

# Institutional Repository Webometrics Analysis: A Case Study of Nanded City

**Dr. Vilas Ashokrao Kale**

Librarian

Swatantrya Sainik Suryabhanji Pawar College,

Purna (Jn.) Dist. Parbhani 431511

Email - vilasashokraokale@gmail.com

## Abstract

The increasing shift toward digital scholarship has made Institutional Repositories (IRs) a vital component of academic knowledge preservation and dissemination. This study presents a webometric analysis of institutional repositories in **Nanded city**, a prominent educational center in Maharashtra's Marathwada region. The research focuses on key indicators such as the number of digital items, repository visibility, indexing in search engines, metadata quality, and user accessibility.

Among the institutions examined, **Swami Ramanand Teerth Marathwada University (SRTMU)** emerged as the only academic body maintaining an open-access IR. The repository, built on the DSpace platform, includes doctoral theses and research publications, yet shows limited visibility and external engagement. Other prominent institutions such as **SGGSIE&T** and affiliated colleges lack dedicated repositories, relying instead on platforms like Shodhganga.

The analysis highlights the need for strategic improvements in repository infrastructure, metadata standardization, and digital literacy to enhance academic visibility and knowledge sharing in the region. Recommendations are offered for building sustainable repository ecosystems in regional universities through collaborative efforts, policy support, and training initiatives.

**Keywords:** *Institutional Repository (IR), Webometrics, Digital Scholarship, Open Access*

## 1. Introduction

In the digital age, academic institutions are increasingly expected to not only generate knowledge but also ensure its open access, visibility, and long-term preservation. **Institutional Repositories (IRs)** have emerged as vital platforms for storing and disseminating the scholarly output of universities and research institutions. These repositories support academic transparency, encourage open access publishing, and increase the global reach of locally produced research.

**Webometrics**, the quantitative analysis of web-based data, offers valuable insights into the performance and visibility of IRs. It measures various aspects such as the number of deposited items, indexing status in search engines, metadata quality, backlinks, and user accessibility. These indicators help determine the repository's effectiveness in supporting academic communication and knowledge sharing.

In the Indian context, while national initiatives such as **Shodhganga** and the **National Digital Library of India (NDLI)** have advanced the cause of open repositories, the development and utilization of independent IRs at the **institutional level** remain uneven, especially in **tier-2 and regional cities**.

This paper focuses on **Nanded city** in the Marathwada region of Maharashtra—a region that houses several reputed institutions including **Swami Ramanand Teerth Marathwada University (SRTMU)** and **SGGS Institute of Engineering and Technology (SGGSIE&T)**. Despite being a regional educational hub, the city has limited visibility of institutional repositories in national and global webometric rankings.

The objective of this study is to evaluate the **web presence, digital infrastructure, and discoverability** of IRs in Nanded through webometric analysis. It seeks to identify gaps in repository development and offer strategic recommendations for improving the visibility and accessibility of scholarly output in the region.

## 2. Definition with Citation

An **Institutional Repository (IR)** is a digital platform established by a university or research organization to **collect, preserve, and disseminate** the intellectual and scholarly output of its academic community. These repositories typically include research articles, theses and dissertations, conference papers, datasets, working papers, and other scholarly materials.

According to Lynch (2003),

*"An institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members."*

IRs support the principles of **open access**, allowing global visibility and accessibility of research without financial or legal barriers. They also contribute to institutional prestige by showcasing research productivity and aiding in performance evaluation, funding, and collaboration opportunities.

The term **Webometrics** refers to the **quantitative study of the World Wide Web** to evaluate the structure, usage, and impact of web-based resources, including digital repositories. It is a branch of bibliometrics that focuses on measuring web presence through indicators like site size, number of backlinks, file types, indexing status, and visibility in search engines.

As defined by Almind and Ingwersen (1997),

*"Webometrics is the study of the quantitative aspects of the construction and use of information resources, structures, and technologies on the Web."*

In the context of institutional repositories, webometric analysis helps assess the **digital visibility, accessibility, and user engagement** of academic content hosted online.

## 3. Review of Literature

The growth of **Institutional Repositories (IRs)** has attracted significant academic attention, particularly in relation to open access, scholarly communication, and digital visibility. Researchers have studied IR development across various geographies, technologies used, and their role in increasing the impact of academic research.

