

E-RESOURCE CONSORTIA: A CONCEPTUAL FRAMEWORK

4.1 Introduction

Electronic publishing has been revolutionizing the format of the recorded knowledge. Electronic information services are attracting reader's attention in today's network environment. This changing scenario in library environment has arisen for the need and use of e-journals along with print version. Electronic journals (e-journals) bring new challenges before the library and information professionals to give full text access to scholarly publications both in print and electronic version to its end users. The aim of this paper is to identify various issues relating to access and bibliographic control of e-journals, access management problems, policy issues, and development of e-journals consortium approach to subscribe scholarly peer reviewed journals for their library users in network environment (Sinha, Murthy & Kumar, 2009).

Information and Library Network (INFLIBNET) Centre is a gateway to India's academic and research communities. It is an autonomous Inter-University Centre of the University Grants Commission (UGC) of India. It is a major National Programme initiated by the UGC in March 1991 with its Head Quarters at Gujarat University Campus, Ahmedabad. Initially started as a project under the IUCAA, it became an independent Inter-University Centre in June 1996.

INFLIBNET is involved in modernizing university libraries in India and connecting them as well as information centres in the country through a nation-wide high speed data network using the state-of-art technologies for the optimum utilization of information. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India. (<http://www.inflibnet.ac.in/about/>)

The project **DBT e-Library Consortium (DeLCON)** is a unique Electronic Journal Consortium which is operational since January 2009. Currently the Consortium includes 16 DBT Institutions including ICGEB, New Delhi and 18 North Eastern Region (NER) Institutions. The Biotechnology Industry Research Assistance Council (BIRAC), New Delhi is also part of DeLCON. Now, the total 'DeLCON Members' are 34. A total of 926 selective Journals and a Database (SCOPUS) are covered under DeLCON. These all are accessible by the DeLCON Consortium Members through the DeLCON Portal (<http://delcon.gov.in>). Others can also view and access abstracts of papers as free of costs. (<http://delcon.gov.in/faq.htm>)

The project namely **INDEST-AICTE Consortium**, is the most ambitious initiative taken so far in the country. It is the biggest Consortium in terms of number of member institutions in Asia. The Consortium attracts the best possible price and terms of agreement from the publishers on the basis of strength of its present and prospective member institutions. The Consortium subscribes to over 12,000 electronic journals from a number of publishers and aggregators. The consortium website at <http://paniit.iitd.ac.in/indest> hosts searchable databases of journals and member institutions to locate journals subscribed by the Consortium, their URLs and details of member institutions. The “Indian National Digital Library in Engineering Sciences

and Technology (INDEST) Consortium” was set-up in 2003 by the Ministry of Human Resource Development (MHRD) on the recommendation of an Expert Group appointed by the Ministry. The IIT Delhi has been designated as the Consortium Headquarters to coordinate its activities. The Ministry provides funds required for subscription to electronic resources for 62 centrally-funded Government institutions including IITs, IISc Bangalore, NITs, ISM, IIITs, IIMs, NITTTR’s and few other institutions that are considered as core members of the Consortium. The total number of members in the Consortium has now grown to 1235. (<http://paniit.iitd.ac.in/indest/brochure/indestbrochure2012.pdf>)

4.2 About INFLIBNET (Information and Library Network)

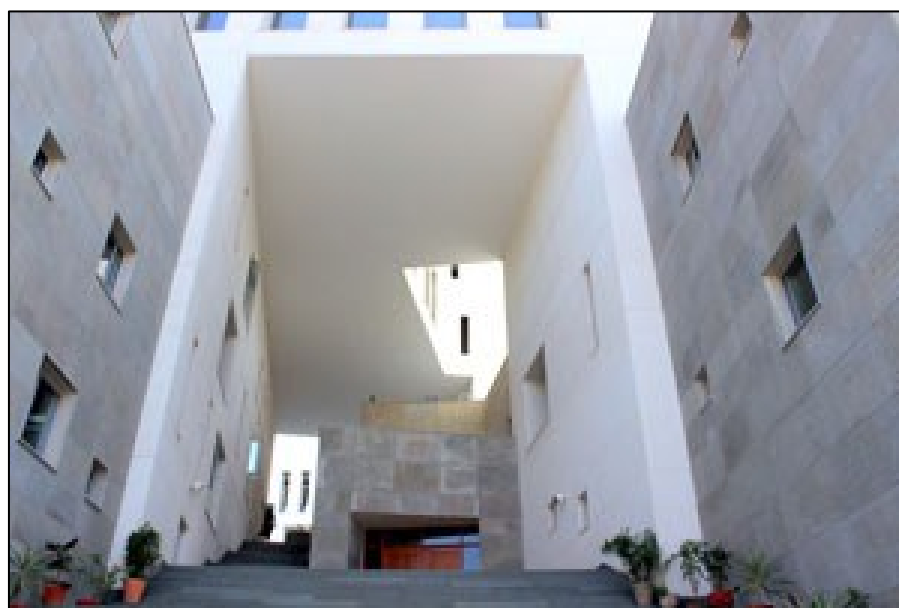


Figure: 4.1 Information and Library Network (INFLIBNET) Centre, Gujarat

The Information and Library Network (INFLIBNET) Centre was established as a project of IUCAA in 1991 and was recognized and as an independent, autonomous Inter-University Centre (IUC) of the University Grants Commission (UGC) in May 1996. Major activities and services of the Centre include automation of academic libraries and information centres, creation of union databases of resources

(IndCat) available in academic libraries, promote resource sharing among academic libraries, promote information access and transfer, support scholarship, learning and academic pursuits.

