

# Web Presence of Selected Iconic Public Libraries' of India: Webometric Analysis

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**ABSTRACT:** *The present study examines the websites of Selected Iconic Public Libraries' in India. There are 11 Iconic public libraries in India, out of which 9 libraries are having their websites. The study analyses the total number of webpages, domain authority, equity-links, internal, external links and web impact factor and to rank it. The study explored that the National Library of India tops with highest Page Authority (21%), Total Linking Root domains (68%), highest External Equity-Passing Links (97%), Total Equity- Passing Links (88%), Total External Links (97%), Total Links (87%), Followed Linking Root Domains (68%) and with highest Linking C Blocks (68%). Nehru Memorial Museum and Library also scores at top position with highest Internal Equity-Passing Links (90%) and Total Internal Links (90%). Thus, it can be interpreted that the overall WIF of National Library of India is at top most position with 92.90SWIF & EWIF, on the other hand, Nehru Memorial Museum and Library stands at second place with 15.82 SWIF and 15.35 IWIF among 9 selected Iconic Public libraries' of India.*

**Keywords:** Webometric, Public Libraries, Websites, Link Analysis, Web Impact Factor, Iconic Libraries, Page Authority, Link Analysis etc

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## 1. Introduction

Now with the emergence of World Wide Web, many libraries have shifted from traditional library to digital world of library. The adoption of automation in libraries has enabled the library staffs, students and teachers to do their work with fewer burdens. The internet more often has become a part of our daily lives. Websites have become the primary source of information because it's available on your fingertips easily with the help of web. World Wide Web has created lot of change in information transfer. Web resources are the apple of information professional's eye due to its value added services to meet their current and diversified information needs. Ranking of websites comes under webometric study and one can observe that how users actually react and use specific document.

### **1.1 Concept of Webometrics**

Webometrics means the quantitative study of web-related phenomena. It covers research of all network-based communication using infometric or other quantitative measure. Bojorneborne and Ingwersen [1] define webometrics as “the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web, drawing on bibliometric and informetric approaches”. The WIF was developed by Ingwersen to measure the impact of websites by the total number of links it receives. According to him, there are three types of WIF such as Simple, Internal and External WIFs. The WIF is measured through the number of hyperlinks counts and number of webpages [2]. Quantitative studies of the web have been named as webometrics by Almind and Ingwersen [3]. In future Webometrics may become one of the most interesting research areas.

### **1.2 Public Libraries in India**

India is one of the oldest civilizations in the world and is known worldwide for its great history and heritage. From ancient times it has a center of spiritual learning and knowledge center. With changing time, there is change in method of learning process and it shifted from gurukul to modern colleges and universities and support to these academic institutions there are many academic libraries were established specially in last century. After independence in 1947, government of India has initiated to develop a public libraries system for providing a reasonably meaningful library services to the people of the country and many states of country also passed their public library act in their respective states which help a lot to develop public library system. In last decades, many public libraries has started automation of their services and also started computerized library services. They also designed their library website and started to give their library related information through their website to their users and this experiment was very successful. Now library websites become very important tool for library to disseminate their services.

A public library from time immemorial has been considered as social institutions based on democratic principle “of the people, by the people and for the people” and functioning like a “public university” by created a gateway of knowledge for peoples and bringing all around development of people, society and finally the Nation [4]. In country there are 70000+ public libraries under the various schemes and their total budgets is around thousand million [5]. In present knowledge society public libraries are the branded social institutions, based on the principles of democracy i.e. functioning of any democratic society is fully depending of well-informed citizens.

## **2. Significance & Scope of Study**

Now, web is playing a very significant role in the entire arena such as business, education, industry and entertainment including library sector. Public libraries around the world maintain their websites which are used to offer a wide range of information, consistent with their wide range of activities, as compared to other types of libraries. Library websites play a crucial role for exponential growth of information regarding library attributes. Websites and the Internet have now become an integral part of library service across the world in general and India in particular. Webometric became an important segment in the field of Library and Information Science through which analysis of websites has been conducted by information professionals. This study is an attempt to find the best public library websites and to rank these websites on the basis of Web Impact Factor. The findings of this study will be helpful for respective librarians and webmasters to redesigning their library websites to a more interactive and informative way.

