of them? Is it worth capturing them separately or would a simple image of the whole of a page suffice?

Having decided what to capture it must be decided at what level and how completely. Perhaps the index contains meaningful words and phrases, which would be useful for subject retrieval, whereas the contents page does not. Possibly the contents page is captured as an image only and the index are converted to text. Of course a mixture of the two or broad categorization (such as "scan indexes only from text books") is also possible.

The designs for the workflow ultimately depend on factors such as:

How the material will be searched for (full text vs. indices and cataloging), How the material will be used (read and transcribed vs. cut and pasted), The functionality of the software (capturing text is of no use without full text searching), The system capacities available (disk space, processing power, network capacity), staff and the time available

Since all the efforts of your capture will end up as computer files it is worth spending a little time on thinking about files names.

1. Name the files by material type and give them some form of sequential number.
2. It makes sense to adopt a simple classification and coding scheme to keep file names.

2.2 Indexing

Once the text is all nicely cleaned up then it is a relatively Straightforward process to feed the text files into a database. The database may then store it for retrieval or it may just index them for searching. The indexing program needs some decisions to be made before starting such as:

- Which areas (or components) of the document are to be indexed
- How are they recognized
- If so how many and where do the elements come from

But note: This decision will ultimately depend on the capabilities of the library system or information retrieval system being used as well as the characteristics desired for the eventual digital library catalogue.

TIP:

1. Refer section on Information Organisation to know more about Indexing and its significance.

2. Refer to the Master Keywords List (or The Thesaurus)

2.3 Management of digital collections- Storage and retrieval

Digital Library software

A digital library management system is required to set up to store and retrieve digital collections. functional digital library. This system may be procured from the market. A range of freewares (Open Access Digital Library Management System) also exists for managing digital collections.

Open source digital library software derives its strength from several enabling technology and metadata based inter operability protocols, which have become available recently. Examples of some of these are as follows-

1. Green stone digital library software (GSDL)
2. E-prints
3. DSpace from MIT
4. Site search (OCLC): www.sitesearch.oclc.org
5. PEARS (OCLC): www.oclc.org/research/software/pears
6. Open source software for online journals and conference publishing (e.g. OJS system from the public Knowledge Project, University of British Columbia, Canada)
7. Fedora – Developed by Cornell University & University of Virginia

Organisation of the digital collections for storage and effective retrieval.

As we organise the print collections through classification numbers, publishers, keywords, period, title, author, etc, digital collections also need to be similarly organized in the repository.

TIP:

1. Refer to the section on Information organisation for tips on HOW TO CLASSIFY and ORGANISE INFORMATION
2. Refer to the section on Information Orgnisation for tips on HOW TO KEYWORD an information material.

Use of International standards in a digital library management system

It is strongly recommended to ensure that every digital collection is described as per the international norms or in other words the metadata approach is adopted.

> **Metadata** means data about data. It is a description of object, documents, or services, which may contain data about their form and content. This is to improve the possibilities of document retrieval, and to support control and management of collections. Another concept is that it is a machine understandable information for the Web.'

The **Dublin Core metadata standard** is a simple yet effective element set for describing a wide range of networked resources. The Dublin Core standard comprises fifteen elements, the semantics of which have been established through consensus by an international, cross-disciplinary group of professionals from librarianship, computer science, text encoding, the museum community, and other related fields of scholarship.

Digital Library: Myths and the challenges

Creating effective digital libraries poses serious challenges. An increasingly complex technological, social, legal, and economic environment defines many boundaries within which "digital library" services will evolve. It is worthwhile at this stage to examine some myths and the significant challenges to "digital library" development.

Internet is the place to find an answer in 3 days for a query that would take 3 hours in a library.

Myth 1: The Internet is the digital library.
A global information network, of which the Internet is the seed, has the illusion of promising fingertip access to the world's information. Many would call World wide web, with huge collection of documents a "digital library" because they can read and use whatever they wish by accessing the Web, just as one can use technology to do banking in a "digital bank" or buy compact discs in a "digital record store".

But locating information on the Internet remains highly inefficient compared to traditional library sources, **especially for unfamiliar users**. Finding information is difficult, the quality of the information is quite variable, and reliable, professional assistance for the confused and lost is lacking. (Ref: Section on Internet for information sourcing)

There remains much work to be done before the Internet will have the coherence and user-friendliness of a library.

Myth 2: The myth of a single digital library or one-window view of digital library collections.
One can get electronic access to a library without walls where information is accessible anywhere and anytime. [Negro 95]. Digital collections and services will be strongly affected by future copyright and licensing regimes, as well as prohibitive costs for digitization and support of technical infrastructure. "Prime" information resources will probably be locked into proprietary collections essentially "private digital libraries" which are accessible on a subscription or pay-per use basis. Developing interoperability standards for locating and retrieving information in this highly distributed and heterogeneous environment will be a considerable challenge in their own right.

Myth 3: Digital libraries will provide more equitable access, anywhere, any time.
It is assumed that a global computer network, the Internet or some descendant, will be the primary delivery mechanism for digital information. Limits of network bandwidth and slow transmission speeds may make the effective access to

information problematic for many users. The technologies on the desktop, between computers, and for storing and processing information are dynamic variables. What is certain is that the management of technology for digital libraries is becoming more complex as is the administration of licenses and user access. The impact upon equitable access could be considerable.

Myth 4: Digital libraries will be cheaper than print libraries.
A common assumption about digital library is that it is very cheaper to set up and maintain digital libraries. This is far from established in fact or in practice. the costs of "being digital" are substantive ones. Digital libraries need to invest in hardware and software infrastructure. These expenses will increase, new hardware will be required, more licenses to software, increased infrastructure administration and training. Those institutions that aspire to the development of digital collections and services can expect all of the above plus extensive design, digitization, and implementation costs. So that question that all of us need to ask is how many libraries can afford the effort? And at what cost to the valuable existing services they perform?

Some challenges

Resource discovery: Quality of information retrieved from large heterogeneous databases may be lost in a flood of irrelevant results. Librarians organize knowledge through the processes of subject analysis and cataloguing, creating information about information, or what is known as "metadata". A major challenge exists to develop methods of consistently and uniquely identifying and retrieving networked information, no matter what format they are or where they reside. **Metadata standards** are still in their infancy. It has been found that given the complexity of metadata issues, a solution to the global resource discovery problem remains distant.

Usability of the digital library- Being digital is not necessarily commensurate with being useable. Considerable study of what users need, how they use information, and whether digital formats serve their needs effectively is still required. Undertaking large digitization initiatives without a fundamental understanding of user needs might result in complete failure of the exercise and lack of support from users and the management.
The reasons this substitution will not easily occur are many: user resistance, limitations on use, poor digital product design, or the medium may not be effective to satisfy the user requirements. The challenge here will be to "span both print and digital materials... [and to] ...provide a coherent view of a very large collection of information."

Preservation- For example, digital storage media are "fragile", with a limited shelf life. Worse yet, the digital information on those storage media, even if they do survive will be rendered unreadable by obsolescence of technology. To preserve digital information, digital libraries will continually have to "migrate" information from one digital hardware and software configuration to another.

- Preservation of the storage medium - tapes, hard drives, floppy discs have a short life span when considered in terms of obsolescence.
- Preservation of access to content - this form of preservation involves preserving access to the contents of the document regardless of their format.
- While files can he moved from one storage medium to another, what happens when the formats containing the information become obsolete.

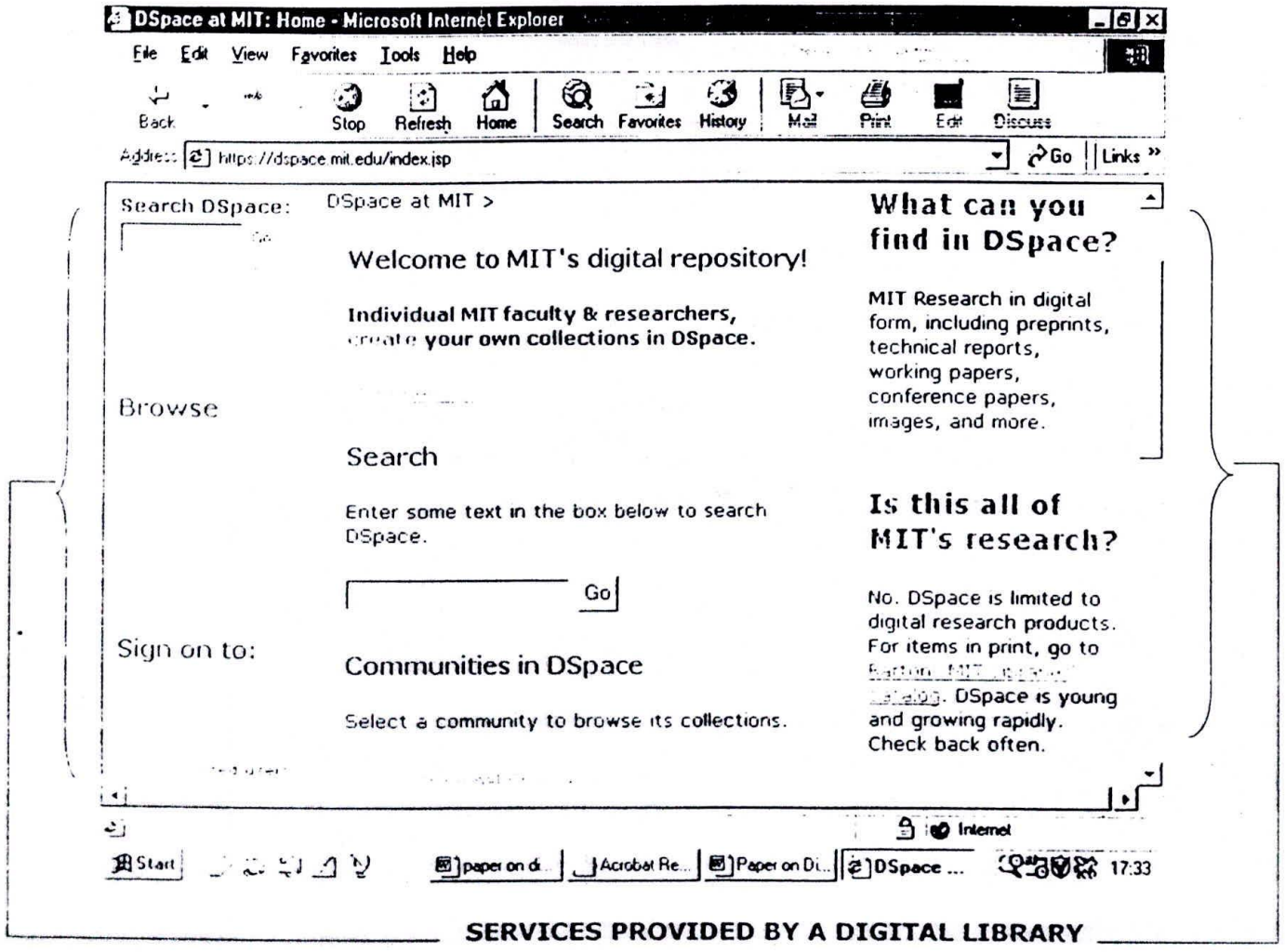
Digital Library Administration- The technical tasks are "the easiest to solve; they will only cost money". It is the institutional commitments that "will be much more difficult to achieve."
Some of the more serious issues facing the development of digital libraries are

Technical architecture
Libraries need to enhance and upgrade current technical architecture, such as:

- High speed local network and fast connection to internet,
- Relational database that supports a variety of digital formats,
- Full text search engines to index and provide access to resources,
- A variety of servers such as web services and FTP servers,
- Electronic document management system.

Copyright/rights management
Copyright is one of the most important barriers to digital library development. The current paper based concept of copyright breaks down in the digital environment because the control of copies is lost. Digital objects are less fixed, easily copied and remotely accessible by multiple users simultaneously. It is important to develop mechanism for managing copyright.

SERVICES PROVIDED BY A DIGITAL LIBRARY
The library is not merely a searching tool for people to log onto over the Web or some other access medium. Conventional libraries provide a large number of other services. Many of these can and should be continued or extended in the digital library. Below are listed some of the major library services and how they could appear in a digital library. All provide benefits for the library's users.



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Searching facility through Online Public Access Catalogue (OPAC)
Catalogues and their access are the most visible aspect of libraries, particularly when they are on-line. The capabilities of the search system are generally going to be fixed by the software that you purchase. How you implement them and how the users use them is more under your control. Vocabulary control is an essential part of the cataloguing process and is almost completely absent from full text searching. Searching using a controlled (and well known) vocabulary is a service, which is particularly useful in the subject descriptions and makes for much better search precision than simple keyword searching. When controlled by a sensible thesaurus with descriptions and relationships it makes the user's job of finding the required meaning of a word much easier. **(Ref: Section on Information Organisation)**

Free Text Search Facility – Search is not restricted to keywords. It covers the entire content available in the digital library system.

Document delivery -Results of searches are available delivered online.
At times, there may be some bulk transfer (such as email attachment, ftp, etc.) if the access is restricted.

Bibliographies- Bibliographies on a subject or a combination of subjects can be created very easily.

Discussion Groups, Forums, News
Since the library is on-line it is possible to run chat rooms or discussions on topics where the library is expert.

Marketing- It is possible to sell the content on a "pay-per-view" basis or we can sell a subscription that gives unlimited access to all, or some section, of your library collection.

Regular E-mail updates on specific subjects- Users can subscribe to e-mail alert services on specific types of collections available in a library and remain updated on their subject areas.

Table No. 1

Comparative study of some of the open source software

	GSDL	Eprints-II	DSpace	Fedora
Creator	University of Waikato	University of Southampton	MIT libraries & Hewlett-Packard	Cornell University & University of Virginia
Open Source and Free	Yes	Yes	Yes	Yes
Operating System	Unices, Windows	Unices	Unices	Unices, Windows
Web-server	Apache/ IIS	Apache 1.3	Apache 1.3/2.0 and/or Tomcat	Tomcat 1.4
Language	Perl	Mod-Perl 1.0	Java 1.3, JSP	J2SDK v.1.4
Database	Its own	MySQL	PostgreSQL 7.3	McKoi v.0.94 (uses by default) MySQL/ /Oracle 9i (optional)
Resource Identifier	No	OAI Identifiers (similar to URNs)	CNRI Handles	Uses own persistent identifiers (PID)
Dublin Core	Dublin Core	Dublin Core	Qualified Dublin Core	Dublin Core
OAI-PMH v 2.0	No	Yes	Yes	Yes
Subscription	No	Yes	Yes	No
Supported File formats	MS-Word, PDF, HTML, PostScript, JPEG, GIF.	PDF, MS-Word, HTML, JPEG, GIF.	MS-Word, PDF, PPTs, JPEG, GIF.	PDF, MS-Word, PostScript, JPEG.

Note: These features may change as newer versions of the software are made available.

