



2025 ERESEARCH AUSTRALASIA CONFERENCE

FROM POLICY TO PRACTICE: BUILDING A RESEARCH DATA MANAGEMENT ECOSYSTEM

Boubacar Sow

Open Science Division, Tohoku University, Japan

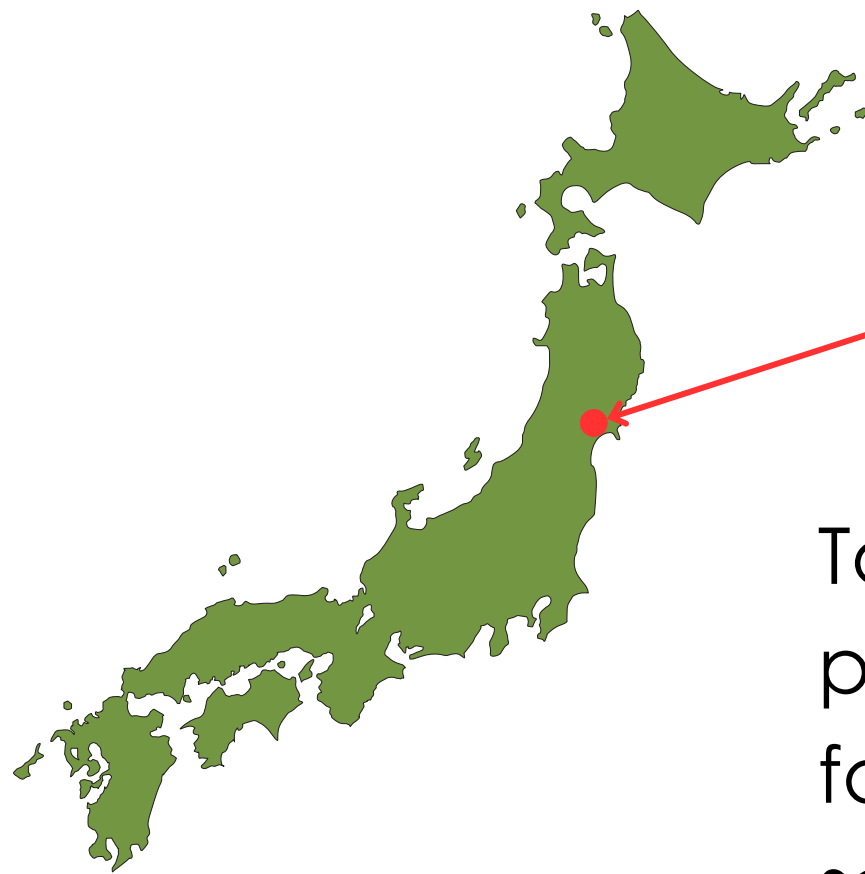


Thursday 23,
October 2025

TOHOKU UNIVERSITY:

Established in 1907 as the third national university in Japan.
Ranked No.1 in the Times Higher Education Japanese University Rankings from 2020 to 2025.

**JAPAN'S FIRST
UNIVERSITY FOR
INTERNATIONAL
RESEARCH
EXCELLENCE**



Tohoku University in
Sendai, Miyagi Japan

Tohoku University has nearly **18,000** students and is a working place for **7,000** faculty and staff members spread across **10** faculties, **15** graduate schools, **3** professional graduate schools, **6** research institutes, and a university hospital.

WHY RESEARCH DATA MATTERS?

More Data = More Opportunity for Reuse

The More you have Data, The More you have Problems!!!!

- The Major problems at most of the Universities around the world are mainly related to:
 - Storage, Data Publication
 - Following FAIR Principles,
 - Dealing with Sensitive data
 - Governance, Policy and Guidelines.

A new way to manage research Data becomes an urgent Matter: Build a Robust Data Management System.

FROM POLICY TO PRACTICE

- Transformed the Government Policies into a concrete Research Data management Ecosystem where Researchers can create a Data management Plan.
- We are Supporting immediate open and public access to government-funded scholarly publications and scientific data.
- We Implemented Research Data Management in compliance with legal and ethical requirements of each funding Agency.

