

Assessment of Webometric Indicators and Digital Impact of National and State Library Association Websites

Rajiv Ranjan Mishra¹; Prof. Shilpi Verma²

Research Scholar, Department of Library & Information Science, BBAU, Lucknow, India¹;
Professor, Department of Library & Information Science, BBAU, Lucknow, Uttar Pradesh, India²

ORCID –0009-0008-5440-2183; ORCID- 0000-0003-3638-5304
rajivranjanmishra71@gmail.com; shilpi@bbau.ac.in

ABSTRACT

Library associations play an important role in professional development, networking, and sharing information about the library profession. Their websites are one of the most important tools for communication, information provision, and service delivery in the digital age. The study focuses on exploring the websites of selected national and state library associations in India. A webometric analysis was conducted for this study. Google Search Engine was used for link crawling, and Online SEO tool was used to identify link analysis. The study analyzed the links, Google-indexed pages, URL, and Web Impact Factor (WIF) of the selected website. The findings of the study revealed that the websites of the selected associations have significant differences in terms of visibility and indexing capacity. The Indian Library Association emerged as the highest performing association with 101 website links, 304 google-indexed pages, and a low indexing ratio (0.33), indicating a good number of websites for the users. On the other hand, the Chhattisgarh Library Association has a high indexing ratio (10.6), followed by the Indian Association of Teachers of Library and Information Science (4.4) and the Karnataka State Library Association (4.2). The correlation analysis identified a very strong positive relationship between total and internal links ($r = .984, p < .001$) and a strong positive relationship between external and Google-indexed links ($r = .693, p = .006$); the other examined associations were not statistically significant. The study recommends that library associations need to improve their websites as per the requirements of the search engine to make the websites visible and accessible to users and improve their overall impact.

KEYWORDS: Webometrics, Library Associations, Website Analysis, Web Impact Factor (WIF), Google Indexed Links, Digital Presence, Search Engine Optimization (SEO), URL Analysis, Library Association Websites.

1. INTRODUCTION

Library associations have a significant role in the profession. Their importance lies in advocating for the profession, promoting continuing education, and encouraging networking. Association 's websites have more and more become relevant, especially with increased reliance on Information and Communication Technology (ICT). For this reason,

it is important to analyze how library associations perform in terms of their website presence, visibility, and other factors. Library associations also play a role in ensuring the profession's growth by organizing meetings, seminars, workshops, training programmes, and awareness activities. They also offer platforms for sharing and exchanging information regarding trends and issues affecting the library and information field. In the modern era where Information and Communication Technology (ICT) is increasingly relied on, websites have become one of the most important tools for delivering services and communication. The purpose of this paper is to analyze the link structure of both national and state library association websites. Webometrics refers to evaluating and measuring different aspects of websites and webpage content. Webometric analysis involves analyzing webpage content, hyperlink structure, website usage and interaction, and technological components that support a functional website. The four areas identified in webometrics are important because they highlight the significance of websites, their visibility, extent of use, and impact. In this respect, this paper analyzes the international library association websites using a combination of webometric indicators in addition to a comprehensive set of website evaluation criteria. Overall, the approach taken in this paper highlights an innovative way of examining the role of websites and their importance in promoting the library profession.