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Managing Contacts Using MS Access

5.1 **Definitions: Database, Database Management System**
A ***database*** is a collection of data. Your phone book is a simple database. A simple recording about the books and journals is also a database. Databases are of two types *simple and complex.* The data having relation with other data is a complex database and known as Relation Database.

To access information from a database, you need a **database management system (DBMS).** This is a collection of programs that enables you to enter, organise, and select data in a database. It is a system involving data, the hardware that physically stores the data, the software that uses the hardware's file system in order to store, retrieve or change the data, and finally the users who turn the data into information.

A database is required for storing & retrieving information, which may be of various kinds: Addresses of people and organisations, information about books, documents, films, photographs, electronic files, etc. In this training programme, we will principally use examples from a simple, n important, a simple, database of contacts (addresses)

TABLE

Fields	**First Name**	**Last Name**	**E-mail**	**Phone**
Records				

A database of contact addresses database is the very foundation of Internet communication, which offers an easy, immediate, efficient way to connect with people and ideas -- the two primary resources of NGOs. A database is capable of storing, tracking and easily handling an incredible amount and types of information. A well thought out, carefully designed database of contact addresses is crucial for NGOs, if only to record and track people's relationship with the organisation. NGOs must gather and track information about their key contacts, volunteers, clients, potential and current donors, those who attended events, experts working on various areas of interest to the organisation, supporters, and those key segments in civic society who can be tapped for advocacy and marketing efforts. Capturing such information is crucial for organisations to show the impact of their programmes, to measure how people perceive their efforts, and to show the gaps regarding where and how the organisation's messages are being communicated. A database of contact addresses simplifies information chaos.

A contact address database can be very basic, easy to use and to maintain. A simple database can be designed to meet the unique needs of small NGOs with very limited staffing, tight budgets and limited IT skills. If planned right, databases can be made 'scalable', expanded with new fields added to keep pace with changing needs and growth of the organisation.

5.2 **CSE case study**
CSE has deployed a plethora of databases to store and track bewildering amounts, and types, of information. Besides being used for Library purposes (storing and indexing information about books, journals, articles, unpublished reports, audio-video resources, newsclippings, etc.), databases are also used for e-marketing initiatives (publication promotions, sending potential customers information on new products, sending targetted mailers by post, preparing specialised directories of resource persons in various environmental fields); they are deployed to support campaign activities and for advocacy purposes (sending invitations to key stakeholders and supporters for CSE activities, alerting and updating legislators, judiciary and policy makers on key issues, sending out press releases to mass media, sending invites for the organisation's training

Databases in CSE

- Library catalogue: Libsys
- OMNI DOCS: For storing searchable .tif images of newsclippings)
- Films and A/V resources (FM PRO)
- Resource Persons Database (RPDB)
- Sales database (to track sales and purchasing history of customers: DTE subscribers, subscribers)
- File management (database of all numbered physical files in organisation)
- Asset database (to track all moveable and immovable assets, such as electronic items, fans, etc.)
- Accounts database (salary disbursement, etc.)
- Attendance software (to track attendance and for staff to request leaves, etc.)
- Database of volunteers
- Programme Management database (internal programme monitoring and evaluation. Also used for annual planning for all CSE teams, and to monitor work done and impacts achieved)
- Web databases (to store all content, images for all CSE websites, including Down To Earth online magazine)
  - ✓ Database of jobs in environment sector
  - ✓ DB of best practices in NGO sector
  - ✓ Green Schools Programme (to track green education initiatives across the country)
  - ✓ Web database of newsclippings

programmes); routinely used for outreach and information dissemination purposes (sending e-newsletters, to support the e-feature service, sending action alerts); and are also routinely used for networking purposes.

CSE's web-based initiatives depend heavily on various kinds of databases. Databases are also used for internal management and performance tracking purposes, from tracking immovable and moveable assets, to keeping track of salary disbursements and accounts. Other databases have been created to track the availability and performance of volunteers, to provide a ready reference to jobs in the environment sector, and so on.

5.3 **Building and planning a database**

The value of a database is derived not from which software is used, but from the information that is tracked. Database design must solicit the needs of staff members: how they want to use information about clients, volunteers and potential audiences. Deciding what information needs to be tracked will help decide what fields need to be created in the database.

BOX: Database design is primarily about functionality and needs, not technology. The best designers of databases are the users -- the people who input and manipulate the data as part of their jobs. This mean office assistants and information or campaign managers, and even the marketing team should direct the design, rather than senior managers and IT professionals.

A 'flat' database holds all of the information about a record. The name, address, phone number, meeting attendance, publications ordered, committee membership, and any other information you choose is kept in a single database. A flat database is very easy to manage. All the information is stored in one source. You can see how many board members have e-mail addresses, or how many donors are also volunteers. You can create a variety of different ways to look at the data with input screens, reports, mailing lists and special queries. The limits of a flat database are not in the number of records one can put in, but in how much information can one track *per record*.

As the organisation grows and more people need to track a great deal of different information about each record, one may want to change to using a 'relational' or shared database. This allows staff to simultaneously track, for instance, those who attended the previous public event, together with how many of those that attended bought your organisation's publication.

Attributes of an efficient database

- *Simplicity of use*: Should be easy to use and learn, easy to install and run on current IT setup. The package should include printed support manuals
- *Sorting & searchability*: by organisation name, etc.
- should allow multiple users, perhaps with different levels of access
- *Easy data import & export* from most widely used software packages.
- *Allow customised queries*: It should allow the user to change, add or delete fields of information -- no specialised software can anticipate every organisation's every need.
- *User friendly*: To allow users to generate mailing labels, letters, nametags and other customised reports
- *Mail merge facility* (to send personalised emails)
- *Data backup* provision
- *Allow monitoring*: to keep tabs on total mailing 'load' on audience (to prevent same audience from getting inundated with too many email messages in a week). The database should also be able to track frequency of use, instances of abuse, etc.

5.4 **Tips on effective database design**
Choosing for the most appropriate software (and there are an incredible number available) is actually only a small part of database design. First, the organisation needs to be clear about its own requirements, and the current and future requirements for which the database could be used. This helps in creating a 'scalable' programme, capable of growing with the growing needs of the organisation. Deploying a database is very similar to creating a software for the organisation; it requires a similar amount of planning (see chapter on software planning in this manual); Clear requirements, budgets, software and graphic design, setting a clear timeframe for project rollout, appropriate testing protocols, etc, have got to be adhered to.

Also important is the decision whether to 'build' the database in-house (a main advantage is that it can be customised to your needs, but needs in-house expertise, both in managing the software development process and ensuring proper coding documentation); to buy an existing product (not highly customisable, and would include many commonly-used features); or whether to outsource the entire project (need clear assessment of organisation's requirements and costs could run high, but efficient software support would be available).

5.5 **Managing a contact list database**
Most technology deployed in small to medium organisations (including NGOs) is related to communications and relationship-building. Such a goal fundamentally relies on a database to track information about interactions with constituents. The non-profit's ultimate goal, after all, is *not* only to gather as much data as possible on constituents and donors and volunteers in digital form. It is to allow staff and volunteers to share the work of improving the relationships established with those contacts and to continually record progress made. But maintaining an efficient database system for easy storage and deployment of contact lists is burdened with problems. Some 'typical' issues include:

"Most small organisations are terrified of putting their e-mail addresses online because they know they don't have the resources to cope with an increased flow of requests. They are trapped in a weird position of wanting more people to know about them in order to improve their work and access more resources, but don't have the capacity to deal with inquiries."
Source: Terri Willard:
http://www.brettonwoodsproject.org/strategy

5.5.1 **Building a database of contacts:** As is clear, the job of gathering contacts is everyone's responsibility; it is a distributed responsibility. The simplest rule to follow (and which should be internalised by all in the organisation) is that it should be everyone's responsibility to collect *as complete information on all possible contacts on all occasions* wherever possible (collect cards from participants attending your events, those that visit your office, collect contact details from your colleagues at conferences, etc).

Sources of new contacts: Ideas
– All daily correspondence (snail mails)
– Incoming emails
– Web forms
– Daily newspaper scanning to new email contacts (tenders, advertisements – for e.g. engineering colleges, etc.)
– Journals (authors)
– Conference proceedings, invitees to special events, etc.

Tip: While travelling, it is made compulsory for all CSE staff to submit a detailed list of all 'contacts' they may have encountered on their travels. Only after they have submitted these contact details (in the form of visiting cards, scribbled notes, etc.) will they be reimbursed for their travel-related expenses.

5.5.2 **Mismatched databases:** Typically, small organisations deploy a "homebrewed" set of databases using either one or more of the following, Filemaker Pro, Microsoft Access, EXCEL. It becomes very difficult to have these 'talk' to one another. Data integration, or establishing communicable relations among disparate, separate databases remains a challenge for any organisation, and only underscores the urgent need to carefully plan the purpose, platform and data-routes and regimes well in advance. An integrated database also allows for controlled updating, in this case via a single point (typically, one person updating a single database at one point in time.

5.5.3 **Develop a well-segmented contact database:** Number and purpose of your contact lists: CSE has four newsletters, and several generated dynamically based on the need, such as a Media list for press invites, region-specific list for geo targeted marketing and advocacy, lists prepared by profession, occupation and speciality; lists prepared for marketing initiatives, etc. A well-segmented database is also important to separate your high value contacts (key stakeholders, policy makers, heads of organisations, etc) from the rest.

Box 13.1
A well-segmented contact list...

Store each contact's details in a database (even a simple MS Access or EXCEL sheet is useful). Ensure you have the following details against each contact: complete name (salutation, first, middle, last); organisation name/address; organisation type; designation; specialisation; principal area of interest, source of the contact (person who submitted the contact); date of inclusion in database; date at which the record was last modified / updated; whether the contact is an existing customer, supporter, etc. This allows a well-orchestrated and planned e-mail-based advocacy or marketing campaign.

5.5.4 **Expensive to create a relationship-tracking database:** Building a truly integrated database that effortlessly tracks the history and existing relationships a contact shares with the organisation is hugely expensive. As is obvious, the higher the complexity, the greater the cost. For example, even a simple Customer Relationship Management (CRM) tool deployed by large corporations costs an astronomical amount of money to develop and fully integrate with existing systems. However, if your contact list is relatively small (about 5000 or so), much can be achieved through adapting simple, free software, such as MS Access or even EXCEL spreadsheets.

5.5.5 **Tracking effectiveness (revenues, response, action) from each contact segment:** How much response is your organisation receiving from each segment? Are buyers from abroad more responsive to your appeals and/or marketing initiatives? Is your Is your e-mailed press release, action alert or invitation sent to those contacts outside the country gathering more attention than from local media? Carefully tracking response rates allows you to fine-tune your campaign dissemination strategy.

5.5.6 **Data 'rot':** This is a common headache in most organisations where several databases have to be manually maintained. After several years of using a database, a sizable portion of the information collected is obsolete or defunct, making it difficult for a group to locate contacts that are still active. In short, if an e-mail address changes in one database, it is not changed in any of the others, unless it is changed manually in both databases. Data entry remains the single biggest expense and headache in any database.

5.5.7 **Centralise mail management:** If your organisation has several divisions or units, each contributing to your e-mail list or sending e-mails, make sure all divisions / units honour the unsubscribe. If managed in-house, it is important to appoint one person or a small team to only manage your lists. If your mail management is outsourced, it is best to consolidate all your e-mail hosting under one vendor.

5.5.8 **Schedule mass mailings carefully:** Organisations that have a large mailing list that is fragmented, irregularly updated, often arbitrarily deployed, and painstakingly - manually – compiled each time it is used, are prime targets for anti-spam action. It is also important to carefully schedule the mailings. The aim is to ensure your **recipient does not receive several e-mails in a short period of time.** This is especially true of organisations that maintain a well-segmented and detailed contact list, where the tendency is to send the same contact person e-mails for various purposes (such as for a press invite, an action alert, e-newsletters, special offers and marketing mails to sell the organisation's publications, films, etc). Even a simple frequency and schedule of mailings chart is useful. This chart should specify the frequency and timing of e-mails to the contact, and for what purpose.

Make sure you don't schedule your mass mailings on a weekend. If you have a global e-mail contact list, then the **best day of the week is Tuesday**. You don't want your e-mail to be lying piled up at the recipient's e-mail inbox together with a hundred other e-mails received over the weekend. Your mail will then get only cursory attention, and 'archived'. But how many times have you 'saved' e-mails to read later, but have never found the time to find and read the saved e-mail?

Box 13.2
Common syntax errors

|
>
<
.con
)
(
@.
"mailto:
@@
"
&
%
?
****
/
*****
.. (Two dots)
' (Apostrophe)
.com'

5.5.9 **Maintain list hygiene**

Data entry is perhaps the single biggest expense in any database management exercise, so data entry is usually done once. But that doesn't mean errors do not creep in.

- Make sure all bounces, and requests to unsubscribe are immediately honoured. It's even better to have an auto-generated e-mail that confirms the request to unsubscribe has been noted, and will soon be acted upon.
- Double-check syntax errors in your mail list
- Identify and delete all duplicate e-mail IDs
- Double-check spellings. Visitors to your website are always in a hurry and sloppy with their spellings. Even the domain 'hotmail' can be misspelled (hotmall, homail, hotmai.co, etc). Make sure you maintain a list of most common spelling and syntax errors and double-check your list before any mass mailing. There's precious little you can do to identify spelling errors in the account name (the letters before @), but with experience, you will learn to quickly identify incorrect spellings of the domain names (the letters after the @)
- One can, to a certain extent, manage list hygiene better through a list management software that also does your mass mailings (common examples include Mailman and PHP List in open source software; or IMN mail management in propriety (Windows-based) software.

5.6 **Data security and backups**

- **Virus protection:** If your organisation is using a local e-mail client (such as Outlook Express), it is important to ensure all outgoing mail is virus-free. Run a virus-scan on your local machine and on your organisation's local mail server (if any) *before* sending any mass mailings.
- Make sure you take several **backups** of your mailing list database. More sophisticated Web-enabled list management solutions are less prone to crash (because your data is also stored on your server), but even then, keep a copy of your contact database (preferably saved on a CD).

5.7 Creating a Database using MS Access

5.7.1 Define specifications

Requirements are translated into the specific components of the database: the fields, tables, data entry screens, reports, queries, functions, etc. Next, prepare a documentation manual, which specifies your requirements and expectations from the database.

