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UTILIZATION OF ELECTRONIC INFORMATION AT IPR LIBRARY: A CASE STUDY

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Providing electronic information to its patrons has become a common feature of many special libraries. Most of the library services are being provided electronically in developed countries. A case study of IPR Library is presented. It discusses how IPR library has taken the challenge of the new emerging technologies and increasing demands of its users by adopting electronic information sources and services and how it generates value added electronic information for its patrons. It also indicates how a small special library can be converted or convert into an electronic library.

1.   IPR LIBRARY

IPR library was established in the year 1982, as a project library attached to Physical Research Laboratory with the following three main objectives:

- To act as a reference center for technical information in plasma physics, fusion technologies and allied subjects for researchers and other scientific and technical staff of IPR
- To collect, process, store and disseminate information in the field of plasma physics to interested users within the country
- To participate in the integrated development of a global information system in the rapidly developing technical field.

Keeping these objectives in view, the library has started collecting its resources and providing the services to its patrons with the available funds and facilities. The library started functioning in different directions since its inception;

- Collection development
- Assessment of users needs
- Utilizing available mechanism for automatic housekeeping operations; and
- Started providing information manually as well as electronically.

Gradually, the library started getting/collecting electronic information sources, providing information directly from those sources and recently started repackaging of information to meet needs of the specific research group or individual.

2.   ELECTRONIC INFORMATION

Electronic information may be broadly defined as "The information stored in a medium, which requires an electronic device to read its contents". Information stored in different electronic media such as Floppies, CD's, Magnetic Tapes, Video, etc. can be retrieved with the help of other electronic devices such as Computer, Video player, etc.

The electronic information is taking over the traditional way of information handling. The electronic medium is the best information storage medium as it has many advantages, such as:

- huge storage capacity
- data security
- saves space
- easy to handle, etc.

At IPR Library all the housekeeping operations are computerized. The complete database for Books, Journals (Current as well as Back volumes), Reports, Standards, Patents, Pamphlets, Softwares, etc. are created in-house using dBase software. Recently the library software is being developed in Access, with online search facilities, which help the users in locating information remotely.

3.   USERS NEEDS

The developments in Computer Technology and the Communication Technology has revolutionized the information provision process. The user are required to be well informed about the latest developments in their specific area of research. The users are also well aware of the latest technological developments and their information requirements has become very complex. The users require information very quickly and they also need the information in readily usable format.

Plasma Physics is supposed to be a narrow subject but the amount of information that is generated is tremendous and it is very difficult to cater to all the information needs of our users. By exploring the information technological developments and providing electronic information, the extensive needs of the users can be satisfied to a large extent. Handling information electronically has helped in providing fast and efficient services.

4.   ELECTRONIC INFORMATION SOURCES AVAILABLE AT IPR LIBRARY

In IPR library, Computers was introduced in September 1989, with one 286 machine. Now the library is equipped with five PC's, of which three are 486 machines and two are Pentium II. It has three Dot Matrix and a Laser Printer and it also has a Bar Code scanner.

The library has gradually started gathering electronic information to meet the information requirements of its users, in different electronic formats, such as:

i.   FLOPPIES

Library has a collection of 217 floppies, both 1.44MB and 1.2MB. The Floppies includes softwares such as:
National Institute of Standards and Technology (NIST) Software
National Center for Atmospheric Research (NCAR) Software
Physics Academic Software
Translation Software of French to/from English, German to/from English and Russian to/from English
There are many floppies which are accompanied with Books.

ii.   CD-ROMS

The library has a total collection of 106 CD-ROMs, which includes:

- CD-ROM DATABASES
- CD-ROM BOOKS
- FREE CD-ROM'S
- CD-ROM DATABASES:

The library is subscribing to two databases, they are:

′Information System for Physics, Electrical & electronics engineering, Computers & control **(INSPEC)** ; and ′International Nuclear Information System **(INIS)**

INSPEC is the world's leading English language information service providing access to the world's scientific and technical papers in physics, electrical engineering, electronics, communications, control engineering, computing and information technology and is a continuation of Science Abstracts first published by the Institution of Electrical Engineers in 1898.   It also has a significant coverage in interdisciplinary areas such as materials science, oceanography, nuclear engineering, geophysics, biomedical engineering and biophysics.   INSPEC database contains over 6 million bibliographic records and is growing at a rate of 330,000 records each year.

Each record in the INSPEC database contains an English language title and descriptive abstract, together with full bibliographic details which include the journal or other publication title, the author's affiliation and language of the original document. All of these may be searched, as well as INSPEC's extensive range of subject classification and indexing systems. INSPEC database can also be searched for:

- Current Awareness
- New Product Information

- Technological Forecasting
- Competitive Intelligence
- Patent Related Searching

Library has INSPEC databases from 1989 onwards.

