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## Websites Of Private Universities In Madhya Pradesh: A Webometric Study

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### Abstract

Webometric is measuring the websites, webpages, parts of webpages, words in webpages, link structure, web search engine results. This study examines 36 Private Universities of Madhya Pradesh. Investigate Domains distribution of websites, analyse number of webpages and link pages and calculate the self link web impact factor, External link web impact factor and Revised web impact factor for state Government Universities in Madhya Pradesh and Rank the websites as per the web impact factor.

**Key Words:** Private University websites Madhya Pradesh, website Analysis, Link Analysis, Internal Link, External Link, In Link, Web Impact Factor.

### 1. Introduction

Digital revolution has laid a great impact on our education system. Smartphones, Tablets, Laptops, Computers are being used widely as a medium of generating and accessing information via Internet. Today Online access of information, High use of Social Media and Virtual Meetings, Webinars are the latest trends in information usage patterns. World Wide Web has become the main source of information in research and academic activities and excellent platform to test new method of evaluating webometric activities.

A website is a set of related pages covering content such as text, image, video, audio etc. accessible via network such as the internet through on internet address call Uniform Resource Locator (URL).

### 2. Webometric

The term webometrics is a coinage from to modern English words, "web" and "metric". Webometric is the study of the quantitative aspects of the construction and use of information resources, structures and technologies on www drawing on bibliometrics and infometrics approaches. In 1996, Larson explained link structure analysis with the first pure infometrics analysis of the web.<sup>1</sup> In 1997 Almind and Ingwersen have named quantitative studies of the web as webometrics.<sup>2</sup>

### 3. Methods of webometrics

According to Bjorneborn (2004) Webometrics study<sup>3</sup> covers the following main areas of construction side and usage side of the web :

- Web page content analysis ;
- Web link structure analysis (e.g.- Hyperlinks, Self-link, External link and In link) ;
- Web usage analysis (e.g.- exploiting log files for users searching and browsing behavior); and
- Web Technology analysis (including search engine performance)

### 4. Web impact factor (WIF)

A web impact factor is a relatively new measure of the extent to which a site is linked to by other sites, and is analogous to a citation count in the print environment. Broadly, it is a measure of the extent to which it is linked to and recognized by other sites.

Mukharji Bhaskar (2009)<sup>5</sup>, Jeyshankar and ramesh babu (2009)<sup>6</sup> and Ramesh Babu, Jeyshankar and Nageswara rao (2009)<sup>7</sup> and Ramesh babu, Jeyshankar and Nageswara rao (2010)<sup>8</sup> studied the WIF as the ratio of number of links to the total Number of web pages.

Ingwersen distinguished between:

- The external link WIF, the ratio of external links to the number of pages.
- The internal or self WIF, the ratio of internal links within the site to number of pages.
- the revised WIF, the ratio of in links to the target site, to the number of pages at the site.

### 5. Private Universities in Madhya Pradesh

This study aims to examine 36 websites of Private Universities in Madhya Pradesh on the basis of webometric parameters.

Table-1 depicts the year of establishment of 36 Private Universities in Madhya Pradesh, Rabindranath Tagore University, Bhopal was the first Private university established in 1985. Maximum 20 Private universities came into existence during 2016-2019 which shows the growth of Higher Education in Madhya Pradesh.

Table 1. Classification of private universities of Madhya Pradesh by year of their establishment

Year of establishment	No. of Universities	percentage
1976-1985	1	2.77
1986-1995	3	8.33
1996-2005	2	5.55
2006-2015	10	27.7
2016-2019	20	55.5
Total	36	100

Table 2. Tabular Representation of city wise Private Universities In Madhya Pradesh

City	No. of P.Universities	percentage
Balaghat	01	2.7
Bhopal	11	30.5
Chhatarpur	01	2.7
Chhindwara	01	2.7
Guna	01	2.7
Gwalior	02	5.5
Indore	08	22.2
Jabalpur	01	2.7
Katni	01	2.7
Mandsaour	01	2.7
Sagar	01	2.7
Satna	01	2.7
Sehore	02	5.5
Sironj	01	2.7
Shivpuri	01	2.7
Ujjain	01	2.7
Khandwa	01	2.7
Total	36	100

Table-2 reveals that Bhopal has Maximum numbers of Private Universities i.e. 11(30.5%) and Indore has 8 (22.2%) Private Universities ,whereas Gwalior and Sehore have 2(5.5%)Private Universities each.