The scope of the present study is limited to the 9 Selected Public Libraries’ websites in India. There are 11 Iconic public libraries in India [6] out of which 9 libraries are having websites and taken under study for data collection and interpretation. The 9 Selected Iconic Public Libraries’ with their websites are listed in Table-1:

## **3. Review of Literature**

Devi and Verma [7] evaluated and compared the web contents of the North Eastern Hill University and Mizoram University. The authors have developed 73 criteria under 14 broad headings for analyzing the contents where 69 criteria have been analyzed quantitatively. A quantitative three-point-rating scale was designed to determine a meaningful numerical rating. The study reveals that NEHU scored the highest point with 85.51 percent to that of MZU (68.11%). The authors suggest for evaluating the websites frequently so that the latest information can reach to the end users. Jhamb and Ruhela [8] conducted a webometric analysis of the websites of 7 public libraries and was found that out of 7 libraries, the website of Central Secretariat library recorded with the highest simple and external web impact factor, RRRLF is the only website having internal and external links, the website of National library leads with highest number of external and total links and Thanjavur Maharaja Serfoji’s Sarasvati Mahal library

library secured highest number of internal links and Internal WIF.

Sl No	Library	Website	Place	Year of Establishment
1	Sarasvathi Mahal Library	<a href="http://www.tmssmlibrary.com/">http://www.tmssmlibrary.com/</a>	Tamil Nadu	1918
2	Connemara Public Library	<a href="http://Connemarapubliclibrarychennai.com/">http://Connemarapubliclibrarychennai.com/</a>	Tamil Nadu	1890
3	Trivandrum Public Library	<a href="http://statelibrary.kerala.gov.in/">http://statelibrary.kerala.gov.in/</a>	Kerala	1829
4	David Sasoon Library	<a href="http://www.davidsasoonlibrary.com/index.php">http://www.davidsasoonlibrary.com/index.php</a>	Maharashtra	1870
5	Asiatic Society of Mumbai Library	<a href="http://asiaticsociety.org.in/">http://asiaticsociety.org.in/</a>	Maharashtra	1804
6	Allahabad Public Library	<a href="http://allahadpublib.org/">http://allahadpublib.org/</a>	Uttar Pradesh	1864
7	The National Library of India	<a href="http://www.nationallibrary.gov.in/">http://www.nationallibrary.gov.in/</a>	West Bengal	1953
8	Nehru Memorial Museum And Library	<a href="http://nehriumemorial.nic.in/en/">http://nehriumemorial.nic.in/en/</a>	New Delhi	1964
9	Raza Library	<a href="http://razalibrary.gov.in/Razalibnew/index.html">http://razalibrary.gov.in/Razalibnew/index.html</a>	Uttar Pradesh	1774

Table 1. Selected Iconic Public Libraries along with their websites in India

Joicy and Varghese [9] evaluated the websites of Research and Development institutions in India and study revealed that majority of the R & D institutions in India provide informative links to contacts, copyright, news and events, RTI and history, only few websites provide opportunity for user interaction in the form of feedback and majority of the R & D institutions websites are good to navigate and find information. Islamand Alam [10] made a webometrics study of 71 universities in Bangladesh. In the study data was obtained using Alta Vista search engine which was used to rank the websites based on webometric indicators. It is found that some universities in Bangladesh have higher number of webpages but their link pages are fewer and websites fall behind in their web impact factor. Ratha, Joshi and Naidu [11] analyzed the websites of 15 IIT libraries and the study and the study visualized that IIT Delhi leads with highest number of 4070 total links, IIT Bombay websites tops with 75 never active links (those are not able to perform) and found out to be more informative for the reason of having 468 total webpages, highest numbers of pdf files are linked with library website of IIT Gandhinagar, IIT Bombay, IIT Madras and IIT Delhi library websites provides user supporting services like Web OPAC, search bar, site map and inter library loan, IIT Bombay and IIT Delhi library websites are also available in Hindi languages.

