

WEB VISIBILITY AND RESEARCH PRODUCTIVITY OF CENTRAL UNIVERSITIES IN INDIA: A WEBOMETRIC STUDY

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Abstract *The present study examines the website of three central universities. The study focused on Webometric analysis which examine the Domain, Domain age, external and internal links. We are found from the study the central universities website in all three web impact factors SWIF, IWIF and EWIF. JNU Internal Followed Links 3745995, University of Delhi with 106032151 and Jamia with 71718092. The external Link University of Delhi highest link with 2882616, after that JNU with 303778, and Jamia Islama with 69400. The total link is Internal followed link add to External followed link. After that analysis we found that University of Delhi maximum total link with 109080973, after that Jamia University with 71,817055 and JNU with 4169547. University Delhi Internal WIF 0.01870, External WIF 0.0000512, Simple WIF 0.0187, Jawaharlal Nehru University is found that Internal WIF 0.19612, External WIF 0.01588 and Simple WIF 0.2183, JMI University with Internal WIF 4.09817, External WIF 0.00396 and Simple WIF 4.1038.*

Keyword: *Webometrics, Web Impact Factor, Website, Domain, Web Link, Central Universities*

INTRODUCTION

The term Webometrics first coined and invented by Almind and Ingwersen in 1997, allows studying “the quantitative aspects of the construction and use of information resources, structures and technologies on the Web Drawing on bibliometric and informetric approaches.”

The central universities are established by an act of parliament and at present, there are 47 central universities in the country. The university grants:

Jamia Millia Islamia (lit. ‘National Muslim University’) is a central university located in New Delhi, India. Originally established at Aligarh, United Provinces (present-day Uttar Pradesh, India) during the British Raj in 1920, it moved to its current location in Okhla in 1935. It was given the deemed status by University Grants Commission in 1962. On 26 December 1988, it became a central university.

Najma Heptulla was appointed as the 11th Chancellor of Jamia Millia Islamia on 26 May 2017 and Najma Akhtar was appointed as the 15th Vice Chancellor of Jamia Millia Islamia in April 2019.

In 2020, Jamia Millia Islamia was ranked 1st among all central universities in the country in rankings released by Ministry of Education of India.

In December 2021, the university received an ‘A++’ ranking by National Assessment and Accreditation Council.

Jawaharlal Nehru University was established in 1969 by an act of parliament. It was named after Jawaharlal Nehru, India’s first Prime Minister. G. Parthasarathy was the first vice-chancellor. Prof. Moonis Raza was the Founder Chairman and Rector. The bill for the establishment of Jawaharlal Nehru University was placed in the Rajya Sabha on 1 September 1965 by the then-Minister of Education, M. C. Chagla. During the discussion that followed, Bhushan Gupta, member of parliament, voiced the opinion that this should not be yet another university. New faculties should be created, including scientific socialism, and one thing that this university should ensure was to keep noble ideas in mind and provide accessibility to students from weaker sections of society. The JNU Bill was passed in Lok Sabha on 16 November 1966 and the JNU Act came into force on 22 April 1969.

The Indian School of International Studies was merged with the Jawaharlal Nehru University in June 1970. Following the merger, the prefix “Indian” was dropped from the name of the School and it became the School of International Studies of the Jawaharlal Nehru University.

The University of Delhi, informally known as Delhi University (DU), is a collegiate public central university

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located in New Delhi, India. It was founded in 1922 by an Act of the Central Legislative Assembly and is recognized as an Institute of Eminence (IoE) by the University Grants Commission (UGC). As a collegiate university, its main functions are divided between the academic departments of the university and constituent colleges. Consisting of three colleges, two faculties, and 750 students at its founding, the University of Delhi has since become India's largest institution of higher learning and among the largest in the world. The university has 16 faculties and 86 departments distributed across its North and South campuses. It has 77 constituent colleges and five other institutes. The Vice President of India serves as the university chancellor.

LITERATURE REVIEW

Gadhavi conducted a study, which is based on the content analysis of library websites of 8 institutes of national importance in Gujarat.