The Centre acts as a nodal agency for networking of libraries and information centres in universities, institutions of higher learning and R & D institutions in India with an aim to promote scholarly communication. The technology being a driving force in the contemporary education system, the UGC has taken-up a major initiative for the benefit of academic community in universities under its purview. The initiative called “UGC-INFONET Digital Library Consortium” provides access to selected scholarly electronic journals and databases in different disciplines. The Centre, on behalf of the UGC, has taken-up a number of new initiatives for the benefit of the academic community. These initiatives include i) Shodhganga: a reservoir of Indian Theses and Dissertations; ii) Shodhgangotri: a repository of synopsis submitted to the universities for registration under Ph.D. programme; iii) OJAS@INFLIBNET: An open access journal publishing platform; iv) Shibboleth-based access management system; v) Open source software R & D; vi) InfoPortal: A comprehensive gateway to all Indian electronic scholarly content; vii) e-PG Pathshala: e-Content for PG Courses and viii) Measuring Research Output of Indian Universities. (<http://www.inflibnet.ac.in/downloads/brochure/inflibnet@glance.pdf>)

4.2.1 Objectives of INFLIBNET (Information and Library Network)

The primary objectives of INFLIBNET as envisaged in Memorandum of Association are:

- ❖ To promote and establish communication facilities to improve capability in information transfer and access that provide support to scholarship

learning, research and academic pursuit through cooperation and involvement of agencies concerned.

- ❖ To establish INFLIBNET: Information and Library Network a computer communication network for linking libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R & D institutions, etc. avoiding duplication of efforts.
- ❖ To facilitate academic communication amongst scientist, engineers, social scientists, academics, faculties, researchers and students through electronic mail, file transfer, computer/audio/video conferencing, etc
- ❖ To undertake system design and studies in the field of communications, computer networking, information handling and data management;
- ❖ To establish appropriate control and monitoring system for the communication network and organize maintenance;
- ❖ To collaborate with institutions, libraries, information centres and other organizations in India and abroad in the field relevant to the objectives of the Centre;
- ❖ To promote R&D and develop necessary facilities and create technical positions for realizing the objectives of the Centre;
- ❖ To generate revenue by providing consultancies and information services; and
- ❖ To do all other such things as may be necessary, incidental or conducive to the attainment of all or any of the above objectives.

(<http://www.inflibnet.ac.in/>)

4.2.2 Mission and Vision

- ❖ Leveraging on the latest technology, create a virtual network of people and resources in academic institutions with an aim to provide effective and efficient access to knowledge through perseverance, innovation and collaboration;
- ❖ Provide seamless, reliable and ubiquitous access to scholarly, peer-reviewed electronic resources to the academic community in all educational institutions with a focus on services and tools, processes and practices that support its effective use and increase value of this information;
- ❖ Build and strengthen ICT infrastructure in educational institutions with value-added services;
- ❖ Develop tools, techniques and procedures for secure and convenient access management enabling users to access information in electronic format from anywhere, anytime;
- ❖ Develop resource selection guides and online tutorials for effective delivery and usage of e-resources; and
- ❖ Facilitate creation of open access digital repositories in every educational institution for hosting educational and research contents created by these institutions. (<http://www.inflibnet.ac.in/>)

4.2.3 Goals

- ❖ Achieve complete automation of libraries in educational institutions;
- ❖ Create union catalogues of documents available in libraries in online and real-time environment;

- ❖ Provide seamless and ubiquitous access to scholarly, peer-reviewed electronic resources to the universities;
- ❖ Promote digitization of legacy documents and creation of content in e-format (including electronic theses and dissertations, electronic version of research articles, working papers, technical reports, concept papers, technical reports, annual reports, statistical data, etc.) in universities;
- ❖ Promote setting-up of open access digital repositories in universities for hosting content;
- ❖ Develop expertise in
 - Digital content creation;
 - Process of digitization; and
 - Managing digital depositories and lastly to
- ❖ Impart training in applications on various aspects of new technology to achieve goals mentioned above (<http://www.inflibnet.ac.in/>)

4.2.4 Functional Group @INFLIBNET Centre

List of Functional Groups are as follows:

- (a) Access Management Group
- (b) Database Management and R & D Group
- (c) E-Resource Management Group
- (d) HRD
- (e) Network & QC
- (f) Open Source Software
- (g) Open Access R & D Group
- (h) Software R & D

(i) Web Services R & D G

Each of them has been described below:

a) Access Management Group

➤ **Objectives and Responsibilities**

Access Management Group is responsible for examining and evaluating tools and technologies, including Web proxies, Shibboleth, Referring URL, Kerberos, etc. that are in vogue for authenticating users to access and operate upon digital materials irrespective of their login location. The Group also works on other aspects of access management in light of the fact that Centre is involved in the process of building digital repositories of electronic theses and dissertations (Shodhganga), e-prints, preprints, manuscripts, etc.

➤ **Major Activities**

- ❖ Configure and implement customized Shibboleth-based Access Management system;
- ❖ Configuring, installation and maintenance of customized version of EZ-Proxy at INFLIBNET Centre;
- ❖ Help member universities to install and configure Web-based proxy and VPNs to facilitate off-campus access to subscribed e-resources; and
- ❖ Use appropriate access management technology to deter misuse of SOUL software. (<http://www.inflibnet.ac.in/functionalgroup/>)

b) Database Management and R & D Group



indCat
Online Union Catalogue of Indian Universities

INFLIBNET Centre
An Inter University Centre of UGC

Home Books Serials Theses e-Video

IndCat: Online Union Catalogue of Indian Universities is unified Online Library Catalogues of books, theses and journals available in major university libraries in India. The union database contains bibliographic description, location and holdings information for books, journals and theses in all subject areas available in more than 169 university libraries across the country. A Web-based interface is designed to provide easy access to the merged catalogues. The IndCat is a major source of bibliographic information that can be used for inter-library loan, collections development as well as for copy cataloguing and retro-conversion of bibliographic records. The IndCat consists three components available in open access to users and librarians.

