



Initiative of the INFLIBNET Centre for Delivering Information to the Indian Academic Community

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**164 — Access and innovation: delivering information to all —
Serials and Other Continuing Resources Section**

Abstract:

According to Five Laws of Library Science, Dr. S R Ranganathan said that every user should get its needed books and every book also should get its users. Similarly, delivering every piece of information to its users is a must adopted approach for every library in this digital era. But, it is an impossible tasks for every library to come forward and full-fill the needs of every user by using its own resources, which is added with the information explosion of the era. Further, to continue with the quality education and research in the society, every library of the country should have all the important information needed for the development of the society and growth of its members. Unfortunately, it is difficult for the libraries to build-up a fund for acquiring the sufficient and needed resources. The establishment of the INFLIBNET Centre, an autonomous inter-university centre of University Grants Commission located at Ahmedabad as a nodal agency for academic institutions is a step towards filling this gape. Being a nodal agency, the INFLIBNET Centre has taken various initiatives for delivering the electronic resources to the door steps of the academic community and institutions of the country. The paper elaborates various initiatives of the Centre taken for delivering the information to the academic community of the country. Besides, it also touches the impact of the initiatives on higher education of the country. The authors in this paper brief only those initiatives that suites with the theme of this IFLA section.

Introduction

The Information and Library Network (INFLIBNET) Centre was established in May 1996 as an independent, autonomous Inter-University Centre (IUC) of the University Grants Commission (UGC). Major activities and services of the Centre include automation of academic libraries and information centres, creation of union databases of resources 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 Centre, on behalf of the UGC, has taken-up a number of initiatives for delivering the information specially the serials and continuing resources to the door steps of the academic community of the country. These initiatives include i) UGC-Infonet Digital Library Consortium that extends access to selected scholarly electronic journals and databases to the universities in different disciplines; ii) Open Journals Academic System (OJAS) that facilitates faculty and researchers in Indian universities to launch their print journals into open access electronic journals using INFLIBNET hosting facilities; iii) Access management technologies that facilitate users to access e-resources irrespective of their physical location; iv) “National Library and Information Services Infrastructure for Scholarly Content” (N-LIST) that provides access to electronic journals and electronic books to eligible colleges of the country; and v) JCCC (J-gate Custom Content for Consortium) that provides article-level access to all articles published in journals subscribed by the UGC-Infonet Digital Library Consortium along with articles of the journals subscribed by 22 university libraries designated as ILL Centres of the INFLIBNET Centre to the consortium members. Those initiatives are described below:

- i) The **UGC-Infonet Digital Library Consortium** provides current as well as archival access to more than 7,000+ core and peer-reviewed journals and eleven bibliographic databases from 25 publishers including commercial publishers, scholarly societies, university presses and aggregators in different disciplines. So far 170 Universities that come under the purview of UGC, are being provided differential access to subscribed e-resources including all the IUCs of UGC. These e-resources cover almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical sciences, life sciences, computer sciences, mathematics and statistics, etc. The Centre has also initiated its Associate Membership Programme with an aim to extend access to e-resources subscribed by the Consortium to private universities and other research institutions. Under the scheme, private universities and other research institutions can enroll themselves as “Associate Member” of the Consortium and subscribe to e-resources of their choice available through the Consortium. More than 85 members have enrolled themselves as associate members of the UGC-Infonet Digital Library Consortium and subscribed to various resources of their choice.

The screenshot shows the homepage of the UGC-Infonet Digital Library Consortium. At the top, there is a blue navigation bar with links for 'Home', 'About Us', 'Members', 'E-Resources', 'How to Join?', 'Operation', 'UserGuide/help', 'Troubleshooting', 'E-RAMS', 'Search', and 'Downloads'. Below this, a 'Welcome to Digital Library Consortium' message is displayed. The main content area is divided into several sections. On the left, there is a section titled 'Access to E-resources on Additional IPs' with a paragraph explaining the service. Below this, there is a link for 'Current Members (289) See details | Join'. In the center, there is a banner for '24x7 Access E-resources 365 days all universities and colleges of India'. On the right, there is a 'What's New?' section with several news items, including '10 subject collections subscribed by the Consortium', 'Access to Wiley 908 titles Universities covered under of UGCINFONET Digital Library Consortium', 'Access to Web of Science to 50 Universities covered under Phase I of UGCINFONET Digital Library Consortium', and 'Access to EPW to all Universities covered under UGCINFONET Digital Library Consortium'. At the bottom right, there is a 'Join Mailing List' button.