2. REVIEW OF LITERATURE

Onyancha (2007) investigates that analysis of the number of web pages, out-links, and average out-links per page of the library revealed several key trends. The libraries of South African universities were consistently superior to their counterparts in Botswana, Kenya, Tanzania, Uganda, and Zimbabwe in most of the indicators used for this study. Nevertheless, none of the universities had the same rank across all three metrics used. The libraries of universities with multiple campuses tended to have a higher number of web pages and out-links than those with a single campus. In general, the Rhodes University Library had the highest rank, followed by the Cape Peninsula University Library, Stellenbosch University Library, the Howard College Libraries of the University of KwaZulu-Natal, and the University of Cape Town Libraries. Therefore, it can be concluded that the Rhodes University Library can be considered an exemplar in terms of web presence, and the practices of this library could be used as a model by others. **Haidari, Osareh, and Zareh (2013)** performed a webometric study of the websites of Library and Information Science Associations and Society (LISAS) at the national and international levels. The study involved the application of webometric techniques to analyze in-links and co-links in order to determine the web presence of the selected associations, co-linking patterns of their websites, and web impact using Web Impact Factor (WIF) through link analysis. The study results revealed that out of the 28 LISAS websites selected for analysis, the four most popular and widely known websites were those of the American Library Association (ALA), Special Libraries Association (SLA), International Federation of Library Associations and Institutions (IFLA), and Medical Library Association (MLA). In terms of Web Impact Factor, the websites of the International Association of Law Libraries, Tokyo Metropolitan Library, Russian State Library, and IFLA were found to have the highest impact scores. **Dixit and Pachauri (2019)** conducted a study on the websites of professional Library and Information Science Associations in India to assess their role as resources and effective tools for communication in the modern digital world. The authors analyzed and evaluated the websites of various professional associations based on their content, homepage design, features, services, activities, publications, and other related aspects. The results of the study revealed significant variances in the quality, information, and features of the websites of these associations. The authors concluded that professional associations must invest more efforts into

developing quality-designed and adequately updated websites in order to effectively inform and communicate with their members and the wider community about their activities. **Dhar and Gayan (2022)** performed an evaluative study of selected international library association websites using webometric indicators and content analysis. The authors selected eight international library association websites from the list provided by the American Library Association. Website evaluation was done based on Domain Authority (DA), Page Authority (PA), Web Impact Factor (WIF), and a set of 19 criteria used in website content analysis. The results of the study revealed that IFLA had the highest scores in terms of DA and PA, International Association of Law Libraries registered the highest Simple Web Impact Factor and External Web Impact Factor, while Association of Jewish Libraries recorded the highest Internal Web Impact Factor. The results further showed that 87.5 percent of the websites had less than 50 percent DA and PA. The study further revealed that several websites lacked features such as customer support, currency information, and FAQs. Therefore, the authors concluded that library associations must develop and maintain their websites to meet the current standards and ensure maximum impact. **Negi and Rohit (2024)** conducted a study on the websites of India's national library associations to assess their presence and effectiveness in the digital world. The authors described library associations as non-governmental professional associations involved in the development of libraries, library professionals, and library users or those who stand to benefit from the existence of libraries. The study observed that while there are many library associations, only a few of them have websites. As a result, the authors selected 20 national library associations with operational websites to conduct the study, while others either did not have websites or relied on website builders such as WordPress and Blogspot to manage their websites or existed physically but did not have digital presence. **Gupta et al. (2026)** made a webometric evaluation of the top ten NIRF ranked Indian universities' official websites. The digital presence and web influence of the selected universities were assessed by examining total links, Google-indexed links, Uniform Resource Locators (URLs), URL subdomains, and Web Impact Factor (WIF). Their findings showed a lot of variation in the link structure and indexing of university websites. Among the universities, BITS Pilani has recorded highest WIF (2.071), followed by Manipal Academy of Higher Education (2.033) and Amrita Vishwa Vidyapeetham (1.972), whereas, Jawaharlal Nehru University has recorded lowest WIF (0.091). The authors concluded that differences in link structure and indexing reflect differences in the digital visibility and web presence of the universities.

3. OBJECTIVES

- ✓ To analyze the URLs of National and State Library Associations Website
- ✓ To examine the links type of Association Website
- ✓ To perform the calculation of WIF of Associations Website
- ✓ To determine the relationships among selected webometric indicators using correlation analysis.

4. SCOPE AND LIMITATIONS OF THE STUDY

- i) The scope of study is limited and it relates to the National and State Library Associations
- ii) The present study focuses on library associations that have active websites and web pages.
- iii) The current investigation analyzes the website of the National and State Library Associations, including links, URLs etc.