- **Books:** Over thirteen millions bibliographical records of books from 169 university libraries. [more details](#)  
- **Theses:** Doctoral theses submitted to various Indian universities till date. [more details](#)
- **Serials:** Currently subscribed journals by the universities and holdings information on serials available in various university libraries. [more details](#)

Database	No. of Records	No of Universities
Books	1,38,75,552	169
Theses	2,65,881	302
Serials	33,184	213

Figure: 4.2 IndCat: Online Union Catalogue of Indian Universities

➤ Major Objectives and Responsibility:

The major objectives of the group are to develop and maintain union catalogue of different type of documents available in university libraries. The Union databases are made available in open access through IndCat, a unified interface for online catalogues of books, theses and journals available in major university libraries in India. The union database is a collaborative effort between INFLIBNET and participating university libraries with an aim to promote inter-library cooperation amongst institutions of higher learning. Initiative to develop and maintain union databases of resources available in university libraries was taken since inception of the INFLIBNET.

➤ Major Activities

The Database Management Group has developed suitable software and search interfaces for managing and updating a large number of bibliographic records

available in Union Catalogues. The IndCat contains bibliographic description, location and holdings information for books, journals and theses in all subject areas available in more than 155 university libraries across the country. The number of records available in the IndCat is as follows:

- ❖ Books: 1,27,25,832 records from 155 university libraries with 73.14 lakhs unique records;
- ❖ Theses: 2,52,600+ records of theses from 287 Indian universities / institutions;
- ❖ Serials: 50,164 holding information from participating university libraries including 16,842 unique records;
- ❖ Current Serials: 35,209 journal titles including journals from the UGC-INFONET Digital Library Consortium;
- ❖ CEC's Video Database: 15,000 records of educational video programmes produced by the CEC and its 17 EMMRCs.

c) E-Resource Management

➤ Objectives and Responsibilities:

Major objectives of the Group is to provide current as well as archival access to e-resources to faculty, researchers and students in colleges and universities at a highly discounted rates of subscription and at the best terms and conditions using consortia approach. The Group also evaluates impact of access to peer-reviewed scholarly content on research productivity of the institutions both in terms of quality and quantity of publications in colleges and universities. The Group imparts training to the users, librarians, research scholars and faculty on use of electronic resources with an aim to optimize their usage.

➤ **Major Activities**

The Group implements, monitors and executes all consortia initiatives taken-up by the Centre. Major activities of the Group are:

- ❖ Coordinating meetings of its Committees including National Steering Committee; Negotiation Committee, Resource Selection Committee, etc.;
- ❖ Negotiating rates of subscription and its terms and conditions;
- ❖ Ensures IP-based access of subscribed e-resources to beneficiary universities;
- ❖ Attend to the problems faced by universities and colleges and liaise with publishers to resolve such problems;
- ❖ Develop tutorials and promotion materials, impart training and technical support to member universities;
- ❖ Propagate the Consortium amongst other institutions so as to extend its benefits to other institutions by enrolling Associate Members;
- ❖ Evaluate subscribed e-resources and monitor its usage regularly;
- ❖ Examine and amend license agreement with publishers for access to various electronic resources on behalf of members;
- ❖ Maintain and update website of the Consortium;
- ❖ Organize awareness programme to promote e-resources;
- ❖ Improve cooperation and communication amongst member universities;

- ❖ Measure impact of access to e-resources on research output in beneficiary universities; and
- ❖ Present periodic report on extent of usage of e-resources, economics of the consortium and its impact on research output.

d) Human Resource Development

➤ Objectives and Responsibilities

Objectives and Responsibilities Imparting training to manpower working in the university and college libraries in the use of ICT is one of the most important objectives of the Centre that is given due priority. 549 training programmes, workshops and seminars focusing on the library automation and networking have so far been conducted till 31st January, 2013 benefitting 43,327 participants. INFLIBNET Regional Training Programme on Library Automation (IRTPLA) is one of the popular training programmes organized by the Group in collaboration with colleges and universities regularly. The Centre has also conducted 111 Training Programmes on SOUL Installation and Operations for Libraries.

The Group is also involved in promoting automation in college and university libraries, identifying universities for funding for library automation and follow-up assistance to universities that receive funds for under library automation scheme of the UGC.

➤ Major Activities

Major activities of the Group include organization of training programmes, workshops, seminars, Specialized training programmes, onsite training programmes, tutorials, bi-annual conventions, i.e. CALIBER (Convention on Automation of Libraries in Education and Research Institutes) and PLANNER (Promotion of Library

Automation and Networking in North Eastern Region), promoting library automation in colleges and universities, follow-up assistance to universities covered under Library Automation Scheme of the UGC, and managing Library of the INFLIBNET Centre.

e) Networking and Quality Control

➤ Objectives and Responsibility:

This Group was set-up for promoting R & D activities in area of networking and network-quality management. Major responsibility of this group is to manage, maintain and update the campus wide network. One of the major objectives of this group is to help universities that are under the purview of UGC in upgrading their ICT and network infrastructure. The Group also imparts training programmes and workshop in the area of network management, security design and state-of-the-art technologies for library professionals across the country.

