

# Institutional Repository Cloud Service JAIRO Cloud

National Institute of Informatics, JAPAN

7th Japan-China-Korea SciTec Information Joint Seminar

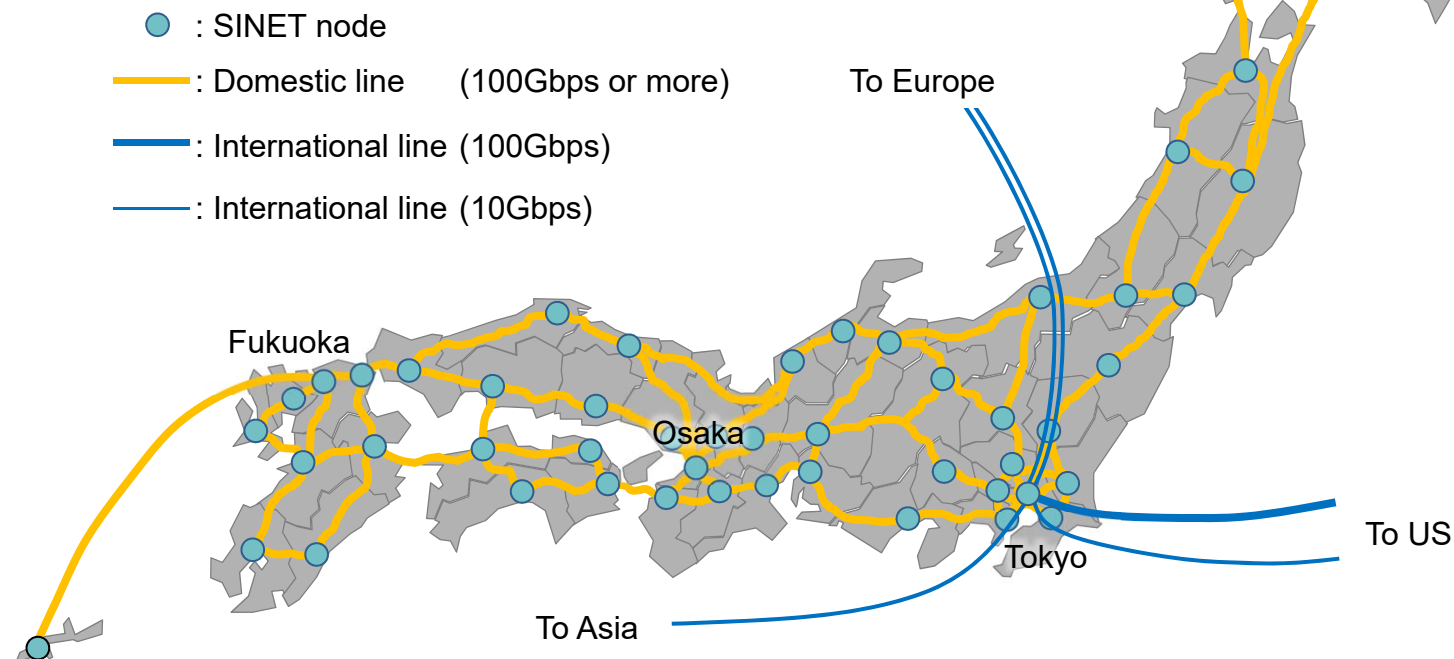
23 November, 2017

# National Research and Education Network

- SINET is a Japanese academic backbone network for more than 800 universities and research institutions, and for about 3 million users.
  - SINET covers 100% of national, 78% of municipal, and 55% of private universities.

	National Universities	Municipal Universities	Private Universities	Junior Colleges	Colleges of Technology	Inter-Univ. Research Institutes	Labs and Others	Total
Number of Organizations	86 (100%)	71 (78%)	348 (55%)	62 (18%)	55 (97%)	16 (100%)	179	817

(As of March 2015)



# SINET5

## 21st Century Academic Information Infrastructure for Advancing Open Science

### Collaboration and Promotion in Research and Education



#### Resource

- ◆ Promotion of academic information circulation and open access
- ◆ Collaborative promotion of institutional repository expansion



#### Federation

- ◆ Collaborative enhancement of authentication between universities



#### Cloud

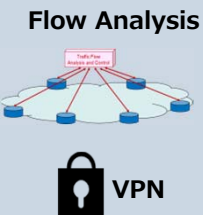
- ◆ Dramatic cost reduction and enhancement of research and education environment by tailored cloud services



GakuNin-Cloud  
Direct Connection

#### Security

- ◆ Network flow analysis and dynamic control
- ◆ Raise of security level for SINET users