5. METHODOLOGY OF THE STUDY

Only the National and State Library associations website have been selected for this study. Several tools can be used for data collection including the google search engine for link crawling and the online search engine optimization review tool for link analysis. It is used to determine the overall number of internal links, external link, Indexed link, URLs, subdomain, and many other factors. The required webometric data were collected from the selected library association website were retrieved in 19-21 May 2026. The webometric data of the National and State Library Associations websites were analyzed to estimate the total links and google controlled links to determine the web impact factor, compare their digital impact and identify variability in link density and indexing efficiency. The descriptive statistics and tables below indicate the difference between the national and state library associations with strong and balanced web presence and those are weak and under optimized offering objective evidence of strengths and weaknesses. The data were analyzed using IBM SPSS Statistics to examine the associations among the selected link variables. Pearson's correlation coefficients were calculated using a two-tailed test, with statistical significance determined at the 5% level ($\alpha = 0.05$).

6 .DATA INTERPRETATION

Table 1- List of National and State Library Associations with their total links and indexed links

S.N .	Name of the Association	National/State	Total Links (Internal + External)	Indexed Links (Google)
1.	Indian Library Association	National	101 (85+16)	304
2.	Indian Association of special Libraries and information Centres	National	64(63+1)	40
3.	Indian Association of Teachers of Library and Information Science	National	66(59+7)	15
4.	West Bengal Library Association	State	64(62+2)	36
5.	Assam Library Association	State	40 (32+8)	27
6.	Punjab Library Association	State	36(33+3)	15
7.	Karnataka State Library Association	State	42(42+0)	10
8.	Madras Library Association	State	61(50+11)	65
9.	Chhattisgarh Library Association	State	106(105+1)	10
10.	Himachal Pradesh Library Association	State	Not available	22
11.	Library Association of Bihar	State	107	30
12.	Maharashtra University & College Librarians Association	State	102(89+13)	64
13.	Kerala Library Association	State	65(52+13)	71
14.	Rajasthan Technical Library Association	State	27(24+3)	45
15.	Academic Library Association of Goa	State	5 (5+0)	3

Table 1 reveal the total links (Internal + External) and Google indexed links. Among the total (State+ National) Library Associations, Indian Library Association show the strongest web presence with 101 total link (internal 85, External 16) and 304 google indexed link. Compare to other associations Indian Library Association have better online visibility and accessibility through the search engine. IASLIC and IATLIS have moderate total link but Google indexed link is lower, it shows that limited visibility through search engine. Chhattisgarh Library Association and MUCLA have highest total link, shows website content is richer than other Association. Kerala Library Association and Madras Library Association have high google indexed links shows better accessibility of web content and good google indexing. Karnataka Library Association, Chhattisgarh Library Association and Academic Library Association of Goa have very low indexed link show weaker indexing performance and poor search engine optimization. Himachal Pradesh Library association, data are not available for internal and external link which may indicate technical issues or incomplete website information. Overall few associations have achieved effective google indexing and strong visibility.

Table 2- Ranking of Associations by WIF

S.N.	Name of the Association	Total Links	Indexed Links	WIF
1.	Chhattisgarh Library Association	106	10	10.6
2.	Indian Association of Teachers of Library and Information Science	66	15	4.4
3.	Karnataka State Library Association	42	10	4.2
4.	Library Association of Bihar	107	30	3.56
5.	Punjab Library Association	36	15	2.4
6.	Maharashtra University & College Librarians Association	102	47	2.17
7.	West Bengal Library Association	64	36	1.78
8.	Academic Library Association of Goa	5	3	1.66
9.	Indian Association of special Libraries and information Centres	64	40	1.6
10.	Assam Library Association	40	27	1.48
11.	Madras Library Association	61	65	0.93
12.	Kerala Library Association	65	71	0.91
13.	Rajasthan Technical Library Association	27	45	0.6
14.	Indian Library Association	101	304	0.33
15.	Himachal Pradesh Library Association	Error	22	Not Found