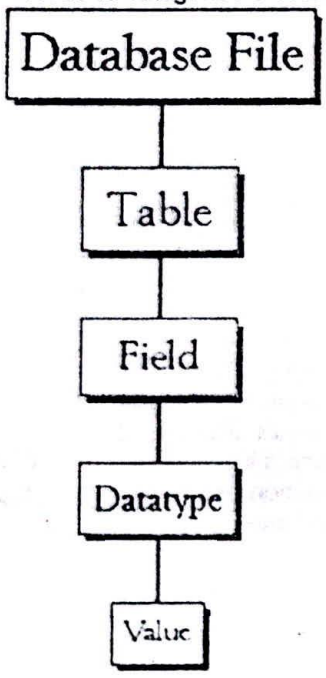
5.7.2 Structure of MS ACCESS

MS ACCESS provides us with tools to:

- Design the structure of your database
- Create data entry forms so you can get information into the database
- Validate the data entered and check for inconsistencies
- Sort and manipulate the data in the database
- Query the database (that is, ask questions about the data)
- Produce flexible reports, both on screen and on paper, that make it easy to comprehend the information stored in the database
- Data export/import and merging various fields/tables with MSWORD and E-mail client.

Common components of MS Access database *Database File, Table, Record, Field, Data-type*.

This is the hierarchy used by Microsoft Access to categorise a database.



Database File: This is your main file that encompasses the entire database and that is saved to your hard-drive or floppy disk.
Example)Name.mdb

Table: A table is a collection of data about a specific topic. There can be multiple tables in a database.
Example #1) Emp ID
Example #2) First Name

Field: Fields are the different categories within a Table. Tables usually contain multiple fields.
Example #1) First Name
Example #2) Phone

Datatypes: Datatypes are the properties of each field. A field only has 1 datatype.
FieldName) First Name
Datatype) Text

For example, let's create a simple address database consisting of the following information:

- Name
- Designation
- Organisation
- Address and City

- Telephone
- E-mail
- Work area

For Work areas
Ref: List of Keywords existing in your organisation
Ref: Section on Organising Information to learn more about keywords.

5.7.3 **Tips: Database design and use**

DON'Ts	DOs
Create one flat file A flat file means that all your data goes on one data table. Flat files make it difficult to create statistical reports.	**Create relational data tables** Unless you are doing only one very simple task, such as entering a list of names and addresses, you will need more than one table of data to track your information correctly.
Create repeating fields If you have fields like Date1, Date2, Date3, you should look at your data table design. Repeating fields are usually the sign of a flat file design, and will make reporting difficult.	**Put like data in a single field** Create separate relational tables and you will eliminate the need for most repeating fields.
	Put only 1 piece of data in a field Relational databases are set up so that the user doesn't need to put more than 1 piece of data in a field.
Use a range instead of a number When entering data such as income levels, set up the database so that you are entering numbers, not a range such as $10,000 - $15,000. Ranges are not very flexible should the categories change later on.	**Use a number instead of a range** If you enter a number in an income field, you will be able to generate reports that can easily be changed if the categories change.
Enter data inconsistently If some users enter "donor" and others enter "contributor," database queries will be hard to run accurately.	**Decide on consistent rules for data entry** The organization should make decisions about data entry consistency. Then the database designer can build in ways to enforce consistency at the user level.
Create too many address-oriented fields Some databases include so many fields connected to addresses, that creating labels is impossible.	**Create only necessary address fields** Keep address-oriented fields to a number that will fit on mailing labels.
Use too many Yes/No fields If you are using a large number of yes/no fields, you may need to re-examine the design of your database.	**Create only necessary address fields** Keep address-oriented fields to a number that will fit on mailing labels.
Enter the wrong type of data in a field Sometimes users cannot find the proper field for a piece of data, so they enter it into another field, such as typing a client's ethnicity in an empty Address2 field.	**Enter information in the proper field** If the data entry person cannot find the right place for a piece of data, perhaps the database needs some work. The answer is not to enter information randomly in an empty field.

ACTIVITY

Total time: 30 minutes

1. Create an address database to store information about key persons that your organisation interacts with regularly
2. Sort the database developed in question 1 according to cities
3. Export the data (report) developed in question 2 in MS-Excel
4. Draft a letter in MS Word and merge it with the data available in MS Excel sheet (Mail merge)

NOTE PAGES

N O T E P A G E S

N O T E P A G E S

Information dissemination - Services and Products

Objectives: In this section you will be able to

- Appreciate the significance of Information dissemination
- Identify various types of information services and products
- Understand the nature and benefits of information services and products for your organisation
- Develop information services and products for your organisation.

1. Need for Information services

Resource centers are now actively participating in the process of transmission of information from sources to its users. There are two major reasons for initiating information services:

Information Overload - print and digital
Information has been growing exponentially and time available with users is limited. With limited time, users can never be able to find everything that is available on a topic. A quality information service is an obvious demand.

A survey by Reuters has found that most users suffer from information overload. This is a major source of stress in the working place. Any service that provides information in condensed form is always useful.

Increasing specialization in all branches of knowledge which is becoming more and more multidisciplinary in nature. As a result of it, information on a topic is available in multiple sources. Information in a single document is also Scattered in different sections. A quality information service can help in assimilating, collating and presenting it in a packaged format.

2. Information dissemination: Key principles

Needs for specific information services are not static. Hence, a service that is valuable at one point may not be valuable at another point. The requirements of the users are thus continuously changing. Therefore the following criterias must be considered before starting a service and adding a value to the information service.

Information service provided must-

- Meet the subject interest of the user
- Be at a level of detail that matches the information requirement
- Be delivered in a form which fits the user's requirements.
- Be delivered in a time-scale that fits the user's requirements.
- **Quality of the information**- A large quantity of information should not be mistaken for quality service. Sometimes, a single line will provide the most relevant information.
- It is extremely important to know what is being provided and what is needed as the interests of the individuals and organizations change with time. Cost of providing a service should be equal to its utility and must be constantly assessed.
- A successful information specialist is the one who can try and interpret poorly expressed needs of the users into a meaningful service.

3. Components of Information service:

An information service is a mixture of

1. A stated purpose for the overall service and the components of it, covering the various target user groups and how and why they are supposed to be supported.

2. A deliberate policy covering the types and forms of material to be collected, organized, and made available, and the suitability of those types and forms for the purposes stated.

3. Coherent and integrated organisation of information acquisition, management and delivery systems.

4. Data interpretation, or the packaging of information to fit particular needs.

5. Accessibility to the target groups in appropriate ways.

Note: It may be noted that there is (should be) a symbiotic relationship between users, their needs, and the means by which the needs are satisfied. This establishes users, resources, needs, delivery methods, collection policies and all other aspects of an information service as also being components of it.

TIPS

It is important to keep mind few characteristics of the users-

1. **Each user performs a range of activities in an organisation.**
2. **They come from wide range of backgrounds and have a different level of understanding and ignorance.**
3. **They have choice over whether or not to get information and from which sources.**
4. **They may choose to (and are allowed) go without information.**

4. Kinds of Information services

1.Current Awareness Services
- Current acquisitions lists
- Periodicals circulation
- Displaying newly arrived materials
- Current awareness bulletins
- Selective dissemination of information (SDI)

2.Indexing and abstracting services
3.Literature search
4.Reference service
5.Document delivery service
6.Photocopying service
7.Information packages/dossiers service

1. Current awareness services (CAS)

It is a process of dissemination of current information. Current information refers to the information published in current primary document e.g. journal, newspaper etc. It collectively disseminates information contents of a set of currently published information at regular intervals- daily, weekly, fortnightly, etc. It is a way of letting users know about materials that have been newly received in a resource centre.

Current awareness services include but are not limited to:

- Current acquisitions lists
- Periodicals circulation
- Displaying newly arrived materials
- Current awareness bulletins
- Selective dissemination of information (SDI)

1.1 Current acquisitions lists

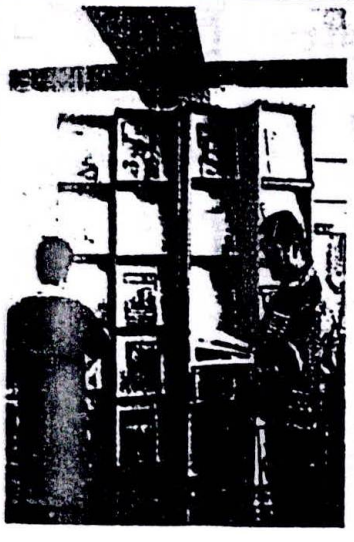
This consists of producing list of recent acquisitions to the existing stock of books and other materials. This is to alert users of the new materials, which have arrived and may be of interest.

For example, Current acquisitions lists provided by Environment Resources Unit of Centre for Science and Environment, New Delhi, India.

- Books Alert- Daily
- Periodicals Alert-Daily

1.2 Periodicals circulation means passing journals/newspapers/magazines to individuals to pass in turn to others on a circulation list. There is a disadvantage to this service, in that materials can take a long time to reach the last person on the list.

1.3 Displaying newly arrived materials helps users to notice new materials, and makes the resource centre look lively and attractive. Notice boards can be very useful for displaying the contents pages of newly received periodical issues, or copies of the covers of new books, reports and audiovisual materials. Displays are useful for attracting the attention of non-regular resource centre users, and visitors to the organisation.



Example, Recent journals received in resource centers can be displayed alphabetically.

1. Environment Resources Unit of Centre for Science and Environment, New Delhi. All recent periodicals-journals, newsletters, etc are displayed on a rack especially designed for the purpose.

2. National Medical Library, New Delhi displays all recent medical journals alphabetically in its journals section.

1.4 Current awareness bulletins contain details of new materials, book reviews, announcements about meetings and conferences, and news of resource centre activities. They help users to keep up with a range of new developments. They also help to generate specific enquiries, which resource centre staff can deal with more efficiently than general enquiries.

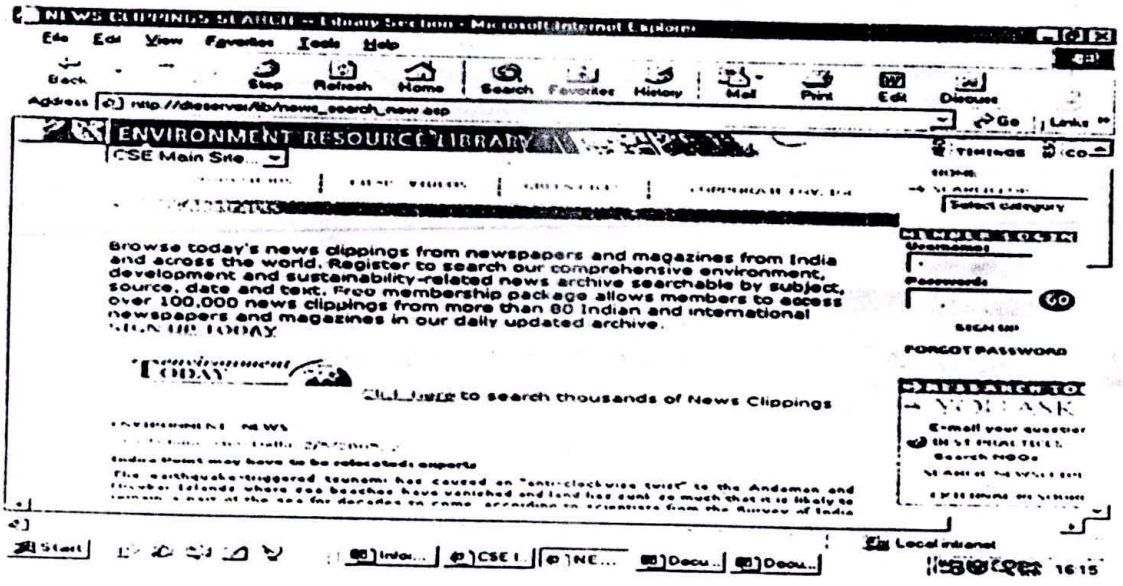
For example, Current Awareness Bulletins provided by Environment Resources Unit of CSE, New Delhi

- Articles Alert- Daily
- News Bulletin- Daily
- Conference Bulletin- Fortnightly

For example, News Bulletin service provided by Environment Resources Unit, CSE

Daily News Bulletin: News abstracts on environment and development from newspapers and magazines from India and across the world are provided everyday to CSE staff through LAN and are also uploaded on the web (http://data.cseindia.org)

Free membership package offered through the web, allows members to access over 100,000 news clippings from more than 80 Indian and international newspapers and magazines in our daily updated newsarchive. The archive is being maintained since Jan 1998.

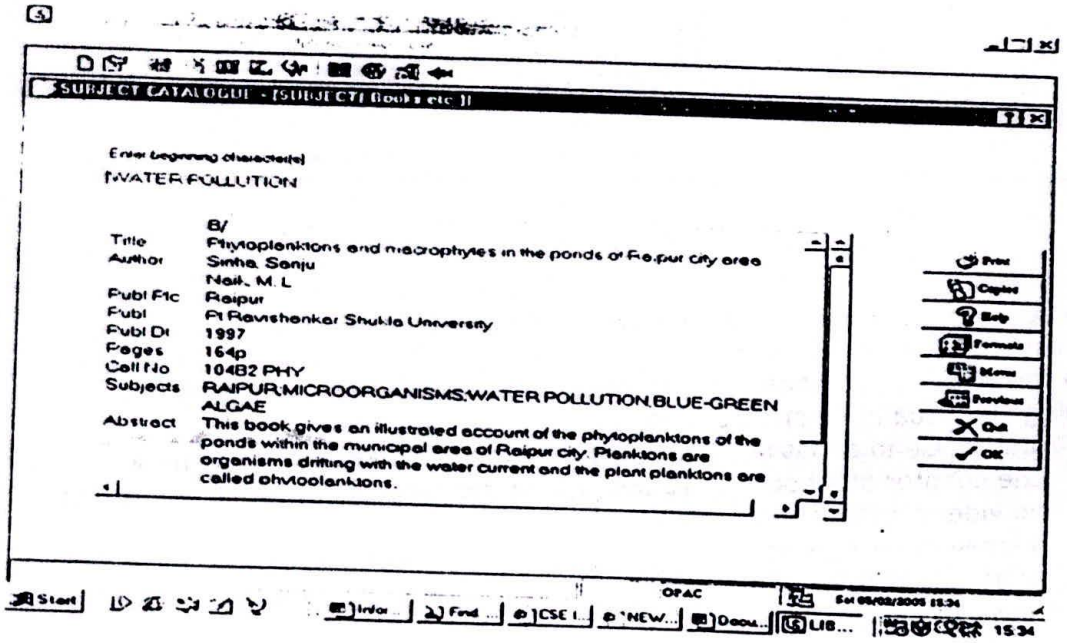


Selective dissemination of information (SDI) means notifying individual users, or groups of users, about materials that will interest them. Its objective is to keep the users informed of the new developments in their areas of interest without overburdening them with non-relevant and unwanted documents.

Selective dissemination of information is based on readers' interest profile and document profile.
Any good Information management system (Integrated Library management system or a digital library system) has a facility for providing this kind of service.

Digital library systems must be utilized to provide this subject specific alert to the users.

Indexing and abstracting services: Abstracts are summaries of articles, books or reports. Abstracting is time-consuming and requires skills in summarising, analysing and writing. They are useful for providing more detailed information about materials held in the collection, either in current awareness bulletins or on a database.
However, in-house indexing and abstracting services are undertaken in response to some special needs. These abstracts and indexes also become useful part of the Main resource database, Library database and are very useful for literature search.
For example, **Book abstracts** are prepared for Daily Books Alert and are part of the main Library database "LIBSYS" in Environment Resources Unit of CSE.



