

# Scientometric Analysis of Indian Citation Index (2009-2013): Profile of the Domain of Library and Information Science

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## Abstract -

**A** scientometric study of Library Science Literature from the year 2009 to 2013 is carried out using Indian Citation Index (ICI) database, aims to analyse the growth of library and Information Science research articles in India. It covers total of 2052 articles indexed by ICI database during the period of 2009-2013. In this study the author have tried to analyse the year wise growth of LIS research publications in India based on articles and citations and to identify the most prolific author, author affiliation to Institution, document type and highly cited paper.

**Keywords:** *Scientometrics, Authorship productivity, Library Science, Indian Citation Index, Information Science.*

## I. INTRODUCTION

Scientometric study is very useful to understand the evolution of literature or trends of literature or trends in particular fields or within a geographical area. Scientometric studies have increasingly been used day by day. It is a quantitative method to study the various aspects of subjects. Citation Index is a tool for measuring the quantity and quality of publications published journals either printed or online. Likewise, there are many tools available to measure the publications quality and quantity. Indian Citation Index only indexed 22 Indian publications with very limited coverage i.e. 2004 onwards. This study is an attempt to analyse the contribution of Indian journal and Indian author in the field of Library and Information Science during 2009 to 2013.

## ABOUT INDIAN CITATION INDEX (ICI)

Indian Citation index is a fully web-based abstract and citation database covering R&D literatures across all disciplines published in journals/ serials or in other documents emanating from India. It is an authentic tool for effective & rigorous evaluation of Indian scholarly works. ICI is developed by "The Knowledge Foundation" (a registered society) with the required support of M/s DIVA ENTERPRISES Pvt. It intends to cover about 1000 top Indian scholarly journals. It is a powerful tool that makes search, track, measure and collaborate in the sciences, social sciences, arts, and humanities to turns raw data/information into the powerful knowledge that one need. Currently ICI database contain 876 journals; 4,15,816 articles and 7,457,444 number of references, which are published from India covering scientific, technical, medical and social sciences that includes arts and humanities . This citation database covers research papers, review papers, short communications, editorials, letters to the editor, research notes, case studies, case reports, opinion papers, observations and special papers etc. ICI can perform basic two functions, one general literature search and evaluation using citation. ICI provides extensive search features such as basic search, cited reference search, and refine search capabilities. Search can be done by title, topic, author, instituted region, publication name, document type as well as combining hem with Boolean operators within a specific time span. In cited reference search, a search can be done using cited author, cited work or cited year. Search limits can be made using document type such as case study, editorial, journal articles, etc. The ICI database also produces other useful byproducts like Indian Science Citation Index (ISCI), Indian Social Science and Humanities Citation Index (ISSHCI), Indian Journals Citation Reports (IJCR), Indian Science and Technology Abstracts (ISTA), and Directory of Indian Journals (DOIJ).

## II. OBJECTIVES OF THE STUDY

The objective of the present study is as follows:

- To know the year wise growth of LIS research articles;
- To know the year wise citation distribution pattern of LIS journals;
- To measure authors' productivity and journal impact (through h- index);
- To rank Indian states and institutions according to their contributions in ICI.

## III. RESEARCH METHODOLOGY

The data for the study period 2009 to 2013 (5 years) are retrieved from the Indian Citation Index (ICI) database using Subject Category "Library and Information Science" as the keyword for search. A total of 2052 numbers of articles distributed in 18 journals were retrieved for the period of 2009-2013. All the bibliographic data of the retrieved 2052 articles were analysed using different search criteria like author, institution, document type, State etc. All the retrieved data were recorded in a MS excel spreadsheet and analyses of recorded data were done by simple statistical percentage and average.

**IV. DATA REPRESENTATION, ANALYSIS AND INTERPRETATION**

Following sections discusses the analysis of the data collected and presented under different table headings as per the objectives of the study is given below –

Indian Citation Index (ICI) database contain 18 journals in the field of library and information science are analysed based on their publication pattern, citation pattern and many other parameters. Table I shows list of 18 LIS journals with their publisher, starting year of each journal and their ISSN number.