Vijayakumar [12] made a study on webometric analysis of 19 university websites in Sri Lanka and reveals that the universities of Srilanka are possessing varied domains for their home pages namely .ac.net and .lk but mostly prefer the sub level domain like .ac and University of Colombo, University of Sri Jayewardepura, University of Peradeniya ranked one by possessing highest web pages, inlinks and selflinks. University of the Visual & Performing Arts of Sri Lanka topped one for web impact factor for inlinks, the Open University of Sri Lanka ranked one for web impact factor for selflinks and here once again university of Colombo is first in the WISER ranking. Walia and Gupta [13] conducted a study on Web Impact Factor of Select National Libraries' Websites and their study revealed that among the selected national libraries, websites of national libraries 'of America, Australia and Britain were more visible and hosted the more content compare to the websites of India, Namibia and South Africa. Verma and Brahma [14] conducted a study on webometric analysis of National Libraries' websites in South Asia and analyses the number of web pages, link pages and calculates the web impact factor of National Libraries' websites and ranks the websites as per the WIF. The study visualized that web impact factor of National Library of India was the highest followed by National Library of Sri Lanka and National Library of Bhutan among the other national libraries websites.

Verma and Brahma [15] conducted a study on webometric analysis of 10 Central universities in North East India. The study calculates the link pages, the number of webpages, and analysis the Web Impact Factor of Central universities in North East India and found that Mizoram University (MZU) ranks at top among the Central Universities websites in North East India. Verma and Brahma [16] have undertaken webometric study of 9 selected library consortium websites of India and provides information about the present status of the websites. The study explored that E-Shodhsindhu and DeLCon are the most popular consortiums among selected consortiums. The authors have suggested to interlink the consortiums websites to enabled good collaborations with various benefits. They have also mentioned about the poor Web Impact Factor of rest of the selected consortiums and recommended to improve to make it more useful by the users.

#### 4. Objectives of the Study

The objectives of present study are to:

1. Analyze the URL of selected public libraries' websites of India
2. Calculate the number of webpages and domain authority of selected public libraries'
3. Examine the link-equity of selected public libraries' websites
4. Find out the internal and external link pages of selected public libraries' websites
5. Calculate the web impact factor of selected public libraries' websites and rank them as per WIF.

#### 5. Research Methodology

A survey and observation method was used in present study. The data were collected from the websites of selected Iconic libraries by using a tool open site explorer ([www.opensiteexplorer.org](http://www.opensiteexplorer.org)) which is a search engine optimization tool for links. The collected data was tabulated for exploration and findings of the study.

##### 5.1 Method of Calculating Web Impact Factor

Distribution of Data by SWIF has been calculated by the following formula:

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

Distribution of Data by IWIF has been calculated by the following formula:

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

Distribution of Data by EWIF has been calculated by the following formula:

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

#### 6. Data Analysis

Table 2 shows the Domain Authority, Page Authority and Total Linking Root domains of Selected Iconic Public Libraries and visualized that the highest Domain Authority was occupied by Trivandrum Public Library (24%) followed by National Library of India (20%) and Raza Library (13%). Whereas, National Library of India (21%) leads with the highest Page Authority, followed by Connemara Public Library (14%) and Trivandrum Public Library & Nehru Memorial Museum and Library with 13%. On the basis of Total Linking Root domains, the National Library of India (68%) was at top position, followed by Connemara Public Library (12%) and Raza Library (7%).