## 6. Review of related literature

Jeysankar, Ramesh Babu and Gopalkrishnan explained basic framework and development of webometrics from librametrics, informetrics, biblometrics, scientometrics and cybermetrics<sup>9</sup>

Thelwall et..al (2002) reports on the result of a survey of the size of 670 websites of higher education institutions in countries associated with European Union as estimated by Alta Vista. It has been found that there are still enormous National differences of up to three orders of magnitude.<sup>10</sup>

Samir Kumar Jalal, B.Sutradhar and Parthasarathi Mukhopadhyay study top 10 Indian and Asian universities for developing new ranking system for India using appropriate webometrics indicators. They reported that Indian Universities are having 2% backlinks and 25% webpages and wiser value with respect to top ten Asian Universities.<sup>11</sup>

S.S. Shahrudin,RZW Chick and ISA Malik conducted a study on visibility in strategizing for web market in webometric university ranking in Malaysia (2019)<sup>12</sup> and found that The National Library China has the highest Domain &page authority of 67 and 73 respectively.

Jayshanker Ramalingam (2019)<sup>13</sup> conducted webometric analysis of 125 Deemed university websites in India. It is found that the size of the websites ranges between 1 and 8529kb, the internal link ranges between 1 and 560 links and External link ranges between 1 and 252 links. web impact factor for deemed universities websites ranges between 0.01 and 116.83. Relation between internal, External and back link has been calculated between 0.01 & 3.

Ashok Pal, Sanjoy kar & Sovan sardar conducted “A Webometric analysis of ICSSR sponsored research institution in India” (2020)<sup>14</sup>. This study reflects that institute of developments study Kolkata has the maximum no. of webpage's (71400). Institute of economic growth has the maximum no. of total links (177) & internal links (167). Institute for studies in industrial development has maximum no. of external links (36). Gujarat institute of development research holds the numero uno status on the basis of SWIF(0.6736) & IWIF(0.65551) Whereas Institute for studies in industrial development holds the first rank in EWIF(0.0404).

## 7. OBJECTIVES

The objective of the study are:

- ✓ To identify and classify the domain of Private Universities websites in Madhya Pradesh.
- ✓ To find out the number of web pages, number of link pages, number of self link pages, and external link pages of Private Universities websites in Madhya Pradesh.
- ✓ To measure the self link WIF, external Link wif and revised link WIF of Private universities websites in Madhya Pradesh.

## 8. Hypothesis

The following hypothesis are coined for this study:

- A majority of Private Universities in MP have hosted websites on the internet.
- Higher the number of webpages, smaller the link pages and greater the WIF, smaller the number of webpages.

## 9. Scope and Limitations

This study makes a webometric analysis of Private Universities in Madhya Pradesh. There are 36 Private universities in Madhya Pradesh. The study covers the website of Private universities in Madhya Pradesh listed under 12-B of UGC act 1956 Section 3 of UGC act and section 2(f) and 12(B) of UGC act upto December 2020 only.

## 10. Methodology

The present study has been carried out by using webometric methods. Data were collected from 36 Private universities websites. The search engine Bing index checker has been used to collect the number of web pages of each website. Web optimization Tools were used to collect number of self link, external link and in link.

