A Webometric Study Of The Official Websites Of Autonomous Institutes In Goa State

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Abstract

The current study does a webometric analysis on four autonomous institutes in the Goa state. The principal aim is to appraise and analyse their online presence using a range of webometric. These consist of connected pages, domain names, page authority, and the quantity of web pages. Other important online impact metrics that are computed by the study include Self-Link Web Impact Factor (SLWIF), the External Link online Impact Factor (ELWIF), and the Revised Web Impact Factor (RWIF) also Google page rank. Websites are an essential digital interface for organizations, representing their identity, reach, and resources. They serve as an important information source for stakeholders and reflect institutional functioning. To gain a better knowledge of the chosen institutions' digital footprint and efficacy in online communication, this study offers a webometric analysis and their review of the website indicates that the study is the most recent and distinct. There are few webometric studies on the autonomous institutions of Goa.

Keywords: Autonomous institutions in Goa,Webometrics, Linked Domain, Link Analysis, Self-Link, External Link, Web Impact Factor.

Introduction

Institutions have a big influence on how the state's educational system is developed and the internet has become a necessary instrument for information access in the current digital era, and institutional websites are important venues for communication, scholarly interaction, and information sharing. Nowadays, research, academic activities, and knowledge sharing are primarily conducted online, thus educational institutions must have a strong online presence.

Various types of material, including as text, photographs, audio, and video, can be found on a website, which is a collection of linked web pages. A Uniform Resource Locator (URL) is a specific address that may be used to reach it online. In addition to serving as a representation of an organization's identity and legitimacy, institutional websites give the public, faculty, researchers, and students' access to vital information and services. Using a variety of webometric metrics, this study examines the online presence and efficacy of four autonomous institutions' websites in Goa in order to evaluate their digital impact and visibility.

Webometric

Webometrics is the study of the World Wide Web using quantitative techniques, with an emphasis on elements such as website presence, linkages, and web structure. To comprehend the web, it involves applying measurements and data analysis.

According **to Björneborn** and **Ingwersen**, the definition of webometrics is "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and info metric approaches. **Almind** and **Ingwersen** (1997) first coined the term webometrics.

Methods of Webometric

This study uses quantitative webometric approaches to assess and analyse the online presence and performance of four autonomous institutions in Goa. Webometrics is the evaluation of web-based content and structures, with a focus on link structures, website exposure, and overall online impact. The following methods and metrics were used to evaluate the institutional websites:

Domain Name Identification
Each institution's official domain names (URLs) were noted and validated to guarantee analysis's consistency and legitimacy.

Web Page Count
For every institutional website, the total number of pages indexed by search engines (like Google) was calculated. This illustrates the amount and scope of the website's material.

Inbound (Linked) Pages
Tools like Moz Link Explorer, Ahrefs, or Similar Web were used to gauge the quantity of external sites (also known as backlinks) that linked to the institution's website. This shows how well liked and well known the website is.

Domain Authority (DA)
Moz created the Domain Authority score, which is a 100-point rating system that tells you how well a website will rank in search results. Higher DA. Indicates greater visibility and credibility.

Page Authority (PA)
Page Authority, like DA, evaluates the power and ranking potential of individual web pages as opposed to the domain as a whole.

Web Impact Factors

- **Self-Link Web Impact Factor (SLWIF):** Calculated by dividing the total number of self-links (links from one page of the website to another within the same domain) by the total number of pages.
- **External Link Web Impact Factor (ELWIF):** Calculated by dividing the number of external links (links from other domains) by the total number of web pages.
- **Revised Web Impact Factor (RWIF):** A comprehensive metric that includes both self and external links to provide an overall web impact score.

Google Page Rank

Although Google no longer makes the PageRank scores publicly available, they were utilized to calculate the relative importance of the institutional websites using past PageRank scores or similar ranking indicators from SEO tools.

Autonomous Institutes in Goa

This article explore websites of four autonomous institutions in Goa state on the basis of webometric parameters. Institutes in Goa state are:

- Goa Institute of Management -1993
- Birla Institute of Technology and Science, Pilani – Goa Campus - 2004
- National Institute of Technology Goa - 2010
- Indian Institute of Technology Goa – 2016

First autonomous institution is Goa Institute of Management (GIM). It was founded in 1993. It is a board-governed, autonomous institution with AICTE and National Board of Accreditation.