SI No	Library	Domain Authority (%)	Page Authority (%)	Total Linking Root Domain (%)
1	Sarasvathi Mahal Library	20 (7%)	26 (9%)	2 (1%)
2	Connemara Public Library	30 (11%)	42 (14%)	22 (12%)
3	Trivandrum Public Library	67(24%)	40 (13%)	4 (2%)
4	David Sasoon Library	21 (8%)	18 (6%)	1 (0.53)
5	Asiatic Society of Mumbai Library	14 (5%)	29 (10%)	4 (2%)
6	Allahabad Public Library	1 (0.35)	1 (21%)	0
7	The National Library of India	55 (20%)	63 (21%)	128 (68%)
8	Nehru Memorial Museum And Library	34 (12%)	40 (13%)	13 (7%)
9	Raza Library	37 (13%)	39 (13%)	14 (7%)
	<b>Total</b>	<b>279</b>	<b>298</b>	<b>188</b>

Table 2. Domain Authority, Page Authority and Total Linking Root Domains of Selected Iconic Public Libraries

Table 3 shows the Internal Equity-Passing Links, External Equity- Passing Links and Total Equity- Passing Links of Selected Iconic Public Libraries and reveals that the Internal Equity-Passing Links of Nehru Memorial Museum and Library (90%) occupies at first place, followed by Raza Library (7%) at second place and Connemara Public Library (1%). In regard with External Equity-Passing Links, the National Library of India tops with 97%, followed by Connemara Public Library & Sarasvathi Mahal Library with 1%. Thus, on the basis of Total Equity- Passing Links, the National Library of India (88%) once again occupies at top position, followed by Nehru Memorial Museum and Library (9%).

Table 4 illustrates the Total Internal Links, Total External Links and Total Links of Selected Iconic Public Libraries and visualizes that the Total Internal Links of Nehru Memorial Museum and Library (90%) was the highest, followed by Raza Library (7%) and Trivandrum Public Library & Connemara Public Library with 1%. The Total External Links of National Library of India (97%) was the highest, while in regard with Total Links, it is clear that the National Library of India (87%) occupies at top position, while Nehru Memorial Museum and Library (9%) occupies second place.

Table 5 depicts the Followed Linking Root Domains and Linking C Blocks of Selected Iconic Public Libraries and reveals that the Followed Linking Root Domains of National Library of India (68%) was the highest, followed by Connemara Public Library (11%) and Raza Library (8%). On the basis of Linking C Blocks, the National Library of India again leads with 68% where as, Connemara Public Library with 11% occupies second place and Nehru Memorial Museum & Library with 7% is at third.

Table 6 depicts the Web Impact Factor of Selected Iconic Public Libraries of India and reveals that Simple Web Impact factor of National Library of India with 92.90 SWIF was the highest, followed by Nehru Memorial Museum and Library with 15.82 SWIF. The Internal Web Impact Factor of Nehru Memorial Museum and Library with 15.35 IWIF was the highest among 9 Iconic libraries while, the External Web Impact Factor of the National Library of India with 92.90 EWIF was found to be highest. Thus, it is clear

SI No	Library	Domain Authority (%)	Page Authority (%)	Total Linking Root Domain (%)
1	Sarasvathi Mahal Library	0	62 (1 %)	62 (1 %)
2	Connemara Public Library	9 (1%)	57 (1%)	66 (1%)
3	Trivandrum Public Library	7 (1%)	19 (0.3%)	26 (0.3%)
4	David Sasoon Library	1 (0.15%)	0	1 (0.01%)
5	Asiatic Society of Mumbai Library	0	3 (0.04%)	3 (0.04%)
6	Allahabad Public Library	0	0	0
7	The National Library of India	0	5832 (97%)	5832 (88%)
8	Nehru Memorial Museum And Library	573(90%)	18 (0.2%)	591 (9%)
9	Raza Library	44(7%)	23 (0.3%)	67 (1%)
<b>Total</b>		<b>634</b>	<b>6014</b>	<b>6648</b>

Table 3. Internal Equity-Passing Links, External Equity- Passing Links and Total Equity- Passing Links of Selected Iconic Libraries

that the overall WIF of National Library of India is at top most position, on the other hand, Nehru Memorial Museum and Library stands at second place among 9 selected Iconic libraries of India.

