

## Prospects of Digital Information System and Services in National Metallurgical Laboratory (CSIR), Jamshedpur

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### Abstract

*NML library plays a pivotal role in the development of R&D in particular and society in general by providing information in the field of Metallurgy and Materials Science. It was established in 26<sup>th</sup> November 1950 at Jamshedpur, Jharkhand (Earst While Bihar). The Library has helped to carry out basic and applied research in the field of Metallurgy, Materials Science and allied discipline. One can find here a Bound Volume journals of 1891 to latest on-line database pertaining to on going research. The Information Technology has changed the complexion of library in a big way with the current thrust on availability of the latest information for Research and Development .In order to make automation, the manual information storage and retrieval system is currently being converted into digitised form by using AURUM-version-4. The secondary source is supposed to be Bible for R&D Library is being currently provided on optical media..To access the database on Internet, the useful World Wide Web has been identified and free information provided by information society has been downloaded on Intranet. The Council of Scientific and Industrial Research, this year it started to procure Electronic Journal from Elsevier publication and we are getting the same on electronic mode. The present paper discusses various factors involved in transformation of traditional libraries into electronic one and discuss the information available on Internet fall in the NML domain.*

### Introduction

The National Metallurgical Laboratory (NML), the third in the Council of Scientific and Industrial Research (CSIR) family of 40 Laboratories is a unique 52 years old R&D house of invention and innovation. The fraternity of scientists, managers and engineers has made its presence felt by delivering R&D products and services in the field of minerals, metals and materials sector in India and abroad. The NML has well-equipped Information Centre, rich collection on Materials Science, Metallurgy and Mineralogy. As a supportive service, library has helped the laboratory to develop more than 120 process and carry out basis and applied research pertaining to the specific field (Metallurgy, Materials Science and Mineralogy) of Science and Technology. Library support to R&D activities by providing information through various sources and repackaged in such a way that reader can access without any problem. The secondary source that is supposed to be most essential for R&D activities being currently provided through CD ROM. The bibliographic data base currently being available on Metadex, Compendex and Engineering Index.

The library possess 50,000 documents, which comprises Books, Conference Proceedings, Reports, Standards, Patents, CD-ROM, Microfiche, Audio-Video materials etc. Some periodicals (Bound volume) of 1891 onwards you can find her. The bound volume journal is planned to convert into Microform. On the other hand for the latest on-line journal one has to login on [www.sciencedirect.com](http://www.sciencedirect.com).

### **1. Reason of Automation**

Due to the changing scenario and advancement in science and technology some factors have effected to convert the manual library database into digitalised form:

- ? Increased volume of library activities/work load
- ? Need for improved control over operation/collections.
- ? Improved services to users in terms of – Quality, user friendliness, Regularity, speed.
- ? Need to prevent duplication of effort.
- ? Need to operate wither existing staffing patterns/conditions.
- ? Need for co-operation and shared utilisation of information. <sup>[1]</sup>

### **2. Library Automation**

After evaluating various factors like – hardware and operating system, functions, system features, data entry, multiple script acceptance, performance, documentation, customer support and training, system features customer support, security, acquisition, OPAC, circulation, the AURUM is planned to select for library automation. Various libraries in India are currently using the same library software.

***AURUM has the following peculiarity:***

- ? User friendly graphical interface
- ? Online help
- ? Web Access
- ? E-mail Integrity
- ? Compliance to administrative and financial procedures of government
- ? Personalised correspondence contents for report

### **3. Retrospective Conversion**

It was decided that Re con would cover the data entry of following information. Title, Author, Imprint, collection, series statement, key words, call no, accession details and copy specific information for the purpose of data entry, the collection classified will have three major groups Books, Bound Volumes of Journals and Specification. The data entry for books was done using library accession register as the source, while bound volume journal and serials were entered from Kardex.

### **4. Existing Electronic Form:**

Besides repackaging of available resource in digitalised form, the library has started to procure e-book and e-journals. The secondary source already initiated in 1994. The bibliographic database on Metadex, Compendex and Engineering Index currently being provided in electronic form. Last year, library procured ASTM & BIS in optical media, the total nos. of CD-ROM is around 400.

Keeping some factors that encouraging the development of electronic library has done the conversion from print to electronic.