Second autonomous institution is Birla Institute of Technology and Science, Pilani- Goa Campus (BITS) BITS Pilani, the university, is in charge of the academic course structure. However, every campus has its own independent administration, teacher placement and recruitment department, and student welfare division.

Third autonomous institution is the National Institute of Technology Goa, usually known as NITG, which is an first autonomous engineering school located in the Indian state of Goa. It was founded in year of 2010, it is ranked as an Institute of National Importance and is one of India's 31 NITG . It took in its first class in 2010–11.

Fourth autonomous institution is Indian Institute of Technology Goa located in Goa state and institutes of National Importance. Ever since an IIT was allotted to Goa by the Central government established in the year 2014, and the new IITG at Goa started fully functioning from July 2016-17 academic year.

Review of literature

Jeyshankar and Valarmathi (2015) examined the websites of ICMR institutes. They determined the web pages, link analysis of the homepage, the amount of rich files, the difference between web pages and links pages in different time intervals, the performance of different search engines, and the WAVE Web AIM accessibility error (a web accessibility tool that aids in evaluating the web).

Rupak and Shalini (2015) used the Google search engine to conduct a webometric analysis of the library websites in Indian higher education institutions. Along with the association between WIF and R-WIF, they have provided the top 10 HEI rankings. Additionally, the study's correlation and coefficient have been explained.

Binu & Rakesh studied onf private universities website in Madhya Pradesh state (2021). In this study they have majored websites, parts of web pages, words in web pages, self& External links through various search engines.

Shree Rekha & Radhakrishnan studied on webometric based public library websites in India (2024). In this study, they focused on web content and functional features of chosen public libraries websites and domain authority, Page authority metrics. They have also classify SWIF, EWIF and IWIF among public library websites.

Anubhav & Madhu studied on webometric analysis of central university websites of eastern India (2023). They have founded domain, rich files, domain authority, and page authority of the websites and google page ranking during their studies.

Objectives

1. To identify and classify the domain of autonomous institutions websites in Goa state.
2. To find out number of web pages, link pages, number of self-link pages and external link pages of autonomous institutions websites in Goa state.
3. To identify domain authority (DA) and page authority (PA) of the websites.
4. To find out google page rank of the websites under study.
5. To identify web impact factor (WIF) among autonomous institutions websites in Goa state.

Hypothesis

1. The websites of the four autonomous institutes in Goa differ significantly in terms of webometric indicators (such ELWIF, SLWIF, RWIF, and Google PageRank).
2. Web impact factors (ELWIF and RWIF) are higher for institutions with more external links and total web pages.
3. The quantity of inbound (external) links on the institutes' websites is positively connected with their page authority and Google PageRank.
4. Higher SLWIF levels are linked to a website's richness and structure (number of self-links, subdomains).

Scope

Utilizing webometric techniques, this study examines the official websites of autonomous institutes situated in the Indian state of Goa. Webometrics is the quantitative study of websites, analysing aspects such as link analysis, SWIF, EWIF and RWIF visibility, accessibility, content structure, and user engagement metrics. This study's scope encompasses the following:

1. Finding and choosing from a thorough list of Goa's autonomous institutes. Assessing their official websites' operation, performance, design, and organization.
2. Examining metrics including content richness, domain authority, search engine visibility, self and external link structures, and page count.
3. Using WCAG (Web Content Accessibility Guidelines) and conventional web usability concepts to evaluate the usability and accessibility of websites.
4. Highlighting the features, advantages, and disadvantages of these websites for scholarly, administrative, and public outreach objectives.
5. Making suggestions for improving these institutional websites efficacy and online visibility.

Limitation

Despite its best efforts, the study has the following limitations:

1. **Geographic Scope**: The study's findings might not apply to institutions outside of Goa because it only includes autonomous institutes in the state.
2. **Time-bound Analysis**: During a given period, the webometric data will show the websites' current state. Following the investigation, website metrics and structures might alter.
3. **Dependency on Data Sources**: The study's accuracy depends on publicly available data and third-party webometric tools (including Google Search, Ahrefs, Moz, and SimilarWeb), which may have restrictions on how they collect data.
4. **Technical Restrictions**: Analysis does not include data or dynamic material hidden behind paywalls, intranets, or login portals.
5. **Restricted by Language and Design**: Multilingual analysis may be limited; only websites in English or accessible local languages will be taken into consideration.
6. **Emphasis on Official Websites**: Unless explicitly included into the official website, linked pages (such as social media or subdomains for particular departments) are not included in the study.0

Methodology & Data collection tools

The present study has been carried out by using webometric methods. Data were collected from four autonomous institutes' website. The search engine like bing and index checker has been used for collection number web pages for each websites. Web optimisation tool like Google Search, Ahrefs, Moz, and Similar Web were used to collect number of self-link, external link and web impact factor.