TABLE: I LIST OF LIS JOURNALS COVERED ICI DURING 2009 TO 2013

SL. NO.	JOURNAL NAME	PUBLISHER	URL	START YEAR	ISSN	
					PRINT	ONLINE
1.	Annals of Library and Information studies	National Institute of Science Communication and Information Resources	<a href="http://nopr.niscair.res.in">http://nopr.niscair.res.in</a>	1954	0972-5423	0975-2404
2.	Collnet journal of scientometrics and information Management.	Taru Publications	N.A.	2007	0973-7766	N.A.
3.	DESIDOC Journal of Library and Information Technology	Defence Scientific Information and Documentation Centre	<a href="http://publications.drdo.gov.in/ojs/index.php/djlit">http://publications.drdo.gov.in/ojs/index.php/djlit</a>	2008	0974-0643	0976-4658
4.	Electronic Information and Planning	Department of Information Technology, Ministry of Communications and IT Electronics	N.A.	1973	0304-9876	N.A.
5.	IASLIC Bulletin	Scientific Publishers	N.A.	1956	0018-8441	N.A.
6.	Indian Journal of Information, Library & Society	Bharati Publications	N.A.	1988	0971-4286	N.A.
7.	Information Studies	Indianjournals.com	N.A.	1995	0971-6726	N.A.
8.	International Journal of Information and Computer Science	Dr. Dilip Kr. Chakraborty	N.A.	1998	0972-1347	N.A.
9.	International Journal of Information Processing	I K International Publishing House Private Limited	N.A.	2007	0973-8215	N.A.
10.	International Library Movement	ILM Foundation, Ambala	N.A.	1974	0970-0048	N.A.
11.	Journal of Digital Information Management	Digital Information Research Foundation	N.A.	2003	0972-7272	N.A.
12.	Journal of Library and Information Science	University of Delhi, Department of Library and Information Science	N.A.	1976	0970-714X	N.A.
13.	Journal of Library and Information Technology	Dr. C K Sharma	N.A.	2005	0975-6183	N.A.
14.	KELPRO Bulletin	The Kerala Library Professional's Organisation	N.A.	1997	0975-4911	N.A.
15.	Library Herald	Indianjournals.com	N.A.	1958	0024-2292	N.A.
16.	Library Progress (International)	Bulletin of Pure and Applied Sciences	N.A.	1981	0970-1052	N.A.
17.	PEARL: Journal of Library and Information Science	Indianjournals.com	N.A.	2007	0973-7081	N.A.
18.	SRELS Journal of Information Management	Sarada Ranganathan Endowment for Library Science	N.A.	2000	0972-2467	N.A.

Table no I enumerates all the 18 journals with their publisher, start year and ISSN number. Annals of library and Information Studies and DESIDOC journal of Library and Information Technology are free open access online journals along with their URL so that any user can browse the e-journals directly by entering the URL in its address bar.

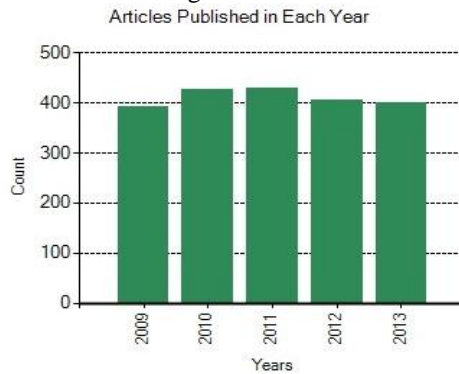
Table II reveals year wise growth of LIS literature in Indian Citation Index Database during the study period of 2009-2013, is given below:

TABLE: II YEAR-WISE GROWTH OF LIS LITERATURE

Sl. No	Name of Journals	2009	2010	2011	2012	2013	Total	Rank
1	SRELS Journal of Information Management	43	58	59	64	68	292 (14.23%)	1
2	DESIDOC Journal of Library and Information Technology	42	43	54	64	59	262 (12.76%)	2
3	PEARL: Journal of Library and Information Science	48	44	43	29	34	198 (9.64%)	3
4	Annals of Library and Information studies	34	42	36	27	37	176 (8.57%)	4
5	International Journal of Information Processing	38	40	38	39	0	155 (7.55%)	5
6	Indian Journal of Information, Library & Society	25	22	25	21	27	120 (5.84%)	6
7	Library Progress (International)	22	24	32	9	27	114 (5.55%)	7
8	IASLIC Bulletin	20	26	22	22	18	108 (5.26%)	8
9	Library Herald	22	26	24	13	22	107 (5.21%)	9
10	International Library Movement	15	19	19	22	21	96 (4.67%)	10
11	Collnet journal of scientometrics and information Management.	15	15	16	23	20	89 (4.33%)	11
12	KELPRO Bulletin	14	15	16	17	22	84 (4.09%)	12
13	Information Studies	14	16	15	15	16	76 (3.70%)	13
14	Journal of Library and Information Science	15	13	12	19	6	65 (3.16%)	14
15	Journal of Library and Information Technology	11	7	11	10	16	55 (2.68%)	15
16	Internal Journal of Information and Computer Science	5	10	8	10	7	40 (1.94%)	16
17	Electronic Information and Planning	1	7	0	0	0	8 (0.38%)	17
18	Journal of Digital Information Management	7	0	0	0	0	7 (0.34%)	18
	<b>Total</b>	391 (19.05 %)	427 (20.80 %)	430 (20.95 %)	404 (19.68% )	400 (19.49 %)	<b>2052(100 %)</b>	

The data presented in the table II shows the complete lists of library and information science journals which are available in the Indian Citation index along with their total number of articles published in each year. 'SRELS journal of Library and Information Management' occupied the first position with 292 articles and the second position occupied by 'DESIDOC Journal of Library and Information Technology' with 262 articles,' PEARL: Journal of Library and Information Science' and 'Annals of Library and Information Studies' is in third and fourth position with 198 and 176 articles respectively. 'Journal of Digital Information Management' has been published only 7 articles during this study period and is the lowest productive journal in LIS that are covered in ICI.

The figure II is based on data set presented in table II is given below –



(Source: [www.indiancitationindex.com](http://www.indiancitationindex.com))

Figure: II shows graphical representation of article published during 2009-2013

Figure II shows that in 2011, 430 articles are published in the domain of library and information science which is the highest when comparing with other years. The rate library and information publication in Indian Citation Index database is gradually increases in 2010 and 2011 but its publication rate is slightly decreases in 2012 and 2013. Following table reveals citation pattern of each journal covered in Indian Citation Index (ICI) of library and information science during 2009-2013. Table III shows year wise distribution of citations is given below –

TABLE: III DISTRIBUTION OF LIS JOURNAL BASED ON CITATION FROM 2009-2013

Sl. No	Name of Journals	2009	2010	2011	2012	2013	Total	Rank
1	Annals of Library and Information studies	88	48	26	16	7	185	1
2	DESIDOC Journal of Library and Information Technology	33	33	36	4	4	110	2
3	SRELS Journal of Information Management	28	18	19	12	1	78	3
4	Information Studies	16	11	7	3	1	38	4
5	IASLIC Bulletin	11	8	3	3	0	25	5
6	PEARL: Journal of Library and Information Science	8	7	7	0	0	22	6
7	Collnet journal of scientometrics and information Management	4	5	6	4	2	21	7
8	Library Herald	4	7	3	1	0	15	8
9	Library Progress (International)	5	0	4	2	0	11	9
10	Indian Journal of Information, Library & Society	1	1	2	0	0	4	10
11	International Journal of Information and Computer Science	1	1	1	0	0	3	11
12	Journal of Library and Information Science	1	1	0	0	0	2	12
13	International Journal of Information Processing	1	0	0	1	0	2	12
14	KELPRO Bulletin	1	1	0	0	0	2	12
15	International Library Movement	1	0	0	0	0	1	15
16	Electronic Information and Planning	0	0	0	0	0	0	-
17	Journal of Digital Information Management	0	0	0	0	0	0	-
18	Journal of Library and Information Technology	0	0	0	0	0	0	-
	<b>Total</b>	203 (25.1 2%)	141 (27.16 %)	114 (21.96 %)	46 (8.86 %)	15 (2.89 %)	519	

