Chapter 1

Sources of Information

- Introduction
- Primary sources
- Secondary sources
- Tertiary sources
- Non-Documentary sources of information
SOURCES OF INFORMATION

Introduction
A library is a collection of information in different forms such as printed non-printed, published or unpublished materials including audio-visual. The collected material is catalogued and arranged so that a person is easily access to the information sources that a library has. Information is the most crucial resource and those who have better information are always in an advantageous position. The future of each nation as well as that of mankind is based now more than on ever before on information or knowledge gained rather than on any other material or resources. Information leads to knowledge and knowledge is then to innovation and development.

The human society is undergoing a transformation due to the rapid development and enormous growth of information in all walks of life. Information is emerging as a critical resource for user activities at all levels: education, research and development. Improving the quality of day-to-day life etc. It is clear that information will occupy a center-stage position governing human life in the coming century making a profound impact on society and economy. In information society, a person who has information about the ways and means to gain knowledge is said to be a step ahead of others in the process of development.

The value of information in research can not be undermined. A research and development program can be accomplished successfully only if the required information becomes available as and when it is needed. Without proper and complete information no decision can be taken and in fact, no progress is possible with the support of adequate information.
Introduction

Information

The word information is used to define various meaning such as knowledge, information, telling, understanding, massage and data etc. Information is the product of human brain in action. It may be abstract or concrete. When an individual thinks, a variety of images and ideas flashes in his mind. This makes some information accumulate in his mind and his memory retains some pieces of information. Information may be defined as data of value to decision making. The processed data is information.

The term information has been defined by Eliahu Hoffman as: 'Information is an aggregate (collection or accumulation) of statements, or fact or figures which are conceptually (by way of reasoning, logic, ideas, or any other mental “mode of operation” interrelated (connected)’.

United Nations agencies have identified information as a tool for development. The 1948 UN's Universal Declaration of Human Right calls for freedom of access to information. It describes such access to information as one of the basic freedom of humans.

The concept of information has been defined as- the date or knowledge which is “communicated or received concerning a particular fact or circumstance” in order to reduce the user’s uncertainty by meeting their needs (Random House Dictionary, 1973)

Sources of Information

Since the beginning of civilization, people have looked for ways records, share and distributed information. People once kept their records on such materials as bone, clay, metal, bark, papyrus, silk, leather, parchment and paper. Now in modern time, there are many latest and new media which is used for storage of information such as film, DVDs, optical and magnetic media etc and have become more popular for storage of information.
A document in any form can be a source of information. For quite some time now the printed page has remained the most useful and reliable source of information. Along with the printed page, some other forms of the documents have also appeared on the scene asking for more and more attention. There are various audio-visual materials such as films, filmstrips, various forms of phone records etc, which have been accepted as source of information and required in a library.

We can not deny the importance of information sources in our life. We need sources of information in our every field of life whether it is education, research or teaching. One can not imagine ones life without sources of information because at every moment of our life we need information for decision making, for our study and research which is provided only by adequate and reliable sources of information. Information is an important ingredient without which one can not imagine any sort of development. Everyone wants to be informed of the latest happening around him/her, at least in ones own field of study.

In research and development field, sources of information are much important. The researchers keep them informed with latest trends and developments in their field by these sources. These sources also provide information on going research in their field. So possibilities of duplication of work are minimum. By newspapers and magazines, people keep them informed about the policies and decision of the government. They keep them up to date about latest news in their country and out of the country.

Information sources help in locating information. A researcher usually starts with tertiary sources and secondary sources and ends his search with primary sources. With increasing amount of literature, it is becoming almost impossible to use primary sources directly for searching of
information so secondary and tertiary source of information keep well informed him about the latest development in his field.

**Dr S R Ranganathan** has grouped information sources into four categories depending on their physical medium of recording, and size and mode of recording. These four categories are as follows:-

- **Conventional documents** - Under this group, he included the documents recording the information on paper by writing, typing, printing, or some near printing methods. Such as books and periodicals etc.

- **Neo-Conventional Documents** - Under this group, he included a new class of documents called micro documents, such as patents, standards and specification.

- **Non-Conventional documents** - Under this group, he includes documents, which are non-conventional in medium of recording shape and size, such as audio-visual materials, microprints and microforms.

- **Meta-Documents** - This group includes documents, which are produced by the direct recording of social or natural phenomenon using some instruments for example photographs.