International Nuclear Information System (**INIS**) is an international bibliographic database covering all aspects of a peaceful uses of nuclear science and technology. It is compiled from the contributions of more than 90 national and international centres, and is produced by the INIS Secretariat of the International Atomic Energy Agency (IAEA) The library has the CD's from 1970 onwards.

- CD-ROM BOOKS

There are about 15 CD's which are accompanied with books. The library has also procured some books in CD-ROM format. The Multimedia CD-ROM of the McGraw Hill Encyclopedia of Science & Technology is also available.

- FREE CD-ROMs

There are many CD-ROMs received free from the publishers especially with the Journals. For example CPC Program Library CD-ROM is supplied free along with the subscription to the journal Computer Physics Communications, yearly update of the journal "Physics Uspekhi" is available in CD-ROM format. Every issue of PC Quest magazine is accompanied by a CD-ROM.

iii   NETWORK CONNECTIVITY

Our Institute's Network Architecture is as follows:

ATM Backbone Network :

Institute for Plasma Research has divided its LAN into three clusters. Nodes from various location are joined at HUBS at their respective places. A total of 23 HUBS are used for this purpose. Thus HUBS are joined to GEO switches which are linked to 3 GEO RIM. A total of 7 GEO switches are used for this purpose. Each HUB has speed of 10 Mbps and has 12 ports. Similarly each GEO switch works at the speed of 155 Mbps and has 16 ports and   each GEO RIM has 16 ports. The Clusters are connected through co-axial cable and fibre optic cable.

Peer to Peer Network :

The Machine on nodes are connected to each other through HUBS. Each node can see and can peer other node in the network. There is 500 Node structure cabling in IPR Campus. Each node has capability to access internet.

VSAT Connection with Class C Network :

Institute For Plasma Research has Dish Antenna with a   configuration of 64 Kbps shared connection and internet leased line with a speed   of 128 Kbps. The VSAT connection is connected to a Hughes Personal Earth Station,   which is connected to a Cisco ROUTER. This ROUTER is connected to PLASMA   Machine, which serves as a gateway to IPR.   This gateway is   connected to   our Domain Name Server, which is a HP Machine named "ARJUNA".

All the PC's in the Library are connected to the Institute's Network. The library has been provided with 10 nodes. Each node has capability to access internet.

5.   ELECTRONIC INFORMATION SERVICES

The library provides the following Electronic Information Services:

i.   Housekeeping Operations

All the housekeeping operations are computerized.

Acquisition: The whole acquisition process is automated. From getting the purchase request from the users, ordering, to adding into the collection.

Circulation: For circulation, we have complete database of documents and users profile. Presently, at the end of the day we update the circulation records. Reservation of documents, arrival or availability of documents, reminders etc., is also being handled electronically. We also have barcode system and barcoding of almost all the documents is done. Users ID is also barcoded and in near future we will be issuing the documents through barcode system.

Periodicals Management: The periodicals records are managed electronically. The daily display of periodicals are sent through e-mail. The complete record is maintained electronically. The reminders to the supplier and publishers are usually sent through e-mail. The manual system of recording still exists.

ii.   Information Retrieval Services

The complete database of the library is created and all the information of the holdings of the library is available electronically, it allows the users to retrieve the information very quickly and easily. A search program called LIBSEARCH helps the users to retrieve information remotely.

iii.   Current Awareness Services

The following services are provided electronically apart from the manual system:

a) Daily Journals list is e-mailed to the users
b) Weekly addition of Books are made available on the web page
c) Weekly addition of Research Reports are made available on the web page
d) Content pages of some journals are e-mailed to the users
e) SDI services: The information is retrieved from the CD-ROM database and provided to the specific group or individual on regular basis and it is being updated as and when the latest CD-ROM update is received.

iv.   Network-Based Services

The library is providing the following networked-based services to its users:

5.1   E-mail

E-mails are extensively used for providing various types of information. Generally all the communications are made through e-mail., Book selection bulletin (sent to the users for recommending books), daily receipt of journals, monthly reminders of overdue documents are sent through e-mail. E-mail is also extensively used for correspondence with the publishers and suppliers. Book and Journals order are sent through emails, confirmation, delivery status etc. are received very promptly. Orders are transferred to other suppliers, if one is not able to supply. E-mails, apart from saving a lot of time has also increased transparency between the library and its users, e.g., the delivery status of a particular document requested by an individual can be given to him/her just by transferring the suppliers message. Even sometime the users ask the reference queries through e-mail. E-mails are sent both to the whole user group and also to individuals whenever any specific information is to be conveyed. Thus the satisfaction level of the user is higher.