**Lynch (2003)** laid the foundation for understanding institutional repositories as a crucial component of digital scholarship infrastructure, emphasizing their role in managing and disseminating the intellectual output of an academic institution. His definition remains widely cited in repository development literature.

**Mali T.S. & Deshmukh R. K (2025)** The 20th century has seen libraries transition from physical to virtual spaces, integrating knowledge into research, teaching, and service tasks. Librarians now focus on institutional repositories (IRs), staff training, technical support, metadata generation, maintenance, and long-term data preservation.

**Mali T.S. & Deshmukh R. K (2024)** Institutional repositories are digital platforms that serve as central online archives for an institution's intellectual output, facilitating academic communication, open access to knowledge, and raising the profile of research and scholarship. They store and exchange various information, including articles, conference papers, theses, dissertations, databases, and multimedia resources.

**Mali T.S. & Deshmukh R. K (2024)** The study explores open access in institutional repositories (IRs) and its impact on faculty involvement due to copyright limitations. It highlights the role of librarians in assisting faculty members with licenses and the discrepancy in understanding copyright between instructors and students. The study finds that over 66% of IRs are open, with access limitations varying. Additionally, 78% of repositories provide copyright and submission information, contradicting unrestricted access.

**Mali T.S. & Deshmukh R. K (2023)** institutional repository: Green path to open access, the study explores institutional repositories in academic publication, their role in increasing access to traditional scientific information, the open access movement, and university repository systems, highlighting their benefits and challenges in academic settings.

**Mali T.S. & Deshmukh R. K (2023)**, role of librarian management of institutional repository, The study examines librarians' responsibilities in managing institutional repositories, including software proficiency, project management, collection definition, metadata standards setting, submission quality review, and author training, despite concerns about a decline in their role in the digital era.

**Mali T.S. & Deshmukh R. K (2022)**, Planning and Implementation of institutional repository: a case study of apcoer, An institutional repository collects, stores, and disseminates an institution's intellectual output, requiring strategic planning. This article presents a case study of creating a digital repository at Akhil Bharatiya Maratha Shikshan Parishad, Anantrao Pawar College of Engineering and Research, Pune Engineering Institute, using D-Space software.

**Mali T.S. & Deshmukh R. K (2022)**, The Role of Librarians in the management of Institutional Repositories This article delves into librarians' responsibilities, challenges, and strategies for managing institutional repositories, addressing issues like limited resources, technical issues, and copyright concerns.

**Dube Manju & Deshmukh R. K. (2021)**, webometric study of Non-Agricultural University websites of Maharashtra State The article analyses the websites of the Non-Agriculture University of Maharashtra State, focusing on their webometric efficiency, global rank, audience, and marketing channels, using data collected from December 2020 to February 2021.

**Deshmukh R. K. (2021), webometric analysis Agriculture University websites for Maharashtra state,** the article analyses the website of Agriculture University of Maharashtra State, focusing on its efficiency, global rank, audience, and marketing channels, spanning January to March 2019.

#### 4. Objectives

- To identify and evaluate the institutional repositories of universities and colleges in Nanded.
- To analyse the web presence, indexing, and accessibility of repository content.
- To assess repository performance using webometric indicators like number of items, backlinks, visibility, and Google Scholar indexing.

#### 5. Institutions Covered in Nanded

Nanded city, a significant educational hub in the Marathwada region of Maharashtra, hosts a range of prominent institutions that contribute to higher education and research. **Swami Ramanand Teerth Marathwada University (SRTMU)** serves as the region's central affiliating university, offering undergraduate, postgraduate, and doctoral programs, and maintaining its own knowledge resource center and digital repository linked to Shodhganga. **Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIE&T)** is an autonomous government engineering institute known for its NBA-accredited programs, NAAC accreditation, and strong research culture supported by TEQIP and various government grants. The city also houses **Dr. Shankarrao Chavan Government Medical College**, which caters to medical education and research under the Maharashtra University of Health Sciences (MUHS). Additionally, the **Mahatma Gandhi Mission (MGM) Group** runs multiple institutions here, including MGM College of Engineering, MGM's College of Computer Science and IT, and MGM Dental College, offering diverse professional courses with modern library facilities and consortia memberships like N-LIST and NDLI. Well-known multi-disciplinary colleges such as **People's College, Science College, Yeshwant Mahavidyalaya, Shivchhatrapati College**, and government-run diploma institutions like **Government Polytechnic, Nanded** and **MGM Polytechnic** further strengthen the city's academic landscape. Together, these institutions form a vibrant educational ecosystem with a growing emphasis on digital libraries, institutional repositories, and open-access research initiatives.