Literature search

Literature searches mean searching (looking through) sources such as catalogues, databases, bibliographies, indexes, periodicals, books, newsletters, CD-ROMs, e-mail and the Internet, or contacting other organisations, to locate materials on a particular subject.

To carry out a literature search, it is important to be clear what is needed. Find out from the user:

- what subject area(s) the material must cover
- how the information is to be used and who is the actual user of the material
- Time factor: How far back in time-line the search should go. What time spans the material should cover. For example, recent information only for a fortnightly update in a magazine. Or both old and recent information for the detailed Special report or a Cover story in a newsmagazine.
- what format is preferred (for example, articles, books, videos)
- how soon the information is required.
- **Subject areas** Decide what keywords to use to describe the subject (see Section
- : Organising Information also for importance of keywords). Use these keywords to search the resource centre's catalogue or database. Use these or similar subject terms to search other bibliographies and indexes.

Tip: **See also**: Time Line: The big picture (In the chapter- Information sourcing)

Reference Service:

Reference service: Assistance in locating specific pieces of information is generally called reference service. Thus reference service may be defined as "direct assistance to users in securing information and in using the available resources.

Document delivery service:

The supply of photocopies or e-copies of materials to users who cannot visit the resource centre, or to other resource centres, is often called document supply. Users may need to see articles in periodicals or chapters in books that are not held by the resource centre. Resource centre staff can enable them to do this by asking other resource centres for document supply services. It is useful to be a part of library and information networks to provide this service . For example, ERU at CSE uses the services of DELNET to provide this service to its users (http://www.delnet.nic.in)

Photocopying

Photocopying articles from periodicals or pages from books makes information more easily accessible. It is important to be aware of copyright laws, which allow only a few pages to be photocopied unless permission is given. However, the following can usually be photocopied:

- one article in an issue of a periodical (such as a newsletter or journal)
- one chapter of a book, or 10 per cent of the publication, whichever is less
- no videos, unless permission is given
- a small number of records from a commercial bibliographic database either to print and post, or to e-mail the information to a user who cannot visit the resource centre.

Information packs/dossiers

Information packs (dossiers) are ways of providing information about a particular subject area. Information packs usually take the form of folders or E-folders containing a variety of materials, such as articles from newsletters and journals, press clippings, contents page of a book, few pages from books, fact sheets, leaflets, list of websites, addresses of experts, etc.

TIPS

Information dossiers or packs must be structured in consultation with the users.

For example, Structure of a dossier on Drought prepared by Environment Resources Unit of CSE, New Delhi.

1.Drought its impact and Drought Prone Areas

2. Drought management and relief
   - 2.1 Action plan of Governments-statewise
   - 2.2 Action plan of other agencies-Local community, Voluntary organizations

3.Science of Drought
   - 3.1 Monsoon forecast
   - 3.2 Rainfall pattern

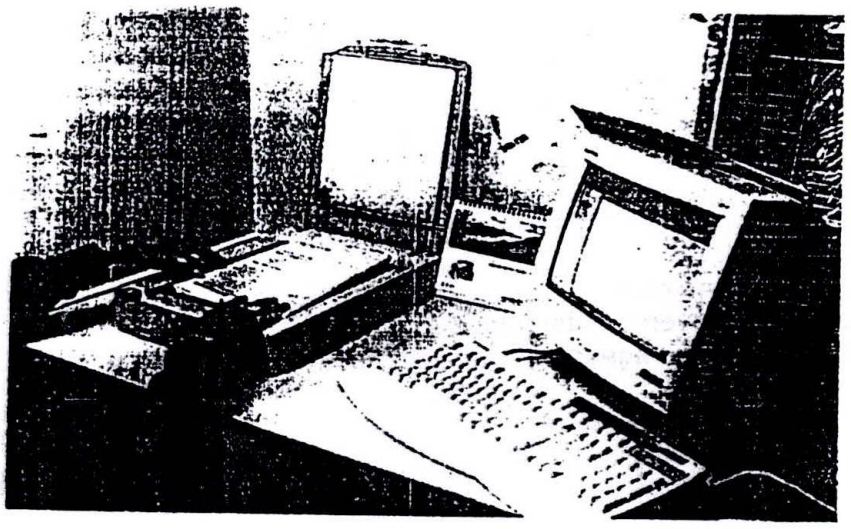
4.List of books /documents

5.Index of keywords

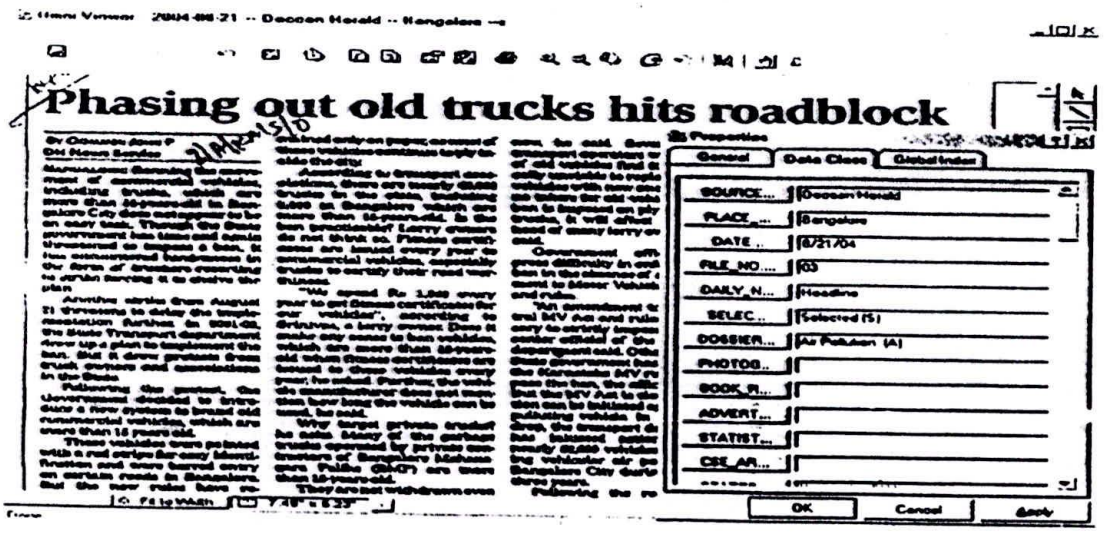
Information Product

Life Cycle of Green files-Monthly News Service Provided by Environment Resources Unit, Centre for Science and Environment, New Delhi

Step 1: Marking of clippings (As per the subject classification list) scanning them and their E-filing.



Step 2: Selection of clippings (As per the specified criterias) and further classification for the chapters in Green files.



Step 3: Arrangement of clippings- as per the events and geographical locations and the events chronology

Step 4: Preparation of summary- chapter wise

Step 5: Manual Paste up and Lay out of the selected clippings as specified by the production team.
OR

Conversion of scanned clippings (image files in tiff format) into text using OCR facility.

Proof reading the text files and then page layout of the clippings existing in text format

Step 6: Key wording of the news clippings included and preparation of a Keyword Index.

Step 7: Verification of all the pages in including contents page and submission of the product to Production unit for printing.

Note: Promotion and outreach of this service is done in consultation with the Sales and Marketing Unit

NOTE PAGES

NOTE PAGES

NOTE PAGES

NOTE PAGES

E-mail as an effective dissemination tool

The humble e-mail still reigns supreme in advocacy, marketing and any form of information dissemination efforts. This chapter exposes you to how e-mails work, and includes a section on e-mail etiquette and tips on how to maximise the potential of 'micro-content' to get your message noticed. The world over, the masses of emails received by people and the huge amounts of SPAM being circulated are testing the limits of patience of recipients, and seriously threatening the abilities of web publishers to have their campaigns taken seriously. Learn what the debate is really about, and some tips to overcome the numerous traps that stand in the way of effective email communication.

> Repeat after me: "E-mail is more important than my web site!"
> **Source:** Michael C. Gilbert (April 2001): http://news.gilbert.org/gem

1. **Why E-mail?**
   - Designed for convenience, not immediacy (unlike a telephone conversation)
   - More interactive than websites
   - 'Feels' more personal because messages arrive in 'your' inbox
   - Demands attention and response
   - Can easily include participation by more than two people
   - Convenient
   - Considerably cheaper than building and maintaining a website
   - Requires no specialised training for staff to manage and maintain
   - Is handled within a familiar user interface
   - Is an active "push" technology. Websites are a "pull" technology
   - Active channel of communication. Most people check their e-mail daily in office
   - Great 'trafficator': Can be used to bring people to a website
   - Offers an ideal "closed loop relationship"
   - E-newsletters force organisations to keep things alive and current, unlike many Web pages
   - Is a call to action – your inbox is the day's 'to-do' list

"If you think of the Internet as an 'information superhighway,' e-mail is the package that gets transported by truck to the recipient's home, while Web sites are the billboards you pass when you're driving down the highway."

Source: http://www.netactivist.org

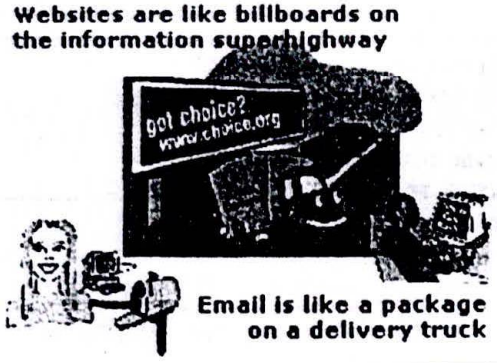


Figure 11.1

Box: **NGOs missing out on power of e-mails**
In a 2001 survey of 900 nonprofit organisations, the Gilbert Foundation found:
78% of organisations do not have an e-mail strategy
75% of organisations cannot survey their stakeholders online
64% of organisations do not collect e-mail addresses on their web site
44% of organisations have e-mail addresses for fewer than 20% of their supporters
Source: Disconnected: The First Nonprofit E-mail Survey: http://news.gilbert.org

1.2 How e-mail works

An e-mail message has always been nothing more than a simple text message -- a piece of text sent to a recipient. Messages are viewed using a stand-alone e-mail client, such as Microsoft Outlook, Eudora or Pegasus. Common Web-based clients include Hotmail, Gmail, and Yahoo. No matter which type of client you are using, they all generally display the message headers (which shows you who sent the mail, the subject of the mail, message time/date and the message size); let you select a message and 'work' with your mail (read the mail, send new mail, save and or send attachments, etc).

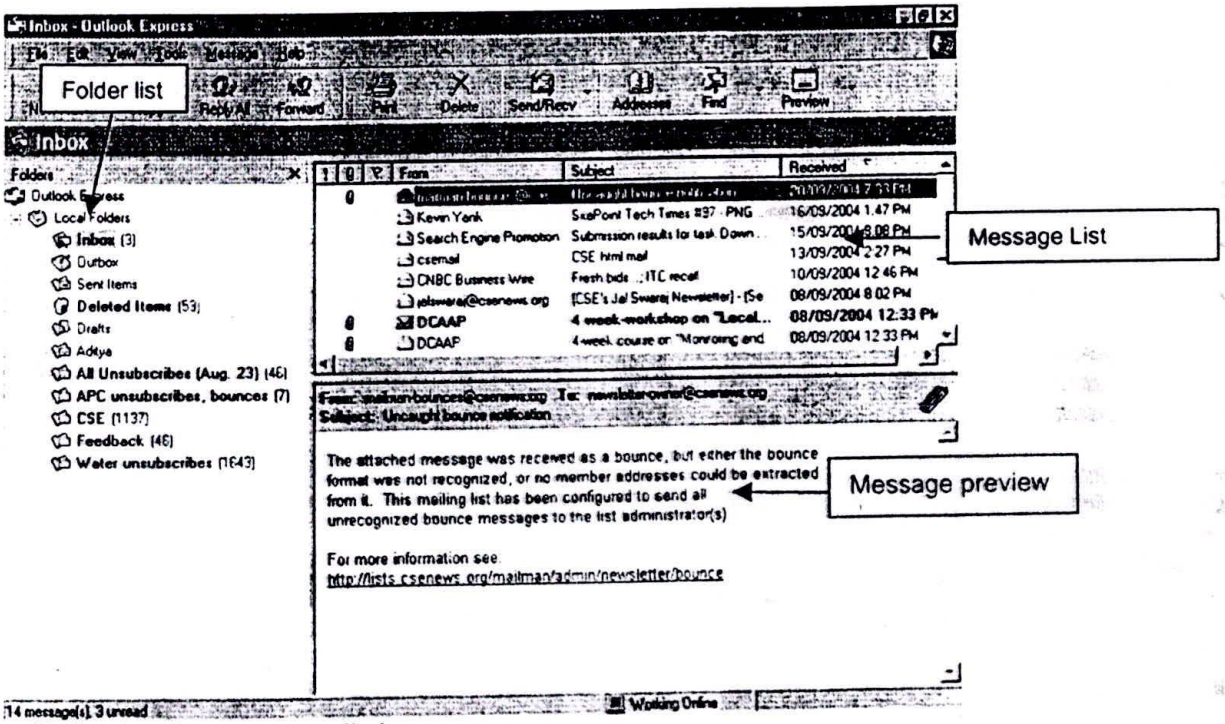


Figure: **Understanding your e-mail view**

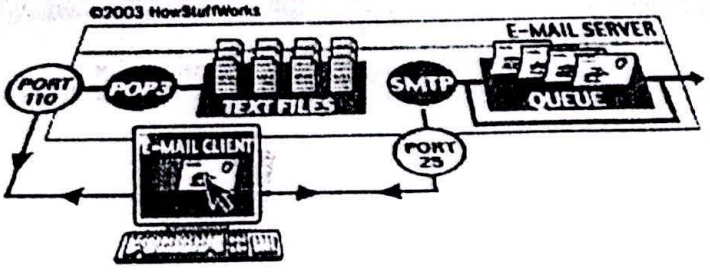
Real E-mail System

A real e-mail system consists of two different servers running on a server machine. One is called the **SMTP server** (Simple Mail Transfer Protocol). The SMTP server handles outgoing mail. The other is either a **POP3** (Post Office protocol) **server** or an **IMAP** (Internet Mail Access Protocol) **server**, both of which handle incoming mail.

Box: **World's first e-mail**

The first e-mail message was sent in 1971 by an engineer named Ray Tomlinson. Tomlinson's breakthrough was the ability to send messages to other machines on the Internet, using the @ sign to designate the receiving machine.

Source: Darwin Magazine



Box 11.9: **About 'servers':** Machines on the Internet can run software applications that act as servers. There are Web servers, FTP servers, telnet servers and e-mail servers. These applications listen to specific ports, waiting for people or programs to attach to the 'port'.

