

Indian Research Information Network System (IRINS): Analysis of Academic Institutions in India

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Abstract.

Purpose: The present study sought to analyze the Indian Research Information Network System (IRINS) instances with special reference to universities in India. The article explores top departments, faculty's publications and citations of individual university.

Methodology: To undertake the present study, data were collected from the website of Indian Research Information Network System (IRINS)¹. The present study confined to 29 Universities in India, most of them are centrally funded by Government of India. The collected data were classified, analyzed and tabulated by using statistical methods.

Findings: The finding shows that the Banaras Hindu University (BHU) holds the highest numbers of faculties 1022 (15.40%) and has the highest scholarly publications 16376 (20.68%) with Scopus citation 208604 (22.05%) and Crossref citation 175973 (23.26%). The department of physics, Banaras Hindu University has the highest scholarly resources 2508(17.96%), whereas, the department of physics and astrophysics, University of Delhi has the highest 107 h-index with 1347 scholarly resources.

Originality/value: This paper investigates trends in the research information management in universities in India with the context of IRINS that unfamiliar to many library and information science (LIS) professionals, and puts them in the context of professional practice.

Key words: IRINS, RIM, INFLIBNET, ORCID, ID, API, UGC, DOI.

1. Introduction

The academic institutions in India are striving for their prominence by showcasing their research presence in respect to various key parameters across the national and international benchmarking and ranking frameworks. At all levels need to regularly update about their on-going research in their respective subject expertise. The Information on research interest and research output of faculties in terms of publications, citations and other intellectual output has been highly scattered. Moreover, the research communities, academic institutions and

¹ https://irins.org/irins/irins_instances.php

the Research & Development (R&D) organizations are dispersed geographically across the country and across the world, therefore, it's difficult to keep the information flow about research capabilities of individuals, departments, academic institutions or organizations.

A well-structured research information management keeps abreast the researchers all the time about the latest subject topics, institute collaborations, and different trends in their respective discipline as well as the close by areas. Such research information is needed for better research discovery and measurement of research activities.

The Indian Research Information Network System (IRINS) eases and facilitate the flow of information on research carried out and serve as common platform to project performance of the individual faculty, departments, academic institution or the organization on various Bibliometrics Parameters. The IRINS paves the way for networking, collaboration and better funding opportunity for various research projects. Moreover, it can be used as better instrument for policy makers and the Government of India to identify the available expertise, the thrust areas of research, and the research gaps and to define accordingly their policies on research funding. The IRINS could be used effectively for efficiently measuring and benchmarking research output of the academic institutions or the R&D organizations.

Indian research information network system (IRINS)

The Indian Research Information Network System (IRINS) a web-based Research Information Management (RIM) service developed by the Information and Library Network (INFLIBNET) in collaboration with the Central University of Punjab (<https://irins.org/irins/>).

The IRINS is available as free software-as-service to the academic and R&D organizations in India. IRINS captures scholarly communication artifacts such as people who do research and their group (personal information and affiliation), their research activities (grants/projects), achievements (honours/awards) and their research output (publications and more). It could be integrated with existing campus management system such as faculty profile, institutional repository, grant management system, etc. It support data visualization and reporting on organization research, activity and output. It consumes and produces key information to institute's core research. It has integrated with academic identity such as ORCID ID, Scopus ID, Research ID, Microsoft Academic ID, and Google Scholar ID for ingesting the scholarly publication from various sources (Kannan, P., Kimidi, S.S., & Arora, J.).

The participating institute provides basic profile information such as personal details, qualification, affiliations, honours & awards, research projects handled and academic identity. Based on the basic profile metadata other requisite components, such as research output (publications) and citation metrics are

automatically ingested into IRINS and incrementally update periodically. The data visualization components such as co-author network, research productivity graph and comparison chart generated based on the data consumed from various sources (Kannan, P., Kimidi, S.S., & Arora, J.).

The importance of IRINS and its presence in every institution strengthen the departments through its vital activities such as by depicting the department growth from the overall institute research publications. It enables to compare the research output within departments of the same institute, such as the strength of individual departments from their research output, the granted projects and faculty strength, etc. (Kimidi, S.S. & Kannan, P.).

IRINS also provides greater exposure of their research contributions to the international community and helps to collaborate with the interdisciplinary research activities. IRINS helps the funding agencies and policymakers too by providing research-related information to the national projects and ranking systems such as National Digital Library, National Institutional Ranking Framework, National Assessment and Accreditation Council (NAAC) and the statutory body such as University Grants Commission (UGC) under the Ministry of Education, Government of India. This helps to identify experts for project proposal reviews and various committees (Kimidi, S.S. & Kannan, P.).

In essence, IRINS could be used effectively by the academic institutions as an instrument to showcase their research output, expertise, skills, research experience, accomplishments, projects and other scholarly activity.

2. Review of literature

The literature review is not comprehensive, but is rather limited to the areas in the context of IRINS analysis in various instances.