- a) The information explosion resulting in abundant information in all domains of knowledge
- b) Deficit financial status of library discouraging for purchase of information resource in print medium
- c) Reduced shelving space

- d) Availability of personal computer and access to telecommunication facilities at reduced cost has enabled most of the libraries to go in for computerisation and internet service
- e) Availability of information in electronic media such as CD-ROM. Magnetic discs etc., which provides scope for editing
- f) Access to wealth of information via internet/World Wide Web

Electronic media has proved its advantage over-print media. As a result, most of the libraries in developed countries as well as in developing countries are getting equipped to service using electronic resources

#### 4.1 Electronic Journal

CSIR E-journal consortium started from June 2002. Being a family of CSIR, NML is taking full advantage by accessing 30 Nos. Of on-line journals of Elsevier and its allied publications in the field of Metallurgy, Materials Science and Mineralogy. It is a web database, contains more than 1700 Elsevier Science Journals in Life Science, Medical Science, Physical Science, Technical and Social Science. It also contains abstract of core journals in the major scientific disciplines. The journals are arranged under subject headings. Each subject category expands to many sub-categories. It help desktop access to full text documents. Science Direct is one of the world's powerful research and reference services. Browsing TOC (Table of contents), search lists, current and back issues of specific journals (1995 onward only for full text articles), user's specific alerting subject facilitate to identify new addition to the database. Document delivery services is also available in Science Direct database. In addition to full text journal articles, Science Direct also contain abstract database covering core journals in the major scientific disciplines. If the full text of the article is not available in **Science Direct**, a link to commercial document delivery services is readily provided.<sup>[2]</sup>

One can access Abstract, Summary + full text and reference by Login on [www.sciencedirect.com](http://www.sciencedirect.com). and following feature make user friendly.

**Full Text Article Access:** Users will have unlimited access to the full-text of journals subscribed by library simultaneously a number of users can log onto [www.sciencedirect.com](http://www.sciencedirect.com) to have access to the full text articles of the journals.

**Unlimited Access:** Users can view, print and down load the articles with no restrictions whatsoever on the numbers.

**Seven-Year back-files:** Users can have unlimited access to more than 7 years of back files of articles for the journals subscribed by NML Library.

**Flexible Abstract Display Options:** With relevance ranked abstracts are based on the occurrence of search terms or chronological listing based on data of publications.

**Three Formats for Articles:** Summary plus, HTML and PDF.

**Powerful Search & Browse functionality** across all full text and abstracts on a robust and scalable system users can perform search both basic and advanced and can set up alerts to receive information by e-mail on articles of a researcher's interest.

**Personalised Access Options:** Users can customise their access to Science Direct by setting up personal accounts they can set up personal profiles, customise the search features, receive e-mail alerts of new articles etc.

**E-mail alerting** can save a particular search so that it periodically runs the search automatically and e-mail the results to the research.

**Cross linking:** You can link from a reference citation at the end of a full text article resident on other publications websites because of the SD gateways such cross reference.

**Article In Press:** Access to articles that have been accepted for publication enabling access to very latest in research.

The new electric publishing methods are likely to improve greatly scholarly communication, partially through more rapid publication, but also through wider dissemination and a variety of novel feature that cannot be implemented with the present print system such as reference in a paper to latter paper that cite it.

#### **4.2 Bibliographic database:**

Following database available on science direct, is supposed to bible for our library.

- |                             |                  |
|-----------------------------|------------------|
| a) Science Direct Navigator | f) FLUIDEX       |
| b) Belistein Abstracts      | g) GEOBASE       |
| c) BIOTECHNOBASE            | h) Ocean Base    |
| d) Ei Compendex             | i) World Textile |
| e) Elsevier BIOBASE         |                  |

### **5. Internet Resources**

In order to keep abreast with latest information in the field of Metallurgy, Materials Science Mineralogy, the Internet service is most useful. It is an efficient source of information and has a great impact in changing the role of Information Scientists in the new millennium. The scope of a library is not just within the four walls of a library. It is much beyond this, as the whole world of information is getting into one fold under the umbrella of Internet. The problem of plenty (of information) acts a barrier in getting the "Right Information at the Right time to the right customer". Design and development of a library service such as "Virtual library" will provide right to the scientists' community in a specialised library.

For designing virtual library (Diagram 1-3), we have identified some categories of information requirements of Metallurgy. The basic purpose of this is to assimilate variety of information required by metallurgist are:

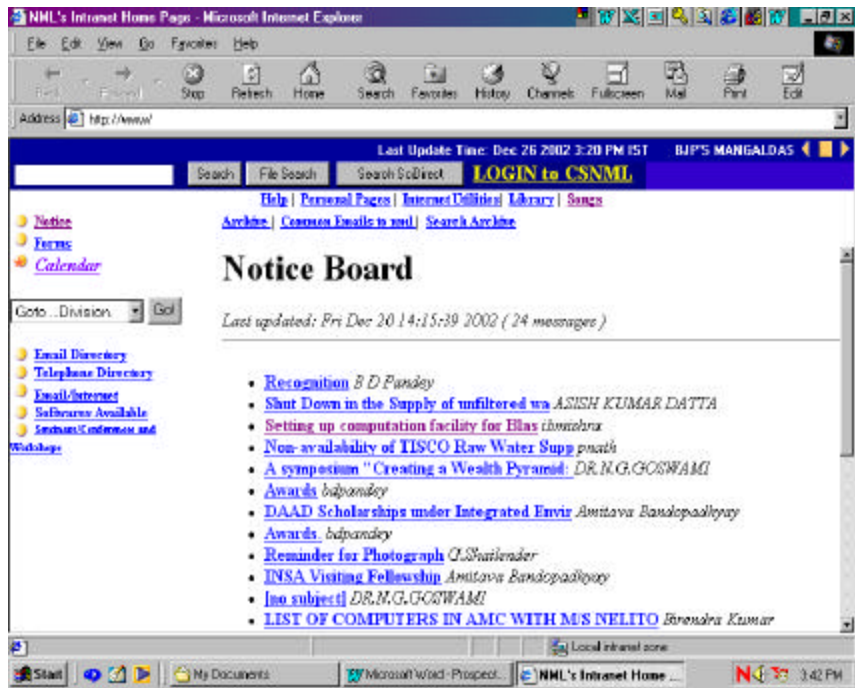


Diagram 1: Depicts NML's Intranet site (Home page)

