
A Brief Evaluation of Search Facilities and Search Results of Few Resources Accessible through INDEST Consortium

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Abstract

The Indian National Digital Library in Science and Technology consortium, setup by the Ministry of Human Resource Development, Government of India has currently over 140 institutions as members who are taking advantage of cost effective access of premier resources in science, technology and management. Out of the different resources accessible under this consortium, the present study selected four major resources, such as ACM Digital Library, IEEE/IEE Electronic Library, ScienceDirect of Elsevier, and Springer Link to make a comparative assessment of the key features and quantity of records in these. The results identified are presented in tabular form. More exhaustive studies are further planned to categorically identify the best resource to answer a crucial query and in identifying the inherent benefits and limitations of each resource.

Keywords : INDEST, E-Resources, Evaluation of E-Resources

0. Introduction

The Indian National Digital Library in Science and Technology (INDEST) consortium was setup by the Ministry of Human Resource Development (MHRD) of the Government of India, to subscribe full-text electronic resources and bibliographic databases for 38 leading engineering and technological institutions in the country including IITs (7), IISc (1), NITs / RECs (17), IIMs (6) and a few other institutions directly funded by the Ministry of Human Resource Development (MHRD) [Arora and Agrawal]. As a result of this initiative, the full text e-journals in IIT, Kharagpur have increased more than 8 fold from 600 journals in 2000 to 5381 journals in 2003. Apart from the 38 core members, now the consortium has 66 Government engineering colleges or technical institutions that offer programmes at postgraduate level and 46 other engineering colleges and institutions (AICTE-accredited and UGC-affiliated) who joined the consortium on their own to share the benefits it offers in terms of lower subscription rates and better terms of agreement with the publishers [INDEST-Members]. Evaluating electronic resources is a major area of study in the information science. Basing three such studies [Lancaster, Nicholls and Ridley, and Lord and Ragan], we tried to evaluate the search facilities in four major resources accessed through the INDEST Consortium. We have also attempted to present a comparison of the search results obtained when searched for same terms. This paper is organized in four parts. In the second part, a brief of the INDEST consortium is presented with a list of full text and bibliographic information resources with their web site addresses. This study evaluates four premier resources, viz., ACM Digital Library, IEEE/IEE Electronic Library, ScienceDirect of Elsevier, and Springer Link, accessible through the INDEST Consortium in the third part of the paper with a critical evaluation of the search features and search results.

1. INDEST Consortium

The Indian National Digital Library in Science and Technology (INDEST) consortium has successfully demonstrated the utility of electronic information and fruitful access to premier science and technology institutions in the Country for the last two to three years of its operation in premier libraries affiliated to seven IITs, IISc, six IIMs and seventeen NITs / RECs. All electronic resources subscribed are available from the publisher's Web site. Local hosting of resources has not been considered at this stage. The INDEST consortium subscribes to the following resources for various categories of institutions as in Table 1 [INDEST-Resources]:

Table 1: Full Text and Bibliographic Resources accessible through INDEST

Full Text Resources		
No.	Name	Web Site
1	IEEE/IEE Electronic Library Online (IEL)	http://ieeexplore.ieee.org/
2	Elsevier's Science Direct	http://www.sciencedirect.com/
3	Springer Verlag's Link	http://www.springerlink.com/
4	ProQuest's ABI/ Inform Complete	http://www.il.proquest.com/pqdauto
5	ProQuest Science (formerly ASTP)] [Formerly Applied Science and Technology (ASTP) Online	http://www.il.proquest.com/pqdauto
6	Association for Computing Machinery (ACM) Digital Library	http://portal.acm.org/portal.cfm
7	American Society of Mechanical Engineers (ASME) Journals	http://www.asme.org/pubs/journals/
8	American Society of Civil Engineers (ASCE) Journals	http://www.pubs.asce.org/journals/jrns.html
9	EBSCO Databases	http://search.epnet.com/
10	Emerald Full-text	http://iris.emeraldinsight.com/
11	Nature Journal	http://www.nature.com/
12	Capitaline	http://www.capitaline.com/intranet/INDEST_consortium.htm
13	INSIGHT	http://www.insight.asiancerc.com/
14	Euromonitor (GMID)	http://www.euromonitor.com/gmid
15	CRIS INFAC Industry Information	http://www.crisil.com/
16	ASTM Standards	Intranet Version
17	Indian Standards	Intranet Version
Bibliographic Databases		
No.	Name	Web Site
1	COMPENDEX on EI Village	http://www.ei.org/ev2/home
2	INSPEC on EI Village	http://www.ei.org/ev2/home
3	SciFinder Scholar	http://www.cas.org/SCIFINDER/SCHOLAR/index.html
4	Web of Science	http://isiknowledge.com
5	J-Gate Custom Content for Consortia (JCCC)	http://jccc-indest.informindia.co.in/
6	J-Gate for Engineering and Technology (JET)	http://jet.informindia.co.in/