Institution	Software	Content	Webometric Visibility
SRTMU (Nanded) – KRC WEBOPAC/Theses	OPAC + Shodhganga	Theses, Synopses	Moderate (needs audit)
Maharashtra (SSGM, CWPRS)	e-Granthalaya	Reports, Papers	Varies
DSpace-based IRs (national study samples)	DSpace	Theses, Publications	Often higher

## Limited Global Digital Reach of Nanded City Institutions.



### 1. Swami Ramanand Teerth Marathwada University (SRTMU)

established in 1994, is a major public university located in Nanded, Maharashtra, serving the educational needs of the Marathwada region's four districts: Nanded, Latur, Parbhani, and Hingoli. Named after the renowned freedom fighter and social activist Swami Ramanand Teerth, the university aims to promote inclusive and quality higher education with a focus on rural and semi-urban areas. SRTMU offers a wide range of undergraduate, postgraduate, M.Phil., and Ph.D. programs through its university departments and affiliated colleges. The university has established a Knowledge Resource Centre (KRC) that provides access to thousands of physical and digital resources, and it actively participates in national digital repositories such as Shodhganga and Shodhgangotri for theses and research synopses. Recognized for its NAAC 'A' grade accreditation, the university encourages research and innovation through various funded projects, academic collaborations, and extension activities. With its commitment to ICT integration, student support, and community engagement, SRTMU plays a pivotal role in shaping the educational and socio-cultural development of the Marathwada region.

Swami Ramanand Teerth Marathwada University (SRTMU), established in 1994 in Nanded, serves as a public state university overseeing 300+ affiliated colleges and a student body of over 160,000 across undergraduate, postgraduate, and distance-learning programs. According to Webometrics (mid-2025), SRTMU holds a **global rank of 5,173**, **continental ranking of 1,807 in Asia**, and **359 in India**, with component scores of **Impacts = 9,203**, **Openness = 4,690**, and **Excellence = 5,687**.

- **Impact** reflects the number of inbound external links and overall digital visibility. SRTMU's moderate Impact score ( $\approx 9,200$ ) suggests limited global recognition, indicating potential gains from improved backlinking and web-based partnerships.
- **Openness**, at 4,690, signifies the presence of accessible academic content. This is bolstered by the university's active repository of theses, research publications, and online resources, informed by NIRF and NAAC data.

- **Excellence**, scoring 5,687, reflects high-level research output, especially in chemistry, biology, and engineering. Edu Rank reports approximately **2,591 publications and 36,270 citations**, with the university ranking within India's top 300 and within the top 20 universities in Maharashtra. Subject areas such as chemistry rank ~180th nationally, indicating specific disciplinary strengths.

### Qualitative Context

Beyond webometric data, SRTMU has demonstrated institutional development and impact:

- NAAC B++ accreditation (CGPA 2.96).
- NIRF participation since 2017, aligning its academic structure with national quality frameworks.
- Sustained research funding and infrastructure: DST/UGC projects, Centres of Excellence (e.g., seismology), and rooftop solar power initiatives.
- Improved placement outcomes, with median packages rising to ₹3.5 LPA for undergraduates in 2023-24, supporting the institution's recognized scholarly network.

The **Institutional Repository (KRC + Shodhganga/Shodhgangotri)** at SRTM University, Nanded, presented in a clear table format:

Category	Count / Figure	Notes
<b>Theses uploaded to Shodhganga</b>	3,867	As of latest data – 4th in Maharashtra, 18th in India
<b>Synopses uploaded to Shodhgangotri</b>	855	1st in Maharashtra, 2nd in India
<b>Hardcopy theses in KRC library</b>	~3,500	Physical copies available for reference
<b>Books in KRC library (hard copies)</b>	72,562	
<b>E-journal subscriptions</b>	18,412	
<b>Bound journal volumes</b>	6,877	
<b>Research articles in peer-reviewed journals</b>	>1,000	Indexed in Scopus/Web of Science
<b>Research projects funding</b>	₹12.5 crore	Total value of grants received
<b>Open Access publications (OA%)</b>	35% of 2,200 total pubs (~747 OA outputs)	From OpenCOKI data
<b>Total publications (2000–2023)</b>	~2,200	
<b>Total citations (2000–2023)</b>	~34,000	