Fig. 1: Screen shot of the UGC-Infonet Digital Library Consortium

- ii) The initiative, named “**OJS@INFLIBNET**” (now changed to OJAS), encourages universities and institutions that are publishing journals in print format to use OJAS for hosting electronic version of their journals free-of-cost on servers at the INFLIBNET Centre. The Open Journal System (OJS), an open source solution developed by the Public Knowledge Project, facilitates hosting of electronic version of journals into open access mode with all processes of submission, peer-reviewing, editing, layout designing and publishing built into it. The initiative also encourages faculty in universities to start their own open access journals using the platform offered by the INFLIBNET Centre. Journals hosted on OJAS are accessible to all users world-wide without any restrictions. Metadata (bibliographic details) from journals hosted on OJAS is harvested by the indexing services like ARC, OAISTER, Google Scholar, etc. Currently, OJAS hosts following six journals and talks are on for another twenty journals:
- a. Journal of Literature, Culture and Media Studies;
 - b. Assam University Journal of Science & Technology” in two parts, namely, “Biological and Environmental Sciences” and “Physical Sciences and Technology”;
 - c. ICSSR Journal of Abstracts and Reviews – Geography;
 - d. ICSSR Journal of Abstracts and Reviews - Political Science;
 - e. ICSSR Journal of Abstracts and Reviews – Economics; and
 - f. ICSSR Journal of Abstracts and Reviews – Psychology.

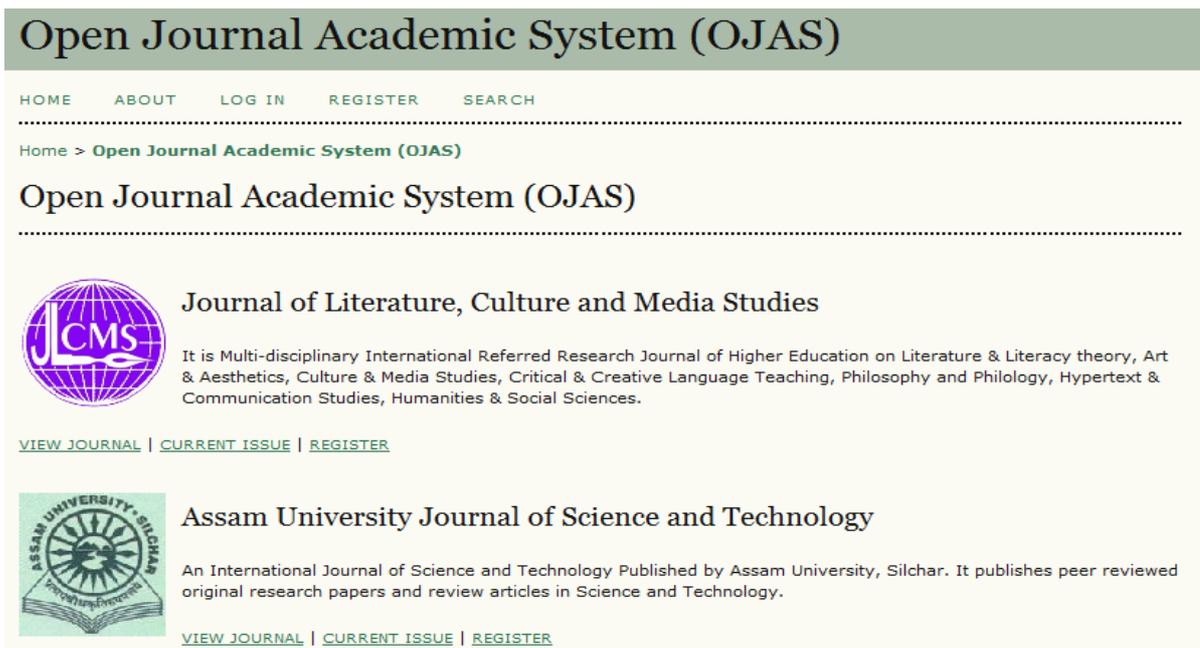


Fig.2: Screen Shot of the OJAS

iii) A dedicated team of scientists at INFLIBNET are working on a middleware open source technology called “**Shibboleth**”. The Shibboleth is standard-based open source middleware software that provides Web single sign-on (SSO) access to subscribed e-resources across or within organizational boundaries. It allows web sites to make informed authorization decisions for individual access to protected online resources in a privacy-preserving manner. Using this technology, user can access designated electronic resources while being on-campus and off-campus. Shibboleth software implements widely used federated identity standards, i.e. Security Assertion Markup Language (SAML), to provide a federated Web SSO and attribute exchange framework. Shibboleth also provides extended privacy functionality allowing users and their home site to control the attributes released to each application. Using Shibboleth-enabled access simplifies management of identity and permissions for organizations supporting users and applications. Shibboleth is developed in an open and participatory environment as free management tool. In addition to providing Web SSO functionality, Shibboleth helps in controlling the access to e-resources on-campus and off the campus. While working with identity management system, the Shibboleth releases information for which service provider (Publisher) authorizes access. This reduces the need for developers to have access to the directory and instead provides fresh data, just-in-time.