## 11. Web Impact Factor

WIF has been calculated by following formula -

Self link WIF =

$$\frac{\text{Total no. of self link pages}}{\text{Total no. of web pages}}$$

External link WIF =

$$\frac{\text{Total no. of external link}}{\text{Total no. of WebPages}}$$

Revised WIF =

$$\frac{\text{Total no. of in links}}{\text{Total no. of WebPages}}$$

Table 2 reveals that 7 types of 'domain extensions' were observed in this study. '.ac.in' has been widely used in websites of Private Universities (41.6%) followed by .edu.in (27.7%), .com is used by 11.1% universities.co.in,.edu and .in are being used by 5.5% Private Universities each respectively. Where as only 1 university (2.7%) uses .org as its Websites domain extension.

Table 2. Classification of Private Universities Websites by the Domain Extensions

Domain	No. of Universities	percentage
.ac.in	15	41.6
.com	4	11.1
.co.in	2	5.5
.edu.in	10	27.7
.edu	2	5.5
.in	2	5.5
.org	1	2.7
Total	36	100

Table 3 shows the distribution of self-link impact factor of Private Universities in Madhya Pradesh. It is observed that Bhabha University Bhopal secures 1st rank with 3.8260% of self link WIF. Sam GlobalUniversity, Bhopal & Techno Global University sironj obtained second and third rank with 1.25% and 0.7272% self-link WIF respectively. Mansarovar Global University Sehore, IES university, Bhopal, Malwanchal University Indore, Jagran lakecity University Bhopal, P.K. University, Shivpuri, Rabindranath Tagore University Bhopal secured 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> position with 0.4204%, 0.2945%, 0.2784%, 0.2594%, 0.1973% and 0.1888% self-link WIF. Whereas Dr. Apj Abdul Kalam University, Indore and Swami Vivekanand University, Sagar with 0.000% self link WIF secured 34<sup>th</sup> Rank.

Table 4 reveals the distribution of external link web impact factor of Private Universities of Madhya Pradesh. It is observed that Techno Global University, Sironj ranked 1st with 1.4545% EWIF, Bhabha University, Bhopal and Sam Globaluniversity, Bhopal secure 2<sup>nd</sup> and 3<sup>rd</sup> position respectively with 0.4057%

and 0.075%EWIF . P.K. University, Shivpuri , Mansarovar Global University, Sehore , G.H. Rasoni University, Chhindwara, IES University, Bhopal, Malwanchal University, Indore , Rabindranath Tagore University, Bhopal, occupy 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> 8<sup>th</sup> and 9<sup>th</sup> rank respectively with 0.0394%, 0.0340% , 0.0312%,0.0284% and 0.0227% and 0.0200 EWIF. Whereas Dr. Apj Abdul Kalam University, Indore, People's University, Bhopal and Swami Vivekanand University, Sagar share 34<sup>th</sup> position with 0.0000% EWIF.

Table 3. Self-link web impact factor for Private universities of Madhya Pradesh

Name of Universities	No. of WebPages (A)	No. of self link Webpage (B)	Self-link web impact factor (B/A)	Ranked by SLWIF
Bhabha University Bhopal	69	264	3.8260	1
Sam Global University, Bhopal	40	50	1.25	2
Techno Global University sironj	11	08	0.7272	3
Mansarovar Global University Sehore	88	37	0.4204	4
IES university, bhopal	387	114	0.2945	5
Malwanchal University Indore	176	49	0.2784	6
Jagran lakecity University Bhopal	1530	397	0.2594	7
P.K. University, Shivpuri	228	45	0.1973	8
Rabindranath Tagore University Bhopal	948	179	0.1888	9
Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore	3510	418	0.1190	10
Dr C V Raman University Khandwa	3000	334	0.1113	11
Aks University Satna	2140	236	0.1102	12
Renaissance University, Indore	879	95	0.1080	13
Itm University, Gwalior	2130	198	0.0929	14
Medicaps University, Indore	1860	158	0.0849	15
Lnct University, Bhopal	2630	212	0.0806	16
Madhyanchal Professional	1600	127	0.0793	17