5.2   Web Access

All the PC's in the library has the capability to access the INTERNET. NETSCAPE 4.5 and INTERNET EXPLORER are the browsers used to access information. Internet is generally accessed to download the information which the library lacks, such as:

i)   Downloading the Research Reports: Research and technical reports are downloaded in *.pdf* format and added to the collection. More that 225   reports are downloaded.

ii)   Downloading the Thesis: Thesis are also downloaded. Sometimes a part of the thesis useful to our research activity is also downloaded.
        If these were to be purchased from any vendors/supplier, we need to pay a huge amount, which is being saved.
        These downloaded files are copied into CD's and preserved as electronic documents.

iii)   Downloading the content pages of journals: Content pages of the journals of forthcoming issues are downloaded.

iv)   A number of AIP and IOP journals are subscribed in the library, along with the print copy we have access to the full-text online version of the journals. Full advantage of these online journals are being taken.

v)   A number of Plasma Physics sites are identified and provided to the users.

5.3   Homepage

The library has developed its own web page, linked to the Institute's homepage. The Library Web page provides various links to different types of information.

- **About Library** : Gives general information about the library
- **Staff** : Staff members of the library with their e-mail addresses
- **Current Awareness Service** : Latest information about, addition to the library
- **SDI form** : The form to avail SDI, users can fill-in the form and can submit through internet, which will be e-mailed to the library
- **Online Services** : This provides online search facilities for Books, Journals and Reports, it also provides links to the electronic version of the journals subscribed by the library and the journals subscribed for the year 2000
- **Guide to IPR Library** : Gives complete rules and regulations of the library
- **Plasma Sites** : Provides links to different Plasma Physics sites available on the internet
- **Photo Gallery** : Gives some pictures of the library

    URL: *http://www.plasma.ernet.in/~saroj/LIBRARY.html*

The web page helps to develop interaction with other libraries. Other libraries will get to know about our library, its collection, services, rules and procedures etc.

6.   REPACKAGING OF INFORMATION

Repackaging of information is done to provide readymade information to the users for saving their valuable time.   Library has selected about 40 topics of interest to the Institute's research activities, such as:

DUSTY PLASMA
ELECTRON MAGNETOHYDRODYNAMICS
FREE ELECTRON LASER EXPERIMENTS
FUSION RESEARCH AND PLASMA
LASER DIAGNOSTICS
MARFE
NEUTRAL BEAM INJECTION
NONLINEAR PHENOMEMA
PLASMA DEVICE
PLASMA SHEATH
TOKAMAK PLASMA
WAVELET, etc.

The references with abstracts on the topics are retrieved from INSPEC databases from 1989 to 1999. These references are put on to the network, which can be accessed by an individual by giving exact password. These are also transferred online to the requester. A copy of the same is stored in floppy format. Thus the users need not scan through the CD-ROM as they get the information on their topic of interest, readily available.

Along with these references the Books, Reports and Thesis which are available in our collection are also listed to give them easy access to the literature in their area of research.

7.   TRANSFORMATION TO ELECTRONIC LIBRARY

In the process of providing right information to the right reader at the right time, we need to keep open mind to adapt the new technologies mainly computers & communications. Libraries have often been among the first departments within an organization to use computers to automate housekeeping activities and were able to see the potential of information technology to access remote databases.

As and when the facilities were available, we gradually started to adapt the change and tried to provide most of the information electronically. Through the whole process we realized that following points are to be taken care of during the transfer process. Basically we, the library professionals have to gather maximum information about the hardware and software requirement and the electronic medium/document and simultaneously convince the end users and management for the shift.

There are few steps which are to be taken care of towards digital conversion

- Converting the manual records in to electronic form by entering each record into the computer
- Standardized checking and rechecking and make own database very perfect, otherwise it may happen that, the documents are available in collection, retrieval may not be possible
- Not only electronic database, but the documents themselves should be well organized
- Updation of records is very essential. This will keep the users well informed about the collection or status of documents. In case of online facilities it becomes much more important to update the records
- As far as possible the reference tools and multi volume documents are to be procured in electronic format
- Abstracting and indexing journals are also to be procured in electronic format, this gives tremendous satisfaction and utmost utility
- Incase online facilities are available, the full text of journals available free with the print subscription should be downloaded.
- The library should develop an information access strategy in close cooperation with the users.
- Staff development and training are an essential condition for an electronic library that embodies an added value in the information process.

Though the electronic information handling has improved the efficiency and effectiveness of information provision, we also need to foresee the problems associated with it.

8. CONCLUSION

We, at IPR library were always ready with open mind to adapt the new technologies and as and when we found the opportunity we adapted it and reached to a stage where we can provide most of the information electronically. New Information technologies and electronic communication facilities provide opportunities for libraries to play an even more prominent role in the support of teaching, learning and research than before.

We are already well into the modernization of the research communication and publication process by incorporating digital technologies and techniques to improve efficiency and effectiveness.

Automation of library processes enables existing functions to be performed with more speed and efficiency.

9. REFERENCES

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