



TOWARDS AN INSTITUTIONAL REPOSITORY FOR ALIAH UNIVERSITY: PROPOSED PHASE-WISE IMPLEMENTATION FRAMEWORK

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Abstract: Institutional repositories (IRs) are digital collections designed to manage, preserve, and provide public access to an institution's scholarly output. For Indian universities, IRs play a critical role in preserving institutional memory, enhancing visibility, and ensuring compliance with legal requirements, including participation in national initiatives such as INFLIBNET and Shodhganga. This paper proposes a comprehensive framework for the development and implementation of an institutional repository at Aliah University. The study outlines the objectives, scope, types of collections, metadata and technical considerations, policy elements, stakeholder engagement strategies, and a phased implementation roadmap.

Index Terms - Institutional repository, Aliah University, Open Access, Shodhganga, DSpace, Digital library

I. INTRODUCTION

An institutional repository (IR) has become a cornerstone of the digital infrastructure of modern universities, which is defined as a set of services that a university offers to its members to capture, preserve, and disseminate the digital materials that the institution and its members create (Lynch, 2003). IRs around the globe facilitate open access to research output and scholarly works, increasing visibility of research, determining academic assessment, and ensuring long-term preservation of institutional intellectual output (Crow, 2002; Lynch, 2003). Another aspect is participation in national repositories and initiatives, such as depositing theses to Shodhganga, which is a policy and compliance consideration for Indian universities and a way to satisfy the expectations of UGC/INFLIBNET on ETD submission and open access (INFLIBNET; Shodhganga guidance). This paper provides a context-specific IR framework for Aliah University, located in Kolkata, that has multiple campuses.

II. AIM, OBJECTIVES AND SCOPE

2.1 Aim

Develop a feasible, sustainable institutional repository framework for Aliah University that aligns with national open-access initiatives while archiving, distributing, and enhancing the scholarly and institutional output of the university.

2.2 Objectives

- i. Analyze the international and national literature on institutional repositories and open access to frame a context-relevant approach
- ii. Map library and digital resources at Aliah University to determine immediate content and integration points.
- iii. Recommend technical and organizational architecture (software, metadata, preservation strategies) suitable for Aliah University.
- iv. Identify kinds of collections to include and identify a phased ingest plan.
- v. Develop governance, policy, and outreach strategies to promote adoption and ensure long-term sustainability.

2.3 Scope

It includes technical and policy repository design, proposed metadata and metadata workflows, initial content priorities (e.g., teaching materials, faculty publications, university reports, ETDs, and digitized manuscripts) and an 18–24-month implementation roadmap.

III. LITERATURE REVIEW

3.1 Foundational IR literature

Lynch (2003) asserts that IRs provide preservation, access, and stewardship services that are now being viewed as part of the university role in the digital age. Crow (2002) provides a strategic argument for IRs as a fix for issues in the traditional scholarly communication environment related to institutional ownership and control of intellectual property and the ability to amplify research results and their impact.

3.2 IR practice and national initiatives (India)

The Shodhganga repository, a service of the INFLIBNET, is the national ETD repository and forms a critical aspect of ETD submission policies in Indian universities; UGC/INFLIBNET guidelines encourage universities to participate in Shodhganga and to develop local IRs that complement the national service (Shodhganga Guidelines). Institutional case studies illustrate the benefits of university IRs.

3.3 IR practice and national initiatives (India)

There are many IR platforms readily available such as DSpace, EPrints, and Fedora-based systems, which are used commonly in India; among them, DSpace is particularly popular as this support OAI-PMH harvesting, handles persistent identifiers through Handle/DOI services, and integrates with discovery layers and national repositories. Also supports Dublin Core metadata, which is often supplemented with discipline-specific elements; best practices for maximising discoverability and disambiguation include the use of controlled vocabularies and ORCID integration for authors.

3.4 Barriers & enablers

Barriers include copyright and publisher embargoes, faculty resistance to deposit, lack of staff or time, and funding for preservation; enablers include strong university leadership, mandates or reward structures, automated ingest workflows, and alignment with promotion/assessment criteria. Evidence suggests that the highest adoption rates result from phased implementation (pilot → scale) with a focus on services and advocacy.