Kimidi (2020) reported that the Research Information Management (RIM) system plays an important role in showcasing the research output of the academic and research institutions to the world. The Indian academic and research institutions are creating and generating huge research information in different formats which are getting published in various channels. The research information from individual researchers to an institute can be made visible through an effective and efficient RIM system only. Further describes the growth and the penetration of the RIM concept across the country and its outreach by an indigenously built platform, the Indian Research Information Network (IRINS).

In an analytical study on 15 academic and research organizations in India through IRINS, Balasubramani, Anbalagan, and Palavesam (2019) analyzed the faculty members, department and their scholarly publications with citations and its impact. The finding indicates that Koneru Lakshmaiah (KL) Deemed

University, Guntur has the highest 836 (17.22%) faculty members. The Indian Institute of Technology (IIT), Madras has received 278374 (26.28%) highest citations from Scopus and 227686 (22.30%) citations from Cross Reference.

Kannan, Kimidi and Arora (2018) in a study elaborated that IRINS can be used as a common platform across all educational and research institutes in Indian higher education sector. The IRINS could be used effectively for efficiently measuring and benchmarking research output of individual institute as well as across institutions.

Joachim, Hélène and Violane (2017) in a study provides an overview of recent research and publications on the integration of research data in Current Research Information Systems (CRIS) by addressing three related issues, i.e. the object of evaluation, identifier schemes and conservation with focusing on social sciences and humanities. The study contributes to the debate on the evaluation of research data, especially in the environment of open science and open data, and helpful in implementing CRIS and research data policies.

Joint Nicholas (2008) gives an overview of larger developments in the international research information environment, and outlines their impact on the open access movement within libraries. In findings, stated that developments in the research landscape have important effects on grass-roots LIS practice, and given a great boost to open access repositories while preserving the traditional role of commercial journal publications.

Devare, Rikert, McCue, Chiang, Lowe and Caruso (2007) explain the implementation of VIVO profile management system of life science communities help to access for scholarly activity in the life sciences at Cornell – VIVO transcends campus, college and the department the study also provides the faculty profiles with affiliations to the departments, fields, or research units, research projects, courses, seminars, and facilities relevant to life scientists regardless of the campus, college, or department in which the entity resides.

3. Objectives of the study

The main objective of the present study is to analyze the IRINS implemented universities in India. The major objectives are:

- To analyze the resource impact from scholarly resources;
- To analyze the contributions of top department of individual university and h-index.
- To analyze the top faculty of individual university and h-index.

4. Research methodology

The selection of an appropriate research methodology is highly crucial to any social investigation. To undertake the present study, data were collected from the website of Indian Research Information Network System (IRINS)². The present study confined to 29 universities in India, most of them funded by Government of India. The collected data were classified, analyzed and tabulated by using statistical methods.

5. Data analysis and interpretation

5.1. Demographic Representation

IRINS has completely spread across India with its active institutional IRINS instances, and ranked in the first position by implementing 151 active institutional IRINS instances by competing with European countries. The demographic representation of IRINS implemented universities in India shown in table-1 and table-2. On analysis, it has been found that the Banaras Hindu University (BHU) holds the highest number of faculties 1022 (15.40%) which is followed by Jawaharlal Nehru University (JNU) with 714 (10.76%) and Visva Bharati University with 557 (8.39%) respectively. The Central University of Odisha holds the lowest faculties 49 (0.74%).

Sr. No.	Name of the University	Demographic Representation	Percentage (%)
1.	Aligarh Muslim University	469	7.07%
2.	Assam University	314	4.73%
3.	Banaras Hindu University	1022	15.40%
4.	Central University of Gujarat	103	1.55%
5.	Central University of Haryana	108	1.63%
6.	Central University of Himachal Pradesh	83	1.25%
7.	Central University of Jharkhand	103	1.55%
8.	Central University of Karnataka	67	1.01%
9.	Central University of Kashmir	86	1.29%
10.	Central University of Kerala	124	1.87%
11.	Central University of Odisha	49	0.74%
12.	Central University of Punjab	150	2.26%

² https://irins.org/irins/irins_instances.php

13.	Central University of Rajasthan	138	2.08%
14.	Central University of South Bihar	154	2.32%
15.	Central University of Tamilnadu	93	1.40%
16.	Dr. Harisingh Gour Vishwavidyalaya	195	2.94%
17.	Jawaharlal Nehru University	714	10.76%
18.	Maulana Azad National Urdu University	161	2.43%
19.	Mizoram University	212	3.19%
20.	North-Eastern Hill University	303	4.57%
21.	Pondicherry University	350	5.27%
22.	Sambalpur University	98	1.48%
23.	Shivaji University	185	2.79%
24.	Sikkim University	167	2.52%
25.	Tezpur University	294	4.43%
26.	The Maharaja Sayajirao University of Baroda	115	1.73%
27.	Tripura University	114	1.72%
28.	University of Delhi	108	1.63%
29.	Visva Bharati University	557	8.39%
Total		6636	100%

Table-1: Demographic Representation

<i>Sr. No.</i>	<i>Name of the University</i>	<i>Demographic Representation</i>	<i>(%)</i>	<i>Rank</i>
1.	Banaras Hindu University	1022	15.40%	1
2.	Jawaharlal Nehru University	714	10.76%	2
3.	Visva Bharati University	557	8.39%	3
4.	Aligarh Muslim University	469	7.07%	4
5.	Pondicherry University	350	5.27%	5