➤ Major Activities

- ❖ Setting-up and maintenance of local area network at the INFLIBNET;
- ❖ Assisting universities/ colleges in setting-up their Campus LAN;
- ❖ Design network security policy of the Centre;
- ❖ Network traffic management and network resources allocation;
- ❖ System administration, configuration and tuning;
- ❖ Disaster recovery plan for data hosted on the servers in the Centre; and
- ❖ System maintenance of all IT equipment at Centre.

f) Open Source Software

➤ Objectives and Responsibility

The Open Source Software Group is set-up an Open Source Software Learning Centre so as to test and experiment with various open source software and contribute actively in its customization. The Group works actively to spread the philosophy of FOSS and increase its effective usage.

The Centre took a cautious decision to move all its critical operations from commercial software to open source software including software that are used for office operations as well as those that are used for web services and web hosting. All the databases at the INFLIBNET Centre are hosted on MySQL, open source software. All the websites of the INFLIBNET Centre including its main website, Consortium website, SOUL, Union Database are designed using open source software solutions including Apache, MySQL, Tomcat, PHP, Java Script, PERL, etc.

The Centre has entered the world of Web 2.0 and Library 2.0 by installing open source software that facilitates interaction, collaboration and cooperation between the INFLIBNET Centre and its users.

➤ Activities

- ❖ Promote use of open source software within the Centre as well as amongst the entire higher education community in India;
- ❖ Impart training on various open source software in library automation, institutional repository, digital library, content management, etc.;
- ❖ Customize open source software as per the requirement of the Centre as well as that of customers;

- ❖ Extend proactive help and support to universities in implementation of open source software; and
- ❖ Spread the philosophy of FOSS and to promote its effective usage.

g) Open Access R & D

The current system of scholarly communication inhibits rather than promote access to scholarly information at a time when technology can enable vast improvement in access, speed of publication and save in the cost of publication. The present model of publishing is essentially a monopoly of publishers that is driven by the need to publish rather than the need for more information. Open access journals and institutional repositories are two routes of open access publishing system.

The Open Access R & D Group at the INFLIBNET Centre is working for spreading the open access movement in universities and institutions of higher learning. Major open access initiatives taken-up by the Centre includes OJAS, a platform offered to faculty and researchers in universities to host their open-access journals, and three institutional repositories, namely: ShodhGanga, ShodhGangotri and IR@INFLIBNET.

h) Open Source Software

➤ Objectives and Responsibility

The objective of this Group is to develop software for academic community in India with focus on software for library automation, union catalogue and software tools to facilitate data interchange and exchange. The Group also promotes and

supports open source software movement within the Centre as well as in the entire higher education community in India.

➤ **Major Activities**

- ❖ Support LAN/WAN setup and maintenance at the Centre;
- ❖ Development of new versions of SOUL for different operating system;
- ❖ Development of MARC 21 based database creation tool;
- ❖ Development of UNICODE base tools for databases in native languages;
- ❖ Incorporation of various bibliographic and information retrieval standards in SOUL;
- ❖ Regular updates for current version of SOUL software to cater to the requirements of current user base;
- ❖ Trouble Shooting and Customer support for SOUL users; and
- ❖ Explore and support open source software for library and academic use.

i) Web Services R & D

➤ **Objectives and Responsibility**

Major objective of the Group is to provide organized and structured access to services and resources offered by the Centre to the user community through the Centre's Website. The Group ensures that Website of the Centre functions as an integrated interface for all services and resources accessible to the user community in the universities. The Group designs innovative web-based interfaces for effective and efficient delivery of services using the latest web-based tools and technologies.



Figure:4.3 Web Services R & D

➤ **Major Activities**

- ❖ Design and update INFLIBNET Web sites incorporating various activities and services of the Centre;
- ❖ Promote services and activities of the Centre through the website and provide detailed report on visitors and users of the site;
- ❖ Maintenance of web services running at the site;
- ❖ Identify hardware and software requirements for web servers and to improve the Centre's Infrastructure with the latest available technologies; and to
- ❖ Install and provide support for open source software at the Centre and advice the participating libraries with regard to hardware and software requirement.

(<http://www.inflibnet.ac.in/functionalgroup/web.php>)

4.2.5 Computer and Network Infrastructure of INFLIBNET (Information and Library Network)

The Data centre at INFLIBNET Centre is designed as the most robust setup and less prone to failures and also to host mission critical servers and computer systems, with fully redundant subsystems, wherever possible, such as cooling, network links, storage, fire wall, power etc. and compartmentalized security zones controlled by biometric access controls methods. All components are fully fault-tolerant including uplinks, storage, chillers, HVAC systems, servers etc. Everything is to be dual-powered in a Tier 3 standard data centre. (<http://www.inflibnet.ac.in/functionalgroup/web.php>)

4.3 UGC-INFONET Digital Library Consortium

The UGC-INFONET Digital Library Consortium was formally launched in December, 2003 by Honourable Dr. A P J Abdul Kalam, the President of India soon after providing the Internet connectivity to the universities in the year 2003 under the UGC-INFONET programme. The Consortium proved to be a recipe to university libraries which have been discontinuing subscription of scholarly journals because of "Serials Crisis". The term "serials crisis" refers to exponential and continuing increase in subscription cost of scholarly journals. The crisis is a result of rise in cost of journals much faster than the rate of inflation, increase in number of journals and the paucity of funds available to the libraries.