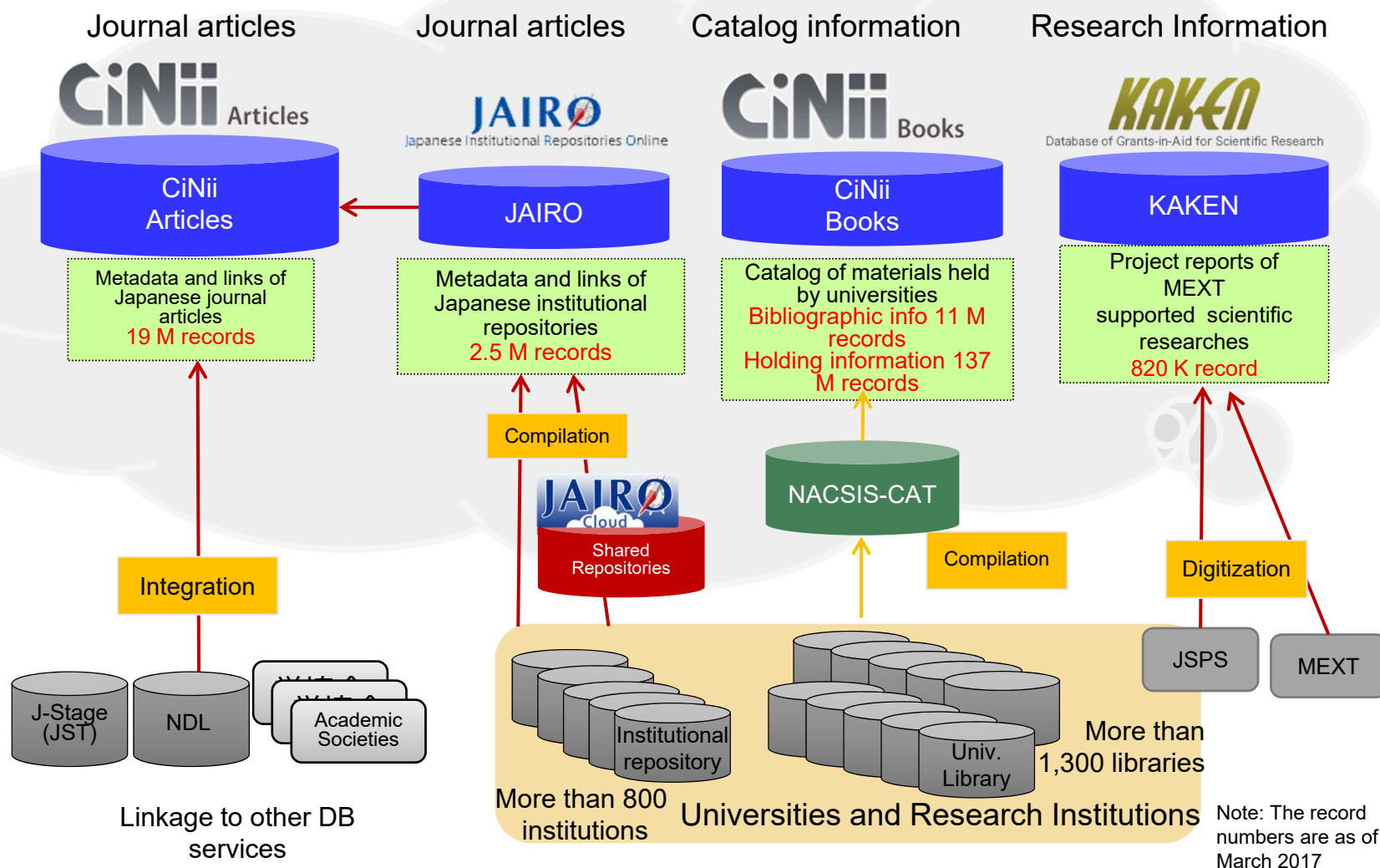


#### Network

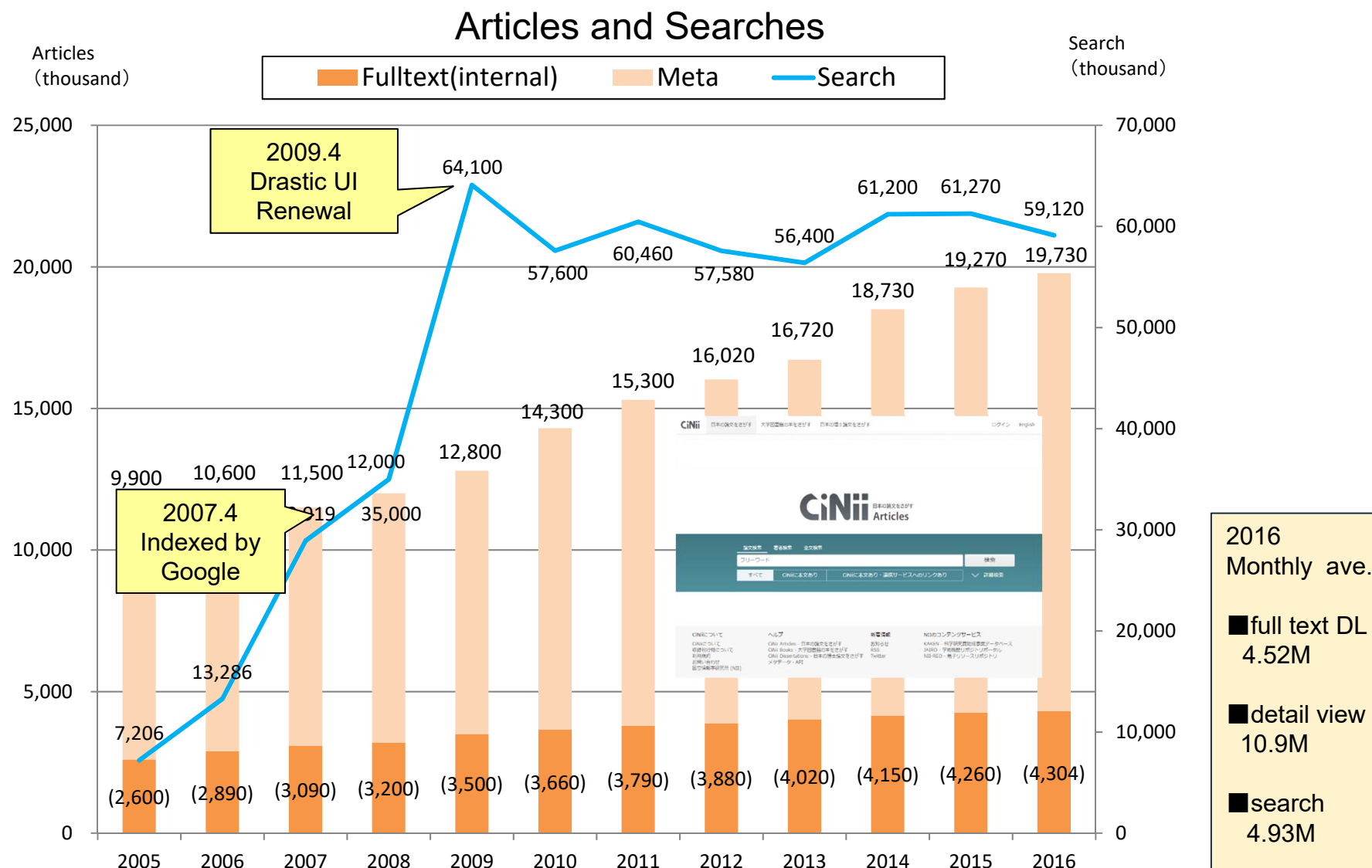
- ◆ Nationwide 100-Gbps backbone network and scalable network expansion
- ◆ High-speed direct international lines to USA, Europe, and Asia
- ◆ Introduction of new technologies such as SDN in response to user needs