6.	Assam University	314	4.73%	6
7.	North-Eastern Hill University	303	4.57%	7
8.	Tezpur University	294	4.43%	8
9.	Mizoram University	212	3.19%	9
10.	Dr. Harisingh Gour Vishwavidyalaya	195	2.94%	10
11.	Shivaji University	185	2.79%	11
12.	Sikkim University	167	2.52%	12
13.	Maulana Azad National Urdu University	161	2.43%	13
14.	Central University of South Bihar	154	2.32%	14
15.	Central University of Punjab	150	2.26%	15
16.	Central University of Rajasthan	138	2.08%	16
17.	Central University of Kerala	124	1.87%	17
18.	The Maharaja Sayajirao University of Baroda	115	1.73%	18
19.	Tripura University	114	1.72%	19
20.	University of Delhi	108	1.63%	20
21.	Central University of Haryana	108	1.63%	21
22.	Central University of Gujarat	103	1.55%	22
23.	Central University of Jharkhand	103	1.55%	23
24.	Sambalpur University	98	1.48%	24
25.	Central University of Tamilnadu	93	1.40%	25
26.	Central University of Kashmir	86	1.29%	26
27.	Central University of Himachal Pradesh	83	1.25%	27
28.	Central University of Karnataka	67	1.01%	28
29.	Central University of Odisha	49	0.74%	29
Total		6636	100%	

Table-2: Rank wise Demographic Representation

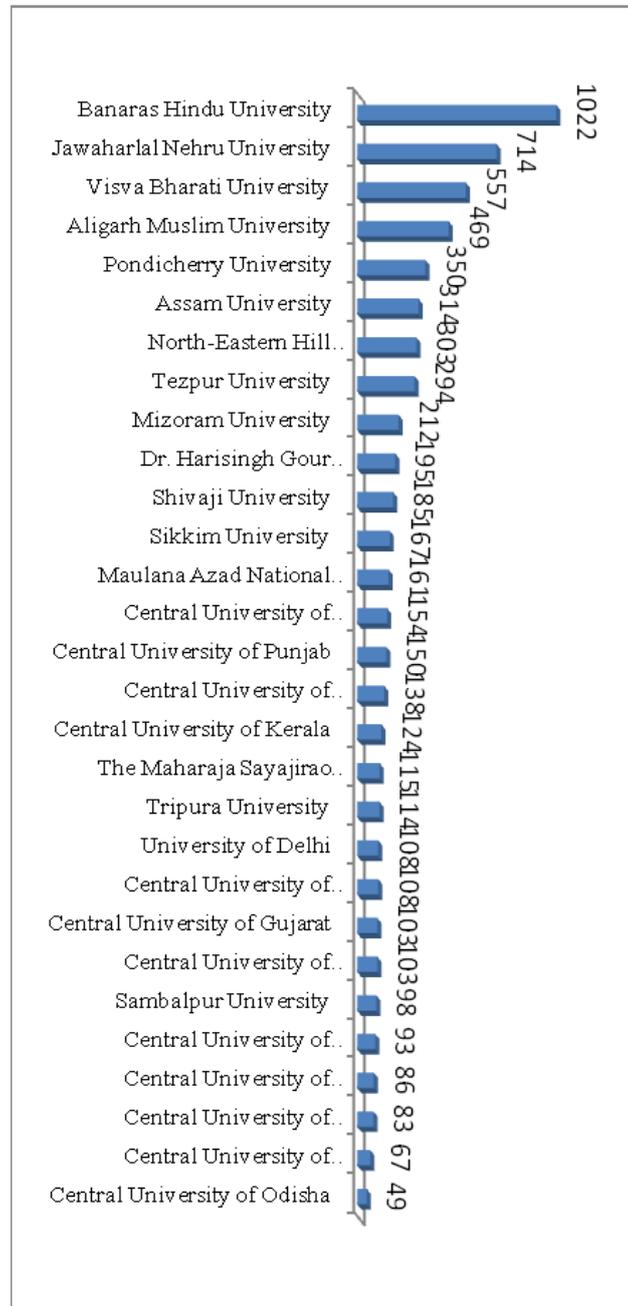


Fig.-1: Demographic Representation

5.2. Scholarly Resources

IRINS portal facilitates academic organizations to collect, curate, and showcase the scholarly communication activities of their faculty and provides an opportunity to create a scholarly network among them. Apart from capturing the citations count IRINS also gives an overview of the publication category about the publication venues (Open Access). IRINS enables the research community to easily understand and to get an overview of the publication category bound to the various open access such as green, gold, and bronze open access.

Table-3 and table-4 indicates the scholarly resources of individual IRINS implemented university in India. The analysis shows that Banaras Hindu University (BHU) has the highest scholarly publications 16376 (20.68%) followed by Aligarh Muslim University (AMU) with 9748(12.31%) at rank second. The Central University of Haryana has only 83(0.10%) scholarly resources.

