

JETIR.ORG

ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue



JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

WEBSITES OF STATE UNIVERSITIES IN GUJARAT:

A WEBOMETRIC ANALYSIS

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ABSTRACT

The purpose of the study is to analysis webpages, weblinks, web impact factors of Gujarat State universities websites. This study examines 29 state university in Gujarat. The study also investigates the domain name, extension of websites, number of web pages, domain and page authority, internal and external link of websites and calculate simple web impact factor, external link web impact factor, revised link web impact factor for websites of universities. This study also gives the rank of the websites as per the web impact factor. The study found that Kamdhenu University ranked first with a 4.10 simple web impact factor, and Swarnim Gujarat University secured the highest domain authority with 73 (7.72%). This study useful for the students, research scholars and LIS professionals.

Keywords: webometrics, link analysis, web impact factor, state Gujarat universities, websites.

INTRODUCTION

There is a significant amount of interest in Internet research as a result of the Internet's and webpages' remarkable growth during post-1990s. Webometrics is an emerging and interesting area of research in the fields of computer science, computing and information technology, and library and information science. Webometrics is primarily a field of information science. Webometric studies therefore cover content analysis, hyperlink analysis, automatic web page evaluation, classification of links, and other driving forces behind linked websites. Webometrics deals with web data collection and its methods in terms of quality assessment of search engines, web space research, informetric analysis, etc. The four main areas of research in the field of webometric studies are webpage content analysis, web link structure analysis, web usage analysis and web technology analysis. The present study will examine the present status of the websites of 29 state universities in Gujarat through WIF ranking.

Establishment year of university

Table 1: Establishment of university

<i>Establishment year</i>	<i>No. of University</i>	<i>%</i>
<i>Before Independence</i>	1	3
<i>After independence</i>	28	97
<i>Total</i>	29	100

Table 1 shows that only one (3%) university was established before independence, and the rest of the 28 (97%) universities were established after independence.

Classification of Domain extension

Table 2: Domain extension

<i>Sr.</i>	<i>Domain extension</i>	<i>No. of University</i>	<i>%</i>
1	ac.in	15	53
2	edu.in	7	24
3	.in	3	10
4	.edu	2	7
5	.org	1	3
6	gov.in	1	3
	Total	29	100

Table 2 reveals the six types of 'domain extensions' that were observed in this study. "ac.in" was used on the websites of 15 Indian universities, followed by "edu.in," which was used by 7 universities (24%), and ".in," which was used by 3 universities (10%). while one university domain (gov.in) and another university domain (org) have 3% and 3%, respectively.

WEBOMETRICS

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 world wide web (Mehrotra & Khare, 2021). Webometrics is derived from the field of information science, therefore content analysis, hyperlink analysis, automatic web pages evaluation, classification of links; various motivational factor for linking the websites is covered in webometric studies (Jalal, Biswas, & Mukhopadhyay, 2009).

WEB IMPACT FACTOR (WIF)

The Web Impact Factor is a quantitative indicator based on link frequencies that was developed by Peter Ingwersen in 1998. It is used to evaluate the impact of a website or other web pages (Hadagali, Bulla, & Shettar,

2021). The WIF is measured through the number of hyperlinks counts and number of webpages (Verma & Brahma, 2017).

WIF has been calculated by following formula:

1. **Self-link WIF** = Total no. of self link pages / Total no. of web pages
2. **External link WIF** = Total no. of external link / Total no. of web pages
3. **Revised WIF** = Total no. of in links / Total no. of web pages