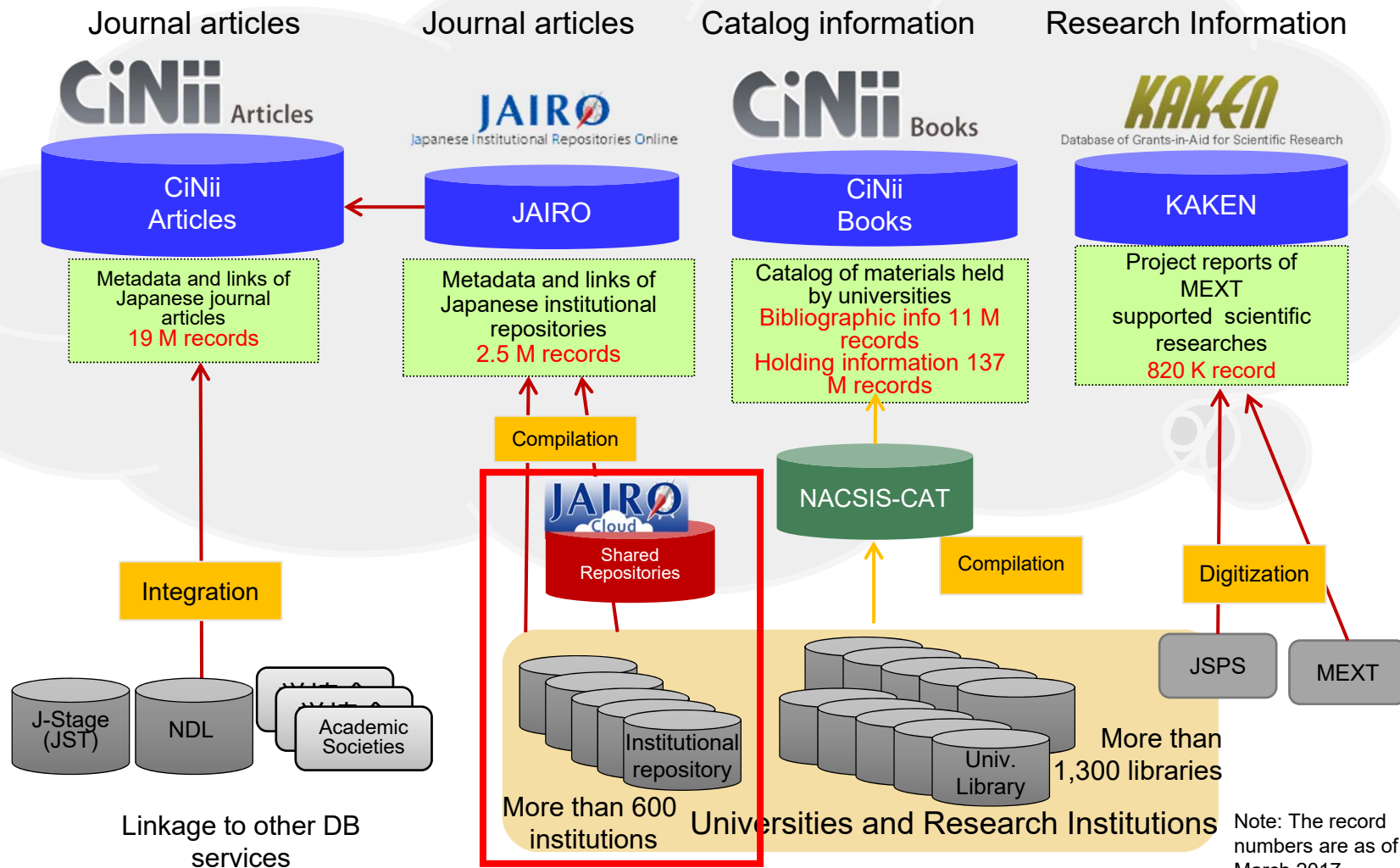
# Scholarly Information Infrastructure



# Discovery Service CiNii



# Scholarly Information Infrastructure



# NII-funded Institutional Repository Program

- NII-IRP (Institutional Repositories Program)

<http://www.nii.ac.jp/irp/en/>

- Phase 1 : FY2005-2007
- Phase 2 : FY2008-2009
- Phase 3 : FY2010-2012



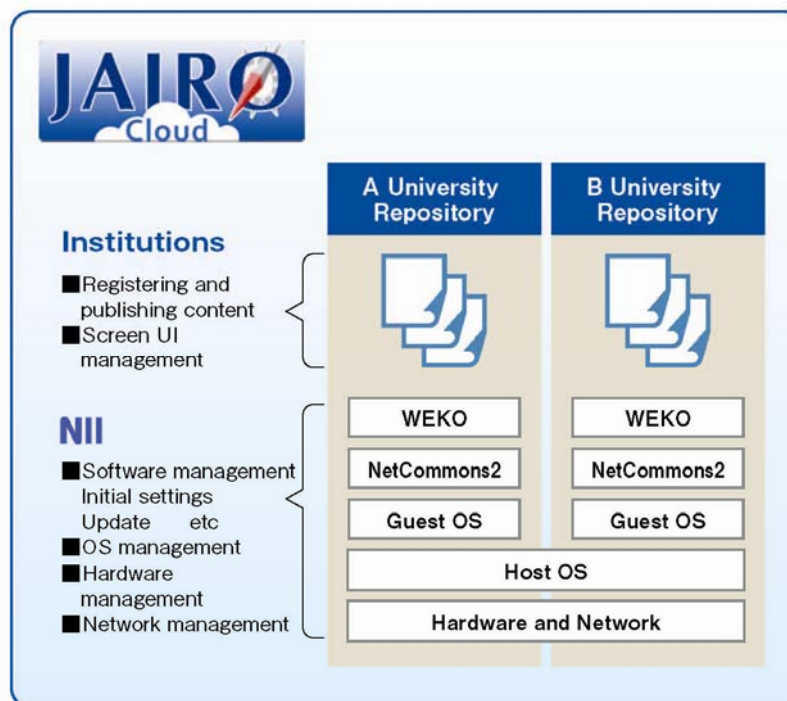
- Three categories of funding

- Area 1: Support for developing IRs and content creation
- Area 2: Research and development
- Area 3: Support for community activities

	Phase 1			Phase 2		Phase 3		
	2005	2006	2007	2008	2009	2010	2011	2012
Area 1 (Institutions)	19	57	70	68	74	24	31	34
Area 2 (Projects)	-	22	14	21	21	8	8	7
Area 3 (Projects)	-	-	-	-	-	5	4	4

