FOCUS ON DESIDOC

INFORMATION PROCESSING AND DISSEMINATION ACTIVITIES

This column carries a series on the constitution, components, achievements, activities and services provided by DESIDOC. Beginning from January 1990, this is the third article in the series. Each issue features one of the multifarious activities of DESIDOC, highlighting the achievements in the particular area, the facilities available, the services provided to the users, etc. The last two issues have covered an overview of DESIDOC and its publication activities.

The Defence Scientific Information & Documentation Centre (DESIDOC) being the nerve centre of information dissemination in DRDO is responsible for meeting the information requirements of DRDO. Keeping track of information collected from the various sources in different languages and in different forms was so difficult manually that a decision was taken to computerize the processes of information storage and dissemination.

COMPUTERIZATION OF INFORMATION

Initially, the Centre developed a software for creating a database of scientific information and for online searching and information retrieval on the Prime-750 system available at the DRDO Computer Centre, Delhi. Input to this database was provided regularly, covering the documents received in the Defence Science Library. More recently, the stress has been laid on the computerization of all library services and management functions. Computerization of payroll and inventory control systems have also been taken up. In this direction, a number of software packages have been developed and implemented.

Defence Science Library Management System (DELMS)

DELMS is a comprehensive package which allows the user to create and manage structured databases and to perform all library management functions independently. It has been divided into four modules:

- **CATALOG.** Performs all jobs related to the creation of an online catalogue where online holdings of the documents existing in a library are available.

- **ACQUIS.** Performs all tasks related to the documents to be acquired, funds position, duplicate checking, etc.

- **CIRCULATION.** Provides all information about the documents being borrowed, discharged, renewed, etc.

- **SERIALS.** Provides information about a periodical, date of its receipt in the library, subscription information, etc.

All these modules are user-friendly and do not presuppose any prior computer skills or knowledge on the part of user. Three modules, namely, CATALOG, ACQUIS, and CIRCULATION have been integrated in UNIX/XENIX environment. The detailed functions of each of these modules are listed below:
Online Catalogue

- Creation of a database on the holdings of books, monographs, reports, patents, standards, and specifications;
- Query search by author, editor's name, descriptors/keywords, class number and other parameters like reports, patents, etc;
- Printing of card catalogues and accession list;
- Database maintenance; and
- Access to database through Local Area Network (LAN).

Acquisition Control

- List of approved/non-approved documents;
- Checking of duplicate indents;
- Details of ordered documents;
- Reminder for non-receipt of documents;
- List of outstanding orders with vendors; and
- Information (for indentors) on arrival of publications.

Circulation Control

- Printing of reservation and reminder notices;
- List of outstanding documents; and
- List of borrowers.

Online query for a particular document could be made by accession number, author, title, member/borrower, subject identifier, and call number.

Serials Control

- List of current periodicals;
- Reminder for non-receipt of journals; and
- Checking of duplicate indents.

Implementation of DELMS

DELMS package is in operation in DESIDOC and is being implemented at the Defence Metallurgical Research Laboratory, Hyderabad; Solidstate Physics Laboratory, Delhi; and Armament Research & Development Establishment, Pune. Once the package is fully implemented at Hyderabad, Pune, and Delhi, the users at the respective centres can search the databases available at other centres by dial-up mode. Two manuals, namely, Instructions and Reference Manuals have been prepared to help users in the operation and use of this software package. In this direction DESIDOC has also conducted four training programmes at Delhi, Hyderabad, and Pune. This package has been given to 17 DRDO labs/estts for implementation.

Payroll System

The payroll system package, written in COBOL language, is user-friendly and menu-driven. All paybills for the gazetted and non-gazetted staff, and class IV employees are generated through this system. The package has helped to generate various outputs like pay register, house building advance schedule, vehicle advance, festival advance, GPF schedule, insurance schedule, pay slips for individual’s record, etc. The package has been operational in DESIDOC for the last five years.

Consultancy Project on Library Automation

DESIDOC has recently completed a consultancy project on library automation, which was sponsored by the National Information System for Science & Technology (NISSAT), Department of Science and Technology (DST), Delhi. As a model, DST library was considered. All library routines like acquisition system, online catalogue, circulation and serials systems have been automated. The CDS/ISIS software, which is supplied by UNESCO, has been modified/ upgraded for integrating the four operations of library management: online catalogue, circulation, acquisition, and serials control. Since the CDS/ISIS software does not support numerical calculations, additional routines have been written in PASCAL language for
circulation control, acquisition control and serials control. This is a unique development and has not been effected elsewhere, including UNESCO.

Current awareness and newspaper clipping services of the DST library have also been covered under this project. A directory of forthcoming conferences has also been computerized.