Muthuraja and Veerabasavaiah (2018) conducted a study to evaluate the Kannada language newspaper website. The 10 Leading Kannada language newspaper websites from the state of Karnataka were taken for evaluation with the help of Alexa databank and relevant data including traffic rank page viewed, speed links and bounce percentage, time on site, search percentage, and percentage of Indian/Foreign users were collected and these data were tabulated of Indian/Foreign users were collected and these data were tabulated and analysed. It was observed that Vijayakarnataka has 2,255 the highest traffic rank in India Udayavani has 27903 the highest traffic rank in global.

Brahma and Verma (2017) examined the websites of 9 selective influential and iconic public libraries of India.

Stephen (2020) conducted a research and found the traffic rank in India, especially central Universities of Northeast region, the best ranked central university of Northeast Region are NEHU and TU with traffic rank of 8484 and 8511 respectively.

Kumar, Rajesh, Verma Manoj and Salma Khan (2018) analysed a study in Webometric analysis of Institute of Management technology and Birla Institute of Technology and Science Libraries website in Aisa and found BITS Pilani Hyderabad campus library stands at first position with 1476417.08 SWIF followed by the BITS Pilani Campus library website which is in the second place with 1307683.71 WIF.

Patel et al. (2021) Conduct study Web visibility and research productivity of NIRF ranked universities in India: webometric Study 15 NIRF ranked Indian Universities. Overall finding revealed that Bharathiar University website achieved highest web impact factor followed by Institute

of Chemical Technology website among the respondent Universities websites. Anna University website having a highest page authority score that is 59 out of a total 100 and the highest web traffic, backlinks and referring domains where University of Delhi Website achieved first alexa traffic global rank while Savitribhai Phule Pune University website achieved 1st Alexa traffic Indian Rank.

PURPOSE OF STUDY

- To find out List of universities and website.
- To analysis Page speed and mobile responsive of Universities website.
- To find out Domain and page Authority.
- To calculate the Link Analysis and Web Impact Factor.
- Research Productivity of Central Universities (Last five years 2016-2020).

METHODOLOGY

The research methodology was applied for collect Data from central university the search engine using tools <https://moz.com/link-explorer> developed by Moz. Com that help to analysis the links of related concern university website. The data was collected on 15th January 2022.

ANALYSIS

Various impact factors such as the simple web impact factor, Internal web impact factor, external web impact factor have been visualized as the result of the web impact factor, Ingwersen introduced on relatively straightforward measure, web impact factor (WIF) in 1998. The WIF measure may be defined as the number of web pages in a website receiving links from other website, divided by the number of web page published in the site that accessible to the crawler.

The following formula has been applied to the calculation of 'Distribution of Data by SWIF':

$$\text{SWIF} = \frac{\text{Total no. of Links}}{\text{Total No. of Webpages}}$$

Calculation of "distribution of Data by IWIF" as the formula was applied

$$\text{IWIF} = \frac{\text{Total No. of Internal Links}}{\text{Total No. of Webpages}}$$

The following formula has been used for the calculation of "Distribution of Data by EWIF"

$$\text{EWIF} = \frac{\text{Total No. of External Links}}{\text{Total No. of Webpages}}$$

Table 1: List of Universities and Website

	Jawaharlal Nehru University	University of Delhi	Jamia Millia Islamia University
Abbreviation	JNU	DU	JMI
Est. Year	1969	1922	1988
Website URL	https://www.jnu.ac.in	https://du.ac.in	https://www.jmi.ac.in
Domain Registration date	28/02/2004	28/02/2004	21/12/2002
End Date of Registration	2029-02-28	2028-02-28	2028-12-21

Table 1 shows that JNU was established in the year 1969, University of Delhi was established in 1922, and JMI University was established in 1988. Delhi University is an oldest university in both the universities. The above table shows the Website of Central universities. Domain Registration date and end Date of Registration is showing in this table.

Table 2: Page Speed and Mobile Responsive of Universities Website

Page Speed	JNU	DU	JMI
Mobile	22	77	76
Desktop	53	89	87

Table 2 Page speed is most important for any website. This table shows that Mobile page speed Delhi University (77) a top speed than to other. Jamia with 76 is a second rank in this table. On the desktop University of Delhi with 89, followed by JMI with 87 and JNU with 53 desktop page speed.

Table 3: Domain and Page Authority

	JNU	DU	JMI
Domain Authority	59	60	50
Page Authority	60	61	55

<https://analytics.moz.com/pro/link-explorer/inbound-links?site=www.jnu.ac.in&target=domain&types%5B%5D=follow>

Table 3 shows Domain Authority and Page Authority, University of Delhi is maximum domain authority with 60 after that JNU with 59 Domain Authority, JMI Domain authority with 50, the page authority University of Delhi with 61, JNU with 60, JMI with 55.