2. Micro-content

As is true of all Internet-based communication, two rather distinct audiences 'read' the content and text of any piece of communication: humans *and* machines. Micro-content is particularly important to ensure that emails correctly reach their intended audiences, and that they have the desired outcomes and impact. Micro-content broadly comprises all the bits of customisable information sent together with the main message. Here, things such as email signatures, From: name, subject lines, and especially in the case of e-newsletters, headers and footers carry vital information both for the intended recipient and the recipient's email server.

2.1 **Email signatures**

On any given day, most people read and respond to more e-mails, than visit websites. Here's a freely-available, widely used marketing tool that's personal, convenient and visible. Why then do some people not bother to use e-mail signatures, even while they're careful in handing out their business cards to everyone they meet? An e-mail signature can prove to be a very useful website promotion tool that can produce great results, especially when so little one-time effort is required to set it up. An e-mail signature is a second chance at getting your message across. It can even link to the important sections of your site. Since you're going to send those e-mails anyhow, it would be a very good idea to turn them into traffic generators by using a good signature.

The key to good e-mail signatures lies somewhere between a simple list of contact information and a blatant advertisement.

An effective e-mail signature...

- Avoids the use of "power" words, such as "free" or "now"
- Starts with a brief courtesy, such as "Sincerely" or "All the best", followed by your designation (title) and name.
- Includes a brief description of your site. If you have more than one site, make sure you include a brief descriptor before each URL.
- Uses http:// in the link, ie. http://www.cseindia.org instead of www.cseindia.org. The http:// will allow many e-mail programs to identify it as an active link – users can directly click to go directly to your site instead of having to open up a browser window and cut & paste the address.
- Is short (no longer than 4 lines). A short signature can also be used in your postings to discussion groups. If you have to have a longer signature, make sure you keep the most relevant information at the top.
- Contains no spelling errors or bad grammar.
- Does not yell (use CAPITALISED LETTERS)

2.2 **Writing for e-mail: Tips on etiquette**

Although the 'rules' differ according to the nature of your business and the corporate culture, here are some important e-mail etiquette pointers that apply to nearly all situations:

• Be concise and to the point: Reading an e-mail is harder than reading printed communications and a long e-mail can be very daunting to read.

Box: **Reasons for e-mail etiquette**
Professionalism: using proper e-mail language conveys a professional image.
Efficiency: E-mails that get to the point are more effective than sloppily worded e-mails.
Protection from liability: Protect your organisation from costly lawsuits.

"Communication between humans is approximately 90% body language, 8% tone of voice, and 2% what you say. With e-mail, you remove the first 98%. Be aware of this when you write e-mails. So, be very obvious with your meanings, since subtleties will be lost or completely misunderstood."

Source: http://www.emailaddresses.com/guide_etiquette.htm

• Use proper spelling, grammar and punctuation: E-mails with improper spelling, grammar and punctuation create a bad impression, are difficult to read and can change the meaning of the text.

• Make it personal: Wherever possible, your e-mail it should include personal i.e. customised content. Sometimes therefore, auto replies are not very effective.

E-mail is a party to which English teachers have not been invited. It has companies tearing their hair out.

Source: R. Craig Hogan, who heads an online school for business writing. Quoted in *New York Times*, Dec. 7, 2004

• Avoid long sentences. Keep paragraphs short: Try to keep your sentences to a maximum of 15-20 words. E-mail is meant to be a quick medium. Size only adds to the 'weightyou're your e-mail. Chances are high that your large e-mail will be sent unread and unceremoniously to your recipient's 'junk' folder. Writing for e-mail is similar to writing for a website. Chunk information. Short paragraphs. Leave a blank line between paragraphs.

• Use a meaningful subject: Someone should crunch the numbers on this, but I bet this is a major reason why some 'important' e-mails with meaningless subjects (or no subject at all) never get answered. More on writing effective subjects later in this chapter.

• Do not write in CAPITALS: This is similar to shouting on the Internet. Plus, you're just increasing the chances of a filter flagging your mail as spam.

• Use active voice of a verb, instead of passive voice

• Libelous, defamatory, offensive, racist obscene remarks are an absolute no-no: Also, keep your language gender neutral

• Take care with abbreviations and 'emoticons': Avoid childish abbreviations such as BTW & LOL. Also avoid emoticons, such as the smiley :-).

• Answer swiftly. Answer all questions: E-mails demand a quick response. Make sure each e-mail is replied within at least 24 hours. But sometimes, convenience beats immediacy. Pre-empt further questions, or be prepared to receive more e-mails regarding the unanswered questions.

• Add disclaimers and an effective signature file to your e-mails: Disclaimers are insurance against libel. A signature is like a free hoarding for your organisation (*more tips on signatures, below*).

• Use templates for frequently used responses: Save common response templates and paste these into your message when you need them.

• Don't leave out the message thread: Include the original mail in your reply

Box: **Quoting**
>and do you agree with the proposal to hire Ms. Ross to
>handle our legal services?
Yes. Please make the necessary arrangements.
(The '>' indicates to recipients that this is quoted material from their last e-mail message.)

('Reply To', not 'New mail'). If the original mail is too long, include only the relevant parts in your reply. A 'threadless e-mail' does not provide enough context or information. One option is to use quoting.

• Do not attach unnecessary files: Sending large attachments is annoying and even bring down your recipient's e-mail system. Many companies disallow attachments.

• Don't overuse the high priority option unless absolutely necessary. Also, avoid using the words URGENT and IMPORTANT in your e-mail or subject line. These words are sure to trigger a spam filter on your recipient's mail server.

• Avoid putting too many addresses in the 'Reply To' field: Instead, use Bcc (Blind Carbon Copy) field or do a mail merge, or create a personalised message. Don't publicise someone else's e-mail address without permission. Instead, use the Bcc: field. However, if the Reply To: field is left empty, your mail may be interpreted as spam. Don't overuse the Reply To All field.

• Use cc: field sparingly: Use only if it is clear what each cc recipient knows exactly who is supposed to act on the message.
• Be careful with formatting: The sender might not be able to view your intended formatting (fonts, line length etc). This is especially true for text-only mail clients.

• Take care with rich text and HTML messages: You will be surprised how many users still prefer text-only mail clients. We will discuss the merits and demerits of e-mail formatting later in the e-newsletter section of this chapter.

• Don't forward virus hoaxes and chain letters. Never reply to spam: Chain letters are a rich source of valid e-mail IDs for spammers. Similarly, by replying to spam or by unsubscribing, you are confirming that your e-mail address is 'live'.

• Use request delivery and read receipts very sparingly: This is annoying. There are other ways of monitoring whether your e-mail was opened, (discussed later in the chapter).

• Do not use e-mail to discuss confidential information: Also, never make any libelous, sexist or racially discriminating comments in e-mails, even if they are meant to be a joke.

2.3 Micro-content: Message view

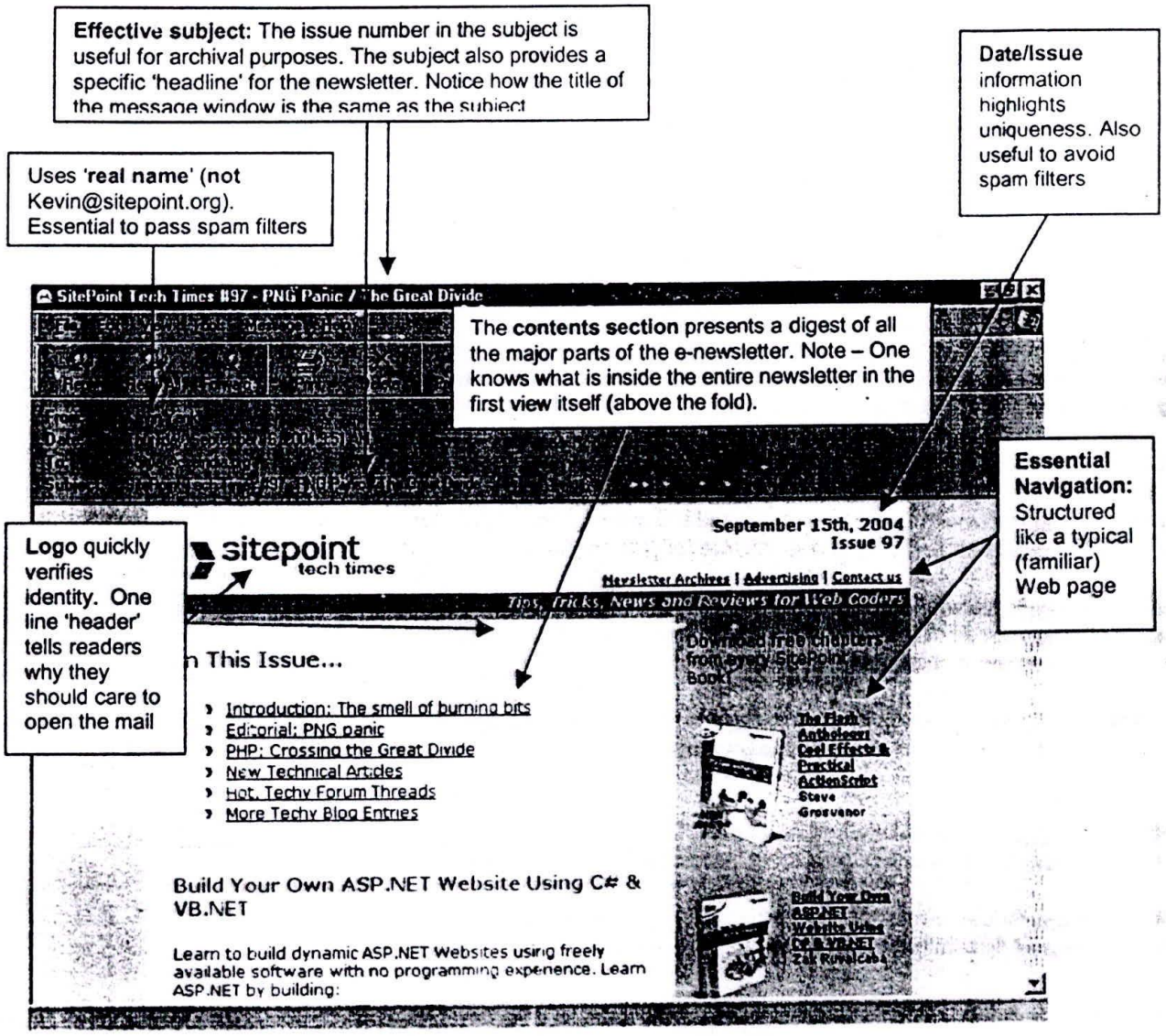


Figure 12.1: **E-newsletter 'micro-content': What recipients first see**

From: 'Real Name'

Make sure you include a 'Real Name" from your settings of your e-mail client. Also do this to avoid the heavy punishment (by tagging a higher 'spam score' to your e-mail) meted out to those e-publishers who do not include a 'Real Name' in the 'From:" field.

Box 12.2: **'E-mail from someone I know...'**
Sixty per cent of consumers who participated in DoubleClick's annual Consumer E-mail Study said the "from" line most often determined whether they would open an e-mail. The subject line was the main factor for 35 percent.
Source: http://www.doubleclick.com

Powerful subject lines

The subject line in is to an e-mail (or e-newsletter) what a page title is to a website. In most e-mail clients, it is the subject that is displayed in the message list. Also, when you open a message, the e-mail client window displays the subject as its page title.

If your audience is **not** a close-knit community (good test: do they notice when you miss one edition?), use a subject line that focuses on the uniqueness of this particular edition of your newsletter.
[CSE's Jal Swaraj Bulletin] – August edition
[CSE's Jal Swaraj Bulletin] – Escalating arsenic menace

Tip: Focus on a problem you know your readers would love to solve

If your newsletter serves an important purpose and reaches a known audience (who for example, often track and archive your newsletter), then appending a dated-edition format to the subject heading is important. In short, decisions to open, delay reading or deleting e-mail are totally based on how interesting or relevant the subject of an e-mail is.

Box: **'Head'line is lifeline**
David Ogilvy, who was one of the most effective headline writers, once said, "On the average, five times as many people read the headline as read the body copy. When you have written your headline, you have spent 80 cents out of your dollar." In e-mail, the subject line is equivalent to that headline.
Source: http://www.clickz.com

An e-mail subject performs numerous functions.

- Causes a psychological compulsion to open or discard (delete) the message
- Usually contains the Topic/Listserv name. Try to restrict this to one word
- Mentions type of communication (Alert, Bulletin, Agenda, etc)
- Has an expiry date (whenever possible)
- Contains message-specific summary, or what the message is about (3-4 words at most)

Ensure the subject is short:

- It should make sense even when viewed in the message preview area of a 'typical' e-mail client (such as Outlook express). Important information should be presented in the first few words to make sense even when the message window is 'minimised' on the desktop.

A carefully worded subject can avoid spam filters:

- Avoid 'marketese' or other 'power' words (such as buy, sell, free, etc)

Meaningless subjects are annoying, and waste recipients' time. Some prime examples:

- Messages having no subject
- Misleading subjects are very annoying
- [Pls. open attachment]
- FROM VANI (use of UPPERCASE, plus why should I care to open?)

Change the subject in the reply

- But just enough to preserve original message meaning or thread
- Avoid **Re: Re: Re:** FROM VANI)

Write a subject in your reply that will make sense to other members of the recipient's office – after all, the person who wrote to you may be away on leave - several people may have access to official e-mails. Keep it business-like.