## 7. Discussion and Conclusion

The present study focuses on the websites of selected Iconic Public libraries of India and it is found that websites of National Library of India and Nehru Memorial Museum and Library are famous among the 9 selected public libraries. It is observed that the Internal Web Impact Factor of most of the public libraries is too low, hence need to be improved. It is also observed that Allahabad Public Library has got zero Web Impact Factor which means poor WIF. A website provides a quick and easy way of communicating information between information providers and information seekers. It offers the user convenience as they can access the information they need in the comfort of their own home. Nowadays institutes/organizations are having their own website and users need information within fingertips. The result shows that Trivandrum Public Library (24%) leads with highest Domain Authority whereas; National Library of India leads with highest Page Authority (21%) and Total Linking Root domains (68%). Nehru Memorial Museum and Library (90%) occupies at first place with highest Internal Equity-Passing Links while, National Library of India tops with highest External Equity- Passing Links (97%) and Total Equity- Passing Links (88%). The highest Total Internal Links was occupied by Nehru Memorial Museum and Library (90%), on the other hand, once again the highest Total External Links(97%) and Total Links (87%) was occupied by National Library of India. The highest Followed Linking Root Domains (68%) and Linking C Blocks (68%) were occupied by National Library of India. The National Library of India occupies at top most position with highest SWIF & EWIF i.e., 92.90 while, Nehru Memorial Museum and Library stands at second place with 15.82 SWIF and 15.35 IWIF among 9 selected Iconic libraries of India. Thus, the present study is all about knowing the present condition of selected public libraries' websites in India. After analyzing the result it is concluded that the WIF of National Library of India is at the top most.

SI No	Library	Total Internal Links (%)	Total External Links (%)	Total Linkis(%)
1	Sarasvathi Mahal Library	0	62 (1 %)	62 (1 %)
2	Connemara Public Library	9 (1%)	62 (1 %)	71 (1%)
3	Trivandrum Public Library	9 (1%)	19 (0.3%)	28 (0.3%)
4	David Sasoon Library	1 (0.14%)	0	1 (0.01%)
5	Asiatic Society of Mumbai Library	0	4 (0.06%)	4 (0.05%)
6	Allahabad Public Library	0	0	0
7	The National Library of India	0	5853 (97%)	5853 (87%)
8	Nehru Memorial Museum And Library	614 (90%)	19 (0.3%)	633 (9%)
9	Raza Library	46 (7%)	23 (0.3%)	69 (1%)
<b>Total</b>		<b>679</b>	<b>6042</b>	<b>6721</b>

Table 4. Total Internal Links, Total External Links and Total Links of Selected Iconic Libraries

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SI No	Library	Followed Linking Root Domains (%)	Linking C Blockss(%)
1	Sarasvathi Mahal Library	2 (1%)	1 (0.59%)
2	Connemara Public Library	19 (1%)	19 (11 %)
3	Trivandrum Public Library	4 (2%)	6 (4%)
4	David Sasoon Library	1 (0.58%)	1 (0.59%)
5	Asiatic Society of Mumbai Library	3 (2%)	4 (2%)
6	Allahabad Public Library	0	0
7	The National Library of India	116 (68%)	115 (68%)
8	Nehru Memorial Museum And Library	12 (7%)	12 (7%)
9	Raza Library	14 (8%)	11 (7%)
<b>Total</b>		<b>171</b>	<b>169</b>

Table 5. Followed Linking Root Domains and Linking C Blocks of Selected Iconic Libraries

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SI No	Library	Internal Web Impact Factor (IWIF)	External Web Impact Factor (EWIF)	Sample Web Impact Factor (SWIF)	Ranking
1	Sarasvathi Mahal Library	0	2.38	2.38	3
2	Connemara Public Library	0.21	1.47	1.69	5
3	Trivandrum Public Library	0.23	0.47	0.7	7
4	David Sasoon Library	0.05	0	0.05	8
5	Asiatic Society of Mumbai Library	0	0.13	0.13	6
6	Allahabad Public Library	0	0	0	0
7	The National Library of India	0	92.90	92.90	1
8	Nehru Memorial Museum And Library	15.35	0.47	15.82	2
9	Raza Library	1.17	0.58	1.76	4

Table 6. Web Impact Factor

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