IV. METHODOLOGY

The approach taken in this study is a mixed-methods desk-based approach:

- i.Documentary analysis: To identify current resources, services, and institutional context, official sources at Aliah University are examined.
- ii.Literature review: A literature review of Indian-specific IR guidelines (INFLIBNET/Shodhganga) and foundational IR literature (including technical documentation and recent case studies for DSpace and related ecosystems) is synthesized.
- iii.Best-practice synthesis: the integration of global best practices into a model customized for the size, personnel, and multi-campus configuration of Aliah University.

No primary interviews or surveys for this proposal (recommended for a follow-up implementation phase). The methodology is designed for feasibility, national repositories, and minimal overhead for a smaller-to-medium university library system.

V. SITUATIONAL ANALYSIS: ALIAH UNIVERSITY LIBRARY & RESOURCES

Aliah University has a multi-campus library system (New Town, Park Circus, Taltala) with discipline-specific collections; the central library web pages reflect services such as lending, OPAC, and links to Open Access resources and Shodhganga coordination. The University publishes annual reports that include institutional metrics and institutional priorities that may inform repository metrics and target collections

VI. TYPES OF COLLECTIONS

An effective IR gives a structured, discoverable home to various types of scholarly and institutional content. For Aliah University, the main collection types are:

- i.Electronic Theses and Dissertations (ETDs): Electronic Theses and Dissertations (ETDs) required to deposit to Shodhganga (a service that is mandatory for Indian universities) and the local IR must ingest and expose the ETDs and sync with the national systems.
- ii.Faculty peer-reviewed articles and preprints: Faculty peer-reviewed articles and preprints self-archived copies (preprints or author-accepted manuscripts) to increase visibility.
- iii.Conference papers, presentations, posters: Conference papers, presentations, posters especially from university-hosted events especially from university-hosted events.
- iv.University publications: University publications — annual reports, newsletters, policy documents, syllabi, statistical tables and strategic plans.
- v.Grey literature — working papers, technical reports, consultancy outputs.
- vi.Teaching and learning materials — Grey literature — working papers, technical reports, consultancy outputs.vi. Teaching and learning materials — lecture notes, recorded lectures
- vii.Digitised special collections and manuscripts — Heritage Taltala campus holds older collections, including Islamic theological works; digitisation may be preserved subject to rights clearance and planning for preservation.
- viii.Multimedia — audio/video of seminars, events, recorded guest lectures (with permissions).

At first the start with faculty papers, university reports and bulletins, and then ETDs. This ensures compliance and visibility while maintaining manageable ingest procedures.

VII. PROPOSED IR FRAMEWORK

A schematic framework is given below as figure 1, where governance and policy define mandates; and the library IR team administers the workflows; the content producers will deposit or library-assisted ingest occurs in IR after that; the metadata and preservation services ensure the discoverability and long-term access; technical stack (DSpace-like) provides storage, OAI-PMH for harvesting, SWORD for batch ingest; integrations include Shodhganga/INFLIBNET, OPAC and discovery systems; analytics feed dashboards and annual reporting.

