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DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service

LNB NATIONAL LIBRARY OF LATVIA

Mentorship program within the framework of the project "EU4Dialogue: improving exchanges across the divide through education and culture"

Digitization Guideline for Azerbaijan Universities

This guideline has been prepared within the framework of the project "EU4Dialogue: improving exchanges across the divide through education and culture" organized by National Library of Latvia. The purpose of the document is to prepare guidelines for the long-term preservation of academic and digital heritage of Azerbaijan universities. The main audience of this guideline are university libraries.

Mentor:

Arturs Zogla
Head of Digital Development
National Library of Latvia

Author:

Iltifat Ibrahimov
Senior consultant for digitization and library technologies
Azerbaijan Technical University

Contact Information:

Email: iltifat.ibrahimov@gmail.com

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2. Introduction

1.1. Purpose and objectives

The purpose of the document is to promote the standardization of digitalization of scientific and cultural heritage at Azerbaijan Universities. Currently, there are not any guidelines created based on local experience and law. There are a few digital repositories which collect scientific and cultural heritage of a university, however, libraries the owners of the repositories suffer from a guideline to cite and understand the digitization process. This guideline has been prepared in English and Azerbaijani and both versions will always be available in the digital repository of Azerbaijan Technical University under CC BY 4.0 Attribution 4.0 International Creative Commons license.

1.2. Terms and Abbreviations

Term & Abbreviation	Explanation
ADF	Automatic Document Feeder
ALA	American Library Association
AzTU	Azerbaijan Technical University
BASE	Bielefeld Academic Search Engine
CC	Creative Commons
COAR	Confederation of Open Access Repositories
DC	Dublin Core
DOAJ	Directory of Open Access Journals
DOI	Digital Object Identifier
DPI	Dots Per Inch
DRS	Digital Repository System
FADGI	Federal Agencies Digitization Guidelines Initiative
HCR	Handprint Character Recognition

LC	Library of Congress
LDAP	Lightweight Directory Access Protocol
NLL	National Library of Latvia
NOAD	National Open Access Desk
OAI-PMH	Open Access Initiative Protocol for Metadata Harvesting
OATD	Open Access Theses and Dissertations
OCR	Optical Character Recognition
OpenDOAR	Directory of Open Access Repositories
PID	Persistent Identifiers
PPM	Page-per-Minute
re3data	Registry of Research Data Repositories
ROAR	Registry of Open Access Repositories
SSO	Single sign-on

1.3. Guidelines Methodology

These guidelines have been prepared based on national and international legislations, OpenAIRE Guidelines, National Library of Latvia's experience, international standards and best practices in the field of digitalization and long-term preservation of scientific and cultural heritage.

2. Stages of Digitization

2.1. Defining Scope of the Project

In Azerbaijan, the digitization process is mainly done by the libraries of the universities. Currently there is not a private company who can support as an outsourcing company to the digitization project. From the viewpoint of a university, digitization process requires involvement of few departments, technologies and financial resources. To make the right decisions in this involvement, defining the scope of the project is crucial.

Before starting the project, research should be conducted to find similar projects that have already been implemented. Such research allows us to identify potential problems that others have encountered and what solutions have been applied. This kind of research helps determine the weight of work done and resources that must be planned for the implementation of the project, whether the university already has personnel with skills that are required for the implementation of the project, whether there is an appropriate technological infrastructure, or the purchase of new technologies are still necessary. Being aware of similar digitization projects helps to provide the questions to define the scope of the project:

1. What is the purpose of the project and goals are expected?
2. What are the formats of the digitized materials? (Photo, book, journal, theses etc.,)
3. What are the numbers of the materials?
4. Does the university have a scanner that meets the format requirements of resources?
5. Will the digitized materials be kept only for long term preservation or be kept for long term preservation and be made accessible online?
6. If the answer to the 3rd question is Both:
    a. Can the university provide enough storage for long term preservation and copy for online distribution?
    b. What metadata standard will be used?
    c. Which digital repository system (DRS) will be used? Commercial or open-source code?
7. Can the university provide human resources?
    a. Dedicated IT engineer to manage the system (in the case of open-source code)
    b. Metadata specialist
    c. Copyright and policy specialist
8. What international standards to assure and assess quality?
9. What validation methods and tools will be used?
10. What kind of risks and constraints such as budget limitations, technological limitations, or time restrictions can be encountered?
11. Which marketing strategy will be followed, and support provided to promote the output of the project?

