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MANAGEMENT OF INSTITUTIONAL REPOSITORIES OF ACADEMIC AND RESEARCH INSTITUTIONS IN MAHARASHTRA: A LITERATURE REVIEW

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ABSTRACT
Institutional repositories (IRs) support open access, scholarly communication, institutional visibility and the long-term stewardship of digital research outputs. Their sustainability, however, depends on management arrangements that extend beyond the installation of repository software. This paper synthesizes literature on the development and management of IRs in academic and research institutions, with particular attention to Maharashtra, India. It presents a document-based review of studies and reports assembled in the supplied literature-review manuscript; no new field survey or statistical test was undertaken. The synthesis is organized around institutional governance, content and participation, technical infrastructure, metadata and interoperability, copyright and access, preservation, human resources, finance and evaluation. Across the reviewed work, recurring problems include fragmented or absent repository policies, inconsistent deposit practices, limited contributor awareness, inadequate training and staffing, uneven metadata quality, copyright uncertainty and the cost of long-term preservation. Indian studies demonstrate the prominent role of academic libraries and frequent use of open-source platforms, while Maharashtra-focused accounts highlight both established initiatives and continuing opportunities for institution-level comparison. The paper proposes an integrated, six-domain management-and-evaluation framework linking policy, collection development, technology, rights, preservation and organizational sustainability to measurable operational indicators. It argues that repositories should be governed as continuing scholarly services rather than one-time technical projects. The review identifies priorities for repository managers and a research agenda for comparative, evidence-based evaluations across universities, colleges and research institutions in Maharashtra.

KEYWORDS: Institutional repositories, Maharashtra, Academic Libraries, Open Access, Repository Management, Digital Preservation, Evaluation Framework.

1. INTRODUCTION

Institutional repositories are digital services through which an institution collects, describes, preserves and makes available its intellectual output. They may contain research articles, theses and dissertations, conference papers, reports, teaching resources, institutional records and other scholarly or grey literature. As a form of scholarly infrastructure, an IR supports discovery and dissemination while allowing the institution to manage a durable record of its academic activity. Crow (2002) and Lynch (2003) positioned IRs as an important component of changing scholarly-communication systems; Suber (2012) similarly situated repositories within the wider movement towards open access.

The value of a repository does not follow automatically from its technical deployment. The literature repeatedly treats policy design, stakeholder engagement, author participation, metadata standards, copyright clearance, trained personnel and preservation capacity as interconnected conditions of success. For example, Sutradhar (2006) distinguished the relative ease of establishing a repository from the greater difficulty of maintaining it. Nagra (2012) and Sawant (2012) reinforced the importance of institutional planning and management practice, while Wheatley (2004) emphasized the preservation implications of repository infrastructure.

These issues have particular relevance for higher education and research institutions in Maharashtra, where universities, affiliated and autonomous colleges and specialized research organizations vary in their mission, resources and technical capability. Studies from Pune and the wider Indian context document repository development and operational concerns (Bansode, 2011; Shewale, 2012; Tripathi & Jeevan, 2011). This paper examines what the literature collectively indicates about IR management and what remains to be investigated through systematic institutional evaluation in Maharashtra.

2. Objectives of the Review

The objectives are to (a) synthesize the principal management dimensions of institutional repositories reported in the literature (b) identify recurrent obstacles affecting content growth, access, quality and sustainability (c) examine the specific relevance of existing Indian and Maharashtra-focused studies (d) develop a practical framework of management domains and indicative criteria for future evaluation of academic and research repositories.

3. Review Methodology and Scope

The paper adopts a qualitative narrative-review approach using the uploaded literature-review manuscript as its documentary source. That manuscript discusses research articles, doctoral theses and dissertations, conference papers,

books, institutional reports and related materials, including works published through 2025. Its conclusion reports coverage of 196 items. For the present article, the descriptions of previous studies were read comparatively and synthesized into recurring topics: policy and governance; systems and infrastructure; content acquisition; rights and access; metadata and interoperability; preservation and security; human resources, funding and performance assessment.

The approach is thematic and interpretive rather than a reproducible systematic review or meta-analysis. The source manuscript does not provide a complete search strategy, database-by-database retrieval counts, screening flow, appraisal rubric or quantitative effect sizes; these have therefore not been invented. Likewise, percentages and sample sizes appearing in individual studies are treated as findings of those studies, not as estimates for Maharashtra. The proposed evaluation indicators presented below are analytical recommendations derived from repeated themes, not measurements of a new sample.