- The **KRC has digitized and made available 3,867 theses and 855 synopses**, ranking highly in both state and national standings.
- The repository infrastructure is well-supported:
- **72,562 hard-copy books and 18,412 e-journals**, alongside **6,877 bound journal volumes**
- Over **1,000 peer-reviewed articles** published and **₹12.5 crore** of research funding secured
- Between 2000–2023, out of ~2,200 publications, **35% are Open Access**, totalling 747 OA publications and accumulating around 34,000 citations

### 2. **Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIE&T)**

Shri Guru Gobind Singhji Institute of Engineering & Technology (SGGSIE&T), Nanded, demonstrates a solid webometric footprint anchored in its online presence and academic impact. According to the Webometrics Ranking of World Universities, SGGSIE&T currently ranks **#9,436 globally, #3,225 in Asia**, and **#659 in India**, with sub-indices of **Impact** (13,035), **Openness** (3,562), and **Excellence** (7,505). A respectable performance in *Openness* suggests the institute's website hosts a considerable volume of freely accessible content—theses, publications, and research outputs—though there is room to grow in *Impact* by increasing inbound links and enhancing visibility. The *Excellence* score reflects strong research output, aligned with the institute's record of over 1,200 peer-reviewed publications and 8,000+ citations. Overall, SGGSIE&T's webometric indicators reveal a well-established digital presence backed by active scholarly communication, yet highlight key opportunities to amplify its global influence through SEO optimization, improved metadata, and broader dissemination of research assets.

Repository: Limited access or internal archival system. No separate open-access IR visible as of July 2025.

**Webometrics** (Ranking Web of Universities) stats for **SGGSIE&T, Nanded**,

Metric	Value
World Ranking	9,436
Continental (Asia) Rank	3,225
India Rank	659
<b>Impact</b>	13,035
<b>Openness</b>	3,562
<b>Excellence</b>	7,505

### 3. **MGM College and Affiliates**

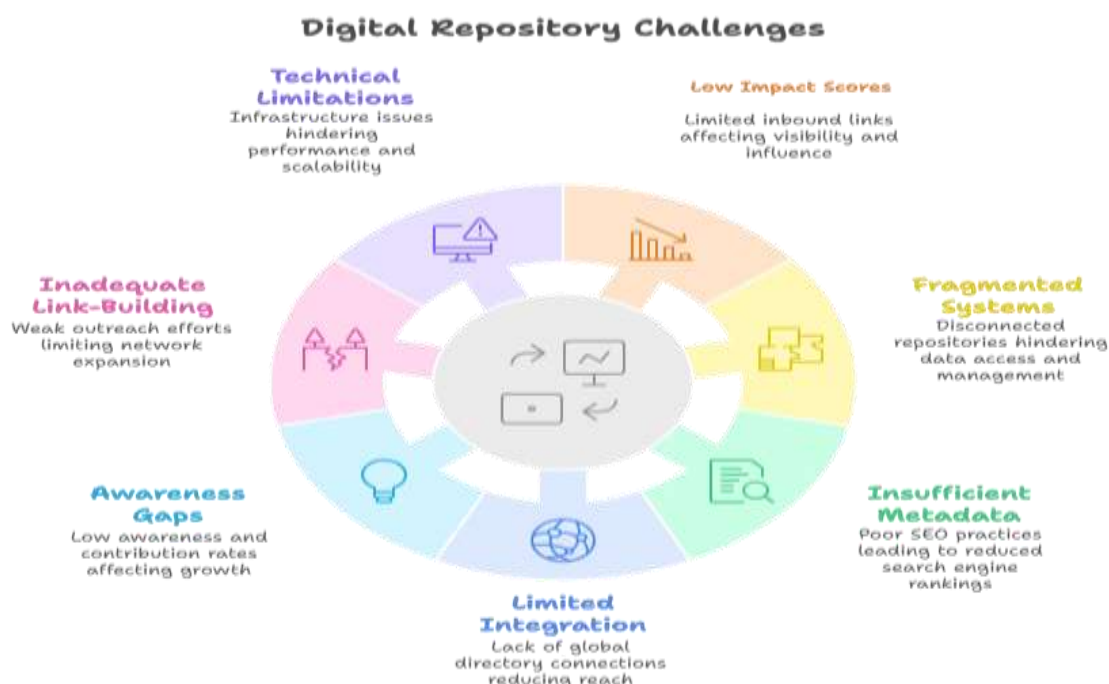
MGM College, with multiple specialized branches (Engineering, CS & IT), reflects good Openness (~8,800) and Excellence (~7,500) scores but lags significantly in Impact (~19,000–28,000). This disparity indicates that while MGM produces accessible research content, its discoverability and linkage across the wider academic web are insufficient.