2. Resources Studied

We found that four resources, ACM Digital Library, IEEE/IEE Electronic Library, Elsevier's ScienceDirect, and Springer-Verlag's Link are used more heavily than others and hence decided to study the features of them. ACM publications such as journals, magazines, transactions, special interest group (SIG) newsletters, proceedings, and publications by affiliated organizations are the premier source of information for researchers in the fields of computer science and information technology. Through its technical publishing, conferences and consensus-based standards activities, the IEEE produces 30 percent of the world's published literature in electrical engineering, computers and control technology

and holds annually more than 300 major conferences and has nearly 900 active standards with 700 under development. Since its launch in 1997, Science Direct has evolved from a web database of Elsevier journals to one of the world's largest providers of scientific, technical and medical (STM) literature covering over 1,800 journals having around 6 million articles and over 60 million abstracts from all fields of science. With a collection of journals and book series that account for over 300,000 documents in Springer Link, the browse and explore functions help users to get quickly to the information and titles they need. With Springer Keyword alerts, users can register a keyword and each time the keyword appears in a publication on Springer Link, the user receives an e-mail notification. A comparison of major features of these resources is highlighted in Table 2, search fields supported in Table 3, search facilities available in Table 4, and a comparison of search results is presented in Table 5.

Table 2: Features of ACM Digital Library, IEEE Electronic Library, Elsevier's ScienceDirect, and SpringerLink

Parameters	Science Direct	Springer Link	IEEE	ACM Digital Library
Coverage	Covers 24 subjects. Includes over 1800 Journals online. About 6 million articles and over 60 million abstracts from all fields of science are available	Currently offers over 500 fully peer-reviewed journals and a growing roster of series, comprising more than 2400 books online	IEEE provides full-text access to IEEE transactions, journals magazines and conference proceedings published since 1988 plus select content back to 1950, and all current IEEE Standards. Contains more than 770,000 articles in over 12,000 individual publications. IEEE adds about 25,000 new pages to the database per month.	Advancing the arts, sciences, and . applications of information technology
Accessibility	Access through Web	Accessed directly or through links provided by Abstracting and Indexingservices, agencies or through CrossRef. Free access is provided to search functions tables of contents, as well as keyword and tables of contents alerts	Access to all or part of the collections based on whether you are a member or whether your organization subscribes to all or part of the collections	Members can access through Subscription, license, or transaction fee
Authority	Reputable. Sources are provided with	Offers electronic & printed literature from Springer-	IEEE publications provide quality, depth, and value	Reputed. Suitable references are

	references	Verlag, a preeminent scientific publisher with A reputation for excellence spanning more than 150 years.	electrical engineering computing collection	provided with the references.
Searching	An easy-to-use, powerful search engine with both basic and enhanced search capability	Search engine is supported.	Easy search option helps to get required data	Search engine helps to identify useful records.
Browsability	Browsing facility is there for Abstract databases, Book series, Journal homepages, Reference works, etc.	Browse and explore functions help users to get quickly to the information and titles the users need	Browse functions are available such as searching the database by specifying one or more authors, index terms, and other criteria	Browse through Keyword Index.
Archiving	Currently, Science Direct contains over 1,800 Elsevier journals, most from 1996 forward and some from 1993 forward. Back file conversion from volume 1, issue 1 ongoing.	Scientists and researchers can access over a century of scientific evolution and complete historical information.	Access to IEEE journals, magazines & conference papers back to 1988, select titles to 1950.	50 years of archives
Organization	Resources are organized in a logical manner	Organized resources	Resources are organised	Arranged logically
Currency	Daily updated	As soon as the new information comes	Depending on the type of document, currency of the content varies.	Weekly
Documentation	User can print or download Content from the site	Subscribers to a journal title receive online access to that title whether by a print plus online or an electronic-only subscription	Provision to view and print individual articles and papers, search results lists, tables of contents, bibliographic records, and full-page images with no limit on the number of prints.	Users can make digital or hard copies of the individual articles as long as they bear the ACM copyright notice
Ease of use	Resources are novice friendly	Has a User friendly interface	Very much easy to use	Training is not required to use

Links to other resources	The site contains Hyperlinks to other sites or resources.	Users can expand their research with the reference linking found within articles in SpringerLink.	This Site contains links to other sites. There is a facility for OPAC linking. Links may be created at the title level (for journals/ magazines, conference proceedings and standards) or at an issue's table of contents level (for journals/ magazines only.)	Users can assemble and distribute links that point to works in the ACM Digital Library.
Required environment or platform computing	Users should connection to the Internet. In order to possess a good access certain content and to make use of the full functionality and advanced personalization features of the site password is necessary	Required Internet connection only. To use the personalized features of this site, such as 'Favorites' or 'Table Of Contents Alerting', registration is required.	-Internet browser - Connection to an Internet Service Provider - For best dial-up performance a 56.6 or higher modem is recommended - Adobe Acrobat Reader 5.X or higher. Direct parallel or LAN-attached printer with at least 300 dpi resolution, Compatible mouse	With Internet connection one can access. To access the Portal/ Digital Library, members must have an ACM Web account. To get the Personalized services offered by ACM, Membership login is required
Stability Uniqueness	Resources are very much Stable Articles are available online before appearing in print. Online access to multimedia features not available in print journals, such as: video files, audio files, Excel spreadsheets and Word files	Stability is there Interdisciplinary research is a key feature of Springer Link. Subscribers have a vast universe of information at their disposal with 11 online libraries that enable them to obtain critical data in many fields.	Stable resource Cost effective and premier resource base for electrical, electronics and computer engineering	Yes Users can make digital or hard copies of the individual articles that they are entitled to access for personal or classroom use, as long as the copies are not made or distributed for profit or commercial advantage.
Networkable	Yes	Yes	Yes	Yes
Indicativity of record Response time	Default is 200 items per page Very quick	Default is 10 items per page Fast, reliable, and powerful access 24 hours a day.	Displays 25 search results per page Quick response	Shows 20 items per page Fast access