- Table 4: Internal Followed Links, External Followed Links, and Total Links of Central Universities.

	JNU	DU	JMI
Internal Followed links	3745995	106,032,151	71718092
External followed Link	303778	2882616	69400
Total Link	41,69547	109,080,973	71,817055

According to the Link analysis and web impact factor we found that JNU Internal Followed Links 3745995, University of Delhi with 106032151 and Jamia with 71718092, The external Link Delhi University highest link with 2882616, after that JNU with 303778, and Jamia with 69400. The total link is Internal followed link add to External followed link. After that analysis we found that Delhi university maximum total link with 109080973, after that Jamia university with 71,817055 and JNU with 4169547 link was found above table.

Table 5: Web Impact Factor of Central Universities

Sr. No.	Central Universities	Internal WIF	External WIF	Simple WIF
1.	JNU	0.19612	0.01588	0.2183
2.	University of Delhi	0.01870	0.000512	0.0187
3.	JMI	4.09817	0.00396	4.1038

Table 5 represents the Web Impact Factor of Selected 3 central universities website University of Delhi, JNU, and JMI and Calculates the simple web impact factor (SWIF), External web Impact Factor (EWIF), and Internal Web Impact Factor (IWIF) and show that University Delhi Internal WIF 0.01870, External WIF 0.000512, Simple WIF 0.0187, Jawaharlal Nehru University is found that Internal WIF 0.19612, External WIF 0.01588 and Simple WIF 0.2183, JMI University with Internal WIF 4.09817, External WIF 0.00396 and Simple WIF 4.1038.

Table 6: Research Productivity of Universities (Last Five Years 2016-2020)

	JNU	DU	JMI
Affiliation ID	60030622	60029284	60020458
No. of Records Scopus	5490	11260	4819
No. of Citation Scopus	35778	86508	31554
h-Index Scopus	53	84	56

Table 6 shows that according the Scopus database Delhi university highest research productivity than to JNU and JMI central university. The no. of Citation Scopus database Delhi University is a highest Citation in other university during the five year 2016-20. Second highest is a JMI

university with 31554, the third rank is JNU with 35778, H-index Delhi University with 84, Jamia University with 56, and JNU University with 53 H-index in Scopus data base. After the Research productivity analysis we found that University of Delhi is a Highest Research Productivity than JNU, and Jamia University during the periods in 2016-2020.

CONCLUSION

Web metrics has become a useful methods in many fields, such as the creating of ranking of any university. Researchers in this field imply the creation of discoveries that are based on the structure of the World Wide Web, Analysis of hyperlink and patterns of usage of the website as a mass communication medium and exchange of Information. The research out during the periods 2016-2020. The number of Citation Scopus database Delhi University is a highest Citation in other university during the five year 2016-20. Second highest is a JMI university with 31554, the third rank is JNU with 35778, H-index University of Delhi with 84, JMI with 56, and JNU university with 53 H index in Scopus data base. After the Research productivity analysis we found that University of Delhi is a Highest Research Productivity than JNU, and Jamia University During the periods in 2016-2020.