FOUR REQUIREMENTS FOR MANAGING, STORING, AND PUBLISHING RESEARCH DATA

- Submission of Data Management Plan (DMP)
- Research FAIRness
- Disclosing evidence data in submitted papers
- OPENess of Research Data

RESEARCH DATA MANAGEMENT ECOSYSTEM

Researchers Information / Research Data Flow In Japan

Researchers Information: University Databases, Researchmap

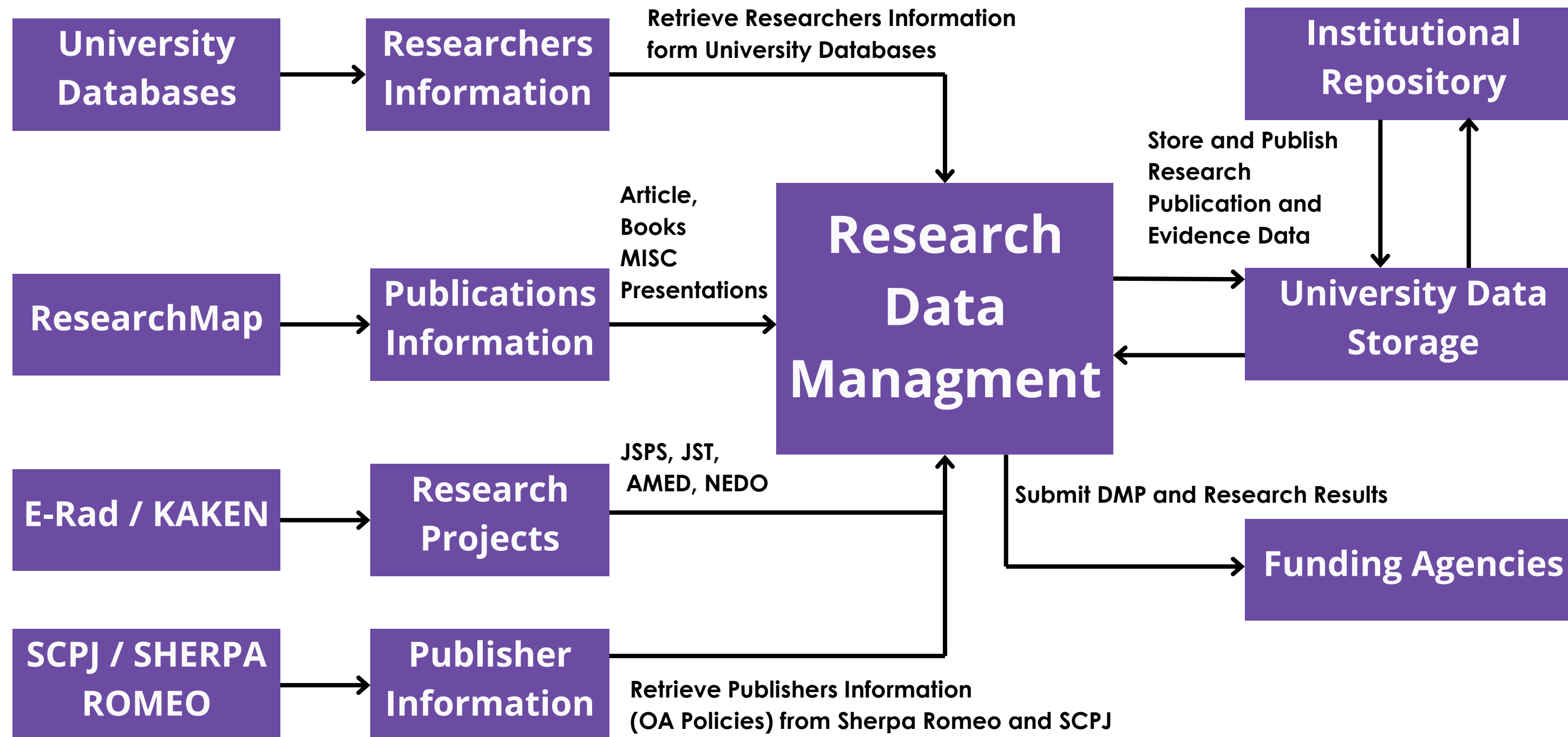
Funding Projects Data: e-Rad (Japan's national system for managing research funding and applications.) and The public database of the Grants-in-Aid for Scientific Research.

Unique Identification Number: Researcher Number (Identifier for researchers used in government-based research funding).

