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ON-LINE BIBLIOGRAPHIC DATA BASES - RELEVANT INFORMATION RETRIEVAL ON DEMAND

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Relevant and selective information can be readily sought by the users if they have access to on-line bibliographic data-bases. The right information is retrieved 'instantly' out of the computer-held bibliographic records from an extensive and comprehensive range of indexes and data-bases spread all over the world with this technique. On-line bibliographic data-bases have been introduced, their need focussed and recent developments reviewed with reference to their importance, advantages, some actual data-bases in the world, especially related to science and technology, methodology of collecting and storage of information and its retrieval, selective dissemination of information, economics and future trends in India and abroad. Pertinent appendices and references are cited for indepth studies of the original literature.

INTRODUCTION

When we plan our R&D projects, we keep about 20 per cent of our time for updating our knowledge on the topic. In planning bigger Thrust Area Projects, a good number of scientists and library personnel are involved in a big way. The valuable time of the scientists is thus spent in collecting the relevant information on a topic. We face this problem, even though we have access to a good library facility. What about a scientist or a small scale industrialist, who does not have these facilities and time? When we talked to our counterpart abroad (USA), he informed us that they can get the relevant information very quickly through 'On-line Bibliographic Database' searches. It represents for most people a resource for larger than anything, one could possibly hope to afford as a shelf-stock, particularly in disciplines not close to the main subject field.

ON-LINE BIBLIOGRAPHIC DATABASE

An On-line Bibliographic Database is generally a collection of records held in a computer disk store, which can be consulted through on-line computer terminals. The on-line file is derived from machine-readable version of an abstracting or indexing journal. Bibliographical records held in the form, are not directly useful, but provide sufficient information to have an access to the original documents. The bibliographical information provided such as, name of the author, title of the document, name of the publisher, place and date of publication, helps to locate the document.

The number of records provided in on-line DB is extremely high - about 260 million items with an update rate of nearly 16 million items per year. Various aspects of on-line bibliographic databases have been covered in books and articles[2].

In on-line information retrieval, the searcher uses a computer terminals, usually linked by telephone to a remote computer. The computer stores the databases of bibliographic records on rotating magnetic disks, always available for immediate access. The databases can be searched and researched using special computer programmes which allow the searcher to carry out a two-way conversion or dialogue with the computer (Fig.1).

It is important to note that in practice the user would probably explore alternative approaches, and that the search system used (IRS) offers many powerful search facilities.

On-line retrieval offers many advantages. Some significant ones are given in Table I.

Table I Advantages of on-line* information retrieval

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1. SPEED - Indepth search of computer held files (millions of references) done instantly
2. WIDE RANGE OF DATABASES AND INDEXES - User may not find these locally and in journals normally consulted
3. NO NOTE-TAKING - Printed paper cuts down writing time
4. Greater number of access points from databases than printed indexes
5. Databases researched easily using new clues
6. User an active participant-alter/modify his search in formulation of his queries
7. Very economical CF shelf-stocked books and librarian - Esp occasional

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* Searcher uses a computer-terminal (electronic typewriter or vdu via telephones) linked by telephone to a remote computer