These questions should be answered almost in all library digitization projects. The scope questions involve all stages of the project. Answering the questions signifies that the library is ready, and the probability of successful output is high.

2.2. Roles and Responsibilities

Successful implementation requires the involvement of skillful human resources. In digitization process library and information center, information technology office and institutional archive departments are the main stakeholders. Before establishing the project group, the roles and responsibilities must be stated clearly.

1. **Project Manager:**

   Role: Oversees the entire project.

   Responsibilities:

   - Develop and manage the project plan.
   - Coordinate activities and resources.
   - Monitor progress and ensure timelines and milestones are met.
   - Communicate with team members, stakeholders and manage expectations.
   - Handle issues and risks as they arise.

2. **IT Team Support:**

   Role: Technical support and system implementation.

   Responsibilities:

   - Set up and maintain the necessary digital infrastructure and equipment: scanner, editor software, storage.
   - Provide technical support for implementation of digital repository system.
   - Ensure data security and integrity.
   - Develop and maintain a digital repository.
   - Implement data backup and recovery procedures.
   - Integrate digital repository system with existing library system and search engine.

3. **Digitization Specialist:**

   Role: Execute the digitization process.

   Responsibilities:

- Scan and digitize physical documents.
- Edit and quality control of digitized documents.
- Ensure proper handling and preservation of original materials.
- Tag, name and categorize digital files appropriately.

4. **Library Staff:**

   Role: Support digitization efforts and manage physical collections.

   Responsibilities:

   - Identify and prioritize materials for digitization.
   - Ensure proper metadata standards and practices.
   - Provide expertise in cataloging and metadata.
   - Validate the accuracy and relevance of digitized content.
   - Support users in accessing and utilizing digitized materials.
   - Develop training materials and conduct training sessions for staff and faculty.
   - Gather and escalate user feedback for the necessary adjustments.

5. **Administrative Staff:**

   Role: Support project generally.

   Responsibilities:

   - Assist with scheduling and coordination of meetings.
   - Manage project-related communications.
   - Support project for marketing and promotion of the project.
   - Involve faculty and researchers to use and contribute to the project.

2.3. Types of Digital Objects

This guideline is prepared for the university digitalization projects. The following digital object types are prepared based on the exploration of current digital repositories of Azerbaijan universities:

Types of text documents:

- Dissertation
- Thesis
- Article
- Journal
- Book
- Textbook
- Project
- Newsletter
- Conference proceedings
- Tutorial
- Manual
- Training materials
- Book chapter
- Guideline
- Report

Types of video resources:

- CD
- DVD
- VHS tapes

Types of audio resources:

- Audiocassettes
- Microcassettes
- CD, DVD
- Magnetic tapes

Types of Image resources:

- Image
- Drawings
- Paintings
- Postcards
- Posters
- Graphics
- Plans

Types of digitally generated objects:

- Digital text documents (electronic documents, e-books, e-editions) (.csv, .html, .odf, .pdf, other Microsoft formats);
- Digital images (.dng, .jpeg, .jp2, .png, .tiff);
- Digital video documents (DPX, JPEG2000, MPEG-4);
- Digital audio documents (AIFF, BWF, FLAC, MPEG-4, WAV, MP3);
- Social media and official publications - WEB (HTML web pages);
- Digital multimedia: digital art, computer games, digital animations;
- Emails, messaging platform correspondence;
- Datasets;
- Software.