<i>Sr. No.</i>	<i>Name of the University</i>	<i>Scholarly Resources</i>	<i>(%)</i>	<i>Gold OA</i>	<i>Green OA</i>	<i>Bronze OA</i>
1.	Aligarh Muslim University	9748	12.31%	972	637	285
2.	Assam University	2039	2.58%	208	84	73
3.	Banaras Hindu University	16376	20.68%	1090	861	639
4.	Central University of Gujarat	896	1.13%	65	18	17
5.	Central University of Haryana	83	0.10%	1	1	1
6.	Central University of Himachal Pradesh	507	0.64%	32	23	20
7.	Central University of Jharkhand	751	0.95%	75	21	20
8.	Central University of Karnataka	270	0.34%	29	10	2
9.	Central University of Kashmir	187	0.24%	6	4	3

10.	Central University of Kerala	800	1.01%	31	13	12
11.	Central University of Odisha	122	0.15%	13	8	1
12.	Central University of Punjab	1860	2.35%	168	98	59
13.	Central University of Rajasthan	1187	1.49%	140	49	28
14.	Central University of South Bihar	459	0.58%	60	20	12
15.	Central University of Tamilnadu	916	1.16%	71	50	11
16.	Dr. Harisingh Gour Vishwavidyalaya	2214	2.79%	168	64	50
17.	Jawaharlal Nehru University	8214	10.37%	836	550	397
18.	Maulana Azad National Urdu University	105	0.13%	4	3	2
19.	Mizoram University	1033	1.30%	78	27	17
20.	North-Eastern Hill University	2691	3.39%	197	186	101
21.	Pondicherry University	5925	7.48%	471	177	158
22.	Sambalpur University	807	1.02%	13	9	5
23.	Shivaji University	3199	4.04%	138	84	44
24.	Sikkim University	461	0.58%	71	17	12
25.	Tezpur University	3506	4.43%	157	155	80
26.	The Maharaja Sayajirao University	2297	2.90%	76	61	59

	of Baroda					
27.	Tripura University	1147	1.45%	73	49	46
28.	University of Delhi	4612	5.83%	515	386	201
29.	Visva Bharati University	6762	8.54%	604	87	59
Total		79174	100%			

Table-3: Scholarly Resources of Universities in India**5.3. Resource impact of scholarly resources**

IRINS also captures the citations against each publication having a valid digital object identifier (DOI). The table-5 gives a clear picture of the citations which were captured by Scopus and Crossref. The analysis shows that Banaras Hindu University has highest Scopus citation 208604 (22.05%) and Crossref citation 175973 (23.26%) followed by Aligarh Muslim University with 130049 (13.75%) Scopus citation and 92410 (12.22%) Crossref citation. It has been observed that Maulana Azad National Urdu University has the lowest Scopus 65 (0.01%) and Cross Ref citation 60(0.01%).

<i>Sr. No.</i>	<i>Name of the University</i>	<i>Scholarly Resources</i>	<i>(%)</i>	<i>Rank</i>
1.	Banaras Hindu University	16376	20.68%	1
2.	Aligarh Muslim University	9748	12.31%	2
3.	Jawaharlal Nehru University	8214	10.37%	3
4.	Visva Bharati University	6762	8.54%	4
5.	Pondicherry University	5925	7.48%	5
6.	University of Delhi	4612	5.83%	6
7.	Tezpur University	3506	4.43%	7
8.	Shivaji University	3199	4.04%	8
9.	North-Eastern Hill University	2691	3.39%	9
10.	The Maharaja Sayajirao University of Baroda	2297	2.90%	10
11.	Dr. Harisingh Gour Vishwavidyalaya	2214	2.79%	11
12.	Assam University	2039	2.58%	12
13.	Central University of Punjab	1860	2.35%	13

14.	Central University of Rajasthan	1187	1.49%	14
15.	Tripura University	1147	1.45%	15
16.	Mizoram University	1033	1.30%	16
17.	Central University of Tamilnadu	916	1.16%	17
18.	Central University of Gujarat	896	1.13%	18
19.	Sambalpur University	807	1.02%	19
20.	Central University of Kerala	800	1.01%	20
21.	Central University of Jharkhand	751	0.95%	21
22.	Central University of Himachal Pradesh	507	0.64%	22
23.	Sikkim University	461	0.58%	23
24.	Central University of South Bihar	459	0.58%	24
25.	Central University of Karnataka	270	0.34%	25
26.	Central University of Kashmir	187	0.24%	26
27.	Central University of Odisha	122	0.15%	27
28.	Maulana Azad National Urdu University	105	0.13%	28
29.	Central University of Haryana	83	0.10%	29
Total		79174	100%	

Table-4: Rank wise Scholarly Resources of Universities in India

<i>Sr. No.</i>	<i>Name of the University</i>	<i>Scopus Citation</i>	<i>(%)</i>	<i>Crossref Citation</i>	<i>(%)</i>	<i>Rank</i>
1.	Banaras Hindu University	208604	22.05%	175973	23.26%	1
2.	Aligarh Muslim University	130049	13.75%	92410	12.22%	2
3.	University of Delhi	110490	11.68%	80278	10.61%	3
4.	Jawaharlal Nehru University	106331	11.24%	96286	12.73%	4
5.	Visva Bharati	72727	7.69%	53989	7.14%	5