ONLINE DATABASE PRODUCTION AND RETRIEVAL

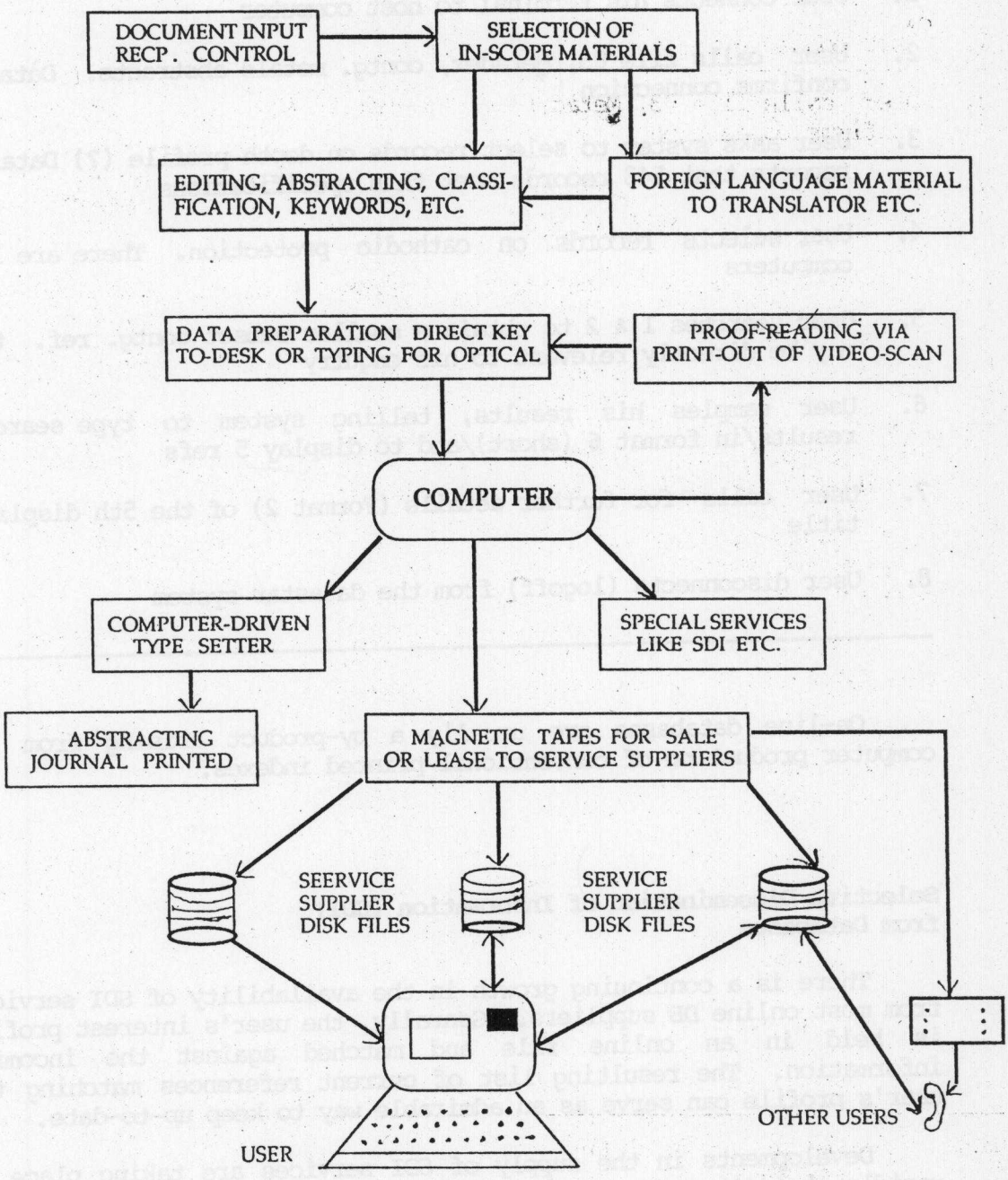

Fig. 1

Steps involved in on-line database searches are illustrated in Table II.

Table II Steps for on-line information retrieval from databases

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1. User connects his terminal to host computer
2. User calls file 03, Metadex, contg. metals abstracts. Datastar confirms connection
3. User asks system to select records on depth profile (?) Datastar reports that 543 records meet this specifications
4. User selects records on cathodic protection. There are 1039 computers
5. User searches 1 & 2 to obtain a smaller subset contg. ref. that may be directly relevant to his enquiry
6. User samples his results, telling system to type search 3 results/in format 6 (short)/and to display 5 refs
7. User calls for further details (Format 2) of the 5th displayed title
8. User disconnects (logoff) from the datastar system

On-line databases are usually a by-product arising from the computer production of conventional printed indexes.

Selective Dissemination of Information (SDI) from Databases

There is a continuing growth in the availability of SDI services from most online DB suppliers. Genrally, the user's interest profile is held in an online file and matched against the incoming information. The resulting list of current references matching the user's profile can serve as an admirable way to keep up-to-date.