REFERENCES

- Ahmad, M., & Batcha, S. (2018). Calculating web impact factor for university websites of Jammu and Kashmir: A study. *International Journal of Science Technology and Management*, 7(5), 17-27.
- Ahrefs—SEO Tools & Resources To Grow Your Search Traffic. (2019). Retrieved on November 7, 2019, from <https://ahrefs.com/>
- Almind, T., & Ingwersen, P. (1997). Informetric analysis on the World Wide Web: Methodological approaches to 'webometrics'. *Journal of Documentation*, 53(4), 404-426.
- Anyira, I. E., & Idubor, I. (2020). Poor webometrics ranking of Nigerian higher institutions: Causes, implications and solutions. *Library Philosophy and Practice (E-journal)*. 4200. Retrieved from <https://digitalcommons.unl.edu/libphilprac/4200>
- Babu, B. R., Jeyshankar, R., & Rao, P. N. (2010). Websites of central universities in India: A webometric analysis. *DESIDOC Journal of Library & Information Technology*, 30(4), 33-43.
- Björneborn, L., & Ingwersen, P. (2004). Toward a basic framework for webometrics. *Journal of the American Society for Information Science and Technology*, 55(14), 1216-1227. doi:<https://doi.org/10.1002/asi.20077>
- Farzaneh, A., Payam, K., Zahra, O., & Abbas A. (2009). Webometric analysis of Iranian universities of medical sciences. *Scientometrics*, 80(1), 253-264. doi:10.1007/s11192-008-2059
- Jalal, S. K., Biswas, S. C., & Mukhopadhyay, P. (2009). Webometric analysis of Central Universities in India: A study. In *Internet Technology and Secured Transactions*, 1-9. doi:10.1109/ICITST.2009.5402605
- Jati, H., & Dominic, D. D. (2017). A new approach of Indonesian university webometrics ranking using entropy and PROMETHEE II. *Procedia Computer Science*, 124, 444-451. doi:<https://doi.org/10.1016/j.procs.2017.12.176>
- Jayeshankar, R., & Babu, B. R. (2009). Websites of universities in Tamil Nadu: A webometric study. *Annals of Library and Information Studies*, 56(2), 69-79.
- Jhamb, G., & Ruhela, A. (2017). A webometric study of the websites of public libraries. *International Journal of Library and Information Studies*, 7(4), 83-89.
- Khamala, D., Makori, E., & Njiraine, D. (2018). Webometrics ranking and its relationship to quality education and research in academic institutions in Kenya. *Library Philosophy and Practice (e-Journal)*. Retrieved from <https://digitalcommons.unl.edu/libphilprac/2020>
- Khan, A., & Idrees, H. (2015). Calculating web impact factor for university websites of Pakistan. *The Electronic Library*, 33(5), pp. 883-895. doi:<https://doi.org/10.1108/EL-01-2014-0022>
- Kumar, R., Verma, M., & Khan, S. (2021). A webometric analysis of institute of management technology and Birla Institute of Technology & Science Libraries website in Asia. *Library Herald*, 59(3), 260-271.
- Nwagwu, W. E., & Agarin, O. (2008). Nigerian University websites: A webometric analysis. *Webology*, 5(4), Article 62. Retrieved from <http://www.webology.org/2008/v5n4/a62.html>
- Parmar, S. D., & Mandalia, S. H. (2016). Webometric analysis of university in Gujarat. *Journal of Advancement in Library Science*. 3(2), 103-111. doi:<https://doi.org/10.37591/joals.v3i2.351>
- Patel, S., & Bhatt, A. (2019). The application of web 2.0 tools in university libraries of India. *Library Philosophy and Practice (E-Journal)*. Retrieved from <https://digitalcommons.unl.edu/libphilprac/2984>
- Patel, S. S., & Bhatt, A. (2017). A study of web 2.0 application in libraries of premier institute of Gujarat. *International Journal of Library and Information Studies*, 7(3), 89-98.
- Patel, S. S., Trivedi, D., Bhatt, A., & Shanti, C. (2021). Web visibility and research productivity of NIRF ranked universities in India: A webometric study. *Library Philosophy and Practice (E-journal)*.

- Pechnikov, A. A., & Nwohiri, A. M. (2012). Webometric analysis of Nigerian University websites. *Webology*, 9(1).
- Stephen, G. (2020). Using website analytics in search engine optimization for the domain of LIS links, in India. *Library Philosophy and Practice (e-journal)*. 3955. Retrieved from <https://digitalcommons.unl.edu/libphilprac/3955>
- Tafaraji, R., Tahamtan, I., Roudbari, M., & Sedghi, S. (2014). Webometric analysis of Iranian medical universities according to visibility, size and rich files. *Webology*, 11(1).
- Varadharajalu, J., & Dhanavandan, S. (2017). Analysis of web impact factor (WIF) for the website of state universities in Kerala. *International Journal of Library and Information Studies*, 7(1), 160-167.
- Verma, M. K., & Brahma, K. (2017). A webometric analysis of national libraries' websites in South Asia. *Annals of Library and Information Studies*, 64(2), 116-124.
- Verma, M. K., & Brahma, K. (2018). Webometric analysis of websites of Indian Universities with status of potential for excellence (UPE). *SRELS Journal of Information Management*, 54(6), 318-326. doi:<https://doi.org/10.17821/srels/2017/v54i6/111817>