**Dannis Gragon (1982)** has grouped information sources into two types:

- **Documentary sources** - This category requires a physical medium to record the information. It has been further grouped into following three sub-categories:

  1. **Primary Sources** - Primary sources are the original investigation representing new knowledge or new interpretation of old knowledge such a literature is difficult to locate and is known to contain original, unfiltered, unorganized and scattered information which may be available in a variety of published or unpublished form such as periodicals those
devoted to original research only, research reports, patents, trade literature, thesis and dissertation etc.

2. Secondary Sources- These sources repackage the original existing knowledge from primary sources. These are well organized sources, arranged according to some convenient artificial plan of arrangement depending on their possible use. Example of such sources are indexing and abstracting periodicals, review of progress, reference books, treatises, monographs and textbooks.

3. Tertiary Sources- This group includes sources which compile information collected from primary as well as secondary sources. For example directories and yearbooks, bibliography of bibliographies, guide to literature, and guides to organization etc. All the sources listed above take the form of physical documents.

- **Non-Documentary Sources-** This group requires no physical material for embodiment of knowledge. These sources form substantial part of communication especially in science and technology. These sources provided information, which other sources do not. Further, it can be dividing into two kinds, formal and informal.

Hanson categorized the documents as :-

- Primary documents include books, journal, reports, patents, thesis, and trade literature.
- Secondary documents include abstracting and indexing journals, subject bibliographies, reviews and survey.
PRIMARY SOURCES

Periodicals
Publications appearing at regular intervals or irregular continuity are known as periodical or serial publication. The synonymous terms used are the journals or magazines, though these have different connotations. One common feature of this publication is that these are not one-time publication like books. It is a different matter that books have reprints or new editions. More up to date information and the results of recent researches generally appear in periodicals. Some information is never published in books.
E.g. Physics of Fluids, 1958-, American Institute of Physics, Monthly

Research Monograph
Research Monograph is separately published reports on research that are too long, too specialized or otherwise unsuitable for publication in one of the standard journal. These publication cover a specific area of knowledge presenting author’s originality of thought, previously unpublished. Sometimes, series of such monograph are brought out.

Research reports
Research reports are reports regarding research and developments project. These are primitive form of literature because these are produced earlier in a research programme. Often these take the form of progress reports which serve as temporary reference. This kind of literature is often called ‘unpublished’ or ‘semi published’ literature because normally these are not through regular book trade channels but are made available to interested parties under certain kind of control.
E.g. Scientific and technical aerospace reports, National Aeronautics and Space Administration (NASA).
**Patents**

Patents are also a very important source of primary information. Patents contain information about new discoveries and inventions. A patent is a government grant of exclusive privilege which allows making use or selling of a new invention for a term of years. A Patent takes the form of an official document, having the seal of government attached to it, which confers an exclusive privilege or right over a period time to the proceeds of an Invention.


**Standards**

Standards are an important primary source of information. The importance of standard can be understand through the fact that the progress and development of any country is depend upon proper standardization of things. These leads to simplification of production distribution of products by a manufacturer. A standard is a pamphlet covering definition, methods, properties, measurements, etc. It may be with diagrams and charts.


**Trade Literature**

Trade literature provides technical information about products or materials offered for sale by manufacturers. These materials form an integrated part of special libraries, as the details regarding the usage of the product or similar information can be found only in them. The basic objective of such a literature is to sell products by a manufacturer or to advance the prestige.

Price lists, data sheets, etc. these materials form an integrated part of special libraries, as the details regarding the usage of products or similar information can be found only them.
**Thesis/Dissertation**

Another important category of scientific communication is the Postgraduate, M.Phil and doctoral theses submitted to universities for the award of degree. These services field invaluable amount of unpublished information in a specific area of research often remain unpublished, since these sources are the result of original research produced by the academic institutions, they do not appear in any trade or national bibliography. Their existences as well as information contained in them. Their existence as well as information contained in them generally remain unpublished.

**Unpublished Sources**

There are certain primary sources of information, which remain unpublished such as manuscripts. Often these may be consulted for historical interest. In some of the subjects in social sciences such as History, their percentages is very high as compared to collection of the total literature. Most of the researchers whose research is focused on 18th, 17th 16th century or prior to those, they often consult these unpublished sources.

E.g. Laboratory Notebooks, Memoranda, Diaries, Company files, manuscripts etc.

**SECONDARY SOURCES**

**Periodicals**

All the periodicals do not report original work. There are a number of periodicals which specialize in interpreting and providing opinions on developments reported in primary source of information. Such periodicals may be considered secondary sources.