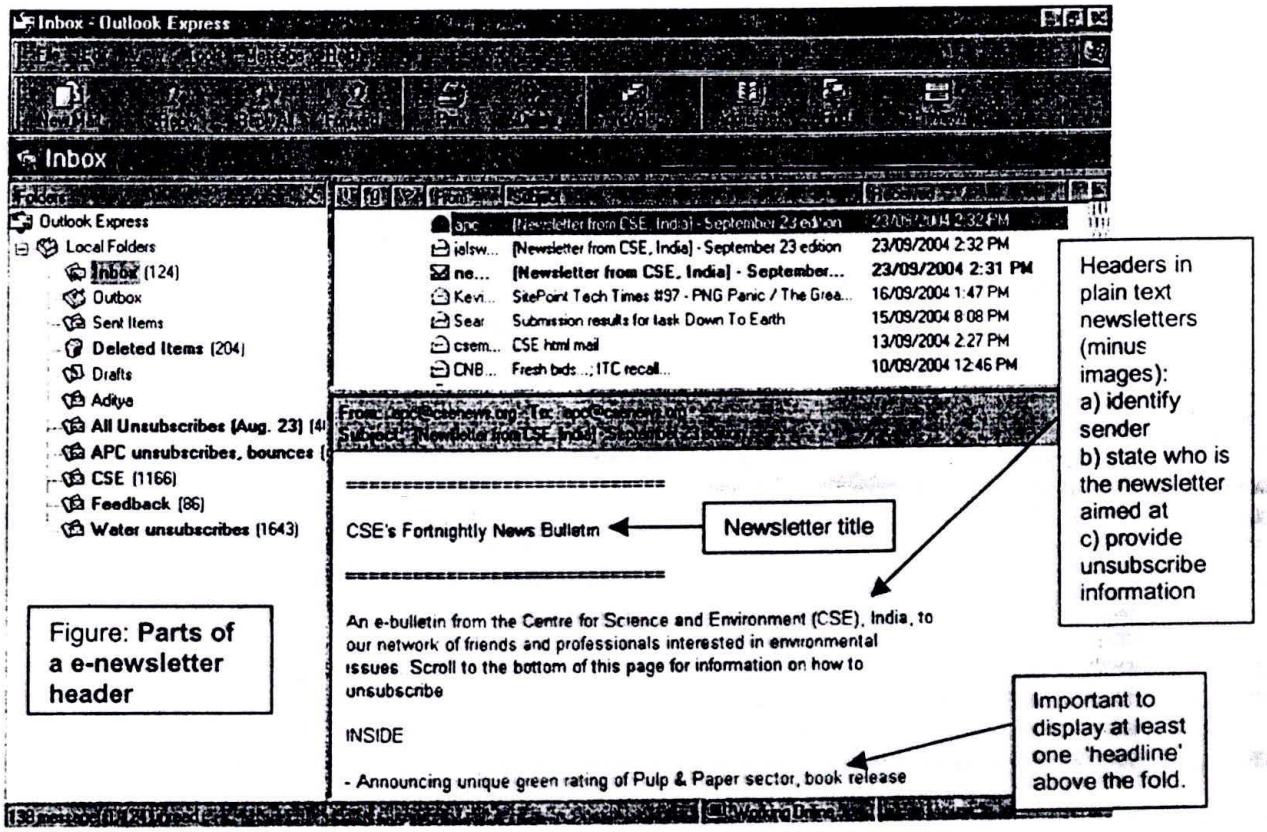


Figure: **Parts of a e-newsletter header**

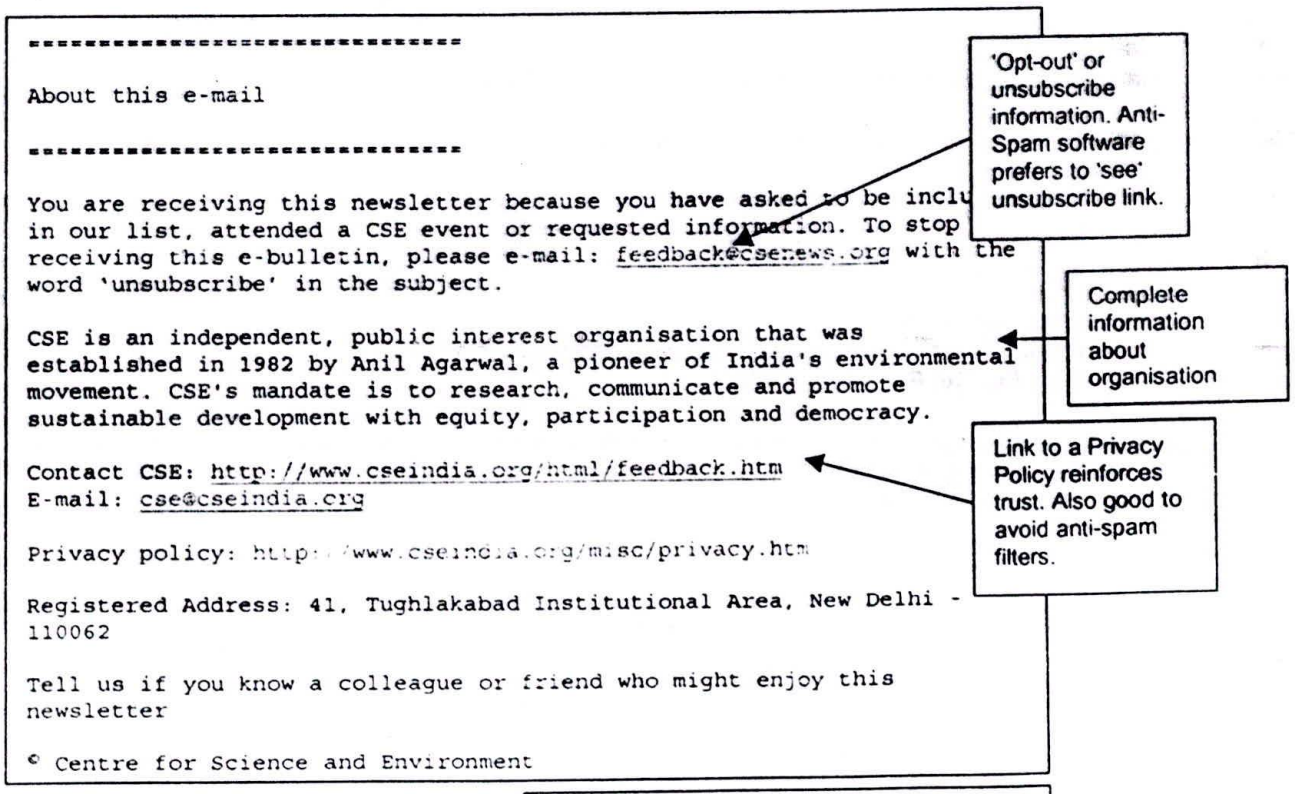


Figure: **Functions of e-newsletter footer**

Box: **E-newsletter content tips...**

Are you stuck on what all to include in your newsletter? Content is a no-brainer if your organisation has a glut of activities, events planned. But here too, the same rules for websites apply: Provide a useful service to people. Keep asking yourself, "What's it in for my reader"?

- Many newsletters include briefs on the latest news in the field
- How-to type of advice is always popular
- Job and volunteer listings
- Latest news in your field (some blogs do this really well)
- Events, announcements

Keep it short: A shorter newsletter gives your readers the satisfaction of actually having read it in its entirety. A newsletter with several pages of content makes for poor usability and attracts closer inspection of spam filters. If you want to ensure your newsletter is discarded even before it reaches your recipient's mailbox, craft a lengthy newsletter, include graphics and loads of links – and format it in HTML.

Para size: Keep it small. Chunk information, using frequent paragraph breaks. One idea per paragraph. Each para to start with a 'topic sentence' that acts as a quick reference for information contained in the paragraph.

Action: Include a call to action ("Tell me your thoughts on this issue..."). Like on a Web page, a newsletter should demand some action from your visitor.

Write and design an appropriate 'landing page': Usually, most newsletters aim to bring people to a website. These pages (hyperlinked form the newsletter) are called 'landing pages'.

The lesson? The future of e-newsletters will entirely be based on two-second decisions by recipients. Craft your e-mail newsletters to sum up your message in subject lines, FROM addresses, opening lines and headings – the stuff called micro-content. Writing effective e-mail copy therefore involves much, much more than merely crafting a creative message. That's because several parts of the e-mail, including the message subject, e-newsletter content ('In this issue...'), a descriptive 'real name' in the "From:" field, together with other taken-for-granted parts of an e-mail or newsletter, such as the message header, footer and other information targeted at the recipient, are each important for various reasons.

3. E-newsletters: E-mail in advocacy

Some argue an e-newsletter is an even more powerful e-advocacy tool, as it matches the dissemination needs of the organisation with the simplicity, convenience and low cost of e-mail. But the medium also throws up real but very real challenges. This chapter gives you reasons to make your e-newsletter an integral part of your total communications strategy, and includes tips on writing effective content, choosing the appropriate newsletter format and monitoring the impact of your e-newsletter initiative.

Most guidelines and etiquettes discussed in the previous chapter clearly apply to e-newsletters (also called e-zines). However, starting and maintaining an e-newsletter is much more than shooting off a well-formatted e-mail with content and links pointing to a website.

3.1 Advantages of e-newsletters

As is true of any Internet-based tool, there are specific advantages and abilities of the medium that are best put to use in adopting e-newsletters in your overall campaign or advocacy strategy.

"Building relationships is the number one reason to develop an e-newsletter program."
Source: http://www.charityvillage.com/cv/research/rofr36.html

Vital tool to drive traffic to your website: E-mail is by far the KillerAp of the Internet today (despite the growing threat of Spam). But an e-newsletter with relevant content is even better than simple e-mail, as it provides a service (not mere information) to your reader. With abstracts and links pointing to more content and services on your website, e-newsletters are the Internet's most successful advocacy tool.

"Newsletters feel personal because they arrive in your inbox"...You have an ongoing relationship with them. In contrast, websites are things you glance at when you need to get something done or find the answer to a specific question."
Source: http://www.useit.com

To collect e-mail addresses: Not illegal harvesting of e-mail IDs from websites, but to use an e-newsletter to build and sustain an active sense of community.

"The purpose here is not to build a database of prospects, it is to build a long-term relationship with prospects so that you become their preferred vendor. Don't confuse the two."
Source: www.wilsonweb.com/articles/newsletter.htm

Conserves contacts: How many people have visited your site ever since it first went live? 500? 1,500? 10,000? 100,000? 1,000,000? How many of those could you get in touch with today if you wanted to? If you don't have some way to communicate with visitors, you've let them slip through your fingers. What a waste!

Out of site, out of mind: Being a more active tool than a website or Web page, an e-newsletter helps your constituency 're-remember' the organisation – regularly.

Builds trust: An e-newsletter establishes an ongoing conversation with an organisation's constituency. Such interaction builds trust (a rare commodity on the Web). Make sure the newsletter offers enough value to sustain interest time after time. You can rely upon your e-newsletter constituency when your organisation comes under fire (they've interacted regularly with you, haven't they?)

Establishes an organisation's reputation: But only if the e-newsletter offers something of value to its readers and develops a reputation for excellence. In the corporate world, an e-newsletter helps to establish a brand.

Saves dissemination costs. Helps in fund-raising efforts

Box: **Use newsletters to...**
- Build loyalty
- Educate
- Boost credibility
- Stay in touch
- Repeat your message
- Control your audience, message & timing

Source: http://e-mailuniverse.com

Helps promote products and services: A successful newsletter is a marvelous marketing opportunity. Where else can you get a cheap delivery medium; a reasonable amount of trust in your 'brand' (or organisation); and a message that readers don't mind seeing regularly (sometimes several times a month). It's obvious that your target audience is more conditioned to buy your publications, films, posters, etc when they know and like you better. But be warned: readers hate marketese, so structure your 'selling' messages very carefully.

Sells advertising: If you develop a subscriber base of 5,000 and above, an organisation's network partners (and even corporate advertisers) will take greater interest in collaboration.
Source: Dr. Ralph F. Wilson:
http://www.wilsonweb.com/articles/newsletter.htm

"In our first study, 23 per cent of the newsletters were read thoroughly. In our second study, two years later (in 2002), only 11 per cent of the newsletters were read thoroughly."

Source: Jakob Nielsen: http://www.useit.com

3.2 HTML vs. Plain Text format

This is an ongoing debate in the e-newsletter community. The advent of HTML-based e-mail allows you to create and send graphics, clickable links and interactive forms to your audience, certainly a more powerful medium as compared with plain text-based e-mails, where all these features and functionalities were not possible. Indeed, the early adopters of HTML e-mails were the e-marketing folks, who appreciate the tracking, monitoring and other analytics possible through HTML e-mails. In fact, a 2003 study on e-mail format preferences of 1000 respondents conducted by Wilson Internet Services, found HTML e-mail to be relatively more popular than text-based e-mail <http://www.wilsonweb.com/wmt8/email_format_preferences.htm>.

Pros of using HTML e-mail
Visually appealing
Ability to include graphics, icons, interactive forms
Increased interactivity with recipients
More effective medium for advertisements
Most popular e-mail clients now support HTML e-mail

Cons of using HTML e-mail
Slow-loading due to downloading of graphics
Takes up more space in your e-mail client
Some text-only clients (more recently Gmail) don't display HTML even from known senders
Requires considerable bandwidth to download
A favourite medium for hackers to send viruses, trojan horses embedded in HTML e-mail
Organisations, some users turn off the option to receive HTML e-mail

How to create a simple HTML e-mail

1. Open your favourite HTML editor, i.e. FrontPage, Dreamweaver to create your e-mail.

2. Always use absolute URLs for your graphics (i.e. http://www.cseindia.oor/images/whatsnew.gif). Images, icons, fancy fonts) must be stored on a Web server to correctly appear in e-mail software. Do not send your images, etc as attachments!

3. To cut down the size of the e-mail, avoid images & graphics, and instead use coloured tables to differentiate different sections of your e-newsletter (i.e. header, masthead, contact information, etc).

4. Name and save the page you have created (e.g. whatsnew-email.htm).

5. Open your E-mail client. In Outlook Express (since it's the most popular) go to create mail - insert - text from file - scroll to your saved HTML page. You are now ready to send your HTML E-mail.

6. E-mail a test to yourself (also to colleagues, friends who have different e-mail clients) to make sure your mail 'renders' correctly on a variety of e-mail clients.

7. Once you have created an attractive HTML page or newsletter, save it as a template. Now you can just open the template whenever you want to send HTML mail and most of the work will be done for you.

8. The key is to test, test and test to see if your subscribers prefer it to text-based e-mail. The best bet is to offer both, plain text and HTML formats to your subscribers, and let them make their choice.

Source: Herman Drost, 'How to Create and Send HTML Email': http://www.addme.com/newsletter

3.3 **Tracking response: What to measure**

- **Landing page views**: Number of newsletter subscribers who click a link in the newsletter to read an article on your website
- **New subscribers** to newsletter, measured per mailing cycle
- **Total number of Unsubscribes** per mailing
- **Deliverability rate** (hard bounce vs. soft bounce).
- Which part of the organisation's campaign/area is receiving the most feedback?
- **Number of 'opens'** & CTR (Click Through Rate): Only possible in HTML-based mails.
- Comments and **feedback from people not on your list** (shows your newsletter is being circulated)
- **Rough correlations** between sending out e-newsletter and increase in sales, amount of feedback received

Box 12.5
What rock stars and e-zine publishers have in common...
...We both have the ability to impact tens and hundreds of thousands of people with our messages. If that is true, why are some publishers dead broke when compared to rock stars that reach the same quantity of people with their message?

- Don't just give facts: Tell a story.
- Polarize people with your ezine content...cause them to take selfless actions to promote or talk about your ezine and products.
- Write a personal letter at the top of your e-mail newsletter so that they can connect with you personally

Source: Christopher Knight - http://e-mailuniverse.com

4. E-mail management tips for Webmasters
This section points to useful practices and strategies for Webmasters to better equip them to manage their organisation's e-mail strategy. Besides managing websites, information managers have to don various other administrative roles as well; they have to manage and maintain the organisation's 'list hygiene', know when to schedule their newsletter mailings, understand e-mail bounces, and guard against being branded as spammers.