	University					
6.	Shivaji University	68370	7.23%	58907	7.79%	6
7.	Pondicherry University	53004	5.60%	45467	6.01%	7
8.	Tezpur University	35728	3.78%	17640	2.33%	8
9.	The Maharaja Sayajirao University of Baroda	23644	2.49%	18118	2.39%	9
10.	North-Eastern Hill University	20917	2.21%	13209	1.75%	10
11.	Central University of Punjab	20441	2.16%	19227	2.54%	11
12.	Assam University	17133	1.81%	12495	1.65%	12
13.	Dr. Harisingh Gour Vishwavidyalaya	14265	1.51%	12969	1.71%	13
14.	Central University of Rajasthan	11381	1.20%	10939	1.45%	14
15.	Sambalpur University	7923	0.84%	6726	0.89%	15
16.	Mizoram University	6948	0.73%	5638	0.75%	16
17.	Central University of Tamilnadu	6342	0.67%	6644	0.88%	17
18.	Central University of Jharkhand	6300	0.67%	5536	0.73%	18
19.	Tripura University	5137	0.55%	4257	0.55%	19
20.	Central University of Kerala	3994	0.42%	4309	0.57%	20
21.	Central University of Gujarat	3572	0.38%	4061	0.54%	21
22.	Sikkim University	3372	0.36%	2372	0.31%	22

23.	Central University of Himachal Pradesh	3218	0.34%	3932	0.52%	23
24.	Central University of South Bihar	2707	0.29%	2844	0.38%	24
25.	Central University of Karnataka	1508	0.16%	801	0.11%	25
26.	Central University of Kashmir	1286	0.14%	1081	0.14%	26
27.	Central University of Odisha	301	0.03%	273	0.04%	27
28.	Central University of Haryana	118	0.01%	21	0.00%	28
29.	Maulana Azad National Urdu University	65	0.01%	60	0.01%	29
Total		945875	100%	756462	100%	

Table-5: Resource impact of scholarly resources**5.4. Types of scholarly resources**

Table-6 shows the types of scholarly resources including journal's articles, conference proceedings, books/chapters or other resources of different IRINS implemented universities in India. The analysis shows that the Banaras Hindu University has highest 16376 scholarly resources with 14015 journal articles which followed by Aligarh Muslim University with 9748 scholarly resources including 7874 journal articles. The Central University of Haryana has only 83(0.10%) scholarly resources with 75 journal articles.

<i>Name of the University</i>	<i>Total Scholarly Resources</i>	<i>Journal Articles</i>	<i>Conference/ In Proceedings</i>	<i>Books / Chapters</i>	<i>Others</i>	<i>Rank</i>
Banaras Hindu University	16376	14015	816	566	979	1
Aligarh Muslim	9748	7874	1031	253	590	2

University						
Jawaharlal Nehru University	8214	6073	698	682	761	3
University						
Visva Bharati University	6762	5159	485	718	400	4
University						
Pondicherry University	5925	4455	921	277	272	5
University						
University of Delhi	4612	3695	454	189	274	6
Tezpur University	3506	2597	644	140	125	7
Shivaji University	3199	2878	186	72	63	8
North-Eastern Hill University	2691	2202	209	177	103	9
University						
The Maharaja Sayajirao University of Baroda	2297	1827	257	118	95	10
University of Baroda						
Dr. Harisingh Gour Vishwavidyalaya	2214	1666	117	302	129	11
Assam University	2039	1574	190	87	189	12
Central University of Punjab	1860	1331	135	140	254	13
Central University of Rajasthan	1187	858	154	71	104	14
Tripura University	1147	969	134	21	23	15
Mizoram University	1033	794	118	66	55	16
University						
Central University of Tamilnadu	916	689	113	62	52	17
Central University of Gujarat	896	555	53	185	103	18

Sambalpur University	807	701	44	21	41	19
Central University of Kerala	800	602	83	51	59	20
Central University of Jharkhand	751	573	104	36	38	21
Central University of Himachal Pradesh	507	397	32	27	51	22
Sikkim University	461	346	35	30	50	23
Central University of South Bihar	459	355	26	40	39	24
Central University of Karnataka	270	219	26	10	15	25
Central University of Kashmir	187	152	6	12	17	26
Central University of Odisha	122	93	1	26	2	27
Maulana Azad National Urdu University	105	73	11	14	7	28
Central University of Haryana	83	75	0	7	1	29
Total	79174	62797	7083	4400	4891	

Table-6: Types of scholarly resources**5.5. Contribution of top department of centrally funded universities**

The table-7 indicates the contribution of top department of IRINS implemented universities in India. The analysis shows that the Department of Physics, Banaras Hindu University has the highest scholarly resources 2508(17.96%). The Department of Physics and Astrophysics, University of Delhi has the second highest scholarly resources 1347(9.65%) followed by School of Environmental Science, Jawaharlal Nehru University with 1239(8.87%).