The table III shows the citations of the library and information science Journals in Indian Citation Index for the years from 2009 to 2013. Among the 18 journals, 519 citations were available. Out of 519, ‘Annals of Library and Information Studies’ occupying the first position with 185 (35.64%) citations and ‘DESIDOC Journal of Library and Information Technology’ is the second position with 110 (21.19%) citations and ‘SRELS Journal of Information Management’ occupying the third position with 78 citations for the 2009 to 2013. It is pointed out that among the 18 journals; three journals i.e. ‘Electronic Information and Planning’; ‘Journal of Digital Information Management’ and ‘Journal of Library and Information Technology’ have no single citations during this study period. Here following table shows ranking of LIS journals is based on number of times cited is given below -

TABLE: IV DISTRIBUTION OF JOURNALS BASED ON NUMBER OF TIMES CITED AND H-INDEX

NAME OF JOURNALS	No of times cited	Rank	Average citation / item	average citation / year	h-index
Annals of Library and Information studies	180	1	1.057	37	6
DESIDOC Journal of Library and Information Technology	110	2	0.421	22	4
SRELS Journal of Information Management	78	3	0.268	15.6	4
Information Studies	38	4	0.507	7.6	4
IASLIC Bulletin	25	5	0.234	5	3
PEARL: Journal of Library and Information Science	22	6	0.112	4.4	2
Collnet journal of scientometrics and information Management	21	7	0.239	4.2	3
Library Herald	15	8	0.142	3	2
Library Progress (International)	11	9	0.097	2.2	2
Indian Journal of Information, Library & Society	4	10	0.034	0.8	1
International Journal of Information and Computer Science	3	11	0.077	0.6	1
International Journal of Information Processing	2	12	0.013	0.4	1
Journal of Library and Information Science	2	12	0.031	0.4	1
KELPRO Bulletin	2	12	0.024	0.4	1
International Library Movement	1	15	0.011	0.2	1
Journal of Library and Information Technology	0	-	0	0	0
Electronic Information and Planning	0	-	0	0	0
Journal of Digital Information Management	0	-	0	0	0

From the above table it has been clear that ‘Annals of Library and Information studies’ has been cited maximum number of times i.e. 180, Average citation / paper 1.057, average citation / year 37 and h-index 6. This journal occupying the first position among 18 journals based on number of citation received during the time span of 2009-2013. ‘DESIDOC Journal of Library & Information Technology’ and ‘SRELS Journal of Information Management’ has been occupied the 2<sup>nd</sup> and 3<sup>rd</sup> rank with 110 and 78 citations. Following table reflects ranking of journals based on Journals Citations Index (JCI) is given below –

TABLE-V SHOWS RANKING OF LIS JOURNALS BASED ON JOURNALS CITATIONS INDEX (JCI)

JOURNALS NAME	2009	2010	2011	2012	2013	TOTAL	Rank
Information Studies	0.071	0.06	0.13	0.1	0.1	0.395	1
journal of Library and information Science	0	0	0	0	0.2	0.167	2
Annals of Library and Information studies	0	0.07	0.06	0	0	0.154	3
IASLIC Bulletin	0.05	0	0.05	0	0	0.095	4
DESIDOC Journal of Library and Information Technology	0	0	0.06	0	0	0.073	5
SRELS Journal of Information Management	0	0	0	0.047	0	0.062	6
Collnet journal of scientometrics and information Management	0	0	0	0	0.1	0.05	7

Library Progress (International)	0	0	0.03	0	0	0.031	8
PEARL: Journal of Library and Information Science	0.021	0	0	0	0	0.021	9

The table V indicates Journals Citations index of the library and information science Journals which are indexed in Indian Citation Index for the period of 2009 to 2013.