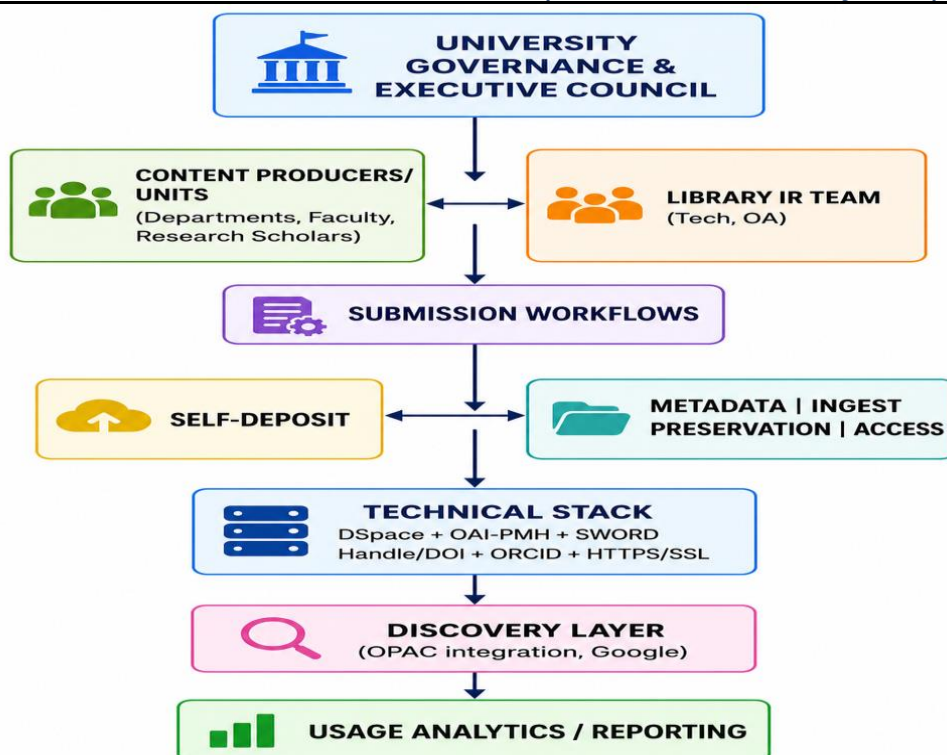


Figure 1. Institutional Repository Framework for Aliah University (Schematic).

VIII. TECHNICAL ARCHITECTURE & METADATA

8.1 Recommended software stack

- i. Repository platform: DSpace latest stable version widely used, active community, proven Indian deployments (INFLIBNET, many universities). DSpace supports OAI-PMH harvesting, Handle/Digital Object Identifiers (via integration), SWORD protocol for batch deposits, and flexible metadata schemas.
- ii. Discovery layer: integrated with university OPAC and site search; optionally use a discovery interface like DSpace-CRIS, Apache Solr or an external Angular/React front-end for improved UX.
- iii. Persistent identifiers: Persistent identifiers: Handle system (native to DSpace) and/or DOI assignment for significant items.
- iv. Authentication: Authentication Single sign-on (SSO) via the university's identity provider (LDAP/Shibboleth/CAS) for deposit workflows and restricted-content access. Single sign-on (SSO) via the university's identity provider.
- v. Backups & preservation: Backups & preservation: Implement replication, regular backups, fixity checking (checksums), and a preservation policy; consider LOCKSS or integration with national preservation services where feasible.

8.2 Metadata Schema

- i. Dublin Core (DC): required for interoperability (OAI-PMH).
- ii. Extensions: Qualified DC for richer semantics; discipline-specific fields as needed (e.g., thesis supervisor, grant ID, ORCID)
- iii. Identifiers: ORCID for authors, institutional IDs, grant IDs, Handle/DOI for items.
- iv. Rights metadata: Clear licensing (Creative Commons standard options), embargo metadata, and rights statements.

Metadata quality is important; the library should give metadata guidelines and mandatory fields for deposit (title, authors, affiliation, date, abstract, keywords, resource type, license, embargo information).

IX. POLICIES AND GOVERNANCE

Policies for a repository should be clearly defined in writing; these are some recommended policy elements such as:

- i. **Mission statement:** the purpose and scope of the IR.
- ii. **Content policy:** what items are accepted, what file formats are acceptable, what are deposit rights, and what are the provenance rules.
- iii. **Submission policy:** who may deposit, whether the deposit is mandatory for ETDs/faculty publications, and whether there are mediated deposit options.
- iv. **Copyright & licensing policy:** recommended adoption of author-accepted manuscript deposits and CC licenses where possible, guidance on publisher policies and embargo handling.
- v. **Preservation policy:** retention, backup frequency, format migration plans, and fixity checks.
- vi. **Access policy:** open vs restricted access, handling sensitive data, takedown procedures.
- vii. **Retention & deletion policy:** conditions under which items may be removed or replaced.
- viii. **Governance:** IR advisory committee (Library Director, Deans, Research Office, IT, Legal counsel).

X. DEPOSIT WORKFLOWS & INCENTIVES

10.1 Workflows

The figure 2 below demonstrate repository workflow, at first an authentication of the user is done then followed by the different way of the mechanism by which the documents can be deposited to the institutional repository system. Once this process is completed, review and approval have to be carried out before publishing the content into the repository for open access.