4. Thematic Synthesis of the Literature

4.1. Open access and the role of repositories

A principal justification for IRs is their capacity to make institutional research more visible and accessible. Crow (2002), Lynch (2003) and Suber (2012) describe their contribution to the dissemination of scholarship and the expansion of open access. The wider shift towards open science, including the UNESCO (2021) recommendation, underscores the policy value of access and knowledge sharing. At the same time, Björk (2004) identified structural barriers to open-access expansion, while Sheikh and Richardson (2023) emphasized the importance of library-led policy and advocacy in developing-country settings.

Taken together, this literature suggests that an IR should be judged not simply by the existence of an online platform, but by the accessibility, discoverability, legal availability and continued usability of its collections. Repository policies must specify whether full text is openly accessible, restricted to the institution or subject to an embargo, and must distinguish discoverable metadata from restricted files.

4.2. Governance, policy and institutional responsibility

A consistent theme is that clear governance precedes reliable operational practice. Repository rules are needed for eligible contributors, accepted document categories, metadata requirements, review and approval, withdrawal, retention, user rights and access. Roy et al. (2012), as discussed in the source review, treats content policy and self-archiving rules as foundations of collection development. Ramesh (2021) similarly argues that long-term sustainability requires institutional planning, administrative commitment and continuing resources, rather than a purely technological intervention.

The same governance challenge appears in studies of Indian institutions. Sawant (2012) identifies management questions in developed Indian repositories, and Jain (2020) calls for better alignment of repositories with collaboration and open-access policy. Clearly assigned responsibilities should link an institutional committee or designated authority with the library, repository manager, system administrator and academic departments. Management decisions should be documented and periodically reviewed, rather than remaining dependent on particular employees.

4.3. Infrastructure, software and technological decisions

Open-source repository applications, notably DSpace and EPrints, feature prominently in the studies reviewed. Sutradhar (2006) describes the practical work of developing a repository at IIT Kharagpur and shows why qualified technical support is needed for installation, authorization, submission workflows and upgrades. Shewale (2012) provides a Pune-based account of building a digital library with DSpace, while Tripathi and Jeevan (2011) examine Indian digital libraries and repositories comparatively. These studies suggest that software selection should be based on local content requirements, technical competency, interoperability, usability, hosting arrangements and ongoing maintenance capacity.

An effective technical assessment should also examine dependable hosting, storage expansion, uptime, service monitoring, upgrades, administrator access and recovery procedures. Lower acquisition cost does not remove expenditure on staffing, upgrades, backup or security. Infrastructure therefore needs an explicit lifecycle budget and service-management plan (Nagra, 2012; Ramesh, 2021).

4.4. Metadata quality, discoverability and interoperability

The literature treats metadata quality as central to a repository's practical value. Consistent author names, titles, dates, resource types, subjects, rights statements and persistent links improve discovery and reduce confusion. Mering (2019) highlights the need to correct inconsistent or incomplete metadata, while Habermann (2023) connects repository description with research identifiers and wider research-information ecosystems. The uploaded review also discusses Dublin Core, MARC-related approaches and OAI-PMH as instruments of interoperable discovery.

This evidence points to operational responsibilities: selecting a suitable metadata application profile, documenting cataloguing rules, checking submissions before publication, reviewing legacy records and testing interoperability. Where institutions hold material in Marathi, Hindi and English, language-aware description and searchable multilingual metadata are particularly relevant. These are management decisions as much as technical features, because they require standards, training and quality assurance.

4.5. Copyright, access and submission rights

Uncertainty about ownership, publisher permission and reuse conditions can inhibit deposits. Dryden (2008) stresses the practical importance of copyright assessment for online archival access, while the study by Mali and Deshmukh (2023) discusses the influence of copyright restrictions on repository participation. Creative Commons (2021) offers a set of licensing mechanisms, but a licence must not be assigned without the rights holder's authority. A repository therefore needs documented deposit agreements, checks on publisher or author permissions, embargo procedures and clear withdrawal processes.

Access policy should balance dissemination and lawful reuse. A complete metadata record may be made visible even when access to the underlying document is temporarily or permanently restricted, where appropriate and legally

permissible. Faculty-facing guidance on accepted versions of publications, consent, licensing and depositor responsibilities can reduce friction while strengthening the integrity of the repository.