The Consortium provides current as well as archival access to more than 7500+ core and peer-reviewed journals and 10 bibliographic databases from 26 publishers and aggregators in different disciplines. The programme has been

implemented in phased manner. In the first phase that began in 2004, access to e-resources was provided to 50 universities who had Internet connectivity under the UGC-INFONET Connectivity programme of the UGC. In the second phase, 50 more universities were added to the programme in the year 2005. So far 209 Universities including 14 National Law schools and central universities that come under the purview of UGC, have been provided differential access to subscribed e-resources. These e-resources covers almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical Sciences, life sciences, computer sciences, mathematics and statistics, etc.

The benefit of subscription to e-resources would also be extended to the colleges, to begin with the College for Potential with Excellence (CPE) and autonomous colleges. The Consortium has also launched its "Associate Membership Programme" wherein private universities and other research organizations are welcomed to join the Consortium for selected e-resources. (<http://www.inflibnet.ac.in/econ/about.php>)

4.3.1 E-Resources Available under UGC-INFONET Digital Library Consortium

The UGC-INFONET Digital Library Consortium subscribes to the following resources for its member institutions. All electronic resources subscribed are available from the publisher's Web site. Following is the list of E-Resources with link to their brief introduction as shown below: (<http://www.inflibnet.ac.in/econ/eresource.php>)

- American Chemical Society
- American Institute of Physics
- American Institute of Physics
- American Physical Society
- Annual Reviews
- Cambridge University Press

- Economic &. Political Weekly
- Emerald
- HeinOnline
- Institute of Physics
- JSTOR
- Manupatra
- Nature
- Nature Archive (1QS7-1QQ6)
- OUP Archive
- Oxford University Press
- Portland Press
- Project Euclid
- Project Muse
- Royal Society of Chemistry
- RSO Archive
- ScienceDirect
- ScienceDirect Archive
- SIAM
- SIAM Locus (Archive)
- Springer Link
- Taylor and Francis
- Westlaw India
- Wiley Blackwell Publishing
- ISID
- JCCC
- MathSciNet
- Royal Society of Chemistry
- SciFinder Scholar
- Web of Science
- About Open Access
- Open E-Journals
- Open Access Directories
- IRs@members Institution

4.3.2 Total Number Current Members

Total Number Current Members of the UGC-INFONET Digital Library Consortium are as follows:

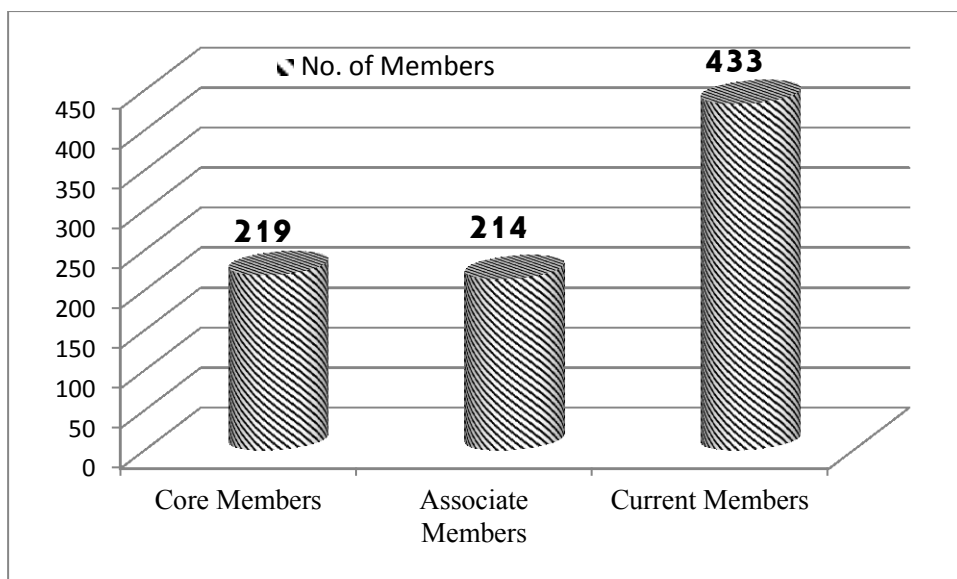


Figure: 4.4 Total Number of Core Members in UGC-INFONET

The University Grants Commission (UGC) provides funds through INFLIBNET required for providing differential access to various electronic resources subscribed by the Consortium for selected member institutions. The members of core group of Institutions are as follows: (<http://www.inflibnet.ac.in/econ/members.php>)

Universities covered under Phase I (50)

- 12 (B) / 2 (f) State Universities (35)
- Central Universities (11)
- Deemed Universities (Receiving Plan Grants from UGC) (4)

Out of 35 State Universities of 12 (B) / 2 (f) under Phase I, Gauhati University is one

Out of 11 Central Universities under Phase I, Tezpur University is one

Universities covered under Phase II (50)

- 12 (B) / 2 (f) State Universities (39)
- Central Universities (6)
- Deemed Universities (Receiving Plan Grants from UGC) (5)
- Universities covered under Phase III (99)
- Associate Members (214)
- IUCs and Other Institutions (6)

Out of 39 State Universities of 12 (B) / 2 (f) under Phase II, Dibrugarh University is one

Out of 6 Central Universities under Phase II, Assam University is one

- National Law Schools/Universities (14)

4.4 About DeLCON: DBT-Electronic Library Consortium



Figure: 4.5 Home page of DeLCON: DBT-Electronic Library Consortium

DBT e-Library Consortium (DeLCON) is a unique Electronic Journal Consortium which is operational since January 2009. Currently the Consortium includes 16 DBT Institutions including ICGEB, New Delhi and 18 North Eastern Region (NER) Institutions. The Biotechnology Industry Research Assistance Council (BIRAC), New Delhi is also part of DeLCON. Now, the total 'DeLCON Members' are 34. A total of 926 selective Journals and a Database (SCOPUS) are covered under DeLCON. These all are accessible by the DeLCON Consortium Members through the DeLCON Portal (<http://delcon.gov.in>). Others can also view and access abstracts of papers as free of costs.