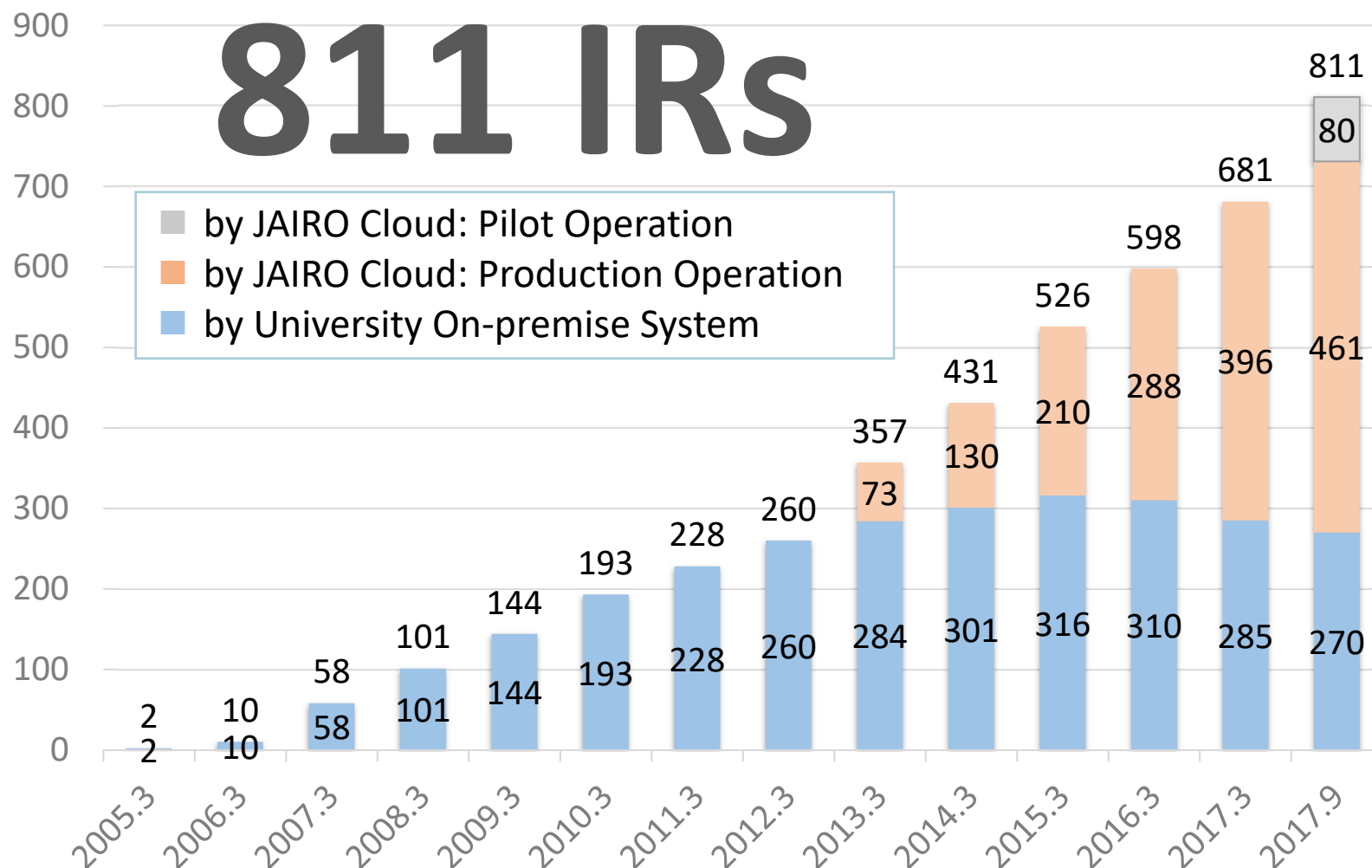
# JAIRO Cloud

- Background
  - Limited resources and less technical knowledge hamper implementation of IR especially in small universities.
  - JAIRO Cloud provides a shared instance of IR system on the virtual server hosted by NII since April 2012.
- Service Architecture