Analysis and finding

Web address is also known as uniform resource locator (URL). Transfer protocol is specified first portion of URL followed by the directories and file name in the second sections. The domain name were taken into account while examining the URL of the websites. Table-1 autonomous institutions explore with year of establishment, URL and google page rank, according to these ranking highest was BITS and NIT. Table-2 shows various parameters of websites such as performance score, accessibility, best practices, and search engine optimization with reference to page speed insight were used for the performance score checking (https://pagespeed.web.dev/), in a parameter highest performance score was of GIM and highest SEO was of BITS. Table-3 shows the institutions authority such as domain authority and page authority, linking domains and domain rating, highest domain rating is GIM. Table-4 shows highest self-links, external links and total links is of BITS. Table-5 shows self-link impact factor of four autonomous institutions and their ranked by SLWIF. Highest rank was of GIM. Table-6 shows external links web impact factor and the highest Impact Factor was of BITS. Table-7 shows RWIF revised web impact factor and their ranking these data is collected from the website (SEOgets.com) and (Duplichecker.com/link-count-checkup.php)

Table 1: List of autonomous institutions with year of establishment, URL and Google page rank

Sr. No.	Autonomous intuitions	Year of Establishment	URL	Google page rank
1	Goa Institute of Management	1993	https://gim.ac.in/	**4/10**
2	Birla Institute of Technology and Science, Goa	2004	https://www.bits-pilani.ac.in/goa/	**5/10**
3	National Institute of Technology, Goa	2010	https://www.nitgoa.ac.in/	**5/10**
4	Indian Institute of Technology, Goa	2016	https://iitgoa.ac.in/	**4/10**

Table 2: Website performance parameters

Sr.no.	Autonomous intuitions	Performance Score	Accessibility	Best Practices	SEO
1	Birla Institute of Technology and Science, Goa	47	64	93	85
2	Goa Institute of Management	90	83	96	85
3	National Institute of Technology, Goa	46	77	89	82
4	Indian Institute of Technology Goa	71	92	96	85

(Data collection Date &Times: 03-05-2025 between 1:30pm – 1:45 pm)

Table 3: Domain authority and page authority, linking domains and domain rating

Sr.no.	Autonomous intuitions	Domain Authority (DA)	Page Authority (PA)	Linking Domains	Domain Rating
1	Goa Institute of Management	38.00	46.00	48106	59
2	Birla Institute of Technology and Science, Goa	54.00	48.00	4416	43
3	Indian Institute of Technology, Goa	38.00	43.00	1111	42
4	National Institute of Technology Goa	36.00	44.00	1196	37

Table 4: Internal links, external links and total links

Autonomous intuitions	Internal Links	External Links	Total Links
Goa Institute of Management	162	32	194
Birla Institute of Technology and Science, Goa	607	60	667
National Institute of Technology, Goa	185	25	210
Indian Institute of Technology Goa	322	33	355

(Data collection Date &Times: 04-05-2025 between 10pm-11pm))

Table 5: Self-links web impact factor and ranked by SLWIF

Autonomous intuitions	No. of web pages (A)	No. of self-link web pages (B)	Self-link web impact factor (B/A)	Ranked by SLWIF
Goa Institute of Management	269	194	0.721	1
Indian Institute of Technology Goa	568	355	0.625	2
National Institute of Technology, Goa	418	210	0.502	3
Birla Institute of Technology and Science, Goa	8052	667	0.082	4

(Data collection Date &Times: 04-05-2025 between 10pm-11pm)

Table 6: External link web impact factor and ranked by ELWIF

Autonomous intuitions	No. of web pages (A)	No. of External link web pages (B)	External link web impact factor (B/A)	Ranked by ELWIF
Goa Institute of Management	269	32	0.118	1
National Institute of Technology Goa	418	25	0.059	2
Indian Institute of Technology, Goa	568	33	0.058	3
Birla Institute of Technology and Science, Goa	8052	60	0.007	4