Department of Management and Commerce, Maulana Azad National Urdu University has the lowest scholarly resources with 03(0.02%).

<i>Sr. No.</i>	<i>Top Department of Individual University</i>	<i>Scholarly Resources</i>	<i>(%)</i>	<i>Rank</i>
1.	Department of Physics, Banaras Hindu University	2508	17.96%	1
2.	Department of Physics and Astrophysics, University of Delhi	1347	9.65%	2
3.	School of Environmental Science, Jawaharlal Nehru University	1239	8.87%	3
4.	Department of Physics, Visva Bharati University	1177	8.43%	4
5.	Department of Pharmacology, Aligarh Muslim University	1135	8.13%	5
6.	Department of Physics, Shivaji University	995	7.13%	6
7.	Department of Chemical Sciences, Tezpur University	801	5.74%	7
8.	Department of Chemistry, North-Eastern Hill University	642	4.60%	8
9.	Department of Pharmaceutical Sciences and Natural Products, Central University of Punjab	439	3.14%	9
10.	Department of Life Sciences and Bioinformatics, Assam University	416	2.98%	10
11.	Department of Pharmaceutical Sciences, Dr. Harisingh Gour Vishwavidyalaya	396	2.84%	11
12.	Department of Physics, Tripura University	330	2.36%	12
13.	Department of Chemistry, Sambalpur	315	2.26%	13

	University			
14.	Department of Biochemistry and Molecular Science, Pondicherry University	311	2.23%	14
15.	Department of Physics, Central University of Tamilnadu	250	1.80%	15
16.	Department of Pharmacy, The Maharaja Sayajirao University of Baroda	249	1.78%	16
17.	School of Chemical Sciences, Central University of Gujarat	235	1.66%	17
18.	Department of Physics and Astronomical Sciences, Central University of Himachal Pradesh	162	1.16%	18
19.	Centre for Biological Sciences, Central University of South Bihar	161	1.15%	19
20.	Department of Biochemistry, Central University of Rajasthan	157	1.12%	20
21.	Department of Chemistry, Central University of Kerala	115	0.82%	21
22.	Department of Mathematics, Central University of Karnataka	90	0.64%	22
23.	Department of Environmental Sciences, Central University of Jharkhand	89	0.64%	23
24.	Department of Chemistry, Mizoram University	89	0.64%	24
25.	Department of Computer Application, Sikkim University	85	0.61%	25
26.	Department of Microbiology, Central University of Haryana	82	0.60%	26
27.	Department of Biotechnology, Central	74	0.53%	27

28.	University of Kashmir Department of Biodiversity and Conservation of Natural Resources, Central University of Odisha	71	0.51%	28
29.	Department of Management and Commerce, Maulana Azad National Urdu University	3	0.02%	29
Total		13963	100%	

Table-7: Contribution of top department of individual university

5.6. H-Index of top departments of universities

The table-8 indicates the h-index to contribution of top departments of IRINS implemented universities in India. The analysis shows that the Department of Physics and Astrophysics, University of Delhi has the highest h-index 107 with 1347 scholarly resources followed by Department of Physics, Visva Bharati University 101 h-index with 1177 scholarly resources. Department of Management and Commerce, Maulana Azad National Urdu University has the lowest 1 h-index with 03 scholarly resources.

<i>Sr. No.</i>	<i>Top Department of Individual University</i>	<i>Scholarly Resources</i>	<i>h-Index</i>	<i>Rank</i>
1.	Department of Physics and Astrophysics, University of Delhi	1347	107	1
2.	Department of Physics, Visva Bharati University	1177	101	2
3.	Department of Physics, Banaras Hindu University	2508	90	3
4.	Department of Physics, Shivaji University	995	84	4
5.	Department of Pharmacology, Aligarh Muslim University	1135	79	5
6.	School of Environmental Science, Jawaharlal Nehru University	1239	65	6

7.	Department of Chemical Sciences, Tezpur University	801	49	7
8.	Department of Pharmacy, The Maharaja Sayajirao University of Baroda	249	43	8
9.	Department of Life Sciences and Bioinformatics, Assam University	416	41	9
10.	Department of Pharmaceutical Sciences, Dr. Harisingh Gour Vishwavidyalaya	396	41	10
11.	Department of Biochemistry and Molecular Science, Pondicherry University	311	40	11
12.	Department of Pharmaceutical Sciences and Natural Products, Central University of Punjab	439	36	12
13.	Department of Chemistry, North-Eastern Hill University	642	33	13
14.	Department of Chemistry, Sambalpur University	315	31	14
15.	Department of Biochemistry, Central University of Rajasthan	157	25	15
16.	Department of Chemistry, Mizoram University	89	22	16
17.	Department of Physics, Central University of Tamilnadu	250	21	17
18.	Department of Physics and Astronomical Sciences, Central University of Himachal Pradesh	162	21	18
19.	Department of Environmental Sciences, Central University of Jharkhand	89	21	19
20.	Department of Mathematics, Central University of Karnataka	90	20	20