2.4. Standards in Digitization

Why should a digitization project follow or use standards? A digitization project should follow or use standards for several important reasons:

1. **Interoperability**: Standards ensure that digitized content can be used across different systems and platforms without compatibility issues. Standards facilitate the integration of digitized content with other systems, making data sharing and collaboration easier. One of the main requirements of post-digitization process is indexing the digital repository in different international directories. The directories exchange or harvest data from repositories by Open Access Initiative Protocol for Metadata Harvesting (OAI-PMH) protocol and so the preserved data should be in standardized format to be harvested.

2. **Preservation**: Using standards helps ensure that digital content remains accessible and usable over the long term, regardless of changes in technology.

3. **Quality Assurance**: Standards help maintain high-quality digitization processes, ensuring that the digital copies are accurate representations of the original materials.

4. **Cost Efficiency**: Following standards streamline workflows, reduce the need for rework and corrections, save time and resources, make the digitization process more efficient and reduce operational costs.

5. **Legal and Ethical Compliance**: Standards can help ensure that digitization projects respect copyright and intellectual property laws, promote the creation of accessible digital content, which is important for the legal requirements and serving all users, including those with disabilities.

6. **Discoverability and Usability**: Application of metadata standards enhances the discoverability and usability of digital content and makes it easier for users to find and use digitized content through search engines and databases.

7. **Reputation**: Standards enhance the credibility of the digitization project and the institution behind it.

In the literature different digitization standards are available. In this guideline, Federal Agencies Digitization Guidelines Initiative (FADGI), American Library Association (ALA), Library of Congress (LC), National Library of Latvia (NLL) standards will be referred.

2.5. Copyright

In every library digitization or archiving project, consideration of copyright occurs in different stages of the project. In this guideline, as the main legislation laws of the Republic of Azerbaijan on provision of copyright and related rights and intellectual property rights and Creative Commons are referred. Article IV of the Code of Ethics of the American Library Association states that librarians "respect intellectual property rights and advocate balance between the interests of information users and rights holders."

As a legal framework, agreements between a university library and the authors of a university firstly must be based on the current legislation of the Law of the Republic of Azerbaijan on Copyright and Related Rights (as amended up to Law No. 636-IVQD of April 30, 2013), and on the other hand, taking Open Access initiatives into consideration Creative Commons (CC) licensing is recommended. Any legal issues should be resolved in accordance with the current national legislation and international license.

Understanding copyright within the context of institutional repository is essential for institutions to ensure they are in comply with legal standards and to protect the rights of authors, institutions and granting permission to the resources for public use. The recommended points to prepare agreement or submission form between university/library and authors are as follows:

1. **Author rights**. Mainly, authors retain the copyright of their academic output, however, authors are required to grant university permission to archive, preserve for long term, and disseminate through web interface of institutional repository. The university should provide the license information based on the copyright agreement on the web interface of IR's once the resource is available online.

2. **University rights**. University/library should try to make the resources available online based on open access license such as Creative Commons. To achieve the permission, university or library should prepare an agreement form and ask authors to have the right to share. It's recommended that agreement forms should also contain some information about OA initiatives and their benefits.

3. **University duties**. Before submitting the agreement to authors, a member of the library staff must inform authors that the submitted material will be indexed in IR's and will be shared with international repository directories. If the author already published the resource in any journal or publication platform, the author must inform the platform owners about the submission of the resource to IR's. According to the agreement between the author and publishing platform, access to the resource in IR's can be restricted, however, only metadata can be available, and availability of metadata must be informed to the publishing platform.

4. **Licensing**. One of the purposes of digitization is changing the print information to electronic format and facilitate the usage of the information. Before making available online the resource the license should be considered. In this manual, types of digital objects which are prepared based on current IRs of Azerbaijan universities have been listed. In global experience, IR's managers prefer to apply for open access licensing. In this direction the most used license is Creative Commons. There are six different license options and a special license which Is called Public Domain Dedication (CC0) on CC web site. A resource with CC0 can be enables users to use the resource without any condition and copyright restriction. To get more information about CC licenses, please check the following link: https://creativecommons.org/share-your-work/cclicenses. In addition, there is license chooser enables authors or resource owners to select appropriate license option based on question combinations. The license chooser is available in the following link: https://chooser-beta.creativecommons.org .