University, Bhopal				
Avantika University, Ujjain	2340	167	0.0713	18
Manglayatan University, Jabalpur	2660	179	0.0672	19
Sage University, Indore	2430	158	0.0650	20
Oriental University, Indore	1630	96	0.0588	21
VIT Bhopal University, Sehore	1250	72	0.0576	22
Jaypee University, Guna	3270	1820	0.0556	23
Maharishi Mahesh Yogi Vedic University, Katni	2890	142	0.0491	24
Shri Krishna University, Chhatarpur	1670	82	0.0491	
Sarvepalli Radhakrishnan University, Bhopal	1670	77	0.0461	25
Symbiosis University, Indore	2460	99	0.0402	26
G.H. Rasoni University, Chhindwara	1950	70	0.0358	27
Sri Satya Sai University Of Technology And Medical Sciences, Bhopal	4260	151	0.0354	28
People's University, Bhopal	2520	86	0.0341	29
RkDF University, Bhopal	3900	114	0.0292	30
Mandsaur University, Mandsaur	5630	93	0.0165	31
Sardar Patel University, Balaghat	20,400	188	0.0092	32
Amity University, Gwalior	81300	559	0.0068	33
Dr. Apj Abdul Kalam University, Indore	5420	000	0.000	34
Swami Vivekanand University, Sagar	209	000	0.000	



Table 4.External link web impact factor for Private universities of Madhya pradesh

Name of Universities	No. of WebPages (A)	No. of External linkWebpage (C)	External link web impact factor (C/A)	Ranked by ELWIF
Techno Global University, Sironj	11	16	1.4545	1
Bhabha University, Bhopal	69	28	0.4057	2
Sam Globaluniversity, Bhopal	40	03	0.075	3
P.K. University, Shivpuri	228	09	0.0394	4
Mansarovar Global University, Sehore	88	03	0.0340	5
G.H. Rasoni University, Chhindwara	1950	61	0.0312	6
IES University, Bhopal	387	11	0.0284	7
Malwanchal University, Indore	176	04	0.0227	8
Rabindranath Tagore University, Bhopal	948	19	0.0200	9
Medicaps University, Indore	1860	28	0.0150	10
Vit Bhopal University, Sehore	1250	18	0.0144	11
Aks University, Satna	2140	27	0.0126	12
Jagran Lakecity University, Bhopal	1530	19	0.0124	13
Renaissance University, Indore	879	08	0.0091	14
Oriental University, Indore	1630	14	0.0085	15
Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	3510	30	0.0085	16
Avantika University, Ujjain	2340	18	0.0076	17
Madhyanchal Professional University, Bhopal Gramoday University, Chitrakoot	1600	08	0.005	18
ITM University, Gwalior	2130	12	0.0056	19
Jaypee University, Guna	3270	18	0.0055	20
Sage University, Indore	2430	13	0.0053	21
Symbiosis University, Indore	2460	13	0.0053	



Lnct University,Bhopal	2630	12	0.0045	22
Sri Satya Sai University Of Technology And Medical Sciences,Bhopal	4260	19	0.0044	23
RkDF University, Bhopal	3900	14	0.0035	24
Manglayatan University, Jabalpur	2660	08	0.0030	25
Maharishi Mahesh Yogi Vedic University, Katni	2890	08	0.0027	26
Dr C V Raman University, Khandwa	3000	08	0.0026	27
Sarvepalli Radhakrishnan University, Bhopal	1670	04	0.0023	28
Amity University, Gwalior	81300	164	0.0020	29
Mandsaur University, Mandsaur	5630	08	0.0014	30
Sardar Patel University, Balaghat	20400	13	0.0006	31
Shri Krishna University, Chhatarpur	1670	01	0.0005	32
Dr. Apj Abdul Kalam University, Indore	5420	00	0.0000	33
People's University, Bhopal	2520	00	0.0000	
Swami Vivekanand University, Sagar	209	00	0.0000	

Table 5. Revised link web impact factor for Private universities of Madhya Pradesh