## Webometric Metrics (mid-2025)

Institution	Global Rank	Asia Rank	India Rank	Impact	Openness	Excellence
MGM College	20,491	—	—	19,603	8,890	7,505
MGM College of Engineering, Nanded	23,728	10,568	3,091	25,944	7,880	7,505
MGM's College of CS & IT, Nanded	28,644	13,397				

### 6. Challenges Identified

The webometric analysis of the three major institutions in Nanded City—Swami Ramanand Teerth Marathwada University (SRTMU), Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIE&T), and MGM College & Affiliates—reveals that while significant strides have been made in terms of content generation and repository development, several challenges continue to limit their global digital reach and academic impact.



#### 1. Low Impact Scores (Limited Inbound Links)

All three institutions display moderate to low **Impact** scores in the Webometrics Ranking. Despite steady research output and accessible repositories, the number of external backlinks and citations remains insufficient. This indicates that the institutions' content is not well-connected within the global scholarly web, reducing their discoverability and reputational reach.

#### 2. Fragmented Repository Systems

The institutional repositories, especially in MGM's case, are often fragmented across different departments, colleges, or faculties. This fragmentation leads to duplication, inconsistent metadata standards, and diluted domain authority. Without a unified repository strategy, the collective web impact is weakened.



### 3. Insufficient Metadata and SEO Practices

Existing IRs often lack robust metadata standards (e.g., Dublin Core compliance) and optimized schemas for search engines. As a result, full-text theses, publications, and reports may not be effectively indexed by Google Scholar or other aggregators, limiting findability.

### 4. Limited Integration with Global Directories

Although some collections are linked to national portals like Shodhganga, there is minimal listing or promotion in global open-access directories such as OpenDOAR or ROAR. This restricts their reach to international researchers and institutions.

### 5. Awareness and Contribution Gaps

A significant challenge is the underutilization of IRs by faculty and students. Many potential contributors are unaware of repository policies or submission workflows, leading to lower deposit rates and underrepresentation of the institution's scholarly output.

### 6. Inadequate Link-Building and Outreach

There is a lack of strategic link-building efforts, such as collaborations, interlinking with faculty profiles, alumni networks, research project sites, and media coverage. This further limit the generation of inbound links that could boost the institutions' Impact scores.

### 7. Technical and Infrastructure Limitations

Some repositories still rely on basic OPACs or outdated platforms that lack features like persistent identifiers (DOIs), robust search functions, or analytics dashboards. This hampers user experience and reduces the likelihood of external citation.

### 8. Key Observations

- **SRTMU** is the only institution in Nanded with a functioning and publicly accessible **institutional repository**. It uses **DSpace** and hosts research outputs including doctoral theses and some faculty publications.
- The repository suffers from **low visibility and discoverability** due to limited SEO optimization, minimal backlinks, and lack of outreach.
- Other institutions such as **SGGSIE&T** and **MGM Nanded** do not currently host independent IRs, though faculty research may be published on **Shodhganga**, **UGC-CARE journals**, or individual Google Scholar profiles.
- **Metadata completeness and accessibility** are moderate, but full-text access is sometimes restricted to on-campus users.
- There is a **need for institutional training** on repository management and open-access publishing.

### 9. Recommendations

- **Improve visibility** through better metadata, sitemaps, and indexing in directories like OpenDOAR and ROAR.

- Encourage colleges under SRTMU and autonomous institutes to **create their own repositories** or collaborate regionally.
- Promote use of **persistent identifiers (DOIs, ORCID)** and integration with platforms like Shodhganga and NDL India.
- Increase **community outreach and awareness** among researchers, librarians, and students about using and contributing to IRs.

## 10. Conclusion

Nanded city, despite its academic potential, has limited adoption of institutional repositories at a web-visible level. While SRTMU provides a foundational IR, there is a strong scope for expansion, training, and network-building among affiliated colleges to promote open access and academic visibility.

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