Repository: Institutional Repository for storing Research Publications

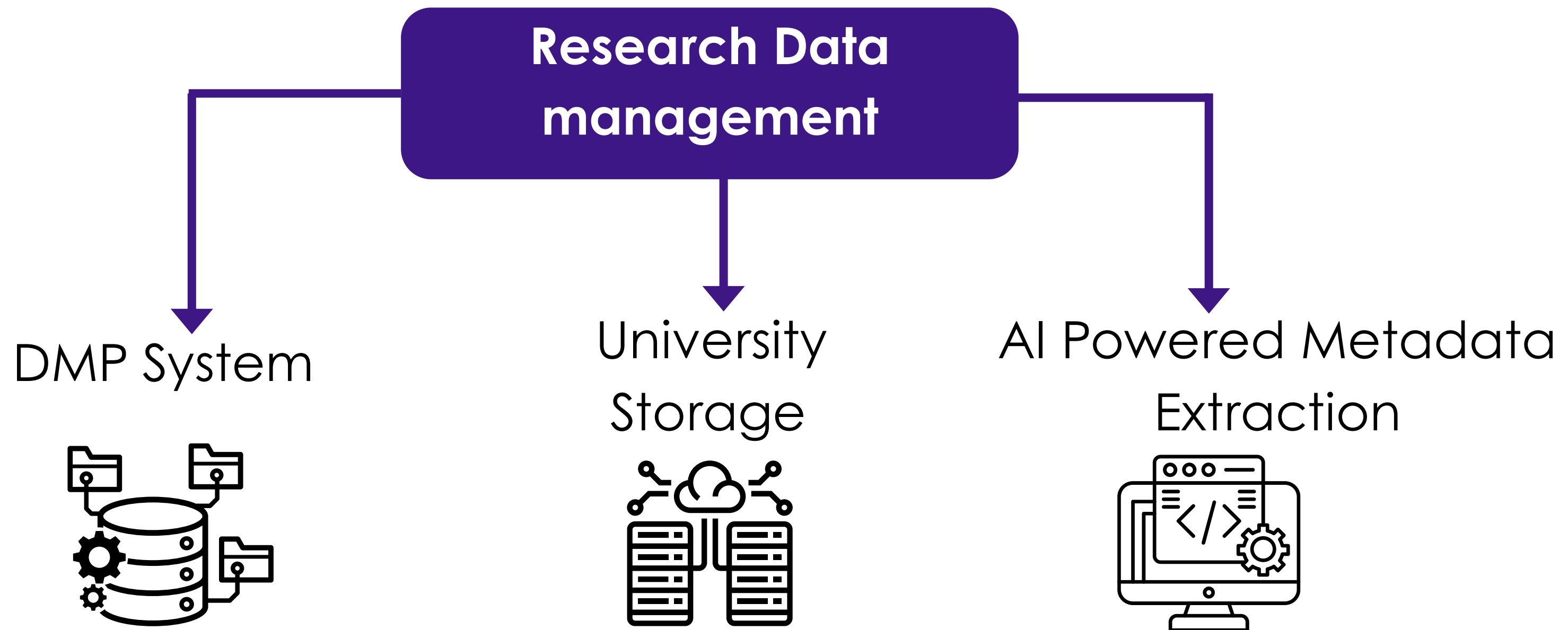
Storage: Gakunin RDM, University Storage

TOHOKU UNIVERSITY RDM ECOSYSTEM



TOHOKU UNIVERSITY RDM ECOSYSTEM

The Simplified Picture : Three Components



TOHOKU UNIVERSITY RDM ECOSYSTEM

Data management Plan System

Before Start of the Research Project

Initial Research Data Management Planning

- Acquisition of Research Funds
- Data Documentation
- Infrastructure

Early & Mid Research Project

Revise DMP to Reflect practice

- Storage and Sharing of Active Data
- Collection and Analysis of Data
- Update DMP

After of the Research Project End

Revise DMP to Reflect Final Data disposition

- Data Disclosure Policy
- Metadata Registration
- Data Archiving
- Finalization of Rules

TOHOKU UNIVERSITY RDM ECOSYSTEM

Data management Plan System

Before Start of the Research Project

Initial Research Data Management Planning

- Acquisition of Research Funds
- Data Documentation
- Infrastructure

Early & Mid Research Project

Revise DMP to Reflect practice

- Storage and Sharing of Active Data
- Collection and Analysis of Data
- Update DMP

After of the Research Project End

Revise DMP to Reflect Final Data disposition

- Data Disclosure Policy
- Metadata Registration
- Data Archiving
- Finalization of Rules