21.	Department of Physics, Tripura University	330	18	21
22.	School of Chemical Sciences, Central University of Gujarat	235	18	22
23.	Centre for Biological Sciences, Central University of South Bihar	161	18	23
24.	Department of Chemistry, Central University of Kerala	115	16	24
25.	Department of Biotechnology, Central University of Kashmir	74	16	25
26.	Department of Computer Application, Sikkim University	85	14	26
27.	Department of Microbiology, Central University of Haryana	82	10	27
28.	Department of Biodiversity and Conservation of Natural Resources, Central University of Odisha	71	9	28
29.	Department of Management and Commerce, Maulana Azad National Urdu University	3	1	29
Total		13963	109	0

Table-8: H-Index of top department of individual universities

5.7. Contribution of top faculties of individual universities

IRINS provides greater exposure of their research contributions to the international community and helps to collaborate with the interdisciplinary research activities. The table-9 indicates the contribution of top faculties of IRINS implemented universities in India. The analysis shows that Prof. Anil Kumar, Aligarh Muslim University has the highest 1731 scholarly resources with 40644 Scopus citations, and 30591 crossref citations. Dr Manas Maity, Visva Bharati University is placed at second rank having 1118 scholarly publications with 62302 Scopus citation and 43204 crossref citations. Prof Nisar Ahmed Mulla, Maulana Azad National Urdu University has the lowest 33 scholarly resources with 1 Scopus and Crossref citations.

<i>Sr. No.</i>	<i>Top Faculty of Individual University</i>	<i>Scholarly Resources</i>	<i>Scopus Citation</i>	<i>Crossref Citation</i>	<i>Rank</i>
1.	Prof. Anil Kumar, Aligarh Muslim University	1731	40644	30591	1
2.	Dr. Manas Maity, Visva Bharati University	1118	62302	43204	2
3.	Prof. Brajesh Chandra Choudhary, University of Delhi	982	65121	46740	3
4.	Prof. Rajendra Kumar Singh, Banaras Hindu University	701	9401	8241	4
5.	Prof. S. A. Abbasi, Pondicherry University	615	7844	6111	5
6.	Prof. Pramod Patil, Shivaji University	487	12788	11254	6
7.	Dr. Vinod Kumar, Central University of Punjab	476	8812	7575	7
8.	Prof. Narendra L Singh, The Maharaja Sayajirao University of Baroda	401	6530	5915	8
9.	Dr. M. Lakshmi Kantam, Tezpur University	360	13028	10855	9
10.	Prof. Aditya Prasad Dash, Central University of Tamilnadu	307	7412	6034	10
11.	Dr. Shankar P. Das, Jawaharlal Nehru University	284	4463	4099	11
12.	Prof. Sanjay K Jain, Dr. Harisingh Gour Vishwavidyalaya	267	6402	4284	12

13.	Prof. M. R. Prathapachandra Kurup, Central University of Kerala	227	4011	3519	13
14.	Dr. Anand Prakash Pathak, Sikkim University	225	1667	1555	14
15.	Dr. Man Singh, Central University of Gujarat	210	1698	1422	15
16.	Dr. Dharmendra Singh, Central University of Jharkhand	193	1438	1126	16
17.	Prof. Ramesh Chander Kuhad, Central University of Haryana	189	6225	5191	17
18.	Dr. N. Sandeep, Central University of Karnataka	182	3925	2493	18
19.	Prof. Arup Barman, Assam University	167	3	0	19
20.	Prof. K. Mohan Rao, North-Eastern Hill University	161	151	126	20
21.	Prof. Ganesh Chandra Jagetia, Mizoram University	142	4069	2815	21
22.	Dr. D. P. Ojha, Sambalpur University	130	519	338	22
23.	Prof. Binod Chandra Tripathy, Tripura University	129	2530	1058	23
24.	Prof. Sanjib Kumar Panda, Central University of Rajasthan	119	3351	2939	24
25.	Dr. Faheem Arjamend, Central University of Kashmir	103	0	0	25
26.	Prof. Ravindranath Singh	97	437	366	26

	Rathore, Central University of South Bihar				
27.	Dr. Rajesh Kumar Singh, Central University of Himachal Pradesh	77	2072	2087	27
28.	Dr. Debabrata Panda, Central University of Odisha	53	505	388	28
29.	Prof. Nisar Ahmed Mulla, Maulana Azad National Urdu University	33	1	1	29
	Total	10166	277349	210327	

Table-9: Contribution of top faculty of individual universities in India**5.8. H-Index of top faculties of individual universities**

Table-10 indicates the h-index to contribution of top faculties of IRINS implemented universities in India. The analysis shows that Prof Brajesh Chandra Choudhary, University of Delhi has the highest 110 h-index with 982 scholarly resources followed by Dr Manas Maity, Visva Bharati University with 102 h-index and 1118 scholarly publications. Prof. Anil Kumar, Aligarh Muslim University has 85 h-index with highest 1731 scholarly resources.