Developments in the supply of SDI services are taking place so rapidly that the up-to-date details can be easily be obtained from the main suppliers.

Use of Databases

A database generally provides details of bibliographic references which the searcher uses as key in order to consult the original source literature to obtain the detailed knowledge he is seeking. Increasingly, the on-line record will contain an abstract, or indeed full-text detail, which answers the enquirer's question without reference to other documents.

Size of the Databases

In mid-1986 (about 1959) about 159 million references were contained in major data bases and were available for online search on public access systems, the rate of addition of new references being about 16 million per year. It is probably fair to say that in 1986 some 100 million unique references were searchable on-line with an update rate of about 10 million unique references during the year. In the Figure 2 it has been shown that the increase in growth of reference, available for online reference for 10 years from 1976-1986 and the increase in use of the DB was 8 times. The increase in number of references in DB was 2 fold from 1986 to 1990.

An attempt has also been made in Figure 3 to show how the contents of the existing on-line databases cover the whole range of knowledge, the subject classification shown being those used in the major decimal schemes. For convenience Class 6 is divided into three: (i) Applied Sciences (other than Agriculture and Medicine), (ii) Agriculture, and (iii) Medicine. It is clear from Figure 3 that the sciences (classes 3,5 and 6) make up the vast bulk of the literature searchable on-line.

In the sixties, emphasis was on loading of large (>1,000,000 references), well-known on-line databases (for example Chemical Abstracts, Physics Abstracts etc). Recent years have seen the growing importance of smaller (<100,000) and specialized databases. At present, these are about 16% large, 44% medium and 40% small databases in the world. It shows promise of development of small databases for developing countries like India.

Future Trends

Increasingly, searchers with only limited time (the irreplaceable resource) and with local access to only limited range of conventional retrieval tools (printed indexes, card catalogue etc) are learning that a very substantial proportion of the world's recorded knowledge is literally at their finger tips. The precious time and long hours formerly spent searching abstracting journals can now be used more productively for the study of the actual literature

found so quickly by online searching. Data bases are thus likely to be very important for scientists, planners and decision-makers. Value of small databases and electronic mail as well as SDI is likely to go up. It may even be possible to use domestic TV as a terminal.

ECONOMICS

At present, the cost of using databases is very nominal, as it is a bye-product of printed journals etc. For example, tapes are available at a cost of only $ 0.09 per reference (Metadex) while the actual cost is $ 5 to 20 per record. It is expected that price may increase due to fall in the sale of printed material and cost charges may be levied per minute instead of per hour. There is already a tendency to levy on-line hit charges in some cases. However, seeing the saving in time and the access to a vast source of references, the on-line databases are going to be economically attractive to users.

CONCLUSIONS

There has been a significant and marked growth of on-line databases, especially in USA, UK etc. Collection, storage and instant retrieval possible from an enormous on-line knowledge pool from all over the world, accomplished in about 25 years.

While India has all the basic infra-structure, trained man-power, it has yet to take-off and take advantage of this intellectual and technical achievement.

While information retrieval is not perfect, it offers quick and unparallelled search and research facilities for searching the relevant information out of ever-increasing recorded information in this world. And finally a caution -