Periodicals can be further categorized into abstracting and indexing periodicals
• **Indexing Periodicals**

An indexing periodical is a regularly issued compilation of titles which appear in current primary journals.

E.g. Applied science and technological index, New York, Wilson, 1913

• **Abstracting periodicals**

An abstracting periodical is a regularly issued compilation of concise summaries of significant articles and of important new research reports, patents, and other primary source of publication of that field.


**Indexes**

An index is an alphabetical list of names, topics, places, formulae, titles of any significant item referring to material presented in the main part of work. Index of these items may be arranged chronologically, geographically or in some other way.


**Bibliographies**

A Bibliography is an organized list of primary or other sources relating to a given subject or person. It may be comprehensive or selective. It is usually arranged alphabetically by author or topic wise. The basic aim of a bibliography is to assist a user in locating the existence of or identifying a book or any other material which may be interest to him.


**Reviews**

A review is a survey of primary literature. It aims to digest and correlate the literature over a given period. It may appear as a collection of papers on regular basis or in the form of an article in a periodical
E.g. Annual Review of Biochemistry, 1932, Palo Alto, Annual Reviews, Annual

**Treatises**
A treatise is a comprehensive compilation or summary of information on a subject. A treatise on a subject provides adequate information to a person to acquire basic knowledge. It is limited to a broad subject. It becomes out of date within a short period of time.

**Monograph**
A monograph is a short treatise on a subject. A monograph may be brought out as a part of series.

**Textbooks**
A textbook is a book of instructions. Its primary aim is not to impart information about a specific subject but to enable one to develop proper understanding of the subject. A good text takes into consideration the method of teaching and level of readership.

**Reference Books**
These sources of information, represents in the best way having after collecting the information from primary sources. A reference book is that which helps to locate a subject, and its clarification, clarify of the answer, as a ready reference. These includes encyclopedia, dictionaries handbooks, tables, etc. These form an important part of secondary sources.
 Encyclopedia
An encyclopaedia is a store house of knowledge. An Encyclopedia is a book giving information on all branches of knowledge or a particular subject. It is best used for finding answer of background information on a given topic or subject.

 Dictionaries
It is one of the important source of reference book. A dictionary is a book which deals with words of a language or some special subjects etc. with their meaning.
E.g. Webster’s Third New International Dictionary of English Language

 Handbook
A Handbook is a small book having a compilation of micelleneous information in a compact and handy form. It contains data procedure, principles, etc. Tables, diagrams, and illustration is also provided.
E.g. Handbook of Chemistry and Physics, N.Y. Chemical Rubber Co.

 Manuals
In a common practice, a manual is an instruction book, which instructs how to do something by means of specific and clear directions.

 Tables
Tables are convenient form to present data. These are extremely useful in science especially in physical science and technology

TERTIARY SOURCES

Bibliography of Bibliographies
When secondary sources index the lists of books, it becomes tertiary source of information. This is called bibliography of bibliographies.
Guide to Literature

A guide to literature assists a user to make use literature of a specific subject. It helps to evaluate and introduce literature.

E.g. A Guide to Literature of Chemistry by E.J. Crame and others

List of Research in Progress

List of research in progress covers the research activities of a single institution or laboratory. It consists of a short description of projects, name(s) of investigator(s), period of investigation, name of funding agency etc.

NON-DOCUMENTARY SOURCES

The types of non-documentary sources of information are as follows:

➢ Invisible College

Informal communication or personal communication may occur among scientists working in the same institution. They may discuss current work in correspondence or by other way. This invisible college as describe is a personal network that tends to comprise of an elite, influential and cohesive group of workers engaged in research at the forefront of their field.

➢ Industrial Liaison Officers

These are among the most useful of the widely available source of technical information. These officers provide particularly the preliminary information needed to put a firm on the right track and for information which needs to be given personally and supported by practical advice in order to be fully effective.

➢ Research Institutions

Research Institutions are cooperative information centres. They collect and provide information services to all members. There is possibility of
Introduction

person to person; firm to firm, discussions and exchange of data or documents.

➤ Public and Semi-Public Research Establishments
Governmental departments, their research establishments, public undertakings etc. posses a wealth of specialized information. However this information is available with some institution.

➤ Technical Specialists of Development Board/Association
Governmental, quasi-governmental agencies are establishing development board for various industries. These agencies provide technical assistance and advisory services, often free of charge.