<i>Sr. No.</i>	<i>Top Faculty of Individual University</i>	<i>Scholarly Resources</i>	<i>Scopus Citation</i>	<i>Crossref Citation</i>	<i>h-Index</i>	<i>Rank</i>
1.	Prof. Brajesh Chandra Choudhary, University of Delhi	982	65121	46740	110	1
2.	Dr. Manas Maity, Visva Bharati University	1118	62302	43204	102	2
3.	Prof. Anil Kumar, Aligarh Muslim University	1731	40644	30591	85	3
4.	Dr. M. Lakshmi Kantam, Tezpur University	360	13028	10855	60	4

5.	Prof. Pramod Patil, Shivaji University	487	12788	11254	59	5
6.	Prof. S. A. Abbasi, Pondicherry University	615	7844	6111	48	6
7.	Prof. Ramesh Chander Kuhad, Central University of Haryana	189	6225	5191	44	7
8.	Prof. Sanjay K. Jain, Dr. Harisingh Gour Vishwavidyalaya	267	6402	4284	43	8
9.	Prof. Rajendra Kumar Singh, Banaras Hindu University	701	9401	8241	42	9
10.	Dr. Vinod Kumar, Central University of Punjab	476	8812	7575	40	10
11.	Prof. Aditya Prasad Dash, Central University of Tamilnadu	307	7412	6034	39	11
12.	Prof. Narendra L. Singh, The Maharaja Sayajirao University of Baroda	401	6530	5915	38	12
13.	Prof. M. R. Prathapachandra Kurup, Central University of Kerala	227	4011	3519	36	13
14.	Prof. Ganesh Chandra Jagetia, Mizoram University	142	4069	2815	36	14
15.	Dr. N. Sandeep, Central	182	3925	2493	35	15

	University of Karnataka						
16.	Prof. Binod Chandra Tripathy, Tripura University	129	2530	1058	34	16	
17.	Prof. Sanjib Kumar Panda, Central University of Rajasthan	119	3351	2939	34	17	
18.	Dr. Shankar P Das, Jawaharlal Nehru University	284	4463	4099	32	18	
19.	Dr. Rajesh Kumar Singh, Central University of Himachal Pradesh	77	2072	2087	28	19	
20.	Dr. Man Singh, Central University of Gujarat	210	1698	1422	21	20	
21.	Dr. Dharmendra Singh, Central University of Jharkhand	193	1438	1126	21	21	
22.	Dr. Anand Prakash Pathak, Sikkim University	225	1667	1555	19	22	
23.	Prof. Ravindranath Singh Rathore, Central University of South Bihar	97	437	366	12	23	
24.	Dr. D. P. Ojha, Sambalpur University	130	519	338	11	24	
25.	Prof. K. Mohan Rao, North-Eastern Hill University	161	151	126	9	25	

26.	Dr. Debabrata Panda, Central University of Odisha	53	505	388	9	26
27.	Prof. Arup Barman, Assam University	167	3	0	1	27
28.	Prof. Nisar Ahmed Mulla, Maulana Azad National Urdu University	33	1	1	1	28
29.	Dr. Faheem Arjamend, Central University of Kashmir	103	0	0	0	29
Total		10166	277349	210327	1049	

Table-10: H-Index of top faculty of individual universities in India

6. Findings

The major findings of the study are as given below:-

- Banaras Hindu University (BHU) holds the highest number of faculties 1022 (15.40%);
- Banaras Hindu University (BHU) has the highest scholarly publications 16376 (20.68%);
- Banaras Hindu University has highest Scopus citation 208604 (22.05%) and Crossref citation 175973 (23.26%);
- Banaras Hindu University has highest 16376 scholarly resources with 14015 journal articles;
- Department of Physics, Banaras Hindu University has the highest scholarly resources 2508(17.96%);
- Department of Physics and Astrophysics, University of Delhi has the highest h-index 107 with 1347 scholarly resources;
- Prof. Anil Kumar, Aligarh Muslim University has the highest 1731 scholarly resources with 40644 Scopus citations, and 30591 crossref citations;
- Prof Brajesh Chandra Choudhary, University of Delhi has the highest 110 h-index with 982 scholarly resources.

7. Conclusion

The national or the international level ranking system and the assessment systems have been forcing the academic institutions to implement the research information management systems towards showcase the research contribution to the scholarly communities. The Indian Research Information Network System (IRINS) in India has made a tremendous impact to promote and bring more awareness towards the research information management system for the higher education system and its benefits. The IRINS is now displaying the figures and metrics of institutions, R&D organizations and representing a deep insight and picture of the academic institution's competency in respect of the core faculty and the research strength through its research collaboration across the world.

The IRINS has a strong presence in higher education system in India and expanding the service to the academic community outside the India. IRINS is being now crossing its boundaries through its active association and presentations at various international arenas such as the Scholarly Communication Institute (FSCI), etc. implementation of the IRINS in Indian higher educational institutions, and R&D organization have made presence in CRIS systems across the globe.

Intervention of Ministry of Education, Government of India and the University Grants Commission (UGC) may require for full-fledged implementation across all the centrally funded academic institutions towards greater visibility to research output and impact in all major subject domains and subject expertise.

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