TOHOKU UNIVERSITY RDM ECOSYSTEM

Data management Plan System

Before Start of the Research Project

Initial Research Data Management Planning

- Acquisition of Research Funds
- Data Documentation
- Infrastructure

Early & Mid Research Project

Revise DMP to Reflect practice

- Storage and Sharing of Active Data
- Collection and Analysis of Data
- Update DMP

After of the Research Project End

Revise DMP to Reflect Final Data disposition

- Data Disclosure Policy
- Metadata Registration
- Data Archiving
- Finalization of Rules

TOHOKU UNIVERSITY RDM ECOSYSTEM

What can we do with Tohoku University DMP System

Project Management

- Access the List of your own Research Projects
- Project Details including: PI and Collaborators Information
- Budget and Project Milestones

Publication Management

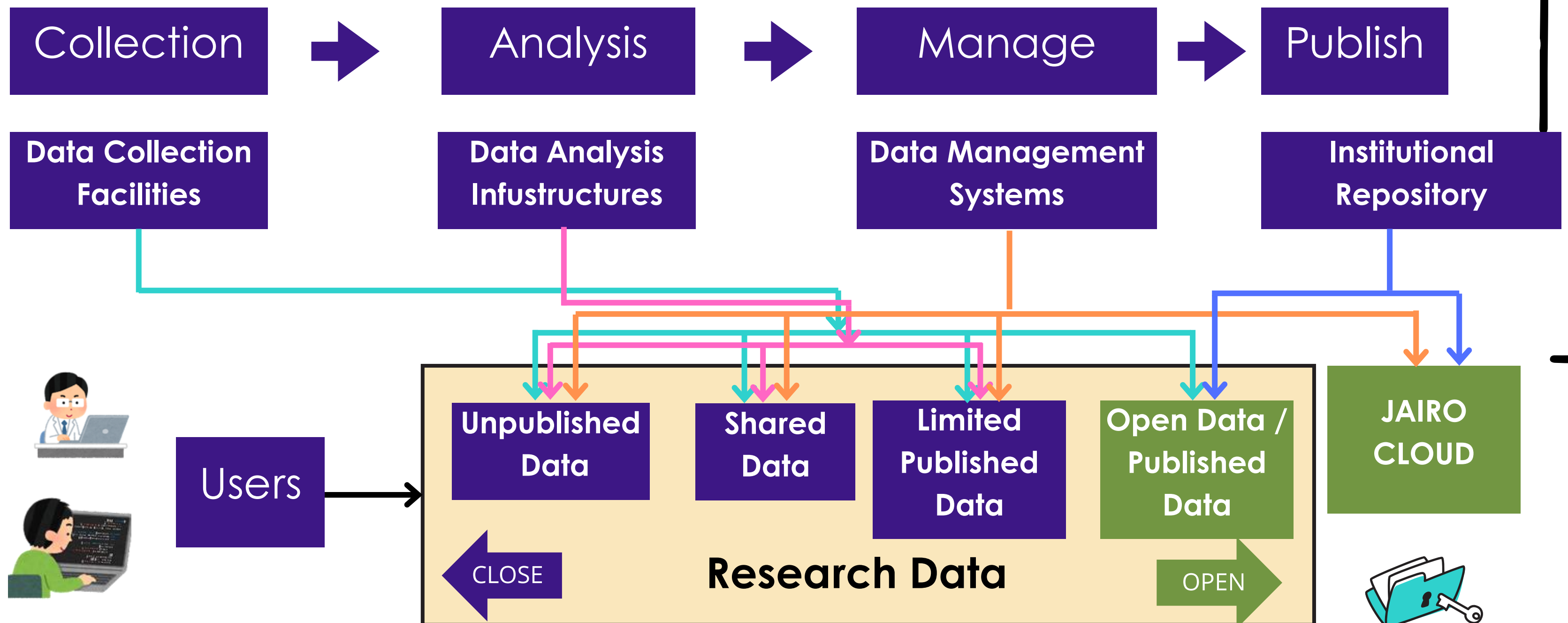
- Access the List of your own Research Publications
- Add Evidence Data to Each Research Publication
- Support Green Open Access for Institutional Repository Registration

DMP Creation

- CRUD DMP for each research Project
- Generate Funding Agency Report
- Download and Export Metada