➤ Learned Societies and Professional Institution
The member of these bodies comprise the core of a discipline or profession. The headquarter staff help members personally or many professional matters. They may direct the quarries sometime to the expert members of the body.

➤ Technical Faculty of Universities /Institutes
The science and technology faculty of the universities and institutions constitute a considerable percentage of research scientists and technologists of a country. They often take-up consultancy and advisory work.

➤ Private Consultants
Senior scientists often start consultancy service either after their retirement of the service or by quitting the job after having gained knowledge in their field. These people keep themselves up-to-date with latest information.

➤ Referral Centers
A referral center is an organization that directs the seekers to appropriate source of information such as libraries, information centers and
individuals that are likely to provide the information. A referral centre usually does not supply information or documents

➢ **Consultants of Industrial Organizations and Intergovernmental Agreement**

International organization may depute or provide expert assistance for technical advice. Experts are provided by a nation by inter-governmental agreements as well.

**ELECTRONIC RESOURCES**

Electronic publishing is slowly overtaking print on paper. This new publishing medium has more means of storage, maintenance and quick access to remote place. Emergence of electronic resources has caused a shift in user’s perception also. Today one can have seamless access to any information from anywhere, anytime crossing all the geographical boundaries.

Today, there are many types of e-resources. Some of them are discussed in the following paragraphs.

**(a) Electronic journals**

Nowadays many publishers provide their publication online. Publication of e-journals has led to the development of new opportunities to deliver information to the researcher community at a much faster rate. Electronic publishing has considerably reduced the problem of time lag between the submission of an article and its publication. Some full text e-journals are indicated here.

➢ **EmeraldInsight** - It covers more than 55,000 recently published articles from journals in the areas of management science and library and information science. It is a popular database and widely used by the researchers in the area of management science and public administration all over the world.
Introduction

- **Science Direct**- It provides online access to 1200 core journals in basic sciences. It is used worldwide by the students and researchers in the field of science.

- **J-Gate**- J-Gate is an electronic gateway to global e-journals literature launched in 2001 by Informatics India limited. J-Gate provides seamless access to 8492 to full texts online journals.

- **doaj**- The Directory of Open Access Journals provides online access to increase the visibility and ease of use of open access scientific and scholarly journals. It has an impressive database of 6963 online journals with links to full text articles.

- **ERIC Database**- ERIC is sponsored by Institute of Education Sciences of U.S. Department of Education. ERIC provides online access to more than 1.3 million bibliographic records of journal articles and other education-related material.

(b) Internet resources

Internet has been defining ‘network of networks’. In the age of ICT technology, a vast amount of information is set up by individuals/institutions on internet as key information server tool on the World Wide Web. Many journals, reports, and reference sources are freely available on internet.

- **Web Sites**

Now a day, a large number of Web Sites are available on internet. It has become difficult to say what constitute a good website, because of the
changing nature of websites. Not everyone has adequate idea about which website to access for what kind of information. However, subject gateways provide a solution to such a problem.

- **Subject Gateways**
Today, a lot of literature is available on internet for which one needs to spend sufficient time in searching by going through vast amount of junk information. To solve this problem subject experts and librarian have created subject gateways to provide high quality resources to students and researchers.

- **Search Engines**
A search engine is a locator of information available on internet via the World Wide Web. It contains thousands of references of web documents. It provides a interface between a user and related database. Popular search engines are Google, Alta Vista, Yahoo, MSN Search etc.

- **E-mail**
E-mail is the commonly used service of the internet. E-mail facilitates communication with people all over the world. It has become the life blood of internet with millions and millions of message exchange across the globe daily. E-mail is received within seconds and it is not uncommon to receive reply in another of hours (even minutes).

**Conclusion**
Information generated and recorded in documents is termed as sources of information. Information sources plays a vital role in research work. For accurate and original research primary sources is quite important. The secondary sources are based upon the information of primary sources and tertiary sources are based upon formulation of secondary sources. So in modern society, information has become a vital resource. Every type of development and progress depends upon the free flow of correct and right information. Understanding the value of information from the
ancient times, man tried to preserve his thoughts for coming generation. Books are one of the major ways of transmitting information. Periodicals are also an important source of imparting information about latest research and trends in a particular field. Besides books and periodicals, research reports, patents, standards, conference proceedings, trade literature, are other sources of information. Electronic sources of information have also occupied a good place to facilitate communication of information.
References

3. IGNOU e-gyan kosh study material