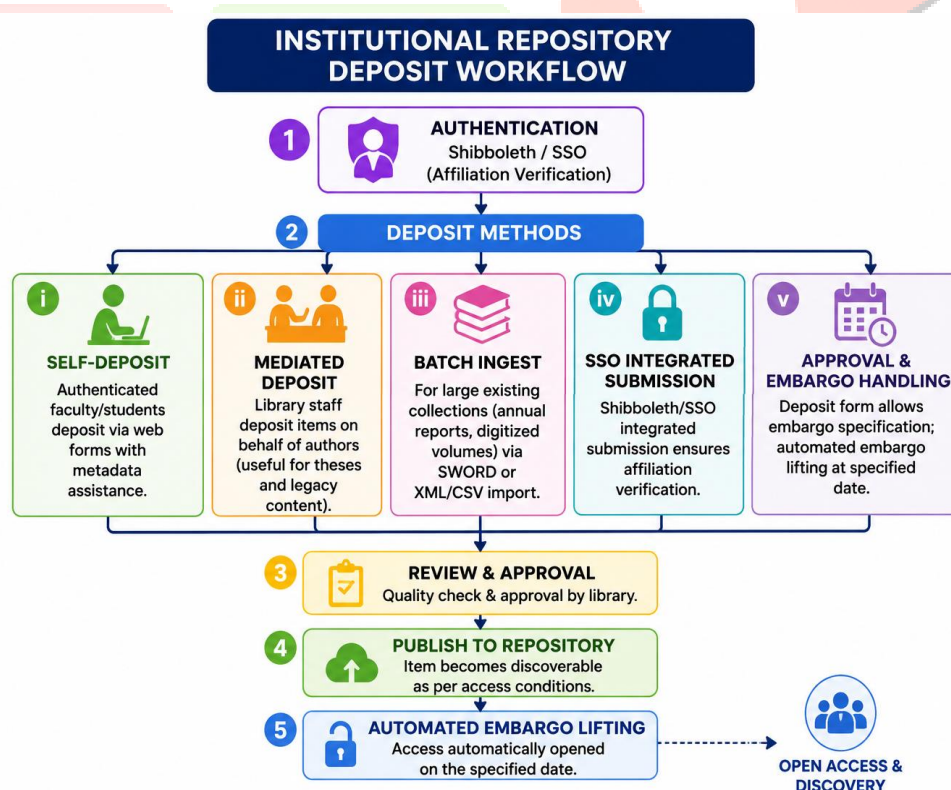


Figure 2 shows the schematic diagram of the institutional repository workflow

10.2 Incentives and advocacy

- i. Mandates: require deposit for ETDs and encourage faculty deposits for promotion criteria.
- ii. Visibility metrics: provide usage statistics and download counts to authors.
- iii. Integration with evaluation: liaise with the University Research Cell (URP) to include repository deposit as part of research reporting and performance metrics.
- iv. Outreach: workshops, faculty meetings, and one-on-one support to demystify copyright and deposition.

XI. BENEFITS TO ALIAH UNIVERSITY

- i. Increased visibility and citation impact: open access items in the IR improve discoverability in search engines and aggregators.
- ii. Compliance with national mandates: ETD deposition into Shodhganga and institutional record-keeping.
- iii. Long-term preservation and institutional memory: safeguarding theses, reports, and unique collections.
- iv. Improved research assessment and analytics — usage statistics and institutional dashboards aid planning and reporting (e.g., for NAAC/NIRF). Procure Annual Reporting
- v. Enhanced student and faculty services: easy access to theses, teaching resources, and historical documents.
- vi. Open educational practices and community engagement: OERs and public-facing outputs increase community impact.

XII. CHALLENGES

- i. Copyright and publisher policies: the publisher's policy and copyright issues need to be checked before deposit final published versions.
- ii. Faculty reluctance/ Lack of staff: lack of awareness or extra workload to research fraternity and staff will overburden them.
- iii. Resource limitations: this includes adept staff budgeting, storage and definitely the technical expertise.
- iv. Metadata quality and legacy content: due to lack of training for non-professional there would be a inconsistent or missing metadata for historical materials.
- v. Sustainability: lack of budget allocation to Aliah library will affect the preservation infrastructure.