Table 2 shows the ratio between total links and Google-indexed links of different library associations in India, termed the Web Impact Factor (WIF). So,

$$\text{WIF} = \text{Total Links} / \text{Indexed Links}$$

Assessment of Webometric Indicators and Digital Impact of National and State Library Association Websites

A higher WIF value indicates that the number of total links is relatively high compared with the number of Google-indexed links, whereas a lower WIF value indicates that the number of Google-indexed links is relatively high compared with total links. The Web Impact Factor is a quantitative webometric indicator used to assess the relative link intensity and web visibility of a website. The Chhattisgarh Library Association recorded the highest Web Impact Factor (10.60), indicating that its total links were considerably higher relative to its Google-indexed links. This reflects a higher link intensity in comparison with the other library association websites studied. In contrast, the Indian Library Association recorded a low WIF (0.33), indicating that its Google-indexed links were relatively high compared with its total links.

Table 3- Analysis of URLs of association's websites

S.N	Name of the Association	Uniform Resource Locator	URLs Sub domain	Country code in URL
1.	Indian Library Association	https://ilaindia.co.in/	.co	.in
2.	Indian Association of special Libraries and information Centres	https://iaslic1955.org.in/	.org	.in
3.	Indian Association of Teachers of Library and Information Science	https://www.iatlis.org/	.org	-
4.	West Bengal Library Association	https://www.blacal.org/	.org	-
5.	Assam Library Association	https://www.assamlibraryassociation.org/		
6.	Punjab Library Association	https://www.punjabla.org/	.org	-
7.	Karnataka State Library Association	https://kalaonline.com/	.com	-
8.	Madras Library Association	https://www.madraslibraryassociation.com/p/home.html	.com	-
9.	Chhattisgarh Library Association	https://cglibraryassociation.blogspot.com/2024/03/about-chhattisgarh-library-association.html	.com	-
10.	Himachal Pradesh Library Association	https://hpla.in/	-	.in
11.	Maharashtra University & College Librarians Association	https://mucla.in/	-	.in
12.	Kerala Library Association	https://keralalibraryassociation.org	.org	-
13.	Rajasthan Technical Library Association	https://www.rtlaindia.org/	.org	-
14.	Academic Library Association of Goa	https://alaggoa.weebly.com/	.com	-
15.	Library Association of Bihar	https://lab2022.org/	.org	-

The Table 3 clearly shows the variations in the domain extensions used by the websites of national and state-level library associations in India. It can be seen from the table that the various domain extensions include “.org”, “.com”, “.in” and “.co.in”. The Indian Library Association uses “.co.in” and “.in” domains while Indian Association of Special Libraries and Information Centres use “.org.in” domains to represent themselves. Likewise, the Indian Association of Teachers of Library and Information Science, West Bengal Library Association, Assam Library Association and Punjab Library Association use “.org” domains which represent them as non-profit organizations and professional bodies. In contrast, Karnataka State Library Association, Madras Library Association and Chhattisgarh Library Association use “.com” domains, generally a commercial extension. However, they also have been found commonly used for general websites. The Himachal Pradesh Library Association and Maharashtra

S.N	Name of the Association	Uniform Resource Locator	Website/Domain/ Web page
1.	Indian Library Association	https://ilaindia.co.in/	Domain/Website
2.	Indian Association of special Libraries and information Centres	https://iaslic1955.org.in/	Domain/Website
3.	Indian Association of Teachers of Library and Information Science	https://www.iatlis.org/	Domain/Website
4.	West Bengal Library Association	https://www.blcal.org/	Domain/Website
5.	Assam Library Association	https://www.assamlibraryassociation.org/	Domain/Website
6.	Punjab Library Association	https://www.punjabla.org/	Domain/Website
7.	Karnataka State Library Association	https://kalaonline.com/	Domain/Website
8.	Madras Library Association	https://www.madraslibraryassociation.com/p/home.html	Web page
9.	Chhattisgarh Library Association	https://cglibraryassociation.blogspot.com/2024/03/about-chhattisgarh-library-association.html	Web page
10.	Himachal Pradesh Library Association	https://hpla.in/	Domain/Website
11.	Maharashtra University & College Librarians Association	https://mucla.in/	Domain/Website
12.	Kerala Library Association	https://keralalibraryassociation.org	Domain/Website
13.	Rajasthan Technical Library Association	https://www.rtlaindia.org/	Domain/Website
14.	Academic Library Association of Goa	https://alaggoa.weebly.com/	Domain/Website
15.	Library Association of Bihar	https://lab2022.org/	Domain/Website