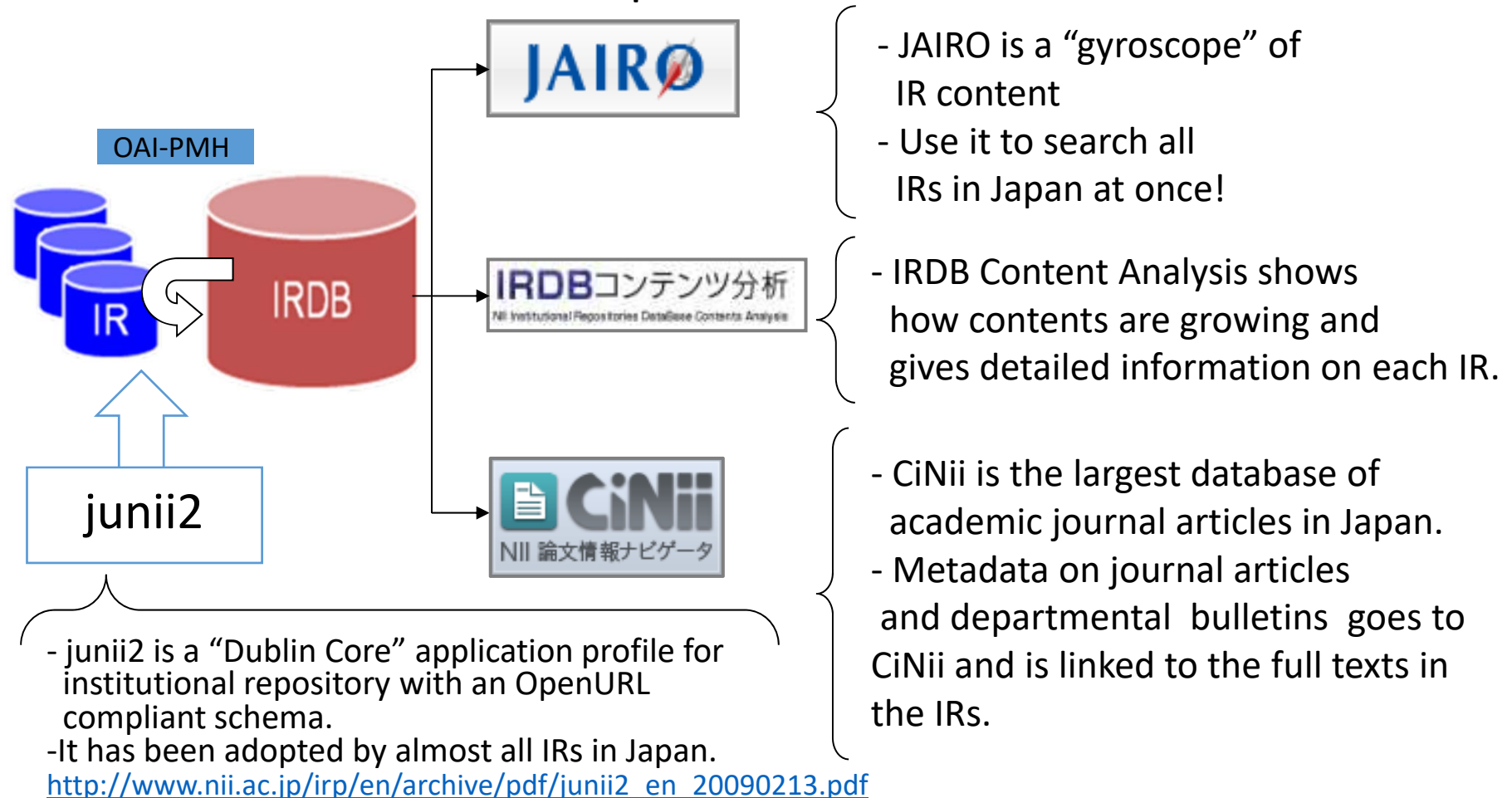


# Number of IRs in Japan

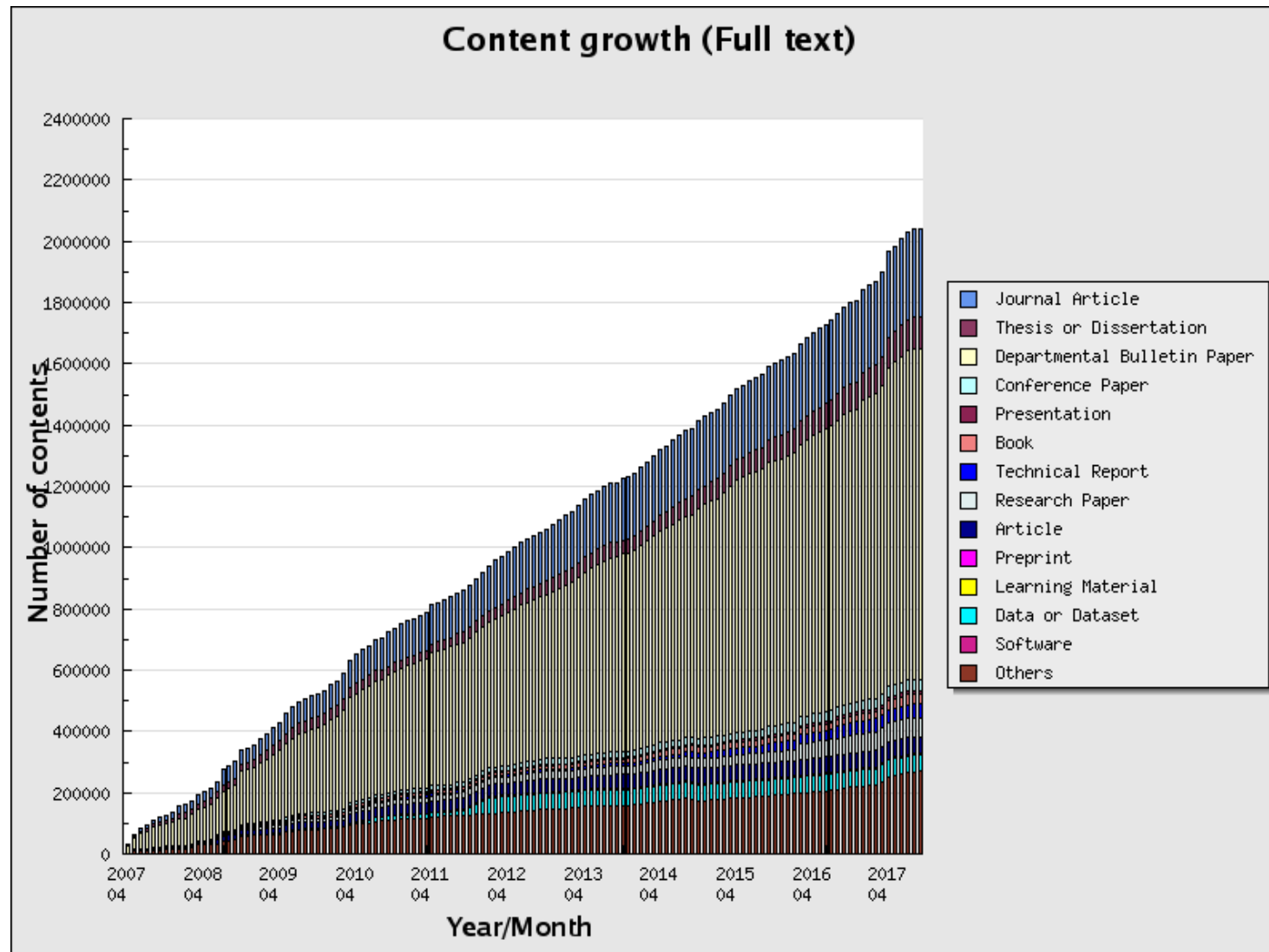


# Portal services of Japanese IRs

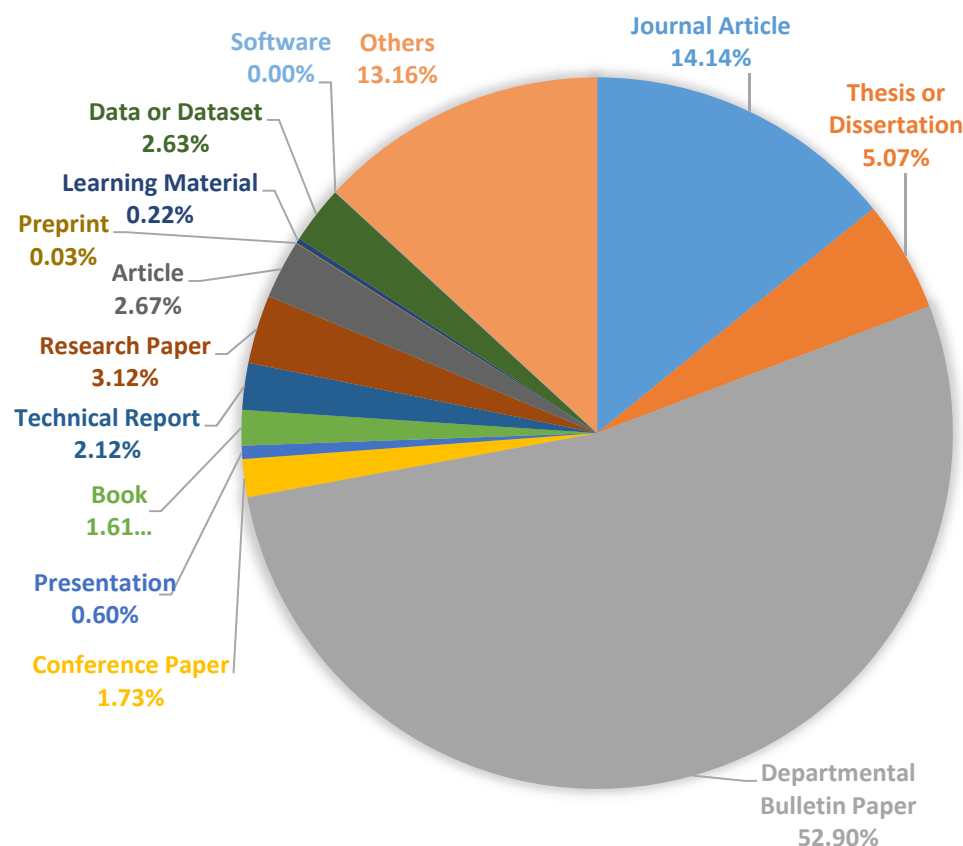
- NII harvests almost all Japanese IRs



# Contents Type stored in Japanese IRs



# Contents Type stored in Japanese IRs



Journal Article	288,709 (14.1%)
Thesis or Dissertation	103,478 (5.1%)
Departmental Bulletin Paper	1,080,358 (52.9%)
Conference Paper	35,303 (1.7%)
Presentation	12,251 (0.6%)
Book	32,839 (1.6%)
Technical Report	43,313 (2.1%)
Research Paper	63,771 (3.1%)
Article	54,470 (2.7%)
Preprint	624 (0.0%)
Learning Material	4,578 (0.2%)
Data or Dataset	53,736 (2.6%)
Software	46 (0.0%)
Others	268,744 (13.2%)
Total	2,042,220

NII Institutional Repositories DataBase Contents Analysis

[http://irdb.nii.ac.jp/analysis/index\\_e.php](http://irdb.nii.ac.jp/analysis/index_e.php)

# Repository Community

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- Digital Repository Federation, since 2006
- JAIRO Cloud Community, since 2012
- Institutional Repository Promotion Committee, since 2013



From 2016

- Japan Consortium for Open Access Repository (JPCOAR)
  - Working Group
    - Training WG
    - JAIRO Cloud Operation WG
    - Promotion WG
  - Task Force
    - Next Generation Metadata Schema TF
    - Research Data TF
    - Open Access Policy and Tracking TF
    - Repository Evaluation TF
    - ORCID TF

# From Open Access to Open Science

# Open Science Report from Japanese Cabinet Office (2015)

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## Promoting Open Science in Japan

Opening up a new era for the advancement of science

### Executive Summary

Report by the Expert Panel on Open Science, based on Global Perspectives  
Cabinet Office, Government of Japan

March 30, 2015

**It is vital for Japan to participate in international discussions and to demonstrate a proactive approach to the promotion of open science. The Expert Panel on Open Science based on Global Perspectives has discussed various relevant issues of immediate importance for Japan. Based on these discussions, the Panel presented the guiding principles for promotion of open science in Japan.**

#### **I. The Importance of Open Science**

"Open science" refers to a new approach to promoting innovation through knowledge creation in science and technology. This will be realized by facilitating access to and use of publicly funded research results such as scientific papers and their underlying data by the scientific community, industry and the general public. The concept of open science is spreading rapidly. At the G8 Summit held in June 2013, G8 Science Ministers issued a joint statement that endorsed the need for increasing access to publicly funded research, including peer-reviewed published research and research data. The statement triggered discussions in various forums worldwide

Research community, and to the decline of Japan's international competitiveness.