The Shibboleth working architecture requires each participating institutions to set-up their own service identity provider (IDP). Looking at the present scenario, universities and colleges do not have requisite technical know-how and ICT infrastructure, as such, the INFLIBNET Centre took-up the task of acting as an IDP for all its core and associated members, including universities and colleges under its umbrella. The implementation of Shibboleth technology at INFLIBNET Centre would function in the following manner:

- a) The service providers (publisher) will recognize INFLIBNET Centre as a trusted organization for authenticating the user and give an option on their Web sites to select INFLIBNET as an IDP;
 - b) When a user chooses INFLIBNET as its IDP, he / she would be re-directed to IDP link at INFLIBNET Server;
 - c) After verifying user's credentials, IDP at INFLIBNET will pass “user attributes” to the publisher which would include user’s institute, department and role as faculty / student / researcher; and
 - d) Once authenticated, user gets access to his / her authorized e-resources. Unauthenticated users are denied access.
- iv) The Project entitled “**National Library and Information Services Infrastructure for Scholarly Content**” (N-LIST), being jointly executed by the UGC-Infonet Digital Library Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium, IIT Delhi, provides for access to scholarly content to colleges, universities as well as to centrally-funded technical institutions. N-LIST has registered a total number of 1,799 colleges including 1,269 eligible colleges (as on 20th April 2011) that are already getting access to more than 2,100 e-journals and 51,000 e-books subscribed under the N-LIST programme. The log-in IDs and passwords have been issued to more than 95,000 faculty members, students and researchers after obtaining list of authorized users from these 1,269 registered colleges. Group login IDs and passwords have also been issued to colleges awaiting list of actual users. Colleges that are not recognized under 12(B) and 2(F) Sections of UGC Act are being advised to join the initiative as “N-LIST Associates”. Efforts are being made to enrol more colleges through advertisement in newspaper and Centre’s website.

Fig. 3: Screen Shot of the MHRD funded N-LIST Project

- v) The subscription to JCCC (J-gate Custom Content for Consortium), customized for the UGC-Infonet Digital Library Consortium was started in 2008. The JCCC provides article level access to e-journals subscribed under the Consortium along with e-resources subscribed by 22 university libraries designated as ILL Centres. JCCC acts as a gateway to search 10,000+ journals including 3,100 open access journals and 5500+ journals subscribed by the consortium. Besides, the downloading of the articles from the open access and consortium subscribed journals, the JCCC interface facilitates triggering of e-mail requests for articles that are not accessible online and are available only in universities designated as ILL Centres.

There are some more initiatives of the Centre, which pertains to the delivery of information to the users, but not associated with the serials and other continuing resources, but very rightly relates with the access innovation and delivering information to all. These initiatives are i) UGC-Infonet Connectivity Programme that provides for networking of university campuses and Internet connectivity; ii) Shodhganga: a reservoir of Indian theses, that enables online submission of theses and dissertations by research scholars in digital repository set-up at the INFLIBNET Centre; iii) INFLIBNET's Institutional Repository; and iv) Shodhsagar, a project setting for a chain of interoperable distributed institutional repositories in universities and institutions of higher education and research in India.