Table 4 – Analysis of Associations website domains

University & College Librarians Association use “.in” domains representing their national identity. In summary, the results show that there is no standardization in terms of domain extension chosen by the library association websites in India, though “.org” and “.in” domains seem better choices for professional and non-profit organizations.

Table 4 gives the URL for each library association and classifies its website as either detailed or domain/website. The analysis shows that the majority of the selected associations have their own website or registered domain, to disseminate information about their objectives, activities, membership, publications, conferences, and other professional services. Thirteen out of the 15 associations studied have domains whereas the Madras Library Association and Chhattisgarh Library Association have websites. The Madras Library Association has a page on its domain while the Chhattisgarh Library Association is on Blogger. This shows the use of the internet by the selected library associations.

7. FINDINGS

7.1 Internal Links –

Chhattisgarh Library Association (105) had the maximum internal links which means this website has fairly good internal links. On the other hand, Academic Library association of Goa (5) and Rajasthan Technical Library association (24) have least inbound links, meaning the website has limited connectivity to other websites, which could impact its ability to attract traffic and improve its visibility online.

7.2 External Links-

In external link Indian Library Association (16) has the highest link compared to others, which indicate that Indian Library Association is more connected with external websites and information resources. In comparison with Academic Library associations, goa library association (0) has the lowest number of external links, followed by Karnataka state library association (0), Library association of Bihar (0), Chhattisgarh library association (1), Indian association of special libraries and information centres (1), West Bengal Library association (2), Punjab library association (3) and Rajasthan technical library association (3). Low number of external links means little external connectivity with other information resources and web sites, which may decrease the avenues available to users to find related information and services.

7.3 Google indexed Links –

There were variations in the number of google indexed links in compare with selected websites. In comparison to other selected library associations, Indian Library Association (304) has the highest google indexed link. The higher the Google indexed link, the better the searchable web presence and the more visible the website is in the Google search index, providing opportunities for users to find the website's online resources. The website has relatively low visibility and limited presence in Google search index as it has lowest number of link indexed by Google from the following library associations: Academic Library Association of Goa (3), Karnataka state library association (10) and Chhattisgarh library association (10).

7.4 Web Impact Factor-

The analysis showed that there was a considerable difference in the Web Impact Factor (WIF) of the selected library association websites. Google-indexed links have lesser percentage of total links as compared to the highest (WIF) of Chhattisgarh Library Association having far higher percentage of total links (10.6). The lowest WIF (0.33) was achieved by Indian Library Association, while there were more Google indexed links than total links. These variances suggest changes in the association websites' web-link distribution and intensity of links.