4.6. Digital preservation, backup and security

Long-term access is not secured by uploading files alone. Wheatley (2004) described technological change as a persistent challenge for digital preservation, while Termens and Barrueco (2022) review preservation approaches for repositories. Strecker and Pampel (2023) draw attention to the continuity of repository infrastructure itself. The source review also identifies risks associated with corruption, obsolete formats, service interruption, weak backups and inadequate security planning.

Repositories should consequently adopt preservation responsibilities that cover documented file formats, multiple copies, recovery testing, integrity or fixity verification, access control, upgrade planning and documented incident response. Backup and preservation should be distinguished: backups support restoration after loss, whereas preservation also requires actions to maintain integrity and usability as technologies change. Operational evidence, such as backup logs and documented restoration tests, can make policies auditable.

4.7. Content acquisition, faculty participation and user services

A repository with limited or irregular deposits cannot fulfill its scholarly role, even when its software is technically sound. Kim (2007) documents factors that motivate or impede faculty contribution. Quinn (2023) discusses approaches to increase submissions, while Sankar and Kavitha (2018) examine perceptions among engineering faculty. These accounts support an approach that combines workable deposit procedures with communication, training, recognition and tailored assistance for researchers.

Collection development should define scholarly and institutional content categories, acceptable file formats, authority to submit and responsibility for review. Outreach through academic departments, faculty orientation, library websites and periodic training can increase awareness. User experience, accessibility and search quality should be monitored alongside deposit volumes, because access and impact depend on whether intended audiences can actually find and use materials.

4.8. Human resources, financing and service evaluation

Institutional repository work demands a blend of library, information-technology, legal and service competencies. Corrall and Afzal (2013) describe expanded research-support roles for academic libraries; Shukla and Mishra (2021) emphasize the contribution of librarians to Indian repository practice. The source review further identifies metadata creation, rights checking, curation, training, user support and technical administration as activities that require explicit role allocation. Staff development should therefore include both software-specific skills and policy, copyright and preservation knowledge.

Financial sustainability and evaluation are inseparable. A repository's operating cost includes hosting, staff time, software maintenance, storage, training, accessibility improvement and preservation. The Royal Society (2012) frames digital repositories as longer-term elements of open-science infrastructure. Kumah and Filson (2022) demonstrate the relevance of structured evaluation of academic IRs. Useful performance evidence includes deposit growth, completeness of descriptive records, user sessions and downloads, proportion of openly accessible content, system availability, training coverage and completion of preservation checks. Counts alone, however, should not be treated as measures of research quality or impact.

5. Maharashtra and the Indian Research Context

The Indian literature provides both general assessments and institution-specific cases. Bansode (2011) documents the University of Pune's repository initiative and the role of library professionals; Shewale (2012) reports on DSpace-based digital-library development in Pune. Sawant (2012) examines management in Indian institutional repositories, and Tripathi and Jeevan (2011) provide a broader comparative perspective. These studies establish that repository management in the region has a substantive historical and practical base, rather than being an entirely new activity.

The supplied review also cites Shinde and Kulkarni (2023, 2024) on institutional repositories in Maharashtra, including an evaluative doctoral study. Thus, the research gap cannot accurately be described as a complete absence of Maharashtra-specific work. A more precise need is for comparable and transparent evaluation across different categories of organizations and across managerial dimensions. Future inquiry could ask how college, university and research-institute repositories differ in documented policy, the skills of responsible personnel, sustainable funding, rights handling, technical resilience, multilingual metadata and service use. This would test whether patterns described in individual cases extend more broadly across the state.

6. Proposed Management and Evaluation Framework

Drawing together the recurring themes, this paper proposes six linked domains for the planning, operation and assessment of institutional repositories. The framework is a synthesis for subsequent testing and adaptation, not a validated maturity model. Each domain requires both formal policy and observable operational evidence.