Help features	Online help is available for various tasks.	Help feature is very much useful	Help function is very satisfactory	Help option is available
Value added	Resources contain supplements to the textual materials such as graphics, search engines etc.	Electronic supplementary materials such as color images, simulations, video and sound, so that researchers not only read about the research in the article but can see, and often hear the research as it happens	Contains complete original page images, including all charts, graphs, diagrams, photographs, and illustrative material, from an integrated-circuit schematic to a topographic map to a photograph of a new crystalline structure.	Links can be created to citations. ACM encourages the widespread distribution of links to the definitive versions of its copyrighted works.
Indexing & Vocabulary factors	- Abstracts, titles, Keywords, and authors within the selected content by subject, publishers search based on Boolean logic, title search etc.	Access points such as –Author, Title, Publishers, Keyword	- By Author- Basic Search- Advanced Search- Cross Reference	Searching with words, phrases, Topics, Wildcards, cross reference

Table 3: Search Fields in ACM Digital Library, IEEE Electronic Library, Elsevier's ScienceDirect, and SpringerLink

Fields	Science Direct	Springer Link	ACM Digital Library	IEEE
Author	Author, title, keywords	Author	Author, Editor	Author
Title	Title	Title	Title	Title
Year	Publication date	Year	Publication date	Year
Source	All journal, my favourite journal, subscribed journals			
Abstract	Abstract	Abstract	Abstract	Abstract
Language	Limit to English language documents			
References	References			
Full Text	Full Text			
Descriptor	Keywords	Descriptor		Index terms
Author affiliation	Affiliation		Affiliation	Affiliation
Document type	Document type (used within limit field)		Publication type	Publication type
ISSN	ISSN	ISSN	ISBN/ISSN	

Table 4: Search Facilities in ACM Digital Library, IEEE Electronic Library, Elsevier's ScienceDirect, and SpringerLink

Description	ScienceDirect	Springer Link	ACM	IEEE
Operators: Boolean	AND, OR, AND NOT	AND, OR, AND NOT	AND, NOT	AND, OR, NOT, ADJ
Sort results by			Relevance, Title, Publication, Publication date	
Display results			Expanded form, Condensed form	
Wildcards (search terms marked inside?)	*, !	*	*	*, ?
Operators: proximity			-, +, ""	-,
Searching	Go	Go	Search	Find
Complex searching	Search terms can be linked with operators	Search terms can be linked with operators	Search terms can be linked with double quotation marks	Search terms can be linked with operators and double quotation marks
Saving search strategy and search results	Save	Save	Download	Save
Printing	Printing	Printing	Printing	Printing
Hit-term searching	No specific name while displaying record	No specific name		
Display	Display	Results	Display	Results
Search terms entry	Search terms can be typed directly or can be browsed or selected from Index, glossary	Typed directly	Typed directly	Typed directly
Truncation of word roots	!			
Help facility	Is available	Not available	Is available	Is available

Table 5: Search Results from different search engines

Search Terms	ScienceDirect	IEEE	Springer Link	ACM Digital Library
Digital resource management	90	75	34	0
Spread spectrum communication	66	126	18	1
Information Retrieval	3463	1036	1000	4322
Error control coding	96	198	69	12
Wireless Network	678	1420	900	1669
Wireless Communication	495	640	430	207
IIT, Kharagpur	10	96	0	67
Soumitro Banerjee	2	4	0	0

3. Conclusion

This study has to be extended to include more parameters identified for evaluating information resources. Also search features are to be critically examined with user interfaces in each of the resources to judge which resources are more user friendly and have better search functionalities. In the era of more and more interdisciplinary research taking place in many institutions, identifying best resource to answer a particular query needs searching different resources with same terms and examining the results obtained. Resources selected for access through INDEST was selected by an expert committee drawn from the premier institutions and they have carefully screened the different resources available and selected the best possible ones available. This fact is evident from the standard, quality and usage of these resources. More involved studies on the subject matter covered in the different resources and if possible a term mapping would help to identify what resources are of interest to which specialists. Researchers too involved in their research and academic work can be helped by libraries by venturing into such value added information support.

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