REVIEW OF LITERATURE

(Bakkiyaraj & Kalidasan, 2022) have analyzed 85 websites of recognized Physical Education courses, offered by Universities of NCTE. They found that the Sai Nath University-Ranchi was the first rank with 64.8750 SWIF in the study. (Hadagali, Bulla, & Shettar, 2021) has investigated the websites of Indian Institutes of Technology in India, the results revealed that the all IIT's, 23 (100%) have .ac.in domain extension and total 7190 webpages of the IIT Gandhinagar have the highest ELWIF. (Mehrotra & Khare, 2021) have examined 02 Central Universities and 03 Deemed Universities of Madhya Pradesh. They found that the IIITM university, Gwalior has ranked first with 0.0051% EWIF in the study. (Majid & Lakshmi, 2020) has examined the website of Four Agricultural Universities in Gujarat. They found that the website interface of all Agricultural Universities was attractive and all websites were accessible through various search engines. (Pal, Kar, & Sovon, 2020) have investigated ICSSR sponsored research Institute in India, they found Institute for Studies in Industrial Development, which was holds the first rank on the basis of External-link Web Impact Factor of 0.0404. (Santha Subbulaxmi, 2019) has analyzed that 263 postgraduate ophthalmic colleges in India in the study. She found that the highest bounce rate of Meenakshi Medical College and Research Institute, SMS Medical College, Jaipur has the highest number of web links. (Verma & Brahma, 2017) have analyzed websites of consortium in India, they found that the e-ShodhSindhu was the highest Domain Authority and page authority in the study. (Ramalingam & Ramesh Babu, 2009) has examined websites of 45 universities in Tamil Nadu, they found that the Saveetha University has the first rank with number of link pages was 1110, number of web pages 297 and the simple Web Impact Factor was 3.75. (Ramalingam J. , 2009) has examined 125 deemed universities in India, he found that the Tamil Nadu has a maximum of 28 (22.40%) universities out of the 21 states in India. He also found the 56 (44.80%) universities are having a domain name as 'ac.in'.

OBJECTIVES

- To analyse the websites of state universities in Gujarat.
- To identify the domain system of all state universities in Gujarat.
- To find out the page and domain authority of websites.
- To find out the number of web pages, number of link pages, number of self-link pages, and external link pages of university websites, and
- To calculate the web impact factor of the state universities' websites in Gujarat.

METHODOLOGY

This study is based on descriptive research. The researcher has collected data from the different websites of state universities in Gujarat. In total, researchers visited the websites of 29 Gujarat state universities. Microsoft Excel was used to organize, tabulate, and visualize the collected data.

TOOLS USED FOR THE STUDY

To collect the data for each of the websites of university, the following tools were used:

Google: For this study, Google search engine was used to collect the statistics on number of web pages. For example- site: <https://www.jau.in>

Website Link Analyzer: <https://smallseotools.com/> collects the internal links, external links, page authority and domain authority of each university website under investigation.

ANALYSIS AND INTERPRETATION

Domain Authority (DA) and Page Authority (PA) of State Gujarat Universities

Table: 3 Domain Authority (DA) and Page Authority (PA)

<i>University</i>	<i>DA</i>	<i>%</i>	<i>PA</i>	<i>%</i>
<i>Anand Agriculture University</i>	41	4.34	51	4.34
<i>Kantiguru Shyamji Krishna Verma Kachchh University</i>	31	3.28	40	3.41
<i>Birsa Munda Tribal University</i>	9	0.95	12	1.02
<i>Children's University</i>	28	2.96	40	3.41
<i>Dharmasinh Desai University</i>	32	3.39	49	4.17
<i>Dr. Babasaheb Open University</i>	34	3.60	47	4.00
<i>Gujarat Ayurveda University</i>	35	3.70	40	3.41
<i>Gujarat Biotechnology University</i>	20	2.12	27	2.30
<i>Gujarat National Law University</i>	41	4.34	38	3.24
<i>Gujarat Technological University</i>	40	4.23	55	4.68
<i>Gujarat University</i>	37	3.92	49	4.17
<i>Gujarat University of Transplantation Science</i>	5	0.53	10	0.85
<i>Gujarat Vidyapith</i>	34	3.60	47	4.00
<i>Hemchandracharya North Gujarat University</i>	20	2.12	25	2.13
<i>Indian Institute of Teacher Education</i>	33	3.49	43	3.66
<i>Institute of Infrastructure Technology Research and Management</i>	33	3.49	37	3.15
<i>Junagarh Agriculture University</i>	34	3.60	46	3.92
<i>Kamdhenu university</i>	27	2.86	33	2.81
<i>Kantiguru Shyamji Krishna Verma Kachchh University</i>	30	3.17	37	3.15
<i>Maharaja Krishnakumarsinhji Bhavnagar University</i>	33	3.49	25	2.13
<i>Maharaja Sayajirao University</i>	40	4.23	53	4.51
<i>Navsari Agriculture University</i>	36	3.81	46	3.92
<i>Sardar Krishinagar Dantiwada Agricultural University</i>	31	3.28	47	4.00
<i>Sardar Patel University</i>	36	3.81	52	4.43
<i>Saurashtra University</i>	40	4.23	53	4.51
<i>Shree Somnath Sanskrit University</i>	26	2.75	37	3.15