6. **Embargoes and Access Restrictions**. Libraries should be inclined to collect and preserve the academic heritage of university. There are some works that have embargo period based on the agreement between the affiliated author and publisher. In this case the embargo period should be mentioned on the agreement form of the university and the resource should be made available after embargo period. In some cases, access to specific resources might be restricted due to sensitive or commercial content. In this case, access for the resource should be restricted but metadata of the resource and request form for the private resource can be made available.

2.6. Technology and Editors

The main technologies for a digitization project are a scanner and web editors. The size and features of a scanner are selected based on the project requirements such as size of documents, type and format of materials. In this guiding document the main features are listed below to ensure high-quality digital copies at the end of any digitization project.

1. **Resolution (DPI – Dots Per Inch)**. Considering resolution is crucial for the success of a project. For photo and image scanning high DPI is necessary and recommended DPI is 600 and higher. For text documents 300 DPI is sufficient.
2. **Color Depth**. In any digitization project the original version of an image is kept for archiving and reproduced versions are used for online dissemination. Higher color depth allows more quality reproductions.
3. **Speed**. High speed of a scanner become essential especially for large volume resources. Speed of a scanner is calculated based on page-per-minute (PPM). The recommended scanner speed for digitization project is 20 PPM.
4. **Duplex Scanning**. In digitization of the rare books manual intervention should be reduced. In addition, in digitization of simultaneous scanning of double-sided documents duplex scanning feature is important in terms of time consuming.
5. **Automatic Document Feeder (ADF)**. This feature is necessary to digitize without manual feeding. In terms of time and human resource project managers prefer bulk scanning of for documents. The recommended number of ADF is 50 sheets and more.
6. **Connectivity**. The expected connection options of a scanner are USB, Wi-Fi, and Ethernet.
7. **File Format**. The project scanner should save and export files in various formats. At least JPG, PDF, Searchable PDF, Word, Excel, TIFF formats should be supported by the scanner.

8. **Character Recognition**. This feature is not considered common scanners. However, character recognition feature is a mandatory functionality for digitization projects. There are some characters recognition features such as Optical Character Recognition (OCR) and Handprint Character Recognition (HCR). According to Federal Agencies Digital Guidelines Initiative (FADGI) definitions, OCR is "Optical Character Recognition is a technology that allows dots or pixels representing machine generated characters in a raster image to be converted into digitally coded text". HCR's definition is "is a process that converts handwriting or lettering into machine generated characters".
9. **Maintenance and Sustainability**. In the selection of a scanner, availability of local customer support and replacement parts factors should be considered.

The features mentioned above are needed to scan, however, there are post scan procedures such as remove black pages, hole punch marks, detect staples for professional quality digitized resources. Post scan procedures are being done by the software of the scanner or editor software. The editor software or scanner software should support following features:

1. OCR: Converts scanned documents into editable and searchable PDFs.
2. PDF Editing: Edit text and images within PDFs, rearrange pages, and add annotations.
3. Document Merging: Combine multiple PDFs or different file types into a single PDF.
4. Redaction Tools: Permanently remove sensitive information from documents.
5. File Conversion: Export PDFs to Word, Excel, PowerPoint, and image formats.
6. Collaboration: Share and review PDFs with others, track changes, and gather feedback.
7. Image Correction: Tools for color correction, fading correction, and dust/scratch removal.
8. Annotation Tools: Highlight text, add comments, and draw shapes for document review.
9. Easy Organization: Automatically names and organizes scanned images for easier management.
10. Custom Watermarks: Create highly customized watermarks using text or images

2.7. Digitization

Before starting the digitization process, a digitization project group should be established. For the group work, involvement of project manager, librarian, digitization specialist, IT specialist, and administrative staff is recommended. Following that, resources which are planned to digitize should be identified based on type and material format. The type and

format of the resources requires us to define standards, technology and editors and to think about copyright. The stages for the digitization of documents for a digital library project are as follows:

1. Selection and Registering of Materials
2. Condition Check
3. Cleaning and Handling (Book Sterilization Machine)
4. Scanning Process
5. Editing
6. Application of OCR
7. File Naming and Organization
8. Digital Storage

2.8. Quality Control

The quality control process is done at the end of digitization and editing. This process is essential to ensure that the digitized material accurately represents originals and are meet the requirements of the standards. The stages of the quality control are as follows

1. First, the digitized materials should be checked based on the scope of the project and digitization policy of the institution.
2. In the quality check, digitized materials should be inspected for sharpness, color accuracy and contrast, in addition, all pages and elements of the original material must be compared with the digitized ones to check completeness. The digitized resources must be checked for file corruption and errors that can occur during scanning, editing, or saving procedures.
3. If OCR is applied, full text reading accuracy must be validated.
4. It's recommended to keep 2 versions of the digitized resources. High quality ones should be kept in separate storage for long term preservation. To disseminate the digitized material through the internet the quality and size must meet the requirements of digital repository.
5. Implementation of feedback mechanism is essential to improve the quality of digitized resources based on user experiences.

3. Post Digitization - Digital Object Management

3.1. Selection of Repository Software

Institutional Digital Repository is a system that provides content archiving, management, publication performance evaluation, open access infrastructure, long-term storage and copyright-compliant access to content for all research outputs such as articles, papers, books, theses, reports and research data published directly or indirectly by an institution.

Digitization project requires a platform to manage the digitized resources. The platform should meet the storage, long term preservation, dissemination and management of the resources should include though web. Libraries mainly prefer to install and build a digital repository for the management of digitized resources. In this guideline, the key features of digital repositories will be listed. In the selection of a digital repository, considering the following features is recommended.

1. **Open Access**. There are commercial repositories and open access repositories available. The purpose of many library or university digitization projects is making the resources freely available. Therefore, this guideline recommends selecting a repository that supports open access standards and initiatives.
2. **Storage and Preservation**. The selected repository should support wide variety of digital contents, and the strategy of the repository must support long-term preservation.
3. **Persistent Identifiers**. The platform should allow the use of persistent identifiers (PID) such as Digital Object Identifier (DOI) or Handle. The purpose of the PIDs is to ensure persistent access to the digitized content over time.
4. **User Interface**: A user-friendly interface is essential for easy navigation and use, often with responsive design for various devices.
5. **Multilingual Support**: Repositories may offer interfaces and metadata in multiple languages to serve a diverse user base.
6. **Search and Discovery**. The software should provide powerful search capabilities such as advanced filters and browsing based on metadata fields.
7. **Interoperability**. To unsure the interoperability the system must support the global standards. For access, ingest, and export OAI-PMH / SWORD / OpenAIRE / Driver standard protocols are best practices https://dspace.lyrasis.org/technical-specifications/.
8. **Metadata**. To make digital resources findable, accessible, interoperable and reusable globally the software should support metadata standards such as Dublin Core.
9. **Integration**. To increase the usability of digital repository the software should provide APIs to integrate with the repository with library website, search engine, learning management system and index in global repository directories.

10. **Multilingual Support**. Multilingual support should be available in the user interface and metadata. To make resources more accessible in global directories, multilingual metadata is recommended.
11. **User Authentication**. One of the required features is user authentication that supports the integration with institutional systems, Lightweight Directory Access Protocol (LDAP), Shibboleth, or Single Sign On (SSO).
12. **Role-Based Access**. Based on the roles and responsibilities of the project the system should allow to provide access levels at least for administrator, contributor and user.
13. **Content Submission**. The digital repository should provide interface for authenticated users to submit content through a guided process. In addition to submission, approval or review workflow should be available to check the content before it is published.
14. **Reporting**. The repository software should provide reports on content usage, including download counts, views, and citation tracking. To assess the impact of content, the availability of citation analysis tools should be preferred.
15. **Community Support**. In the selection of digital repository, support of community is essential in terms of development of platform and technical support.