Japan should keep pace with the global advancement of open science in a collaborative yet also strategic manner, so that the value of Japan's latest research and development activities can lead to business activities at the next stage.

#### **II. The Need to Promote Open Science**

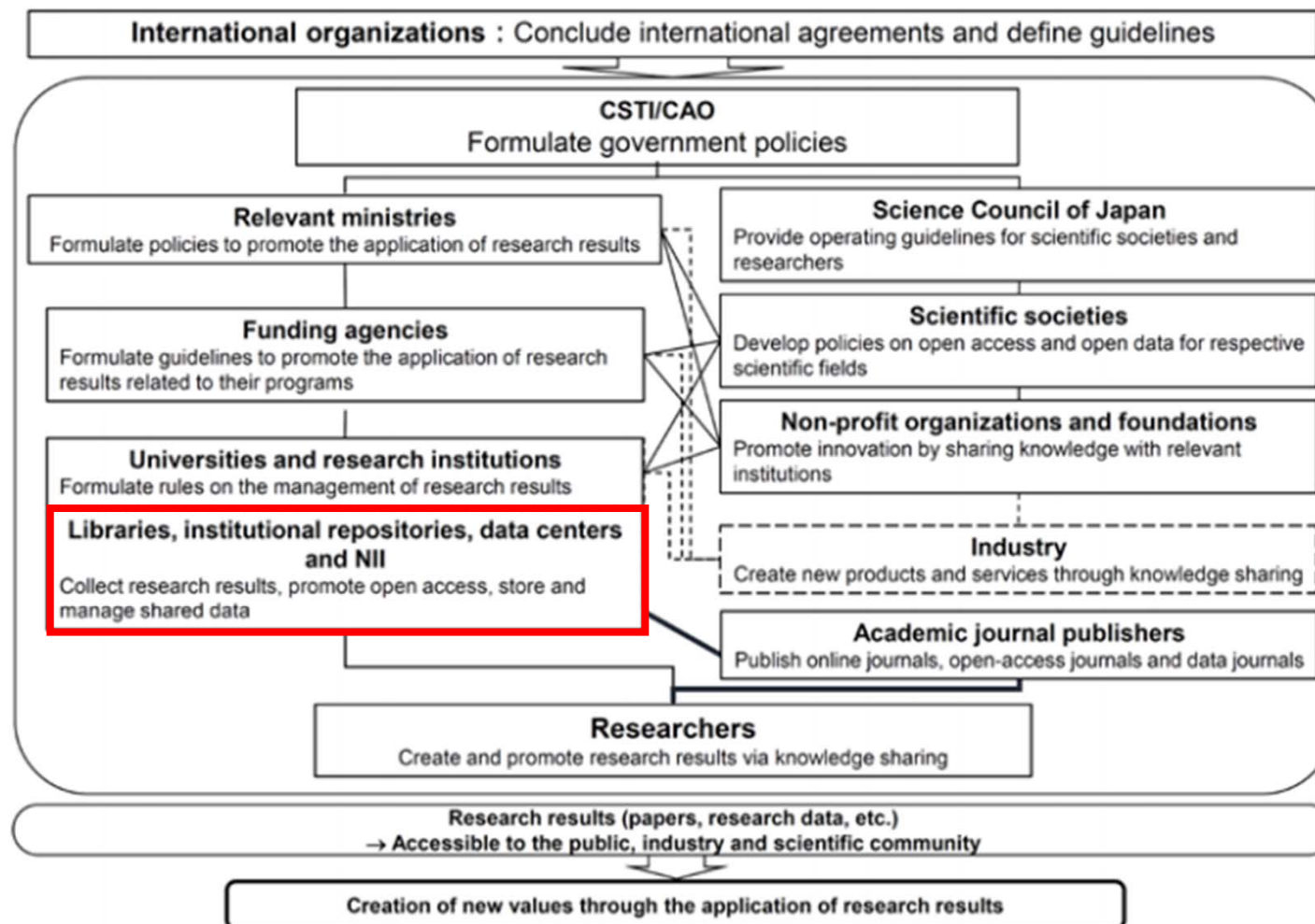
Open science may change scientific research. It will not replace traditional research methods, but will add new tools that help to advance science. It will make research results widely available in digital formats to all users including the scientific community, industry and the general public. This will enable additional value to be extracted from science and technology information, which will not only improve our knowledge, but will also reform innovation strategies.

For the scientific community, the acceleration of data-driven activities is expected to lead to new collaborations and to the prevalence of new research methods among researchers within the same research discipline and beyond. Industry and individuals are also expected to gain as they develop new products and services as a

[http://www8.cao.go.jp/cstp/sonota/openscience/150330\\_openscience\\_summary\\_en.pdf](http://www8.cao.go.jp/cstp/sonota/openscience/150330_openscience_summary_en.pdf)

# Framework of the Open Science in Japan

## Correlation diagram of policy making and implementation





# National Research Infrastructure for OS



National Research Infrastructure  
Roadmap terms of reference  
released

For: All

Wednesday 9 March 2016

## Open Science and Research in Finland

- Science and innovation in Finland
- National infrastructure strategy and roadmap 2014-2020
- Open science and research approach in Finland

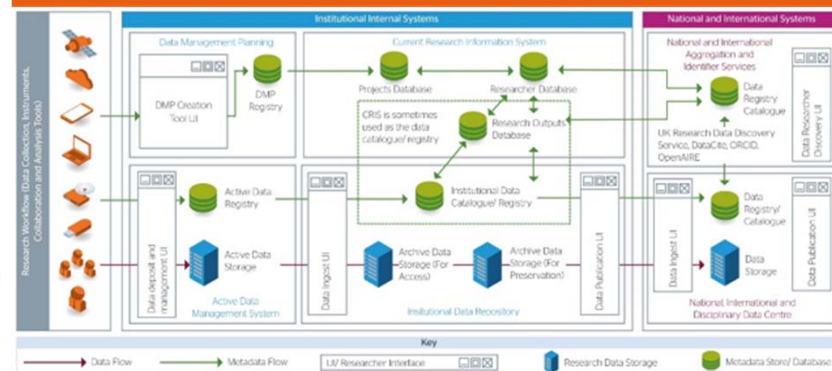
Ministry of Education and Culture  
Ministère de l'Éducation et de la culture

## The European Open Science Cloud for Research

EGI, together with other leading European initiatives EUDAT, LIBER, OpenAIRE and GÉANT, have shared their joint vision for the European Open Science Cloud for Research with eight elements of success for a concrete contribution to the Digital Single Market.