Name of Universities	No. of WebPages (A)	No. of Revised-link Webpage (D)	Revised-link web impact factor (D/A)	Ranked by RLWIF
Oriental University, Indore	1630	1539005	944.17	1
People's University, Bhopal	2520	620864	246.374	2
Dr C.V. Raman University, Khandwa	3000	134192	44.73	3
Techno Global University, Sironj	11	465	42.27	4
Mansarovar Global University, Sehore	88	2555	29.03	5
Malwanchal University, Indore	176	4794	27.23	6
Jaypee University, Guna	3270	51197	15.65	7
Jagran Lakecity University, Bhopal	1530	22223	14.52	8
Sardar Patel University, Balaghat	20400	253787	12.44	9
Maharishi Mahesh Yogi Vedic University, Katni	2970	25953	8.73	10
Aks University, Satna	2140	18588	8.68	11
IES University, Bhopal	387	3103	8.01	12
Sam Global university, Bhopal	40	303	7.57	13
Mandsaur University, Mandsaur	5630	35954	6.38	14
Manglayatan University, Jabalpur	2660	120827	4.82	15
Swami Vivekanand University, Sagar	209	950	4.54	16
Bhabha University, Bhopal	69	254	3.68	17
Medicaps University, Indore	1860	6752	3.63	18
Amity University, Gwalior	81300	284189	3.49	19
Vit Bhopal University, Sehore	1250	3784	3.02	20

Sage University, Indore	2430	6839	2.81	21
Madhyanchal Professional University, Bhopal	1600	4237	2.64	22
Rabindranath Tagore University, Bhopal	948	2492	2.62	23
Avantika University, Ujjain	2340	4699	2.13	24
P.K. University, Shivpuri	228	465	2.03	25
ITM University, Gwalior	2130	3858	1.81	26
Shri Krishna University, Chhatarpur	1670	2951	1.76	27
G.H. Rasoni University, Chhindwara	1950	3123	1.60	28
Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore	3510	4819	1.37	29
Sarvepalli Radhakrishnan University, Bhopal	1670	2088	1.25	30
Lnct University, Bhopal	2630	3056	1.16	31
Symbiosis University, Indore	2460	2371	0.96	32
RkDF University, Bhopal	3900	3270	0.83	33
Renaissance University, Indore	879	689	0.78	34
Sri Satya Sai University Of Technology And Medical Sciences, Bhopal	4260	3333	0.78	
Dr. Apj Abdul Kalam University, Indore	5420	2842	0.52	35

Table 5 Shows the rank distribution of Private universities in Madhya Pradesh according to revised web impact factor (RWIF), Oriental University, Indore ranked 1st 944.17% RWIF . People's University, Bhopal and Dr C.V. Raman University, Khandwa occupied 2<sup>nd</sup> and 3<sup>rd</sup> position with RWIF 246.374% and 44.73% respectively. Techno Global University, Sironj, Mansarovar Global University, Sehore , Malwanchal University, Indore, Jaypee University, Guna , Jagran Lakecity University, Bhopal and Sardar Patel University, Balaghat 4<sup>th</sup> , 5<sup>th</sup> , 6<sup>th</sup> , 7<sup>th</sup> , 8<sup>th</sup> and 9<sup>th</sup> rank with 42.27%, 29.03%, 27.23% 15.65% and 14.52%, 12.44% RWIF. Whereas Dr. Apj Abdul Kalam University, Indore secured 35<sup>TH</sup> position with 0.52% RWIF.

## 12. Conclusion & Recommendations-

The universities websites can be used as a communicative bridge between institution's achievements and their services to their audiences by keeping them abreast with the latest news, announcements, changes in policy, starting of new courses and services. This study emphasizes on the Internal link, External link and In link Web Impact Factor for each website of Private Universities in Madhya Pradesh, It is recommended that the websites of Private universities need to build good numbers of in links for having a higher In link WIF.

This study could be extended by comparing universities of state versus state and between the countries.

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