XIII. IMPLEMENTATION ROADMAP

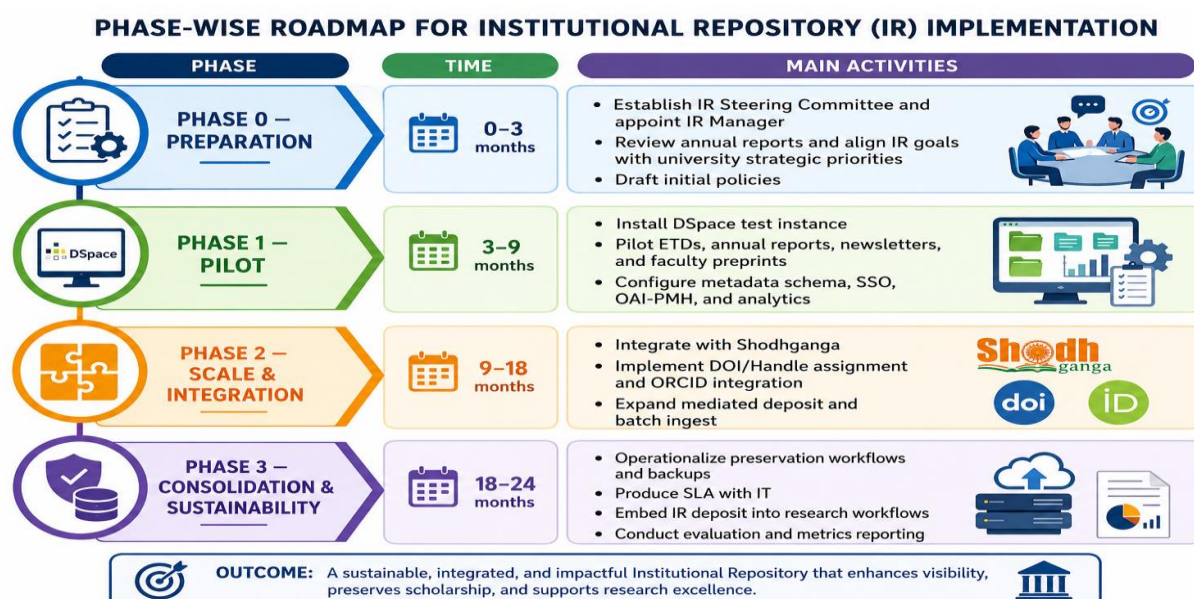


Figure 3: Roadmap of the Institutional Repository (IR) implementation

XIV. MONITORING AND EVALUATION

Key Performance Indicators (KPIs) should include:

- i. Number of items deposited (by type) per quarter.
- ii. Number of unique downloads/views per item.
- iii. Number of ETDs uploaded and successfully linked to Shodhganga.
- iv. Time-to-deposit (average person-hours per item for mediated deposits).
- v. Metadata completeness rate (percentage of records meeting mandatory metadata fields).
- vi. System uptime and backup verification.

XV. LEGAL AND ETHICAL CONSIDERATIONS

- i. Copyright: Develop clear guidance on author rights; encourage use of author addenda and self-archiving policies. Use embargo fields and restricted access where necessary.
- ii. Data protection: Research data must be vetted for personally identifiable information and ethics approvals; restricted access or metadata-only records may be used.
- iii. Cultural sensitivity: Digitized manuscripts, heritage materials and religious texts must be handled with sensitivity and community consultation where appropriate.

XVI. COST AND RESOURCE ESTIMATION

This includes the following major categories:

- i. Hardware & hosting — servers or cloud storage; estimate depends on retention and media types. Initially start with 1 terabyte is sufficient for scaling the work.
- ii. Software: Space is open-source; customisation and support costs apply.
- iii. Staffing: The staff must know the digital library and institutional repository and metadata in addition to occasional digitization contractors.
- iv. Training & outreach: Frequent workshops and promotional materials, training to staff to adapt to the new technology.
- v. Preservation & backups: requires offsite backups, storage costs, and monitoring.

XVII. CONCLUSION

Adopting the Institutional Repository is a strategic investment for Aliah University as it enhances the research visibility of researchers, preserves institutional memory in the long run, and fulfils compliance with national repositories like Shodhganga. The recommended framework and phased plan approach will facilitate the implementation of the IR in university. DSpace gains a lot in meeting the medium-term objectives and long-term sustainability, that is preservation and metrics integration. The successful implementation needs leadership support, dedicated resources, clear policies, and sustained outreach to Aliah University researchers.

XVIII. ACKNOWLEDGMENT

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