- i) The UGC-Infonet Connectivity Programme, was inaugurated by the then Hon'ble Prime Minister of India with the commencement of UGC's Golden Jubilee celebrations on 25th December, 2002 for maintaining high standards in university education with aim to bring qualitative changes in the academic infrastructure for delivering the e-resources subscribed through the UGC-Infonet Digital Library Consortium to the academic community on the campuses. Under this initiative, each university gets Internet bandwidth with dedicated IP addresses through a national-level ISP.
- ii) **Shodhganga** is a digital repository set-up for submission of electronic version of theses and dissertations by students / research scholars in universities in India and make them available in open access to the world-wide academic community in response to the UGC Notification (Minimum Standards & Procedure for Award of M.Phil./Ph.D Degree, Regulation, 2009) where-in the responsibility of maintaining the digital repository of Electronic Theses and Dissertations (ETDs) is assigned to INFLIBNET Centre. The Shodhganga is set-up using Dspace, an open source digital library software developed in partnership between Hewlett-Packard (HP) and MIT. Organization of Shodhganga reflects academic structure of every university covered under 12(B) and 2(F) Sections of the UGC Act to facilitate scholars to submit their theses in the respective Department / Centre of the universities. Ingestion interface of Dspace has been customized to meet specific requirement for submission of theses and dissertations. The customized ingestion interface is simple to use and involves less number of steps. Universities have started signing MoU with INFLIBNET Centre for granting non-exclusive rights to host their ETDs in the Shodhganga as well as for getting financial assistance for digitization of back-files of their theses / dissertations in universities. It is also proposed to subscribe an anti-plagiarism software system for universities that are signatory to the MoU with the INFLIBNET Centre so as to check

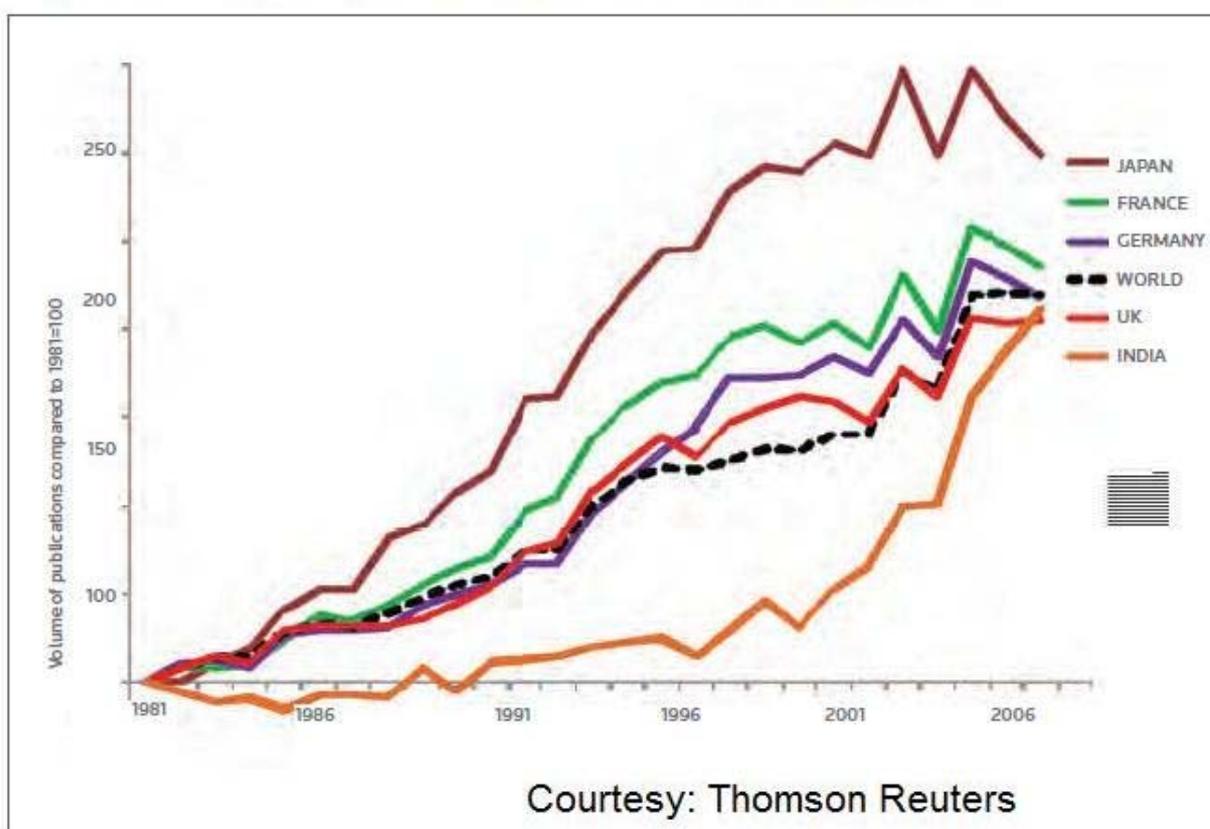
plagiarism prior to submission of thesis into repository. Students from different universities have started submitting electronic version of their theses into the repository on voluntarily basis. So far, students from 16 universities have started submitting their theses into the repository and 20 universities have signed MoU with the INFLIBNET. Total number of theses submitted into the repository has grown to 1,656 as on 18th April 2011.