<i>Shri Govind Guru University</i>	28	2.96	40	3.41
<i>Swaranim Gujarat Sports University</i>	73	7.72	43	3.66
<i>Veer Narmad South Gujarat University</i>	38	4.02	52	4.43
	945	100	1174	100

Table 3 shows the domain authority and page authority of state university's websites in Gujarat, in which the highest domain authority was occupied by Swaranim Gujarat Sports University with 73 (7.72%), followed by Anand Agriculture University and Gujarat National Law University with 41 (4.34%), respectively, while in regard to page authority, Gujarat Technological University occupies first place with 55 (4.68%), Suarashtra University occupies second place with 53 (4.51%), while Sardar Patel University and Veer Narmad South Gujarat University with 52 (4.43%) are in third place, respectively.

Self- link Web Impact Factor (SWIF)

Table 4: Self- link web impact factor (SWIF)

<i>University</i>	<i>NWP (A)</i>	<i>SLWP (B)</i>	<i>SWIF (B/A)</i>	<i>Ranked by SWIF</i>
<i>Kamdhenu university</i>	92	377	4.10	1
<i>Kantiguru Shyamji Krishna Verma Kachchh University</i>	118	398	3.37	2
<i>Dharmasinh Desai University</i>	103	239	2.32	3
<i>Indian Institute of Teacher Education Gujarat Vidyapith</i>	107	239	2.23	4
<i>Gujarat University of Transplantation Science</i>	158	319	2.02	5
<i>Navsari Agriculture University</i>	57	103	1.81	6
<i>Gujarat Biotechnology University</i>	1320	2266	1.72	7
<i>Swaranim Gujarat Sports University</i>	52	89	1.71	8
<i>Birsa Munda Tribal University</i>	94	124	1.32	9
<i>Children's University</i>	50	64	1.28	10
<i>Bhakta Kavi Narsinh Mehta University</i>	103	127	1.23	11
<i>Gujarat National Law University</i>	157	160	1.02	12
<i>Gujarat University</i>	288	232	0.81	13
<i>Institute of Infrastructure Technology Research and Management</i>	737	570	0.77	14
<i>Sardar Krishinagar Dantiwada Agricultural University</i>	351	195	0.56	15
<i>Maharaja Krishnakumarsinhji Bhavnagar University</i>	106	50	0.47	16
<i>Anand Agriculture University</i>	466	218	0.47	16
<i>Shree Somnath Sanskrit University</i>	510	189	0.37	17
<i>Shri Govind Guru University</i>	344	110	0.32	18
<i>Gujarat Technological University</i>	512	166	0.32	18
<i>Dr. Babasaheb Open University</i>	1850	470	0.25	19
<i>Saurashtra University</i>	1190	274	0.23	20
<i>Maharaja Sayajirao University</i>	1440	175	0.12	21
<i>Junagarh Agriculture University</i>	4300	418	0.10	22
<i>Veer Narmad South Gujarat University</i>	3600	247	0.07	23
<i>Gujarat Ayurveda University</i>	1610	76	0.05	24
<i>Sardar Patel University</i>	6970	187	0.03	26
<i>Hemchandracharya North Gujarat University</i>	17600	471	0.03	26
	81	N A	0.00	-

Table 4 shows the distribution of the self-link web impact factor of Gujarat state universities, with Kamdhenu University ranking first with a 4.10% self-link web impact factor. Kantiguru Shyamji Krishna Verma Kachchh University and Dharmasinh Desai University obtained the 2nd and 3rd ranks with 3.37% and 2.32% self-link WIF, respectively. Whereas the Indian Institute of Teacher Education and Gujarat Vidyapith secured the 4th and 5th ranks with 0.0157% and 0.000 self-link WIF, respectively.