4.1 **Managing a contact list database** (details in chapter on *database for information management*)

4.2 **Understanding the e-mail bounce**
Not all your targeted recipients receive your e-mails. In this case, the sender receives a 'bounce' message or 'bounce-back'. There are more 60 reasons why your e-mail did not reach recipients, and these can broadly be categorised as a 'hard' and 'soft' bounce.

"Most small organisations are terrified of putting their e-mail addresses online because they know they don't have the resources to cope with an increased flow of requests. They are trapped in a weird position of wanting more people to know about them in order to improve their work and access more resources, but don't have the capacity to deal with inquiries."

Source: Terri Willard: http://www.brettonwoodsproject.org/strategy

A **hard bounce** is usually a permanent failure and may occur because the recipient's address is invalid, the domain name doesn't exist, the recipient is unknown, or there's some type of network problem on the recipient's end. A **soft bounce** is an e-mail message that gets as far as the recipient's mail server, but still can't reach the recipient. The most common cause for a 'soft bounce' is a full mailbox. This will happen A LOT with your subscribers who use free e-mail services like Yahoo and HotMail, because they allow for very little e-mail storage.

Source: Alexandria K. Brown: http://www.ezinequeen.com

4.3 **Rough guide to SMTP error codes...**
Did you ever take a close look at the 'raw view' of the 'returned mails' or 'bounced mails'? There's a wealth of information buried (actually its more in-your-face only if you care to understand) in such 'bounce' or 'undelivered' messages.

Now decipher this....

```
This is the whyshoulditell program at host jumbo.cseindia.org.

I'm sorry to have to inform you that the message returned
below could not be delivered to one or more destinations.

For further assistance, please send mail to <postmaster>
If you do so, please include this problem report. You can
delete your own text from the message returned below.

   The whyshoulditell program
<pranavaadi@sancharnet.in>: host ndl1mx1-a-
fxed.sancharnet.in[61.0.0.46]

said: 550 5.1.1   unknown or illegal alias: pranavaadi@sancharnet.in
(in reply to RCPT TO command)
```

CSE e-mail server, nicknamed 'Jumbo'

Original recipient

IP Address of recipient's mail server

SMTP error code 550: Means a permanent error. No use in trying to re-send

The **first number** generally tells whether the server accepted the command and if it could manage it.
2 The server has completed the task successfully.
3 The server has understood the request, but requires more information to complete it.
4 The server has encountered a **temporary** failure.
5 The server has encountered an error (usually, **permanent**).

Usually, the first number (e.g. 5.x.x) at the beginning of the specified SMTP protocol response code is about the only thing you can go by, because different mail servers can use their own text description with the second and third number.

The **second number** gives more information. Its six possible values are:
0 A syntax error has occurred
1 Indicates an informational reply, for example to a HELP request
2 Refers to the connection status
3 & 4 Unspecified
5 Refers to the status of the mail server
The **third number** shows more graduations of the **mail transfer status**

4.4 A fight for inbox survival: The threat of SPAM

There are a number of issues that might affect how many of your e-mail messages are actually being received by your recipients. Spam filters, ISP's are all doing their best to keep unwanted e-mails from our inboxes. If you have a large mailing list, don't be surprised if you get many 'bounce' mails in response to your mass mailings. A large number of bounces indicate your e-mail is either already being treated as spam, or will very shortly be treated as spam by your recipients' mail servers. This should set alarm bells ringing.

Box 13.3:
SPAM: Usually refers to either Unsolicited Bulk e-mail (UBE) or Unsolicited Commercial e-mail (UCE).
Bad if we're "Blacklisted" by anti-spam servers, which share such information with major mail servers.
Anti-spam configurations on mail servers allocate "points" for a host of "attributes" or rules.

What's responsible?

Usually, the first step any disgruntled e-mail recipient takes is to inform the company's System Administrator (SysAd). The SysAd then configures the local e-mail server to tag any mail coming from you as 'spam'. Such an action usually means your intended **recipient may not even see your mail.** Even individual e-mail users have the easy option to automatically delete all e-mails that contain specified fields (such as any mail with the From: field containing *your* e-mail ID).

An organisation's SysAd may in addition, also lodge a complaint with the Internet Service Providers (ISP) / mail server hosts against *your* mail server, and/or e-mail ID.

But the real danger is that often, your recipients don't have to even complain for you to be tagged a spammer. **Subscribers often forget** that they had signed up for your newsletter. But some trigger-happy 'subscribers' will shoot off a complaint without bothering to first check whether they'd actually signed up to receive any e-mail communication from you.

Box: **'Won't unsubscribe, but will complain'**
Jakob Nielson's research shows an overwhelming majority of e-newsletter subscribers don't even bother to unsubscribe – they just suffer silently, or directly lodge a complaint against you.
Source: http://www.useit.com

Box: **Startling spam stats...**

- Worldwide, 13 billion unwanted e-mail messages are sent each day (Ferris Research)
- The number of daily spam messages is doubling roughly every 18 months (Radicati Group)
- 90% of the spam messages are sent by fewer than 200 people (CAUSE)
- Spam will cost U.S. organisations over $10 billion in 2003 (Ferris Research)
- For U.S.-based ISPs, 30% of inbound e-mail is spam (Ferris Research)
- Spam accounts for 15% to 20% of inbound e-mail at U.S.-based corporates (Ferris Research)

Quoted in E-mailLabs: http://www.emaillabs.com

Some SPAM filters at the e-mail client level trap suspect e-mails, tag them as spam, but nevertheless allow such mails to be displayed in the recipient's mailbox.

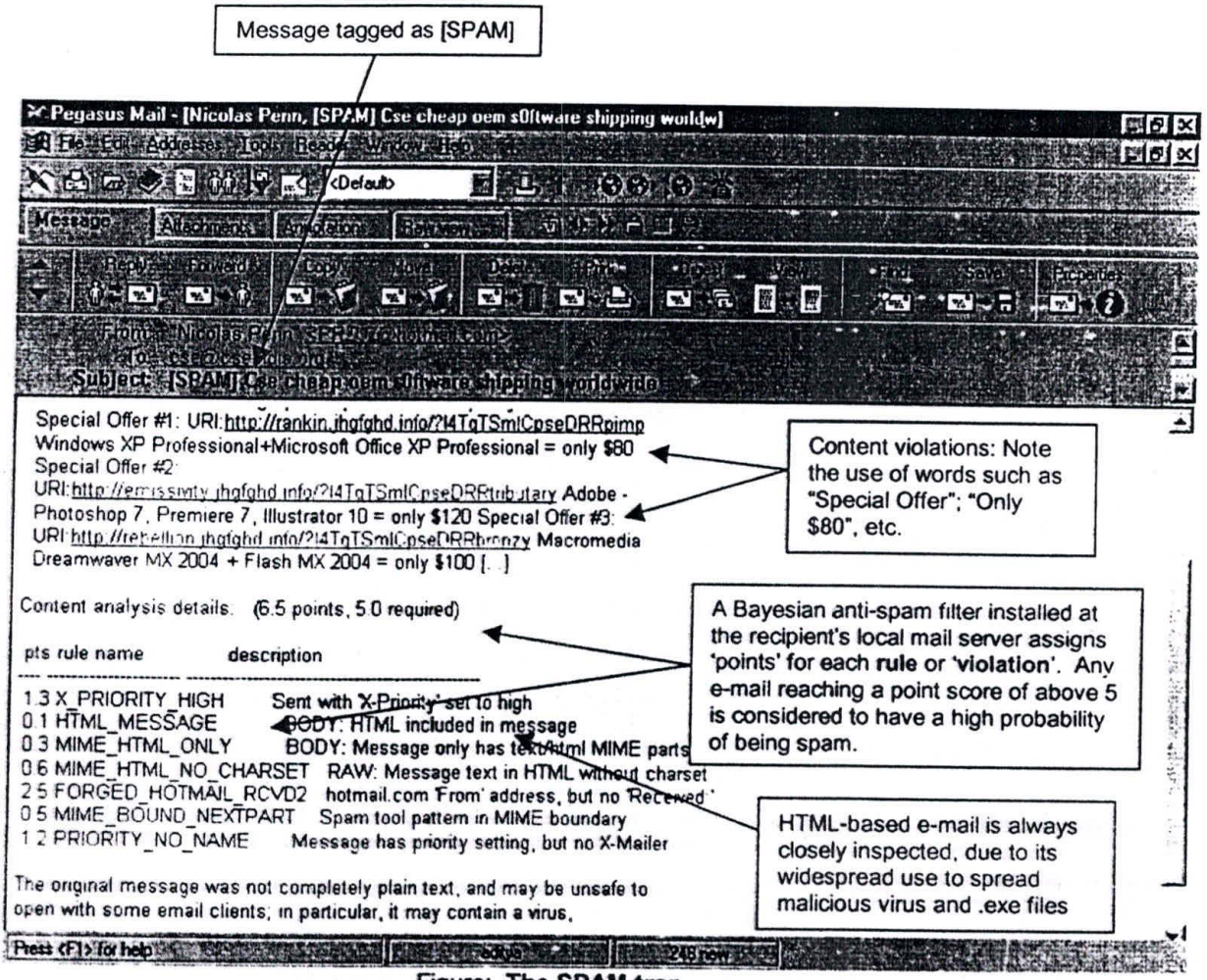


Figure: **The SPAM trap**

Box: **Bayesian filters**

Many organisations make use of locally installed anti-spam filters (Spam Assasin, which is based on the Bayesian filter, is widely used). Such filters scan the headers and content of all incoming mail, to determine the probability that it is spam. They assign point values to items that frequently appear in 'typical' spam messages, such as whether the e-mail was delivered using an open relay, or whether it includes a 'correct' unsubscribe option, and so on. They even penalise YELLING words, marketese words, HTML e-mail, etc. A message that accumulates too many points is tagged as spam and sent to the junk mail folder. As is obvious, it is practically impossible to obtain a zero spam score (the best). Run a series of tests and fine-tune your e-mail to achieve a spam score of below 5.

Another popular spam filter is called a **challenge-response system**, which tries to verify that a human and not a mass-mailing computer has sent the e-mail. It does this by requesting the sender to visit a link and verify a simple task (such as showing the picture of a fruit and asking the sender to identify that fruit). Only after this step is the mail allowed to reach the recipient!

4.5 **Nasty things start to happen** as soon as your mail server host or ISP receives a complaint against your mass e-mailings (ISPs almost always trusts the individual making the complaint).

- Usually, your ISP will send you a warning (together with a copy - minus the identity - of the complaint)
- Often, your ISP will deny you access to your account pending an investigation
- Your Web hosting company may temporarily shut down your site
- Finally, you will be blacklisted: Your e-mail address will be propagated throughout the Internet to hundreds of cyber-vigilante groups and anti-spam services (such as Spam Assassin). The situation easily snowballs out of control. It is very difficult to de-list an IP and/or Domain ID from such anti-spam servers or RBL's (see box 13.3). A listing on one of these groups will ensure your e-mail is rejected by the recipients who are the clients of such anti-spam services. If you're blacklisted on a 'major' anti-spam server, such as those used by Yahoo and Rediffmail, any mail sent to these major e-mail clients will be rejected and returned, without the recipient ever getting a chance to view the mail).

Box 13.3:
RBL: Realtime Blackhole List, a database of IP addresses of e-mail servers that have been used to send spam.

4.6 **When to suspect you've been branded a 'spammer':**
Even before you get a formal notice from your ISP, you will notice an unusual amount of 'hard bounces'. These hard bounces are usually categorised as undeliverable mail, and carry a 500 or above SMTP error code.

What to do when this happens:
Have detailed information on your ISP and Web hosting company handy, with full contact details (telephone, fax, e-mail and snail-mail). Act quickly and send your ISP/ Web hosting company a detailed note on what happened, together with a copy of the 'offending' mail that triggered the spam-bounce. Explain to them why your newsletter is not spam, and request them to reactivate your account.

4.7 **Preventive Medicine: Tips to avoid being branded a 'spammer'**

Tasks for your ISP's System Administrator
Ensure reverse DNS lookup: The Domain Name Server (DNS) recognises your IP Address as a name and propogates this information throughout the Internet. Make sure you have a properly functioning reverse lookup. A reverse lookup allows a recepient mailserver to accurately verify the identity of the sender (this should not be an alias).

RFC compliant ISP: Make sure the stuff your Internet Service Provider (ISP) does is actually RFC compliant. If not, change your ISP. Also, don't send your mass mails using your ISP's resources! Organisations often do this by "relaying" their mail lists through their ISP. Now, this is usually a breach of contract, as the ISP's bandwidth should only be used to send out individual e-mails, not mass e-mails. In short, if the anti-spam server blacklists your ISP's IP Address, they'll bay for blood, as it seriously affects their business with other clients as well.

Mailserver settings

- Ask your IT department whether your e-mail program generates a RFC compliant message id.
- The HELO / EHLO (literally your mail saying 'hello' to your recipient's mail server) should be the fully qualified domain name and not just the hostname. It should resolve to the ip nr of your mailserver or vice versa.
- The mailserver should not be an open relay. It should only accept mail if the sender or recipient are users / customers on your mailserver.

- There should be working postmaster (usually postmaster@yourdomainname.org) and abuse accounts. This is important, as most abuse complaints are redirected to this account.
- Do NOT disable your verify (VRFI) (server-level verification protocol). Many mailservers will check both transport and content sender and recipient. The combination of a spam message, a non-existent sender and a disabled verify will lead to a failing bounce. Many system administrators will block all mail from hosts which generate a lot of bounces.
- Make sure your bounces contain all original header information. Bounces with stripped headers are rejected by a lot of systems.
- Time settings: Your servers should use be synchronised to an atomic clock, as mail with incorrect time is often rejected.
- Properly registered Whois: Make sure both your domain and your IP numbers are properly registered with whois (an independent service widely used to verify the identity of the sender). Check that whois actually works properly. Do not use top level domains that don't have a whois at all. Sending mail without any form of registration is a spammer's heaven.