Journal Current Index (JCI) = A/B

(A= no of article published in the journal in a given year were cited in indexed Journal during that year.

B= no of citable articles published by the journal in that year. )

Among the 18 number of Journals only nine journals has journals citation index. Among the 9, Information Studies has 0.395 JCI and it is the highest when comparing other library and information journals in India.

Following table reveals top ten institutions contributors in the domain of LIS in ICI database during 2009-2013 is given below –

TABLE: VI TOP 10 INSTITUTIONS AS CONTRIBUTORS IN LIS (AS PER ICI DATABASE 2009-2013)

SL.NO	NAME OF INSTITUTION	RECORD COUNT	RANK
1	University of Mysore (UM)	90	1
2	University of Delhi (UD)	54	2
3	National Institute of Science, Technology and Development Studies (NISTDS)	51	3
4	Annamalai University (AU)	45	4
5	Guru Nanak Dev University (GNDU)	36	5
6	Karnatak University (KU)	33	6
7	University of Kerala (UK)	32	7
8	Mangalore University (MU)	30	8
9	Anonymous	28	9
10	Gulbarga University (GU)	28	9
11	Banaras Hindu University (BHU)	27	10
TOTAL		454	

It was feasible to analyse the publications based on institutional contributors. A total number of 454 records (22.12%) have been contributed by top ten institutions during 2009 to 2013. Table VI shows the most prolific institutions in the field of Library Science. Findings revealed that University of Mysore (UM) with 90 records (4.38%) out of 2052 is the most productive institution in the field of Library Science.

Following table shows top ten prolific authors in LIS field during 2009-2013 is given below –

TABLE: VII TOP 10 MOST PRODUCTIVE AUTHORS IN LIS (AS PER ICI DATABASE 2009-2013)

SL. NO.	AUTHOR	RANK	CONTRIBUTION
1	Gupta B M	1	27
2	Nikam Khaiser	2	21
3	Neelameghan A	3	20
4	Venugopal K R	4	17
5	Patnaik L M	4	17
6	Bala Adarsh	6	16
7	Sen B K	7	15
7	Chandrashekara M	8	13
8	Dhiman Anil Kumar	8	13
9	Kumbar B D	8	13
11	Sharma C K	11	12
12	Satija M P	11	12



Following table framed various documents type used in ICI database is given below –

TABLE: IX DOCUMENT TYPE

Document Type	Record count	Percentage (%)
Research article	1846	89.96
Case study	77	3.75
Editorial	70	3.41
Short communication	37	18.31
Review article	15	0.73
Report (R&D)	1	0.048
Special article	1	0.048
Unknown	5	0.24
Total	2052	100

Table IX shows the document type of the articles. Out of 2052 articles, Journal articles receive maximum number i.e. 1846 (89.96%). Table 5 details different types of documents in the field of LIS. Following table reflects top ten highly cited papers –