## Jisc RDM Shared Service

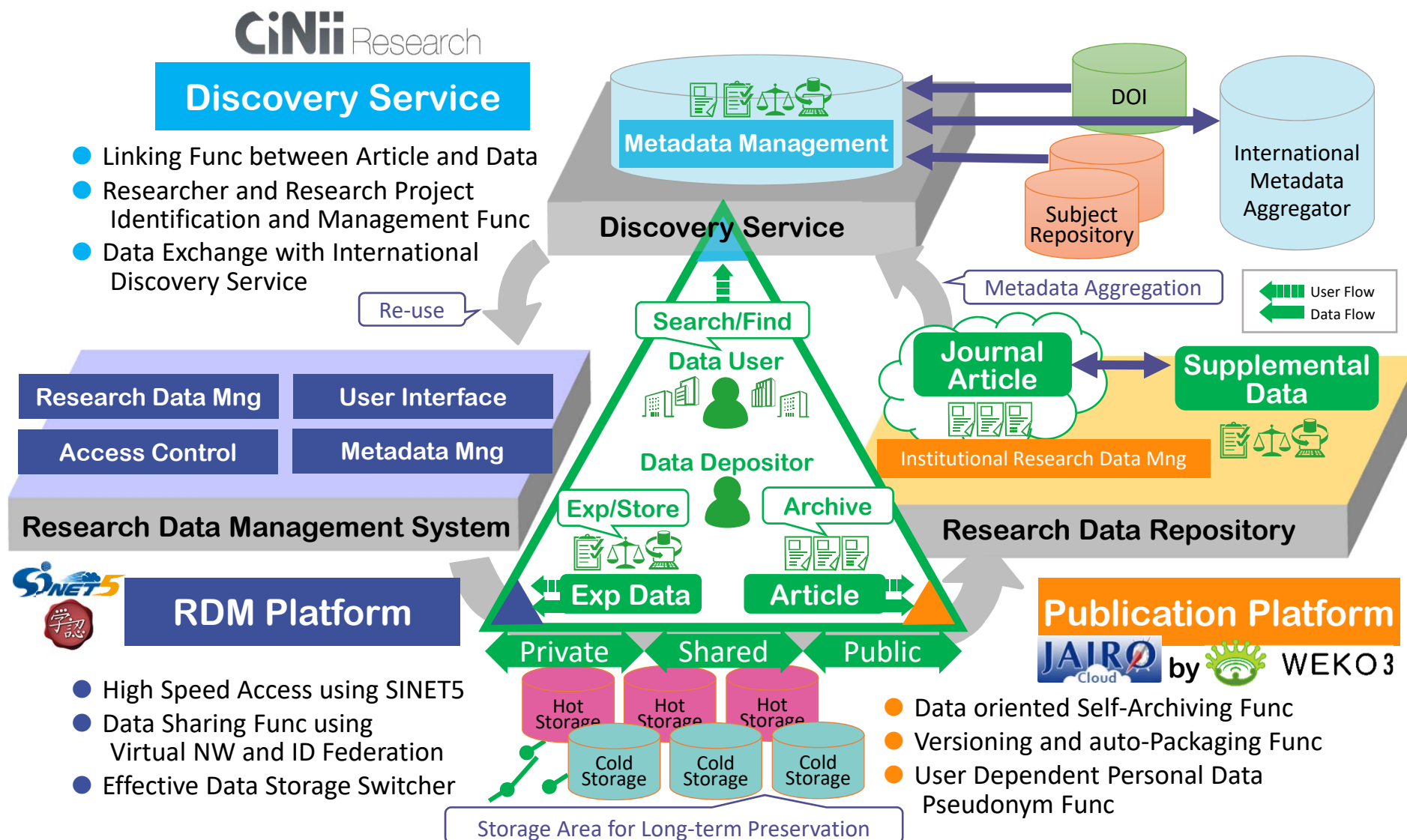


GERMAN COUNCIL FOR SCIENTIFIC INFORMATION INFRASTRUCTURES  
**OPENING DECLARATION**

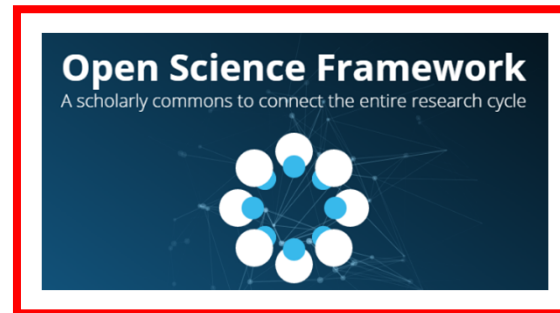
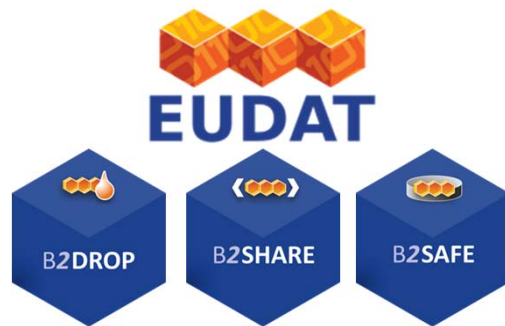
JUNE 2015