Never Put All Your Faith in Databases

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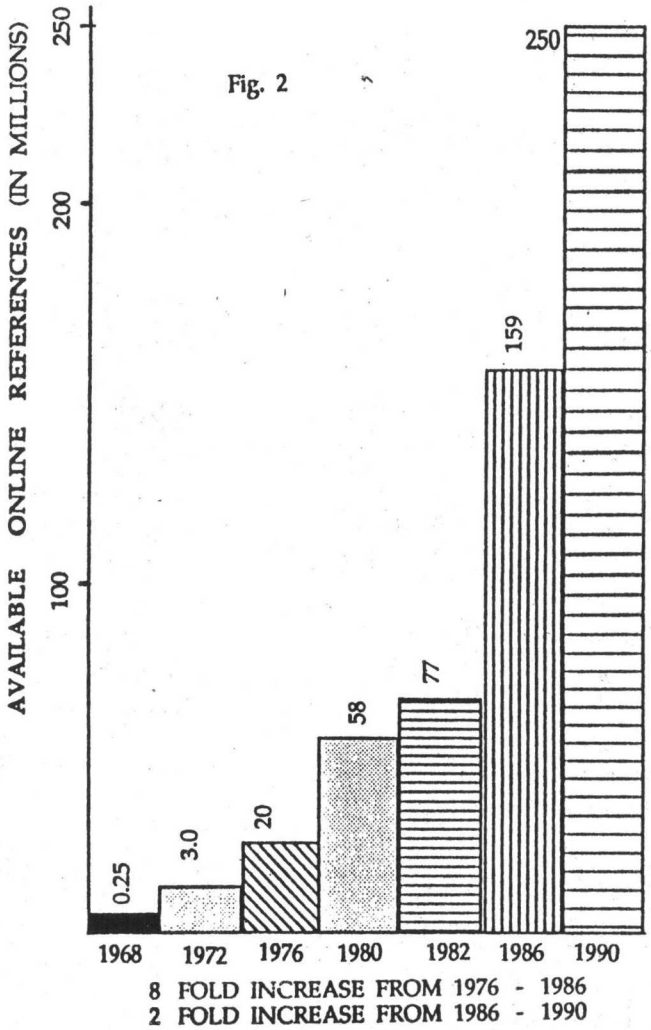

Fig. 2

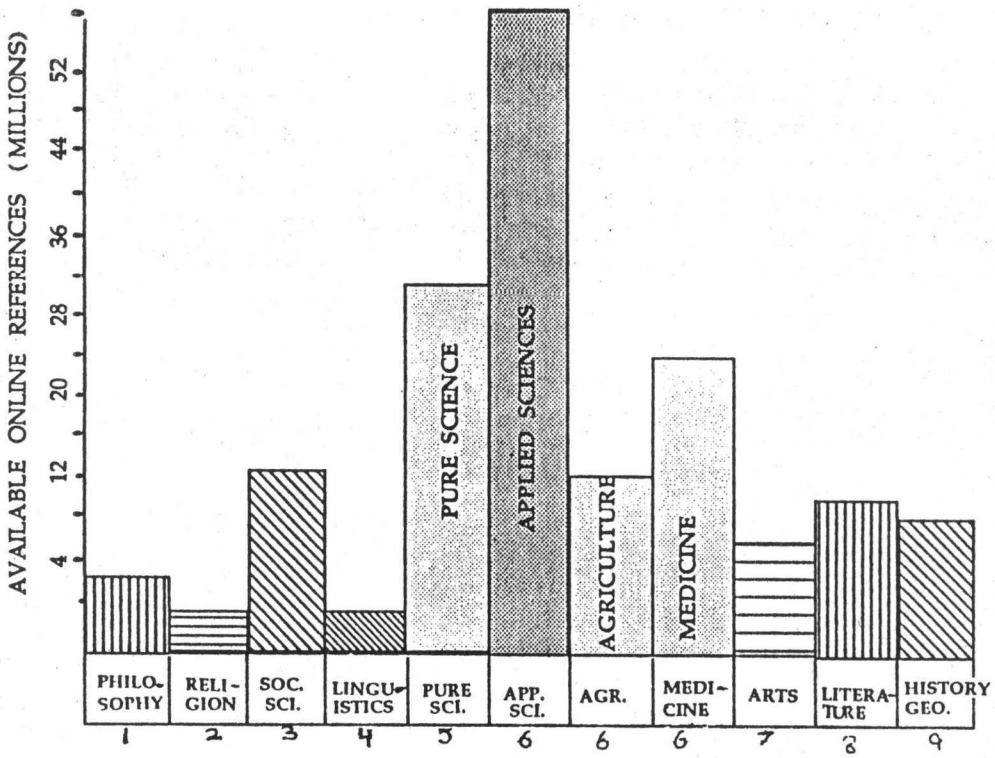

Fig. 3 MAIN FIELDS OF KNOWLEDGE

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