Management domain	Evidence synthesized from literature	Illustrative evaluation indicators
Governance and policy	Leadership, written policy, stakeholder roles, scope, deposit and withdrawal decisions	Approved policy; named committee/manager; review schedule; documented workflows
Content and engagement	Eligible collections, submission rules, faculty participation, outreach and user support	Deposit growth; contributor participation; content diversity; outreach activities
Technology and discovery	Software, hosting, metadata standards, identifiers, search, accessibility and interoperability	Uptime; upgrade log; metadata completeness; OAI-PMH or other discovery checks

Management domain	Evidence synthesized from literature	Illustrative evaluation indicators
Rights and access	Copyright clearance, depositor agreements, reuse licences and embargo management	Rights statement coverage; recorded permissions; access/embargo audit trail
Preservation and security	Retention, backup, integrity checking, format monitoring and recovery planning	Verified backups; restoration tests; fixity-check record; incident response plan
Resources and evaluation	Funding, workforce skills, service quality, usage monitoring and continuous improvement	Recurring budget; training record; annual KPI report; user feedback and corrective actions

A phased implementation sequence follows from this framework: initiate institutional approval and ownership; plan policy, content scope, staffing and funds; implement software, metadata and deposit workflows; then operate, review and improve. The same dimensions can underpin a baseline assessment and subsequent annual reviews. Indicators should be adapted to institutional size and mission; a small college repository and a major research-institute repository may require different performance thresholds.

7. Discussion and Research Gaps

The literature converges on a management-centred explanation of repository sustainability: technology enables the service, but policy, people, content, preservation and institutional commitment determine its continuity. Problems are mutually reinforcing. A technically capable platform may attract few submissions when faculty are uncertain about copyright, and a well-populated repository may lose value when metadata quality, accessibility or long-term preservation is weak. A useful evaluation therefore examines relationships between management practices rather than compiling a software inventory alone.

Four gaps stand out for future research in Maharashtra. First, institution types should be compared using consistently defined measures instead of relying solely on isolated case studies. Second, the presence of a policy should be distinguished from implementation evidence and routine review. Third, the association between staffing, training and repository performance needs investigation using operational indicators rather than assumed causal effects. Fourth, evidence is needed on the resilience of preservation arrangements, the usability of multilingual discovery and the relationship between outreach, deposits and actual scholarly use. A mixed-method design combining repository observation, document review, interviews and structured questionnaires could address these issues, provided that sampling, instrument validity and analysis methods are reported transparently.

8. Recommendations for Institutional Practice

Academic and research institutions should treat their IR as a continuing institutional service with a designated authority, an approved policy and recurring operational support. A single integrated policy can specify accepted content, depositor rights, access levels, metadata requirements, preservation responsibilities, withdrawal conditions and review cycles. Before expansion, repositories should audit their current software and hosting architecture and document the resources needed for security, preservation and service maintenance.

Libraries should coordinate with academic departments, IT staff and institutional leadership rather than bearing all technical and legal responsibilities alone. Staff training should cover metadata, rights clearance, administration, digital preservation, accessibility and user assistance. Institutions should simplify faculty deposit through clear guidance and assisted submission, establish quality checks for every item and use persistent links and interoperable metadata to improve discoverability. Open access should be promoted within the bounds of applicable rights and embargo obligations.

Finally, each repository should maintain a small, meaningful performance dashboard and publish a periodic internal review of content, accessibility, service reliability and preservation activity. Shared training resources and practical collaboration among Maharashtra institutions may be particularly useful where specialist expertise and funding are limited. These recommendations follow from the literature synthesis and require local feasibility testing before adoption as a uniform statewide standard.

9. LIMITATIONS

This article is based on the uploaded review manuscript and selected references as described within it. Primary sources, citation metadata and publication details have not been independently verified in this preparation. The manuscript reports the number of publications reviewed but does not specify a reproducible search and screening procedure; consequently, claims of systematic coverage, pooled prevalence or statistical generalization would be inappropriate. The framework and suggested indicators are conceptual and require empirical validation. Some references in the supplied document have incomplete bibliographic details and should be checked against publisher records before journal submission.

10. CONCLUSION

The literature establishes institutional repositories as important infrastructure for open access, institutional memory and the dissemination of scholarly work. It equally establishes that sustainable outcomes depend on much more than the choice of software. Governance, content-development arrangements, lawful access, metadata quality, preservation, staff capacity, funding and continuous evaluation form an interconnected management system. Evidence from India and Maharashtra illustrates both experience in repository development and continuing diversity in local practice. The six-domain framework offered here provides a practical organizing structure for future policy reviews and comparative evaluation. Its central implication is that academic and research institutions should manage their repositories as long-term, measurable and collaborative scholarly services.

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