3.2. Technical Requirements for the Digital Repository Software

The technical requirements are mainly considered in the planning stage, the resource allocation is calculated based on the size and scope of the project. In this section the minimum hardware requirements of various digital repositories are listed.

DSpace Digital Repository:

- 2GB of memory for the Frontend.
- 1GB of memory for the Backend.
- 512MB of memory for PostgreSQL database.
- 512MB of memory for Solr search engine.

The recommended memory size is 8-12GB or more for very active sites. For more information about DSpace requirements, the following link can be referred to: https://wiki.lyrasis.org/display/DSDOC7x/Performance+Tuning+DSpace

EPrints Digital Repository:

- Small repository: 1000 items

- Operating system: 5GB
- Upload and associated files: 2MB x 1000 = 2GB
- Database: 1MB x 1000 = 1GB
- TOTAL: 8GB (15GB to give room for expansion)

For more information about disk space requirements of EPrints, please visit the following link: https://wiki.eprints.org/w/Frequently_Asked_Questions

ISLandora Digital Repository:

- Ubuntu 18.04 LTS or CentOS 7.x
- Minimum 2 CPU's (with 1-4 cores each)
- 16-32 GB of RAM is recommended
- 30-50GB for the server OS

For more information about disk space requirements of ISLandora, please visit the following link: https://islandora-collaboration-group.github.io/ISLE/install/host-hardware-requirements/

All the recommended software is open-source code and the recommended server for open access repository is Linux distributions.

3.3. Licensing

As mentioned earlier, the goal of most digitization projects is to provide open access to the digitized materials. The recommended approach to openness is “as open as possible, as closed as necessary”. In the library repository projects, the recommended license is Creative Commons (CC). The purpose of CC is to provide a standardized way to grant a public permission to use the intellectual property of individuals or organizations under copyright law.

There are six different license types, listed from most to least permissive here, each logo takes to the landing page of the license model:

CC BY

This license enables reusers to distribute, remix, adapt, and build upon the material in any medium or format, so long as attribution is given to the creator. The license allows for commercial use. CC BY includes the following elements:

BY: credit must be given to the creator.

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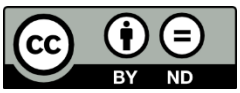

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ND: No derivatives or adaptations of the work are permitted.

The CC0 Public Domain Dedication

CC0 (CC Zero) is a public dedication tool, which enables creators to give up their copyright and put their works into the worldwide public domain. CC0 enables reusers to distribute, remix, adapt, and build upon the material in any medium or format, with no conditions.

3.4. Policy

In the stage of Defining Scope of the Project, the policy for the repository should be drafted. The recommended approach is preparing an Open Access Policy and submission for authors. In the policy, to provide clear guidelines on how the work can be used licensing model should be mentioned. The open access policy should be accepted by the senate of university. The policy generally should consist of the following parts.

- Purpose of the repository project
- Types of resources covered by the repository
- Accepted file formats
- Commitments of the project
- Roles and responsibilities
- Definitions
- Copyright
- Information about long-term preservation

An open access policy benefits the organization in terms of increasing the visibility of resources, disseminating the digitized resource more effectively, and ensuring equal access to digitized resources.

3.5. Metadata

According to Merle Beljaev "Metadata is data that describes data, but it isn't the data itself." Metadata is data that provides information about a data and describes it. In other words, it represents information that describes, organizes, explains and helps manage data. Metadata is an important element that determines the accuracy and quality of data and increases the quality and usability of data. Without quality metadata, accessing and reporting information is a matter of chance. Quality metadata directly impacts searchability and reusability. For repositories to work seamlessly with other repository or repository directories around the world, standards-compliant, enriched and high-quality metadata is required.