Tasks controlled by the sender:

- Always consider how your "subject" line might be misinterpreted by a "junk" filter before you send your e-mail. Avoid marketese words in the subject (available, chance, convenient, excellent, homeowner, information, low, mortgage, sex, new, opportunity, priced, reduced, simple, super, unique, buy now, order, discount, etc). Use an intelligently worded subject that provides a short description of the e-mail content.
- Avoid sending attachments
- Avoid usage of capital letters and punctuation (??!!) within the subject line, and in your e-mail text.
- Make sure that the sender and recipient addresses are correct
- Have a 'Real Name' configured in your e-mail account. Better still, use a combined full name and your e-mail ID: 'Aditya Batra <aditya@cseindia.org>'
- Use a character set that is supported by the recipient. If in doubt, use plain text
- 'LOUD' e-mails are usually considered spam
- Avoid sending HTML mail. Many mail servers of large organisations simply do not allow HTML mail (as it is easy to embed malicious virus or .exe scipts in HTML)
- When was the last time you read well-written spam? Proofread and spell-check your all your e-communication (including your e-newsletter)
- DON'T say, "This is not spam." Instead, explain WHY people are receiving the newsletter: "You are receiving this newsletter because you signed up at http://www.url.com/signup.htm
- Avoid using different e-mail IDs in the "From:" and "Reply to" fields. When spam filters see an e-mail originating through one network or domain (@cseindia.org, or @yahoo.com, for instance) but where the "Reply to" address lists a different domain (@clueless.com) they will often trigger closer inspection or rejection.
- Do not list many recipients listed in the "Carbon-Copy" and "Blind Carbon Copy" (CC & BCC) fields. Including just a handful of recipients usually will not trigger a spam filter. For larger mailings - anything over 10 - send a personalised e-mail through mail merge (best option, but impractical for huge lists), or send as distribution lists (not as effective as a personalised e-mail to avoid spam filters, but still better than listing a massive list of users in the CC or BCC fields.)
- Avoid certain domains that have been widely used by the senders of junk e-mail, including MSN, Yahoo, Hotmail, AOL and Excite. Spam senders often "spoof" such addresses.
- Make at least some parts of your newsletter consistent to build familiarity, either through the subject line, title or format.

Source: http://www.sput.nl/spam/no-bounce.html, http://www.e-mailaddresses.com/e-mail_spam_lists.htm

- Obtain explicit consent before including people in your mailing list
- The safest bet to avoid spamming is not to include people in your mailing list without their **explicit permission**. Instead, have a simple newsletter subscribe form on your website. This is commonly called a **single 'opt-in'**.
- **Always make it easy for people to unsubscribe.** Give clear instructions about how to unsubscribe from your newsletter (usually in the 'footer', also called the 'boilerplate', section of your newsletter / e-mail).
- Provide your brick-and-mortar address, together with a link that leads to a detailed privacy policy on a Web page in the footer. **Test** the unsubscribe mechanism to be sure it actually works; nothing irritates people more than being unable to get off a mailing list even after following your instructions.
- **Maintain list hygiene**

Box: **'double opt-in' works ...**
A visitor signs up for your e-newsletter. Your new subscriber is then sent an e-mail that requires her to confirm her interest in receiving your e-newsletter.

Box: **You're in trouble if...**
No clear policy guides the use of your large mailing list use for advocacy or marketing. Few quality control measures are used to determine who gets included, in which list, and for what purpose. Technology will hardly help when there is no clear mailing strategy in place.

- **Don't harvest e-mails from unreliable sources:** E-mail lists are very easy to procure. Valid and relevant e-mail IDs are the hardest to build. Whole CDs containing millions of e-mail IDs are freely available for sale in shady marketplaces around the world (such a New Delhi's Nehru Place). In short, never trust an e-mail ID that your organisation has not collected itself. Don't swap e-mail lists with your friends.

  Remember, you're in the business of building community and networking - don't spoil a promising relationship by adopting shady e-mail harvesting practices.
- Remove all group, listserv, mass e-mail IDs from your mailing lists, unless you're sure they belong there.
- Use a mailing schedule, centralise mail management and data security

Box: **...in a nutshell: The CAN-SPAM ACT (2003)**

On December 16, 2003, the very controversial Controlling the Assault of Non-Solicited Pornography and Marketing Act officially became the first United States law to regulate commercial e-mail.

- CAN-SPAM doesn't allow individual rights of action; only governmental or law-enforcement agencies can launch actions. Individuals don't have the right to bring actions against senders.
- Commercial e-mail is defined as e-mail whose primary purpose to sell products. It doesn't define e-mail newsletters as commercial e-mail, even if they have ads.
- The law applies to e-mail "senders," defined as anyone who initiates a commercial e-mail, such as the advertiser whose products or services are promoted.
- The new law doesn't require you to get the recipient's permission before you can send e-mail, but the best practice remains getting permission, or affirmative consent, first.
- The law requires you to remove a name within 10 business days of receiving the unsubscribe. If you use real-time unsubscribe, this shouldn't affect you.
- The "boilerplate," a reminder to your subscribers about why they're getting your e-mail, should go at the end of every e-mail, and include your name, postal address and working unsubscribe link.

NOTE PAGES

NOTE PAGES

N O T E P A G E S

N O T E P A G E S

Information Outreach: The Challenges

Objectives : At the end of this chapter you will be able to:

- Appreciate Information as an economic resource and marketable commodity
- Develop tools for understanding customer needs.
- Develop business plan for information services and products

Introduction

Marketing is typically seen as the task of **creating, promoting** and **delivering products** and services to **consumers** and **businesses**.

Selling is only a subset of marketing. The most important part of marketing is NOT selling. The aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the customer so well that the product/service which has been created fits a customer and sells by itself. Ideally, marketing should result in a customer who is ready to buy.

Typical example would be Walkman designed by Sony – which puts together the various aspects around which MARKETING revolves. It was a product which was created to meet the **needs** of a customer, was subsequently helped by **promotion** to scale up the **'need'** level to a **'want'** level (I need a device which can play music when I play golf, and I want a Sony walkman). Sony was swamped with orders because they had designed the 'right' product based on careful marketing homework.

Social Definition of Marketing: A social definition of marketing shows the role marketing plays in society. Broadly, **the societal role of marketing is to 'deliver a higher standard of living where individuals and groups obtain what they need and want through creating, offering, and freely exchanging products/services of value with others'.**

Information as a marketable Commodity .....

So does information figure in as a marketable commodity?

Do consumers and businesses
want information?
can it be created to fit into their need set ?
can it be promoted ?
can it be delivered or distributed?

According to Philip Kotler, there are 10 types of entities, which are marketable: goods, services, experiences, events, persons, places, properties, organisations, information and ideas.

Information can be produced and marketed as a product. The oldest example of information being marketed as a product is schools and universities. Schools and Universities essentially produce, promote and distribute information at a price to parents, students and communities. Books, magazines market information. Research reports on industry and companies are information products created and marketed to consultancies, bankers, share brokers etc. Reports on environment, water, air, natural resources are information produced and marketed to environmentalists, schools, educational institutes, corporates, government entities etc. The creation, packaging and distribution of information is one of our society's major industries.

Core Marketing Concepts for Information Products:

As is true for any other product or services, the key to marketing of information products revolve around finding the right target segment. Segmentation and Targeting are two key parameters for a successful marketing initiative for information products. Often right segmentation of the market and targeting the right segments are key determining factors for an information marketer.

- Segmentation & Targeting – A marketer can rarely satisfy everyone in a market. Not everyone likes the same hotel room, restaurant, automobile and movie. Therefore, marketers start by dividing the entire market into segments. They identify distinct groups of buyers who might prefer varying product mix. **Market segments** can be identified by examine the differences in buyer behaviour , like for e.g., geographical locations, type of organisation, ability to pay, willingness to pay etc.

Having segmented the market a marketer then needs to decide which segments present the greatest opportunity, in other words which are its **target markets**. For each target market a firm then develops a market offering. The market offering may differ from one target market to another. The offering is then positioned in the minds of the target buyers as delivering some central benefits. For e.g., a TV news channel in India may position itself as a channel which provides analysis on news, based on the experience of its correspondence and targets a segment which is relatively well educated, are interested in finding the story behind the news and are relatively well off. Whereas another news channel in India may position itself as a channel which brings news as it happens, in the fastest time and targets a segment who form the masses and are keen on the news rather than the analysis.

Segmentation and Targeting in Information Marketing:

Steps Involved:

- Look at the entire market vis-à-vis your product portfolio. Your product portfolio may contain varied products. It's a basket of products. You may have information products on water pollution, air pollution, river pollution, news-based products covering all subjects like air/water/rivers. Scan the market vis-à-vis each of your product. The question that you need to ask is who would be the prospective buyers for each of your product. Make a product wise exhaustive segmentation of your market.

Product 1	Product 2	Product 3
Govt. Ministries	NGOs	Entities involved in Climate Change
State Env. Ministries	Educational Institutes	Air pollution equipment mfg.
Pollution Control Boards	Govt. Ministries	Institutes working on Global Warming
Env. Education Institutes	Corporates	Env. Educational Institutes
	Multilateral , bilateral agencies	
	Consultancies	

- Analyse the segments : A,B,C analysis

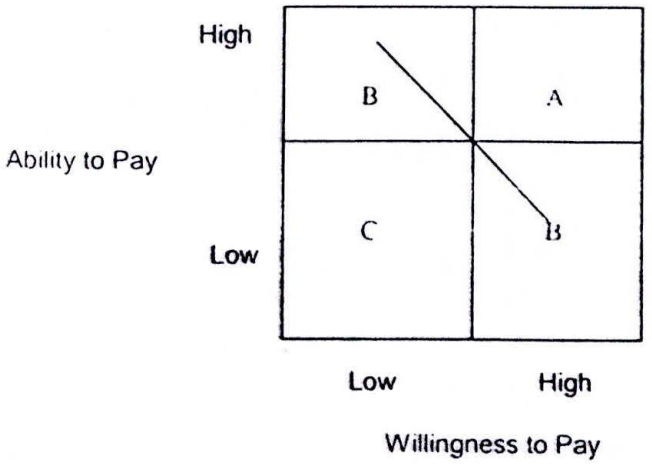
Two key parameters for analysing the target segment are:
a) Ability to pay
b) Willingness to pay

a) Ability to pay doesn't merely depend upon how cash rich your segment is. It also depends on whether the segment has set aside or allocated funds for information products. Typically,

research organisations, educational institutes etc. may not be as cash rich as some of the corporates but they do have specific budgets set aside for information products. Ability to pay is often determined by the quantum of budget any organisation sets aside for information products. These are typically organisations where information and knowledge is treated as a key ingredient towards meeting the objectives- the organisation has set for itself. Typical examples would be top-notch educational institutes, consultancy firms, research organisations etc.

b) Willingness to pay depends on various factors. The key amongst them are product characteristics (strength of the product), awareness of your company /organisation in the market place, creditability in the market place, the criticality of your product vis-à-vis the needs of your target segment etc. Whereas ability to pay is more to do with allocated funds, willingness to pay depends upon differentiating your product/organisation vis-à-vis competition.

- **Targeting Segments** : A,B,C segments:



Broad Strategy Outline:

Information products are often marketed by one or combination of the following:

- Mailer Campaigns
- Personal Meetings & Presentation
- Using the internet : Websites & email marketing
- Using Channels

Mailer Campaigns: Mailer Campaigns is one of the most effective and highly rewarding means of information marketing. It is a tool to reach niche segments in geographically dispersed areas. Information products need educating the buyer extensively on the product, therefore any marketing instrument is often text heavy. A properly designed mailer should have the following:

a) a brief introduction about the organization
b) a short note on the subject/topic the product deals with
c) specific unique selling proposition of the product/highlights of the products
d) a strong invitation to buy the product
e) payment options and contact details.

Having covered all the above, the mailer should still be short and compelling enough to make a buying decision.

A sample mailer is attached for your reference as Annexure 1(attach Corp Inc mailer)

Personal Meetings & Presentation: The following factors should be kept in mind

a) Know the organization you are meeting
b) Set the agenda of the meeting (what you want to do ? which products/services you want to pitch? what will be your sales pitch?)
c) Keep your meeting focused and short
d) Try and close the meeting with an outcome.

Using the internet: email marketing

Marketing through email is the most cost effective method of marketing information product. However, it may not be as rewarding in terms of conversions into sales. Some pitfalls are –

access to internet
payment mechanisms
low levels of retention
presentation and attractiveness

email marketing however is the tool of marketing info products in the future. Its fast replacing direct mailers owing to inherent strengths like

speed of communication
extremely cost effective
extremely effective for long distance/overseas reach

A sample email mailer is attached for your reference as Annexure 2 (DTE Special offer email)

Using Channels: Book Distributors, Dealers and newspaper vendors are alternate channels for marketing. However they need to be managed and monitored extensively. Often cash gets blocked in channels owing to credit terms. Chances of bad debts are higher. Also channels often demand high commissions, which range from 20% to as high as 45%, as a result revenue realization is lower.

Pricing information Products:

Pricing for an information product needs careful consideration of the following:

1) Costs
2) Paying Capacity of the target segment
3) Desired profit margins , if any

1) Costs:

Cost of personnel: Mandays involved in creating the information product. A careful logging of total mandays involved of all concerned professional working on the information product would give a fair idea of the fixed costs. The key here is logging the mandays for each professional. Once a log sheet is available, it can be multiplied by the salary of each professional to arrive at an overall manpower cost attributed to the product.

Production/Printing Costs: The following points need to be taken into consideration at production stage:

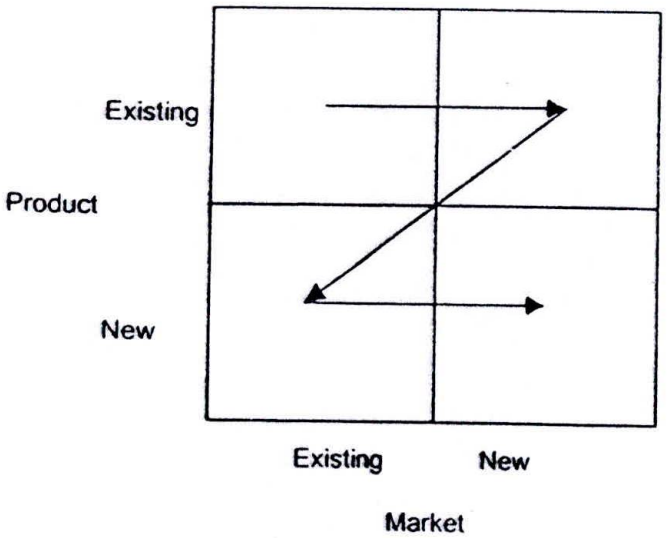
a) Once we arrive on the number of pages per copy, how many copies would constitute an optimum number from the printers point of view?
b) What is the anticipated market demand ? How close is it to the optimum printing quantity?
c) What's the revenue expectation out of the product?

All the above would give a rough idea on the number of copies to be printed.

2) Often theoretical analysis leads to a price, which the market is not ready to accept. Subsequently, it becomes difficult to sell the product, which is over priced for the target segment. The paying capacity of the target segment is extremely important while pricing a product.

Illustrate with GRP -Choloralkali

Products-Markets : The strategy for market development of information products



Often when our existing markets reach maturity, we wonder what next?? The above matrix gives a plan of how product and market movement should be.

As our existing markets reach maturity – we need to take the same product to new markets. This activity is one of the most enriching and rewarding experience for any information marketer and is known as the 'market development phase'. Market development should be done simultaneously with the existing products reaching the maturity stage in the existing market. We should not wait until the existing product passes maturity and reaches decline.

The next step would be to introduce new products in the existing market. This phase is known as 'product launches'. Work on product launches should go simultaneously with 'market development phase'. Product development and product launches are often time consuming. hence planning for this stage should coincide with 'market development phase'.

The last phase is introducing a new product in a new market. This phase is often the most challenging phase for an information marketer.

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