- iii) The Institutional Repository (IR), set-up using Dspace software to host full-text of research articles of technical staff as well as other publications of the Centre, was maintained and populated with all the articles published in the proceedings of CALIBERs and PLANNERS; two conventions of the Centre organised on every alternate year at different parts of the country. The Dspace supports Open Archives Initiatives-Protocol for Metadata Harvesting (OAI-PMH), an internationally recognized protocol and interoperability standards for retrieval of the full-text data. The IR @ INFLIBNET provides a platform for researchers in LIS to deposit, reuse and share their research publications. The repository also has the ability to capture, store and index, disseminate and preserve digital materials created in the Centre. Staff members can register themselves with the digital repository and submit their pre-prints (pre-refereed version of an article), post-prints (post-refereed final version) and publisher PDFs (if allowed by the publisher). The Repository, at present, hosts 3,736 articles as on 18th April 2011 besides course materials, newsletter, annual report, newspaper clippings and publication by INFLIBNET staff.
- iv) **Shodhsagar**, a project sanctioned by the National Mission on Education-Information and Communication Technology (NME-ICT) to the INFLIBNET Centre, proposes to setting up of a chain of interoperable distributed institutional repositories in universities and institutions of higher education and research in India. Moreover, the Centre would set-up a Central Institutional Repository for institutions that do not have adequate ICT infrastructure, requisite expertise and network infrastructure required for setting-up and maintaining institutional repositories. The researchers and faculty from all institutions including universities and colleges would be invited to submit their research publications into the Central Institutional Repository set-up at the INFLIBNET Centre. The INFLIBNET Centre will extend its assistance to universities in the process of setting-up interoperable institutional repositories; provide training in maintenance of IRs and train staff and faculty in populating IRs. The participating universities would be responsible for uploading of preprints / post-prints of research articles produced by the faculty and researchers in the universities in the IRs. Moreover, the INFLIBNET Centre would also act as a service provider and harvest metadata from all repositories with an aim to provide a unified index to all submissions made in IRs distributed across beneficiary universities. While access to e-resources through library consortium like UGC-Infonet Digital Library Consortium, INDEST-AICTE Consortium and N-LIST would facilitate access to subscription-based scholarly content, whereas institutional repository would enable participating institutions to create a repository of their own scholarly content and share it with other universities and institutions of higher learning.

Impact of the initiatives on higher education

The access to e-resources under the UGC-Infonet Digital Library Consortium was started during 2003 on trial basis and the subscription of e-resources was continued since 2004 for the member universities. Since then, the research output of the country has increased substantially. By analyzing the data on the Web of Science platform, we come to know that in the four years block, the research publication of the country has increased to 42.42% in 2004-2007 from 2000-2003 blocks. With reference to the consortium access, downloads of articles from different publishers have gone increased to 55.74% during 2005 to 2008.

India's recent year-by-year growth has begun to increase sharply compared to well-established European and Asian research nations in the G8



According to the Global Research Report: India on Research and collaboration in the new geography of science, October 2009 published by Thomson Reuters, the India has seen substantial growth in its annual output of scientific publications. (Adams, October 2009) The quantity of publication outputs has began rising steadily from an essential flat line between 1998 and 2000 with roughly 16,500 papers in 1998 to nearly 30,000 papers in 2007. Since 2003, then in five-years period, India has produced roughly 126,000 papers, constituting 2.75% of the worlds papers published in journals indexed by Thompson Reuters. The India year-by-year growth has begun increasing sharply since 2003 compared to well-established European and Asian research nations in the G8 (see Figure above). Further, the research publication of the country has crossed UK and nearly touching the World level. The impact is such that various science policy literatures have referred India as “sleeping giant”.

Reference

1. Adams, Jonathan, King, Christopher and Singh, Vinay. (October 2009). Global Research Report: India [on] Research and collaboration in the new geography of science. Leeds: Evidence, Thompson Reuter. 8p. Available at http://science.thomsonreuters.com/m/pdfs/grr-India-oct09_ag0908174.pdf (accessed on 1st September 2010)

Web URLs

1. <http://www.inflibnet.ac.in>
2. <http://www.inflibnet.ac.in/econ/>
3. <http://www.inflibnet.ac.in/ojs/>
4. <http://nlist.inflibnet.ac.in>
5. <http://www.inflibnet.ac.in/econ/jccc.php>
6. <http://shodhganga.inflibnet.ac.in>
7. <http://ir.inflibnet.ac.in>