TABLE: X TOP 10 HIGHLY CITED PAPER

Author	Title	source	Year	No of times cited
Sharma Rakesh Mani	Research publication trend among scientists of Central Potato Research Institute: A bibliometric study	Annals of Library and Information Studies Volume: 56 Issue: 1 P ages: 29-34	2009	14
Natarajan K , Suresh B , Sivaraman P , Sevukan R	Use and user perception of electronic resources in Annamalai University: A case study	Annals of Library and Information Studies Volume: 57 Issue: 1 P ages: 59-64	2010	9
Jeyshankar R , Babu B Ramesh	Websites of universities in Tamil Nadu: A webometric study	Annals of Library and Information Studies Volume: 56 Issue: 2 P ages: 69-79	2009	8
Ahmed S M Zabed, Rahman Md Anisur, Ahmed S M Zabed	Lotka's law and authorship distribution in nutrition research in Bangladesh	Annals of Library and Information Studies Volume: 56 Issue: 2 P ages: 95-102	2009	6
Krishnamoorthy G, Ramakrishnan J , Devi S	Bibliometric analysis of literature on diabetes (1995 – 2004)	Annals of Library and Information Studies Volume: 56 Issue: 3 P ages: 150-155	2009	6
Varghese Rekha Rani, Rajan Jinju S	Productivity of scientists of Rajiv Gandhi Centre for Biotechnology (RGCB): An analysis	Annals of Library and Information Studies Volume: 56 Issue: 3 P ages: 156-162	2009	6
Joshi Kirti , Kshitij Avinash , Garg K C	Scientometric profile of global forest fungal research	Annals of Library and Information Studies Volume: 57 Issue: 2 P ages: 130-139	2010	6
Patil D B, Parameshwar S	Use of electronic resources by the faculty members and research scholars in Gulbarga university, Gulbarga: A survey	SRELS Journal of Information Management Volume: 46 Issue: 1 P ages: 51-60	2009	6



Singh RK Joteen , Devib Th Madhuri, Raychaudhury Arup	Use of internet based e-resources at Manipur University: A survey	Annals of Library and Information Studies Volume: 56 Issue: 1 P ages: 52-57	2009	5
Vijayakumar M , Kannappanavar B U, Mestri Mamata	Content analysis of Indian Institutes of Technology libraries web portals: A study	DESIDOC Journal of Library and Information Technology Volume: 29 Issue: 1 P ages: 57-63	2009	5

The top ten mostly cited papers obtained from Indian Citation Index database is listed in Table X. A paper entitled “Research publication trend among scientists of Central Potato Research Institute: A bibliometric study” by Sharma Rakesh Mani Published in the Journal “Annals of Library and Information Studies” in the year 2009 has received highest citation count 14. “Use and user perception of electronic resources in Annamalai University: A case study” by Natarajan K , Suresh B , Sivaraman P , Sevukan R published in the Journal Annals of Library and Information Studies in the year 2009 occupying the second position with 9 citation count. Out of top 10 cited articles, 8 articles are published in the Journal of Annals of Library and Information Studies.

#### V. MAJOR FINDINGS

The present study has been summarized with the following research findings:

- The publication of LIS research articles in India ranges from 391-427 articles with a yearly average article is 410.4
- SRELS Journal of Information Management has been identified as the most popular LIS journal having 292 (14.23%) articles publication out of 2052 LIS research articles.
- The journal Annals of Library and Information Studies occupied the first position with 185 citations.
- Gupta, B M identified as a most productive LIS author with a highest contribution of 27 articles.
- University of Mysore (UM) has been identified as a most productive institution with a highest contribution of 90 articles during 2009-2013.
- The State Karnataka positioned 1<sup>st</sup> with 351 contributions which is indexed in ICI database during 2009-2013. Delhi and Andhara Pradesh occupying the 2<sup>nd</sup> and the 3<sup>rd</sup> position with 240 and 138 articles.
- Annals of Library and information studies has maximum no of citable documents and got highest no of h-index among 18 LIS journals available in ICI database.
- Journal Current Index (JCI) of Information Studies is 0.359, is the highest number of JCI among 18 LIS journals.

#### VI. CONCLUSION

Indian Citation Index is an important step towards the development of Indian research domain. ICI will greatly enhance the visibility of Indian R&D literature globally with provision to check corresponding citations. ICI interface is very user friendly with comprehensive citation coverage. In future ICI should include other no-conventional forms of citations like downloading, number of hits, coverage in social media etc.

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