External Link of Web Impact Factor (ELWIF)

Table 5: External Link of Web Impact Factor (ELWIF)

University	NWP (A)	ELWP (E)	ELWIF (E/A)	Ranked by ELWIF
Gujarat Vidyapith	158	158	1.000	1
Kamdhenu University	92	86	0.935	2
Gujarat Biotechnology University	52	24	0.462	3
Indian Institute of Teacher Education	107	44	0.411	4
Kantiguru Shyamji Krishna Verma Kachchh University	118	48	0.407	5
Swaranim Gujarat Sports University	94	27	0.287	6
Bhakta Kavi Narsinh Mehta University	157	37	0.236	7
Children's University	103	24	0.233	8
Birsa Munda Tribal University	50	8	0.160	9
Gujarat Technological University	1850	258	0.139	10
Gujarat University	737	98	0.133	11
Sardar Krishinagar Dantiwada Agricultural University	106	11	0.104	12
Gujarat National Law University	288	26	0.090	13
Gujarat University of Transplantation Science	57	5	0.088	14
Dharmasinh Desai University	103	7	0.068	15
Anand Agriculture University	510	34	0.067	16
Shri Govind Guru University	512	34	0.066	17
Institute of Infrastructure Technology Research and Management	351	19	0.054	18
Maharaja Krishnakumarsinhji Bhavnagar University	466	23	0.049	19
Saurashtra University	1440	56	0.039	20
Shree Somnath Sanskrit University	344	10	0.029	21
Dr. Babasaheb Open University	1190	29	0.024	22
Navsari Agriculture University	1320	24	0.018	23
Maharaja Sayajirao University	4300	48	0.011	24
Veer Narmad South Gujarat University	1610	11	0.007	25
Gujarat Ayurveda University	6970	35	0.005	26
Junagarh Agriculture University	3600	15	0.004	27
Sardar Patel University	17600	21	0.001	28
Hemchandracharya North Gujarat University	81	NA	0.000	-

Table 5 reveals the distribution of external links' web impact factors at state universities in Gujarat. It is observed that Gujarat Vidyapith ranked first with 1.000% EWIF, followed by Kamdhenu University and Gujarat Biotechnology University, which secured 2nd and 3rd place with 0.935% and 0.462% EWIF, respectively. The

Indian Institute of Teacher Education occupied the 4th rank with 0.411% EWIF. Whereas Kantiguru Shyamji Krishna Verma Kachchh University secured the 5th rank with EWIF.

Revised Link Web Impact Factor (RLWIF)

Table 6: Revised link web impact factor (RLWIF)

<i>University</i>	<i>NWP (A)</i>	<i>RLWP (C)</i>	<i>RLWIF (C/A)</i>	<i>Ranked by RLWIF</i>
<i>Kamdhenu university</i>	92	291	3.16	1
<i>Kantiguru Shyamji Krishna Verma Kachchh University</i>	118	350	2.97	2
<i>Dharmasinh Desai University</i>	103	232	2.25	3
<i>Indian Institute of Teacher Education</i>	107	195	1.82	4
<i>Gujarat University of Transplantation Science</i>	57	98	1.72	5
<i>Navsari Agriculture University</i>	1320	2242	1.70	6
<i>Gujarat Biotechnology University</i>	52	65	1.25	7
<i>Birsa Munda Tribal University</i>	50	56	1.12	8
<i>Swaranim Gujarat Sports University</i>	94	97	1.03	9
<i>Gujarat Vidyapith</i>	158	161	1.02	10
<i>Children's University</i>	103	103	1.00	11
<i>Bhakta Kavi Narsinh Mehta University</i>	157	123	0.78	12
<i>Gujarat National Law University</i>	288	206	0.72	13
<i>Gujarat University</i>	737	472	0.64	14
<i>Institute of Infrastructure Technology Research and Management</i>	351	176	0.50	15
<i>Maharaja Krishnakumarsinhji Bhavnagar University</i>	466	195	0.42	16
<i>Sardar Krishinagar Dantiwada Agricultural University</i>	106	39	0.37	17
<i>Anand Agriculture University</i>	510	155	0.30	18
<i>Shree Somnath Sanskrit University</i>	344	100	0.29	19
<i>Shri Govind Guru University</i>	512	132	0.26	20
<i>Dr. Babasaheb Open University</i>	1190	245	0.21	21
<i>Gujarat Technological University</i>	1850	212	0.11	22
<i>Maharaja Sayajirao University</i>	4300	370	0.09	23
<i>Saurashtra University</i>	1440	119	0.08	24
<i>Junagarh Agriculture University</i>	3600	232	0.06	25
<i>Veer Narmad South Gujarat University</i>	1610	65	0.04	26
<i>Sardar Patel University</i>	17600	450	0.03	27
<i>Gujarat Ayurveda University</i>	6970	152	0.02	28
<i>Hemchandracharya North Gujarat University</i>	81	NA	0.00	-