**Desktop Publishing**

A full-fledged desktop publishing system is being extensively used in producing various bulletins, reports, brochures, and material for overhead projection, 35 mm slides, etc. Recently, the material for DRDO telephone directory was composed on this system. Powerful software like MacWriZe, MS-DOS and PageMaker are being used to effect the above jobs. A scanner is used to incorporate the photographs, diagrams and other illustrations in the various documents to make them informative and appealing. This has greatly helped in saving considerable manual efforts in the design, layout, typesetting and page make-up processes.

**Infrastructure**

An advanced version of personal computer, Xenix-based 80386 system with four terminals has been installed to support the above computerization activities. Its specifications are: 280 MB hard disk drive, 1 x 1.2 MB cartridge tape drive, and streamer tape drive.

Online catalogue as well as circulation control comprising around 12,000 documents are stored in machine readable form in this system. Library staff have ready access to these databases through the dumb terminals installed at different places. Four (Nos.) PC-ATs with dot matrix printers are being used for the work on development of software. Two laser printers (Canon & HP make) with 300 dpi resolution are used for quality printing jobs in no time.

**ONLINE SEARCHING OF INFORMATION**

DESIDOC has the facility to search online several international bibliographic databases through an arrangement with DIALOG Information Service, USA. Scientists from DRDO labs/estts have been utilizing this facility for comprehensive information searches related to their R&D work. This facility has also been made available at the PP unit of DESIDOC at Hyderabad.

**The Online System**

The entire system installed at DESIDOC provides access to the various DIALOG databases through telex and public-switched telephone network (PSTN).

**Telex Access**

A modern message communication terminal (MCT) has been installed for conducting database searches through telex. MCT offers various advantages over mechanical teleprinters. Word processing, programmable answerback, storage and use of message in any sequence, and built-in battery are some of the important features of MCT.

Once the search is completed, one or two records are printed online to ensure the correctness of the search strategy. Wherever it is possible, the user scientist inspects the record and gives his approval of the search conducted. Thereafter, offline prints are ordered. A photocopy of the prints received from DIALOG is mailed to the user, while the original is kept in DESIDOC library for use by others. The whole of information retrieved is not supplied to the users instantaneously because of the prohibitive telecommunications cost, incurring a delay of 10-15 days. The increased costs are mainly due to low speed at the rate of 5 character per sec (cps). Further, absence of downloading facility forms another retarding factor.

**PSTN Access**

To counter the above restraints, DESIDOC switched over to the process of
accessing databases through PSTN. This channel provides access to the DIALOG databases through one of the following ways:

- Direct distant dialing (DDD)
- DIALNET via British Telecom, London.

The availability of downloading facility and high speed up to the level of 120 cps allowed the provision of online prints to the users of DESIDOC. The telex access is now used only at the time of non-availability of PSTN, and the information is provided immediately to the user without any delay.

**Linkage to GPSS**

DESIDOC has recently upgraded its online system by obtaining the password to access the databases through Gateway Packet Switched Service (GPSS) of the Videsh Sanchar Nigam Ltd. This arrangement provides error-free data transfer at reduced communication cost. The communication charges have been reduced to 70 per cent of the charges paid using STD/ISD. This is mainly due to the high speed and packet switching of data transmission.

**Search Strategy**

The formulation of a search strategy forms the core of the entire search system. The cost of database searching and the usefulness of the service depends upon the effectiveness of the search strategy. Over the years, DESIDOC has developed a high degree of expertise in information handling and analysis.

**Consultancy Service**

Consultancy was provided on the establishment of five regional centres for accessing international databases at the Indian National Scientific Documentation Centre, Delhi; Indian Association for the Cultivation of Sciences, Calcutta; National Aeronautical Laboratory, Bangalore; Central Leather Research Institute, Madras; and National Chemical Laboratory, Pune, under the Project, 'National Access Centre for International Databases (NACID)' of the Department of Scientific & Industrial Research, Ministry of Science & Technology.

**DEVELOPMENT OF A THESAURUS ON DEFENCE TECHNOLOGY**

Use of thesaurus – a vocabulary control tool – is essential for any information system for inputting descriptors, formulating search queries and retrieving relevant information. DESIDOC has recently undertaken a project on the development of a thesaurus of Defence terminology keeping in view the latest developments in science and technology particularly as applied to Defence. In the first instance, the said thesaurus will cover four major subjects, namely, aerospace sciences, computer science, electronics, and instrumentation and control engineering. The final product will then be used as a tool for storing and retrieving data from the various DRDO databases by all DRDO Technical Information Centres. This will help to ensure data compatibility in the processing of bibliographic information.

So far no thesaurus has been developed in India which gives an exhaustive coverage of Defence terminology. Development of ‘DRDO Thesaurus’ will be a pioneering effort in this direction.

**Newspaper Clipping Service**

DESIDOC is providing newspaper clipping service to DRDO top management. It covers news items on Defence science & technology, particularly of relevance and interest to DRDO. Collections of news items, covering special events (for example, launch of ‘Agni’) are also prepared and circulated. A database based on these clippings is proposed to be developed to enable quick retrieval of specific news items.