# Research Data Infrastructure for Open Science



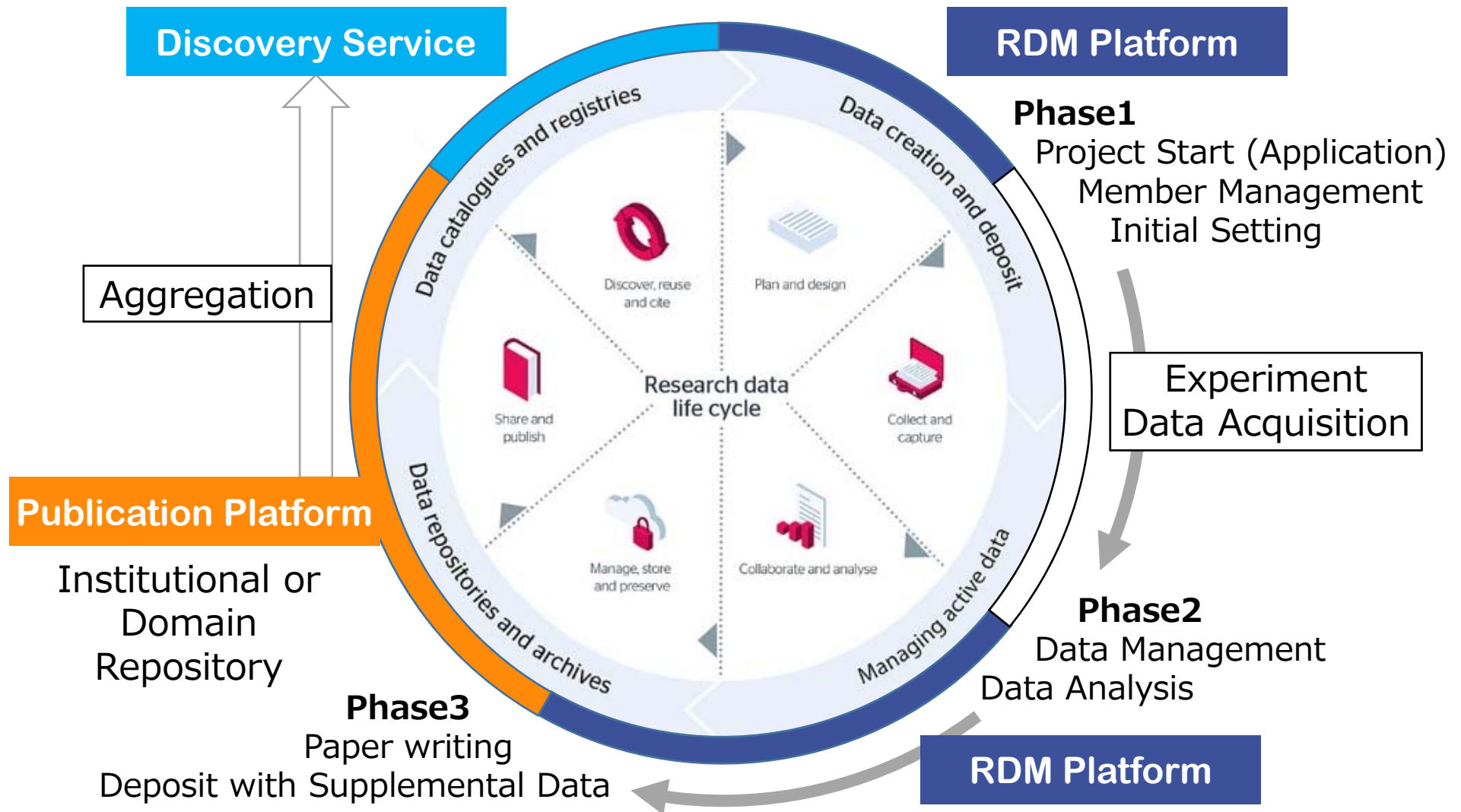
# How to realize our RDM Platform



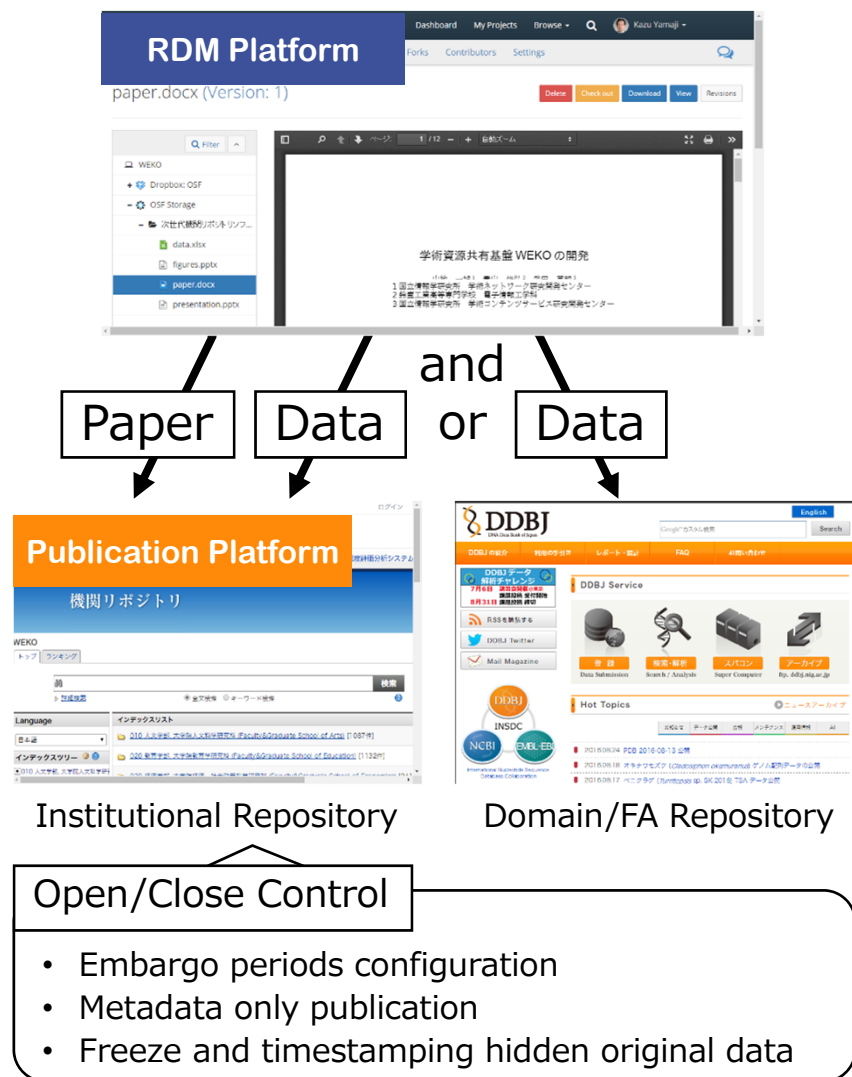
- Establish corroborative development with the Western projects
- Our Functional Requirements
  - Connection to institutional storage service
  - Institutional level control panel
  - SAML authentication and connect with VO Platform
  - Metadata management functionality
  - Easy deposit function to JAIRO Cloud
  - Mash-up with other scholarly information services in Japan

Advantage of OSF is its “Flexible” and “Extensible” architecture

# Relationship between Research Data Infrastructure and Research Workflow



# Possible Use Case in Phase 3 Publicizing Journal Paper and Supplemental Data



1. Manage manuscript using version control function
2. Manage reference information using external service (e.g. Mendeley) add-on
3. Manage supplemental data in the paper
4. Manage tables and figures

Submit

5. Share reviewers' comment and prepare for response

Accept

6. Deposit paper in publication platform based on FA OA policy
7. Deposit supplemental data in publication platform based on publisher's policy and DMP
8. Validate of metadata by librarians and data curators.
9. Assign DOI

Publication

\* Procedure would be changed depending on OA type and reviewing process.

# Deployment Plan

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- FY2016
  - Initial Development
  - $\alpha$ Testing with major Universities
- FY2017
  - System Development
  - Small Scale Feasibility Study ( $\beta$ Testing)
- FY2018
  - Large Scale Feasibility Study
- FY2019
  - Pilot Operation
- FY2020
  - Production Operation

RDM Platform

Publication Platform

Discovery Service