7.5 Correlation Analysis-

Pearson's correlation analysis was used to determine the relationships between the total links, internal links, external links and Google indexed links for the websites of selected library associations. Two of the relationships were found to be statistically significant with the rest not meeting the chosen significance level of 0.05. A very strong positive correlation was found between Total Links and Internal Links ($r = .984, p < .001$). The result shows that the overall number of links of a website was correlated with the number of internal links. The strength of this association is evidence of a close linear relationship between the two variables. External Links was significantly associated with Google-Indexed Links ($r = .693, p = .006$) with a strong positive correlation. This finding suggests that websites having a greater number of external links were also associated with higher numbers of Google-indexed links. The observed relationship was statistically significant because the p value was less than .05. The rest of the relationships examined were not statistically significant. There was a weak positive relationship between External Links and Internal Links ($r = .167, p = .568$). There was a moderate positive relationship between the total number of links and the number of links indexed by Google ($r = .406, p = .150$) and a weak to moderate positive relationship between the total number of links and the number of external links ($r = .338, p = .238$). The same was true for the correlation between Google-Indexed Links and Internal Links ($r = .296, p = .304$). All of these p-values were greater than .05, suggesting that none of these pairs of variables was statistically significantly linearly related.

CONCLUSION

This study focused on the webometric characteristics of selected websites of some library associations from India with respect to internal links, external links, total links, Google indexed links and Web Impact Factor (WIF). The findings showed significant differences, both in the level of online presence and connectivity, and in the visibility of the associations' search results. The number of internal links were the highest in Chhattisgarh Library Association (105) and WIF in the Indian Library Association (10.60) while the number of external links were highest in the Indian Library Association (16) and Google-indexed links were highest in Chhattisgarh Library Association (304). This is due to the difference in the structure, connections and visibility of the website. The correlation analysis found a highly significant and positive correlation between Total and Internal Links ($r = .984, p < .001$). There was also a significant positive correlation between external links and Google-indexed links ($r = .693, p = .006$), but none of the other correlations was significant. The results show the value of webometric indicators in measuring online presence and connectivity of library association websites. In summary, the research underscores the significance of the well-structured, easily navigable, current, and search-engine-friendly websites. The better the flow of navigation, connectivity with external links, and searching, the more efficiently information is disseminated, communication is done among professionals, and digital outreach is realized by the Library Associations in India.

Conflict of Interest

The author declares that there is no conflict of interest associated with this study.

Acknowledgement

Quill Bot and Grammarly were used during the preparation of this article for language editing, grammar correction, and improving the clarity and readability of the text. All data presented in this study are original and were collected and analyzed by the authors. The authors reviewed and verified the edited content and takes full responsibility for the accuracy, originality, interpretation, and final version of the article.

REFERENCES

- [1] Onyancha, O. B. (2007). A Webometric study of selected academic libraries in eastern and southern Africa using a link analysis approach. *South African Journal of Libraries and Information Science*, 73(1), 25-39. <https://journals.co.za/doi/epdf/10.10520/EJC61258>
- [2] Haidari, G., Zareh, F., & Osareh, F. (2009). Collaboration among Library and Information Science websites of Associations and Societies (LISAS), using webometric methods. *Collnet Journal of Scientometrics and Information Management*, 3(1), 47-59. <https://doi.org/10.1080/09737766.2009.10700864>
- [3] Ahmadian Yazdi, F., & Deshpande, N. J. (2013, February). Evaluation of selected library associations' web sites. In *Aslib Proceedings* (Vol. 65, No. 2, pp. 92-108). Emerald Group Publishing Limited. <https://doi.org/10.1108/00012531311313952>
- [4] Chandra, J. (2015). Web Impact of Indian Library Associations. *RBU Journal of Library and Information Science*, 17, 12-19.
- [5] Pachauri, N. K. (2019). A Webometric Study of the Websites of the Professional Associations of Library and Information Science in India. *JOURNAL OF LIBRARY AND INFORMATION TECHNOLOGY*.
- [6] Dhar, P., & Gayan, M. A. (2022). A Webometric study of selected international library association websites an evaluative study. *DESIDOC Journal of Library & Information Technology*, 42(3), 185-190.
- [7] Negi, R. (2024). Evaluation of websites of prominent Library association in India: A Webometric Analysis. *Library Philosophy & Practice*.
- [8] Gupta, S., Kumar, V., & Babel, P. (2026). Webometric Indicators And Digital Impact: An Evaluation Of Top Ten NIRF-Ranked Indian University Websites. <https://doi.org/10.37591/JoALS>