The DeLCON Consortium covers all the disciplines and subjects coming under Life Sciences i.e. Biotechnology, Bioinformatics, Biology, Chemical Biology, Immunology, Neuroscience, Plant Genome, Plant Biology, Microbiology, Physiology,

Physiotherapy, Psychology, Genome, Gene, Genetics, Mathematics, Physics, Chemistry, Radiology, Medicines, Computational Biology, Cell Biology & Cell Sc., Molecular Biology, Molecular & Cellular Biology, Veterinary Science, Computational Neuroscience, System Neuroscience etc.(<http://delcon.gov.in/faq.htm>)

4.4.1 Objectives of DeLCON

The Objectives of the DeLCON are as follows:

- ❖ To promote better, faster and more cost-effective ways of providing information resources to the officials at the consortia member institutions;
- ❖ To avoid duplication of subscription of Journals and E-resources and promote the rational use of funds by the consortia members;
- ❖ To ensure continuous subscription of e-resources and availability of these to the scientists working at the consortia member institutions;
- ❖ Better rates and terms for purchase of electronic journals; and
- ❖ Availability of a larger spectrum of journals to the DBT Institutions with lesser costs.

4.4.2 Scope and Goal of DeLCON

The scope of the DeLCON are as follows:

- ❖ To strengthen library resources and services and co-operation and communication amongst the member libraries;
- ❖ To strengthen the pooling, sharing and electronically accessing the library resources;
- ❖ To provide access to worldwide literature to users;

- ❖ To nucleate the culture of electronic access resulting into evolution of digital libraries; and to provide
- ❖ Efficient interlibrary loan system between the member institutions.

(<http://delcon.gov.in/about.htm>)

4.4.3 Number of Member(s) of DeLCON Consortium

The Total Number of Member(s) of DeLCON Consortium is 34. Out of those 34 numbers comes Tezpur University, Assam University, Gauhati University and Dibrugarh University are the members of this consortia. The lists of E-Resources subscribed from DBT-Electronic Library Consortium are shown below:

- American Association for Advancement of Science
- American Association for Cancer Research (MCR)
- American Chemical Society (ACS)
- American Society for Biochemistry and Molecular Biology
- American Society For Microbiology
- Cold Spring Harbor Laboratory Press Journals
- Informa Healthcare
- Marry ANN lambert
- Nature Publications
- Oxford University Press (OUP)
- Springer India
- Society for General Microbiology
- Society for Hematology
- WileY-Blackwell
- Elsevier Science

- American Society of Plant Biologist
- American Association of Immunologist
- Proceeding of the National Academy of Science
- The New Journal of Medicine

4.5 About INDEST-AICTE Consortium

The idea of the creation of the library consortia, took shape at the “National Seminar on Knowledge Networking in Engineering & Technology Education and Research” held at IIT Delhi in December 2000 under the aegis of Ministry of Human Resource Development. The seminar was coordinated by Dr. Jagdish Arora and it was attended by more than 150 participants from engineering and technological institutions from all over the country. Based on the feedback, ministry decided to set-up the expert group in April 2002 for the consortia-based subscription to electronic resources for Technical Education System in India under the chairmanship of Prof. N. Balakrishnan from IISc, Bangalore.

The “Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium” was set up in 2003 by the Ministry of Human Resource Development (MHRD) on the recommendation of an Expert Group appointed by the Ministry. The IIT Delhi has been designated as the Consortium Headquarters to coordinate its activities. The benefit of consortia-based subscription to electronic resources is not confined to its core members but is also extended to all educational institutions under its open-ended proposition. 60 Govt./Govt.-aided engineering colleges are provided access to selected electronic resources with financial support from the AICTE and 102 universities/institutions have joined the Consortium under

its self-supported category in 2012. The total number of members in the Consortium has now grown to 1235. (<http://paniit.iitd.ac.in/indest/index.php/about-us>)



Figure: 4.6 Home page of INDEST-AICTE Consortium

4.5.1 Vision/Mission of the INDEST-AICTE Consortium

The Ministry of Human Resource Development (MHRD) has set-up the "Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium" on the recommendation made by the Expert Group appointed by the ministry under the chairmanship of Prof. N. Balakrishnan. The INDEST-AICTE Consortium is the most ambitious initiative taken so far in the country. INDEST-AICTE Consortium, as an open-ended proposition, welcomes other institutions to join it on their own for sharing benefits it offers in terms of highly discounted rates of subscription and better terms of agreement with the publishers. The Mission of Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium includes:

- ✚ Improve Productivity and Quality of Research
- ✚ Promote Advance Teaching and Learning
- ✚ Moving Towards a National Consortium
(<http://paniit.iitd.ac.in/indest/index.php/about-us>)

4.5.2 INDEST Consortium Renamed as INDEST-AICTE Consortium

The INDEST Consortium is the most ambitious initiative taken so far in the country. INDEST stands for "Indian National Digital Library in Engineering Sciences and Technology Consortium. The Consortium is entrusted with the task of improving productivity and quality of research, promoting advanced teaching and learning. The consortium was re-named as INDEST-AICTE Consortium in December 2005 with the AICTE playing a pivotal role in enrolling its approved engineering colleges and institutions as members of the Consortium for selected e-resources at much lower rates of subscription. The Consortium enrolls engineering and technological institutions as its members and subscribe to electronic resources for them at discounted rates of subscription and favorable terms and conditions.
(<http://paniit.iitd.ac.in/indest/index.php/about-us>)