(Data collection Date &Times: 04-05-2025 between 10pm-11pm)

Table 7: Revised web impact factor and ranked by RWIF

Autonomous intuitions	No. of web pages (A)	Self link web pages (B)	Revised web impact factor (B/A)	Ranked by RWIF
Goa Institute of Management	269	162	0.602	1
Indian Institute of Technology Goa	568	322	0566	2
National Institute of Technology, Goa	418	185	0.442	3
Birla Institute of Technology and Science, Goa	8052	607	0.075	4

(Data collection Date &Times: 04-05-2025 between 10pm-11pm)

Conclusion

This study contributes to the collection of knowledge by assessing the four autonomous institutes in Goa's internet presence. Numerous webometric factors were investigated in the study, such as the number of web pages, domain names, page authority, and related pages. Google Page Rank, Self-Link Web Impact Factor (SLWIF), External Link Online Impact Factor (ELWIF), and Revised Web Impact Factor (RWIF) were among the important online impact indicators that were also studied. The results of the study demonstrate how different the institutes' levels of internet presence are. The results of this investigation will help the institutions assess their online visibility and pinpoint areas in need of improvement.

Reference

1. Almind, T. C., & Ingwersen, P. (1997). Informetric analyses on the World Wide Web: methodological approaches to 'webometrics.' Journal of Documentation, 53(4), 404–426. https://doi.org/10.1108/eum0000000007205
2. Chakravarty, R., & Wasan, S. (2015). Webometric analysis of Library Websites of Higher Educational Institutes (HEIs) of India: A study. DESIDOC Journal of Library & Information Technology, 35(5), 325–329. https://doi.org/10.14429/djlit.35.5.8788
3. Dobriyal, N., Deepmala, & Department of Library and Information Science, Mangalayatan University, Aligarh. (2020). A webometric analysis of libraries of Central Universities of

Sanskrit in India. In Exploring innovative research mythologies in variety of multidisciplinary fields and their prospective future impact (pp. 543–546).

4. Ingwersen, P. & Centre for Informetric Studies. (1998). The calculation of web impact Factors. Journal of Documentation, 54–54(2), 236–243. http://www.aslib.co.uk/aslib

5. Khanduri, B., Shivraj, P., Lal, G. K., & International Scholars Journals. (2016). A webometric analysis of web pages of ICMR institutes websites. In Frontiers of Library, Information and Computer Sciences (Vol. 2, Issue 2, pp. 163–174) [Journal-article]. https://www.internationalscholarsjournals.org

6. Kumar Suman, A., & Patel, M. (2023). WEBOMETRIC ANALYSIS OF WEBSITES OF CENTRAL UNIVERSITIES OF EASTERN INDIA: A STUDY. In Mahatma Gandhi Central University, LIS Today: Vol. Vol. 9 (Issue No. 2, pp. 33–35).

7. Maharana, R. K., Panda, K. C., & Sahoo, J. (2012). Web Impact Factor (WIF) and link Analysis of Indian Institute of Technologies (IITs): A webometric study. Library Philosophy and Practice. https://digitalcommons.unl.edu/libphilprac/789

8. Mehrotra, B., & Khare, R. (2021). Websites of central and deemed Universities in Madhya Pradesh: A webometric study [Journal-article]. International Journal of Creative Research Thoughts (IJCRT), 9(4), 5401–5403. https://www.ijcrt.org

9. Wani, J. A. & University of Kashmir. (2019). Webometric analysis of selected university library websites of India. Library Philosophy and Practice (E-journal). https://digitalcommons.unl.edu/libphilprac/3686

10. Hadagali, Gururaj, Dr., Bulla, Shivanand, D., & Shettar, Iranna, Mr. (2021). INDIAN INSTITUTES OF TECHNOLOGY'S WEBSITES IN INDIA: A WEBOMETRIC ANALYSIS. JOURNAL OF INDIAN LIBRARY ASSOCIATION, 57(4), 143–154. https://www.ilaindia.net/jila/index.php/jila/article/viewFile/1427/301

11. Mehrotra, B. (2024). Web Impact factor and link Analysis of State Government Universities in Madhya Pradesh. In Veer Savarkar Government College, International Journal of Creative Research Thoughts (Vol. 12, Issue 3, pp. d162–d164) [Journal-article]. https://www.ijcrt.org