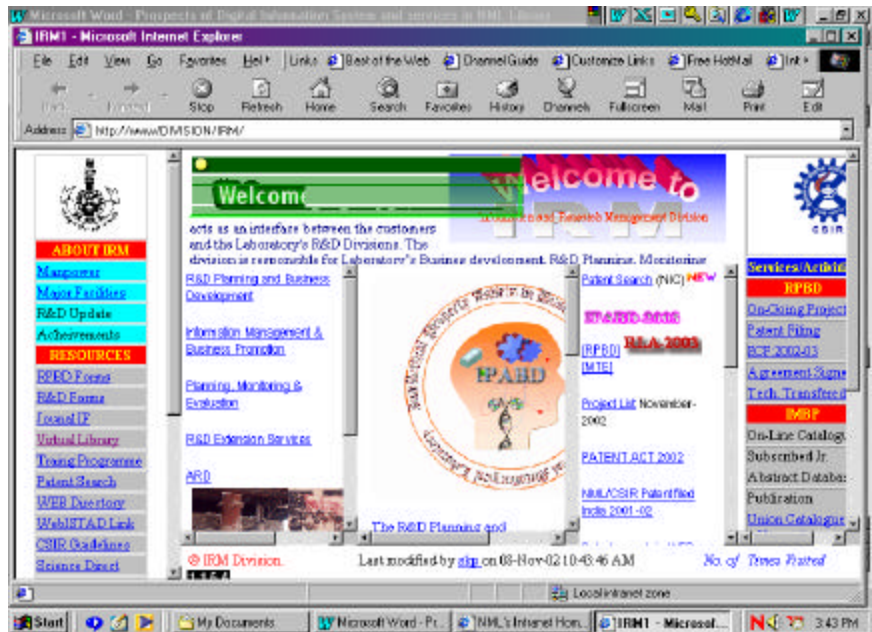


Diagram 2 : Depicts Information research and Management Division

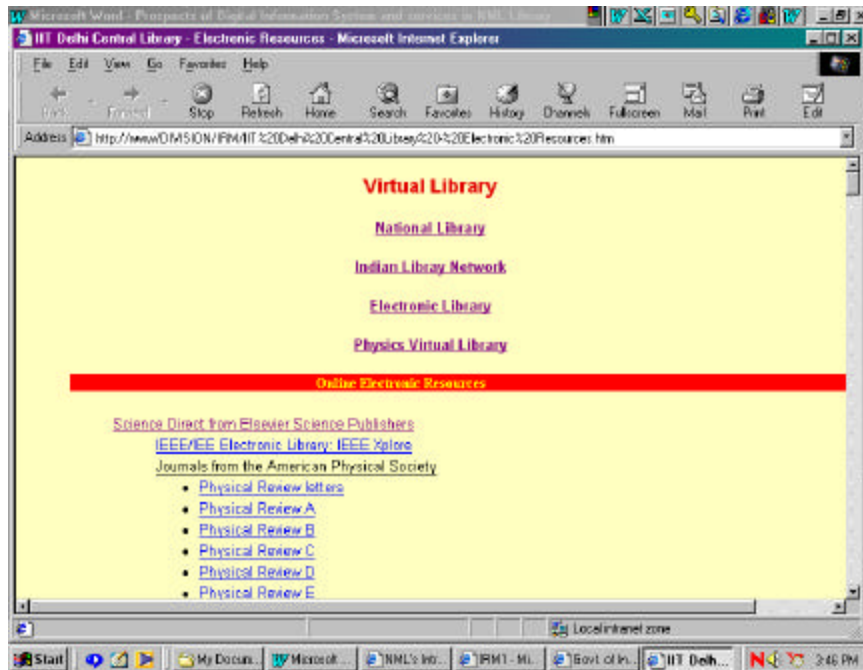


Diagram 3 : Depicts Virtual Library

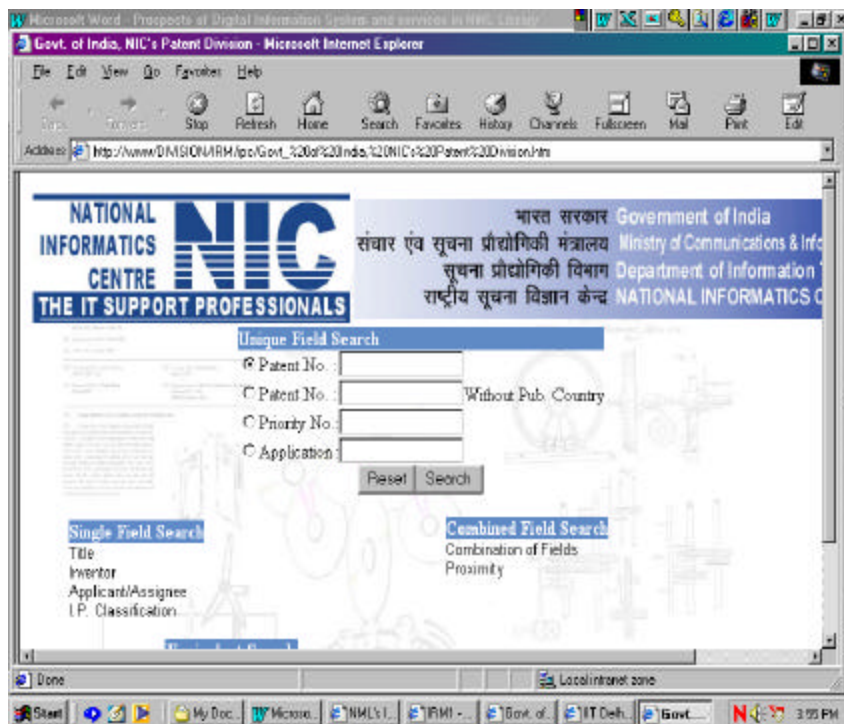


Diagram 4: Depicts Patent Resource site

1. Books in Metallurgy
2. Journal in Metallurgy
3. Institution/Organisation
4. Additional E-information source

In connection to information retrieval, the search engines – Altavista, Excite, Hotbot, Infoseek, Lycos, Goggle, Yahoo are used as a base to identify Web sites for variety of electronic, information. The information about books is available in “Excite”, Amazon.Com and Yahoo.com.

**5.1 Metallurgy Resource:** One can find plenty of resource on World Wide Web <http://1.steelynxnet/metallurgy.html>. This site equipped with latest research and development in Metallurgy. It provide information on worlds premier Institution, Organisation, Company, Universities Government sites, Archeo Metallurgy site pertaining to the field of Metallurgy and allied disciplines. Some on line metallurgy journals are also available on this site Besides these, some meta sites with multiple links to metallurgy makes quite impressive.<sup>[3]</sup>(Diagram 5)



**Diagram 5: Metallurgy Resource on the Internet**

**5.2 Patent Information Service:** Patent information on web sites are also available with general information for obtaining patents, list of publications. Offices like USPTO, IP office of Brazil, Hungary and Canadian patent offices provide access to bibliographic data and abstracts of patent’s current awareness service from bibliographic database searches are made by inventor’s name, applicant’s name, classification symbol etc. It is a free access service for the users <http://patent.scnidr.org/Biotechnology> patents, [http://www.inform.umd.edu.8080/Ed Res/Topic/agrev](http://www.inform.umd.edu.8080/EdRes/Topic/agrev). Biotech patent/Chemical Patent/ from Chemical Abstracts, <http://casweb.cas.org/chempat> plus. New patent titles are also obtained on free of costs along with weekly mailing of all patents issued by the patent office. Patent title and

patent numbers of mechanical, chemical and electronic patents are available on patents @ world.std.com. (Diagram 4).

### **Conclusion**

Information Technology has changed the exiting scenario of libraries. To tackle the information explosion, changing needs of users, library budget constraint pave the way to opt new technology. The NML library started its journey from print to electronic from 1994 as availability of secondary source in optical media. Now one can find here on-line journals. It hopes that NML library support R&D to develop new products and services by providing latest literature from primary, secondary and tertiary source.

Arrival of publishers of scientific journals and their access on web site help the management to cut short their budget allocation for subscription of current journals.

### **Acknowledgement**

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