4.5.3 Objectives of the INDEST-AICTE Consortium

- To subscribe electronic resources for the members of the Consortium at highly discounted rates of subscription and at the best terms and conditions;
- To extend the benefit of consortia-based subscription beyond the core members to other engineering and technological institutions;
- To impart training to the users and librarians in the member institutions on subscribed electronic resources with an aim to optimise the usage of subscribed electronic resources;

- To find more avenues of cooperation and interaction amongst member libraries;
- To increase scientific productivity of member institutions in terms of quality and quantity of publications;
- To help new engineering institutes and colleges to make the right choice of e-resources; and
- To find more avenues of co-operation and interaction with other consortia.
(<http://paniit.iitd.ac.in/indest/index.php/about-us>)

4.5.4 Major Activities of the INDEST-AICTE Consortium

- ❖ Subscription to identified electronic resources ;
- ❖ Identification of new resources ;
- ❖ Interaction with member libraries to ensure optimal utilization of subscribed electronic resources;
- ❖ Ensure access to subscribed electronic resources to member libraries as per their subscription;
- ❖ Organizing training programme for the member institutions on use of electronic resources;
- ❖ Initiate additional activities complementary to the present activities of the Consortium; and
- ❖ Encourage interactions amongst member institutions.

(<http://paniit.iitd.ac.in/indest/index.php/about-us>)

4.5.5 Governance of the INDEST-AICTE Consortium

The Consortium operates through its headquarters set up at IIT Delhi under a National Steering Committee (NSC) notified by the Ministry of Human Resources

and Development (MHRD). It consists of Director, IIT Delhi as its ex-officio Chairman and Chairman, AICTE as its Co-Chair. Members are drawn from its beneficiary core and self-supported institutions. Other members are Director (Technical Education), MHRD; representatives from the National Knowledge Resource Consortium (CSIR and DST) and DESIDOC; and Member Secretary, AICTE. The committee is responsible for taking major policy decision as well as their execution.

A negotiation committee was also established by the National Steering Committee(NSC), to negotiate the terms, conditions and price of e-resources. The consortium involved the coordinators of all other major national consortia for the negotiation as well as the NSC meetings to have a common understanding of terms, conditions and price of e-resources.

A National Review Committee was set up under the Chairmanship of Joint Secretary (Technical Education) with an overall responsibility for making policies, monitoring the progress, coordinating with UGC and AICTE for promoting the activities of the Consortium. However the committee has been in dormancy for over last 5 years.

The Consortium operates through its Headquarter set-up at the IIT Delhi. The Ministry of Human Resource Development (MHRD) provides funds required for Subscription to electronic resources for 65 core members including IISc, IITs, IISERs, NITs, IIMs and a few other institutions; and for operation of the consortium, the consortium headquarter functions under a National Steering Committee (NSC) for inter-institutional coordination and for taking decisions on policy issues under the overall policy direction of the Government of India. The Ministry has also set-up a

National Review Committee (NRC) for the INDEST-AICTE Consortium. The National Review Committee shall be responsible for overall policy, monitoring and coordination with UGC and AICTE for this Consortium.

<http://paniit.iitd.ac.in/indest/index.php/about-us>

4.5.6 Services of the INDEST-AICTE Consortium

➤ E- Resource Purchasing

Co-operative subscription to electronic resources is the principal task of the INDEST-AICTE Consortium with focus on providing consortium wide access to electronic resources to support education and research in core subject areas of its members. The Consortium performs all functions including invoicing, receipt of payments, ordering and payment to publishers on behalf of its member institutions. Besides, the Consortium also coordinates with the funding agencies for release of payments for its core and AICTE supported members. The major terms of reference that the Consortium takes into consideration while negotiating with the publishers includes:

- i) Lowest rates of subscription for all member institutions;
- ii) Access to archival backfiles along with current subscription;
- iii) Archival backup or perpetual access to e-resources;
- iv) Cap on annual increase in rates of subscription;
- v) Print-independent (preferable) subscription to e-resources with deep discount on print;
- vi) Print-dependent subscription to e-resources with cap on annual increase in rates of subscription to print; and

vii) Better terms of license for access to e-resources.

➤ **Resource Sharing of the INDEST-AICTE Consortium**

As INDEST-AICTE Consortium does not subscribe to all resources for all its members, the document delivery and inter-library loan is, therefore, crucial to the success of the Consortium. The J-Gate Custom Content for Consortium (JCCC), designed especially for the Consortium, provides content-level access to all the electronic journals subscribed by all IITs, IISc and IIMs (14 institutions) by the Consortium or by these institutions individually. Besides IITs, IISc and IIMs, the JCCC is made accessible to all other core members of the Consortium including New IITs, IISERs, NITs, SLIET, ISM, NERIST, IIITs and NITIE. Due to the some legal issue the JCCC was discontinued in 2012. The Consortium is making an effort to choose a right solution for the resources sharing including discovery solution/federated search facility.

➤ **Training of Users & Library Staff**

The INDEST-AICTE Consortium holds extensive training programmes for the benefit of Library staff members from various institutions. Besides, all IITs, IISc, IIMs and NITs have also been assigned the task to conduct training programmes on themes decided by the National Steering Committee at regional level/national level.