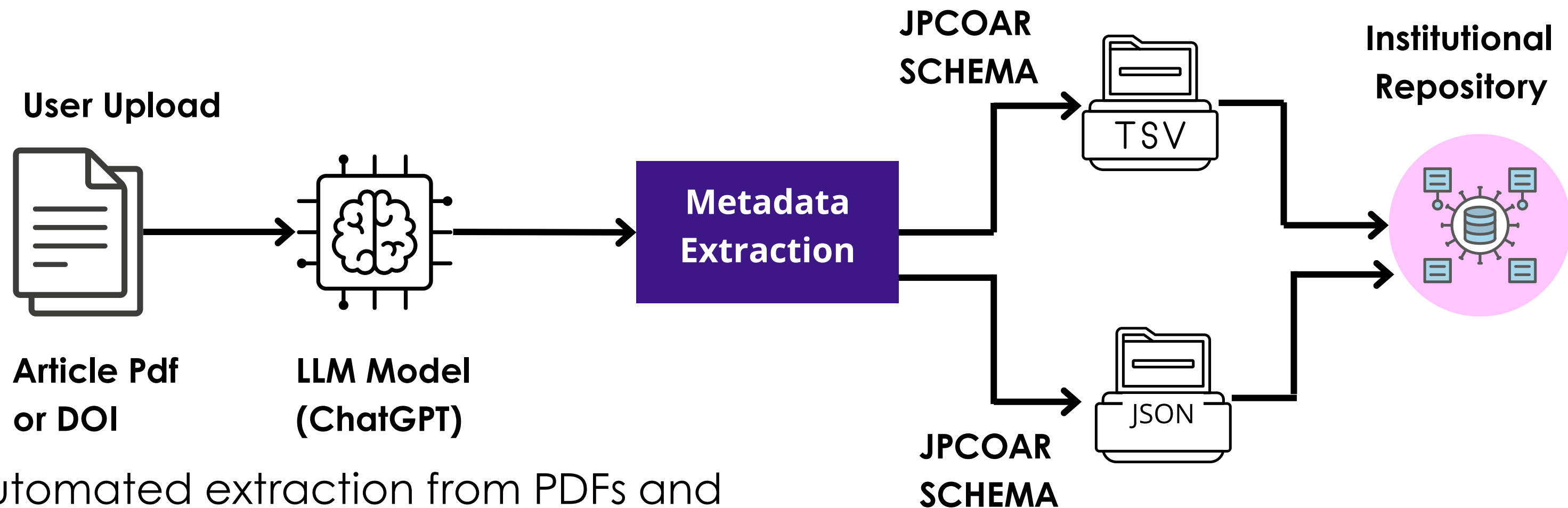
TOHOKU UNIVERSITY RDM ECOSYSTEM

The University Storage



RESEARCH DATA MANAGEMENT ECOSYSTEM

Metadata Extraction



- Automated extraction from PDFs and DOIs
- Support for multiple paper types
- TSV/JSON output formats

BENEFITS AND FINDINGS: PI

Question: How to Make Researchers Like the DMP?

Answer: If researchers see the value, DMPs become tools, not paperwork.

- Automatic Data Retrieval: Researcher profiles and project information are automatically fetched from external systems such as e-Rad, KAKEN, and institutional databases via API integration.
- Simplifies data management and ensures compliance with funder requirements.
- Data Reuse Support: Enables easy linkage to institutional repositories and DOI assignment for datasets.

BENEFITS AND FINDINGS: FA

- Ensures standardized and high-quality data submissions.
- Enhances transparency and accountability in funded research.
- Facilitates policy evaluation and evidence-based decision-making.
- Supports structured XML/JSON outputs aligned with national and international standards (e.g. JPCOAR schema).
- Reduced Reporting Burden: Agencies receive consistent, machine-readable DMP data for evaluation and monitoring.

BENEFITS AND FINDINGS: FOR UNIVERSITY

- Centralized management of research data and compliance status.
- Improved data quality and consistency across systems .
- Improved accountability: clear records of data handling, access, and compliance for audits, monitoring and reporting.
- Transparency: easier to demonstrate adherence to research ethics, data protection, and funding requirements.

Next Steps / Future Works

1. Enable access for external research collaborators
 - Allow external collaborators to securely access the DMP System.
2. Enable the “Request for Storage” feature from the DMP system
 - Integrate a workflow that allows researchers to request storage directly from within the DMP.
3. Enable integration between the university storage system and the DMP
 - Connect DMP-managed projects with university-managed storage.

THANK YOU!
ANY QUESTIONS!

SOW Boubacar
Research Management Center, Open Science Division
Tohoku University Japan

sow.boubacar.d1@tohoku.ac.jp