In brief, why your metadata should be high-quality:

- Provide Access and visibility
- Get more citation
- Increase usage
- Research and discovery

The recommended metadata standard for digital repositories is The Dublin Core™ Metadata Initiative, or "DCMI".
There are some organizations who work to improve the quality of metadata. They are

- OpenAIRE
- Dublin Core (DC)
- Confederation of Open Access Repositories (COAR)

3.6. FAIR-ness

Enriched metadata that complies with standards is the key to interoperability and becoming a metadata provider. To have quality metadata there is FAIR principles is best guideline to use. FAIR stands for **F**indable, **A**ccessible, **I**nteroperable, and **R**eusable. The main purpose of these principles is to ensure that digitized resources are easy to find, accessible to everyone, interchangeable with other systems, and optimize the reuse of data based on rich metadata, persistent identifiers and standardized communications protocol.

For more information about FAIR principles, please visit the following link:
https://www.go-fair.org/fair-principles

3.7. Open Access Initiative

Open access means that scientific literature can be accessed, read, saved, copied, printed, scanned, linked to full text, indexed, transferred to software as data, and used for any legal purpose via the Internet without financial, legal, or technical barriers. According to the Budapest Open Access Initiative, eliminating barriers to this literature will speed up research, enhance education, allow knowledge to flow between the affluent and the less fortunate, maximize the utility of this body of work, and create a foundation for a shared global dialogue and collective pursuit of knowledge. Globally, open access initiatives are supported by the digital repository projects and universities for the following key benefits:

- Open access increase visibility and impact. OA articles get 4 times more downloads, 1.6 times more citations than non-OA articles.
- By supporting open access, universities promote a culture of openness and collaboration among their researchers.
- Most agencies and research institutions such as the European Council now require that research outputs and research data must be accessible freely. In this direction, to comply with the mandatory requirement digital repositories that support open access.
- Open access ensures that the digitized and produced knowledge by the authors of the university will not be lost, instead preserved and made available to future scholars.
- Being more open and transparent enhances the universities' international standing and attracts global collaborations and partnerships.

In Azerbaijan, Azerbaijan Technical University (AzTU), is a flagman in supporting OA country-wide. AzTU is a member of OpenAIRE AMKE, a non-profit organization with a mission to promote open access and science. AzTU has been elected as National Open Access Desk (NOAD) by OpenAIRE AMKE in Azerbaijan. Regarding the OA initiatives, all questions can be forwarded to AzTU as a local NOAD of OpenAIRE AMKE.

3.8. Globalization - Indexing in Global Directories

There are a vast number of digital repositories available, however, searching all these repositories are not possible. To make this search available there are some directories. The directories provide the following benefits for the university and libraries:

Researchers can use these directories to efficiently locate repositories that contain the information they need, saving time compared to searching individually across the internet.

Directories often categorize repositories by discipline, making it easier for researchers to find relevant digital repositories.

Universities can use digital repository directories to identify potential partners for collaboration. This can lead to new research partnerships, joint projects, and collaborative authorship opportunities.

Being listed in a digital repository directory for small and less well-known institutions can provide greater visibility for their digitized materials.

Digital repository directories provide curated lists of criteria, such as adherence to open access policies or the use of specific metadata standards. To be indexed in the directory the digital repository must meet the criteria, and this ensures that users are accessing high-quality, reliable repositories.

The main directories for digital repositories are:

- Directory of Open Access Repositories (OpenDOAR)
- Registry of Open Access Repositories (ROAR)
- Registry of Research Data Repositories (re3data)
- Directory of Open Access Journals (DOAJ)
- Bielefeld Academic Search Engine (BASE)
- DuraSpace Registry
- WorldCat OAIster
- Open Access Theses and Dissertations (OATD)

Annex A
Scanning Specifications

Types	Bit Depth	Color Space	Resolution (dpi)	Scale	File Format
B&W Text Only	1-bit	Bitonal	600dpi	100% (1:1)	TIFF (uncompressed or lossless compression)
B&W Text with Illustrations	8-bit	Grayscale	400dpi	100% (1:1)	TIFF (uncompressed)
Text with Continuous-Tone Images & Photos (Color)	24-bit	RGB	400dpi	100% (1:1)	TIFF (uncompressed)

Note: This guideline will be updated regularly!