➤ **Shared Technology System & Support**

As a subscriber to multiple numbers of electronic resources, the INDEST-AICTE Consortium is considering technology that enables federated searching of resources across all subscribed resources. Consortium is also helping the member institutions to develop and maintain the digital library. INDEST-AICTE Consortium has geared itself to provide consultancy services to its member institutions, especially

NITs in library computerization, digitization and in the development of computer and network infrastructure.

➤ **Joint Archive & Shared Core Collection**

Establishing archival centres for electronic resources subscribed through the INDEST-AICTE Consortium has been identified as one of the important activities. The Consortium is planning to establish archival centres for different resources at different institutions. Besides subscription to full-text electronic resources and bibliographic databases, the INDEST-AICTE Consortium has purchased selected electronic backfiles of journals from Elsevier Science, Springer and Wiley InterScience and is considering purchase of electronic books and reference sources. Some of the publishers offer e-books wherein each member of the consortium may buy a definite number of e-books and all its members may share them. The INDEST-AICTE Consortium has agreements with most of the publishers to supply their data on CD ROM on completion of a year. Most publishers have provided the backup CDs. Under the agreement reached with ACM Digital Library, the Consortium now hosts ACM Digital Library at IIT Delhi, which has been made accessible to all its subscribing members.

➤ **INDEST Extended**

The INDEST-AICTE Consortium has taken up activities that are not associated either with the purchase of electronic resources or their usage but with completely different activities that require collaborative efforts where the Consortium with its infrastructure can act as a catalyst. The Consortium is taking up additional activities related to content creation under a new MHRD initiative named as “INDEST Extended”. Some of the important activities that the Consortium is taking up in addition to its existing activities are:

- i) Setting up Interoperable Repositories for Electronic Submission of Theses and Dissertations;
- ii) Institutional Repositories for all Consortium Members;
- iii) Manual of Procedures for Management of Libraries and Information Centers of INDEST-AICTE Member Institutions;
- iv) Development of search engine for searching the full text of e-resources subscribed by the INDEST-AICTE Consortium;
- v) Web-based Union Catalogue of Journals and other Serial Publications;
- vi) Web-based Union Catalogue of Books; and
- vii) Cooperative Cataloguing of Internet-based Electronic Resources

4.5.7 Membership of the INDEST-AICTE Consortium

The INDEST-AICTE Consortium has three types of members based on funding.

Type I: Core members supported by MHRD

Type II: AICTE supported members

Type III: Self-supported members

However, some of the core and AICTE supported members can join as self-supported members. The membership fee for joining the consortium was Rs. 2000 for Types II & III members. The consortium did not charge membership fees from the MHRD supported academic institutions. The basic objective of the consortium is to provide the e-resources to the academic institutions of the country.
(<http://paniit.iitd.ac.in/indest/index.php/members>)

4.5.8 Core Members of the INDEST-AICTE Consortium

All centrally funded technical institutions including IITs, IISc, ISM, IISERs, NITs, SLIET, NERIST, IIMs, NITIE, NITTTRs, IIITs and NIFFT were the core members of the Consortium. The Ministry granted funds for providing differential access to electronic resources for its core members through the Consortium Headquarters at IIT Delhi. In 2009, the number increased to 42 with addition of IISERs. In 2012 the total number of members increased to 62 with addition of new IITs, new NITs, and new IIMs. The consortium has always made continuous effort to include all the centrally funded technical institutions in the INDEST-AICTE consortium. (<http://paniit.iitd.ac.in/indest/index.php/members>)

4.5.9 AICTE Supported Members of the INDEST-AICTE Consortium

Since March 2003, AICTE provided financial support to the Government/Government aided institutions and Technical Universities/ University Departments having programmes in engineering and technology. The Consortium provided IEL, ASCE, ASME and/orASTP to 60 institutions with AICTE support based on the courses they offer from 2003 to 2011. These included 37 engineering and technology colleges and 23 universities having engineering departments/faculty. All 60 Institutions offer postgraduate course in engineering and technology. (<http://paniit.iitd.ac.in/indest/index.php/members>).

4.5.10 Self Supported Members of the INDEST-AICTE Consortium

The Consortium also helped the technical institution of the country by offering the e-resources on self-support mode. It invited AICTE approved and UGC-affiliated institutions of India to share the benefits of the Consortium. There was a huge jump in

the membership from 2006 onwards. AICTE promoted the provision of e-resources with their existing rule for subscription of print journals for individual institutions. In 2007 over 23 e-resources were negotiated by INDEST-AICTE Consortium for the self-supported institutes.

Over six years the numbers of engineering colleges serviced were about 1000. In 2012, AICTE proposed mandatory e-resources for the AICTE affiliated engineering colleges. AICTE negotiated the price with the publishers and asked each institutes to subscribe the e-resources directly through publisher's websites. The total number of institutions subscribing to e-resources increased to 1500, whereas the consortium provided e-resources to 102 institutes. (<http://paniit.iitd.ac.in/indest/index.php/members>)

4.6 Conclusion

"The library is the backbone of a college or university's academic environment," says Kelly Alice Robinson. As an integral part of the university, the academic library will be profoundly affected by changes in the academy itself. Thus it is important that the library, while implementing and managing internal change, continues to look outward at the university as a whole (CETUS, 1997). Changes in higher education, the new student-centered paradigm and new learning and teaching approaches have also created a need for a reconceptualization of the roles and responsibilities of librarians. So, in this study the researcher has tried to examine the usage pattern of the university libraries and the developments in higher education. (Virkus, 2004; Metsar 2004).