Table 6 shows the rank distribution of state universities in Gujarat according to the revised web impact factor (RWIF) Kamdhenu University ranked first with 3.16% RWIF, Kantiguru Shyamji Krishna Verma Kachchh University and Dharmasinh Desai University occupied the 2nd and 3rd ranks with RWIF of 2.97% and 2.25%, respectively. The Indian Institute of Teacher Education obtained the 4th rank with 1.82% RWIF. Gujarat University of Transplantation Science was ranked fifth with 1.72% RWIF.

FINDINGS AND CONCLUSION

- Only one of the 29 universities was founded before independence, and the rest were founded afterward.
- Domain Authority was occupied by Swaranim Gujarat Sports University with 73 (7.72%), which was the highest, followed by Anand Agriculture University and Gujarat National Law University with 41 (4.34%).
- Kamdhenu University secured the 1st rank with a 4.10% self-link WIF.
- Gujarat Vidyapith ranked first with a 1.000% external link WIF.
- Kamdhenu University ranked first with a 3.16% revised link WIF

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Appendix- A

Websites address of State Gujarat University

1. Anand Agriculture University <https://www.aau.in>
2. Bhakta Kavi Narsinh Mehta University <https://www.bknumu.edu.in>
3. Birsa Munda Tribal University <https://www.bmtu.ac.in>
4. Children's University <https://www.cugujarat.ac.in>
5. Dharmasinh Desai University <https://www.ddu.ac.in>
6. Dr. Babasaheb Open University <https://www.baou.edu.in>
7. Gujarat Ayurveda University <https://www.ayurveduniversity.edu.in>
8. Gujarat Biotechnology University <https://www.gbu.edu.in>
9. Gujarat National Law University <https://www.gnlu.ac.in>
10. Gujarat Technological University <https://www.gtu.ac.in>
11. Gujarat University <https://www.gujaratumiversity.ac.in>
12. Gujarat University of Transplantation
Science <https://www.guts.ac.in>
13. Gujarat Vidyapith <https://www.gujaratvidyapith.org>
14. Hemchandracharya North Gujarat University <https://www.hngu.ac.in>
15. Indian Institute of Teacher Education <https://www.iite.ac.in>
16. Institute of Infrastructure Technology
Research and Management <https://iitramac.in>
17. Junagarh Agriculture University <https://www.jau.in>
18. Kamdhenu university <https://www.kamdhenuuni.edu.in>
19. Kantiguru Shyamji Krishna Verma Kachchh
University <https://kskvku.ac.in>
20. Maharaja Krishnakumarsinhji Bhavnagar
University <https://www.mkbu.edu.in>
21. Maharaja Sayajirao University <https://www.msubaroda.ac.in>
22. Navsari Agriculture University <https://www.nau.in>
23. Sardar Krishinagar Dantiwada Agricultural
University <https://www.sdau.edu.in>
24. Sardar Patel University <https://www.spuvvn.edu>
25. Saurashtra University <https://www.saurashtrauniversity.edu>
26. Shree Somnath Sanskrit University <https://www.sssu.ac.in>
27. Shri Govind Guru University <https://www.sgggu.ac.in>
28. Swaranim Gujarat Sports University <https://www.sgsu.gujarat.gov.in>
29. Veer Narmad South Gujarat University <https://www.vnsgu.ac.in>