

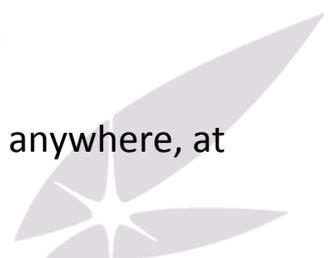
“Open Science” as a Practice?

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Why talking about “Open Science”?

- **Science is “open” by construction!**
 - Cumulative process
 - Peer review
 - Knowledge sharing
 - Falsifiability
 - **Theoretically YES, but in reality NOT SO SURE!**
 - Access to knowledge
 - Time consuming, administrative procedure, cost (*Serials Crisis*)
 - Conditions for use
 - Ownership (*copyright*)
 - Boundary between public and private (*publishers*)
 - **However, thanks to the power of the Internet**
 - Access to information ➡ Instantaneous, anytime, anywhere, at almost no cost (in theory)
- ➡ Tentative to make science “OPEN”!



What do we mean by “Open Science”

- **Underway to become a concept**
 - OECD (2015) “Making Open Science a Reality”
- **Common understanding (tentative!)**
 - “Open” in the way to produce knowledge
 - e.g. Citizen science, Networked science
 - “Open” for anyone to access to scientific publications
 - “Open” for anyone to access to and use scientific data

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“Open Science” a policy issue?

- **Bottom-up actions**
 - Creative Commons (2001-)
 - Science Commons (2005-) ➔ “Sharing”
- **Questions**
 - Publicly funded research ➔ Public goods?
 - Is “knowledge divide” socially acceptable?
 - Is the use of scientific data socially optimal?
 - ...

➔ **Place for public actions!**



- **Global actions (G8, OECD, Global Research Council, CODATA, Research Data Alliance, Belmont Forum, ...)**

➔ **Advocating and promoting Open Science in Japan**

G8 UK
UNITED KINGDOM 2013

GLOBAL
RESEARCH
COUNCIL
ICSU
WORLD DATA SYSTEM

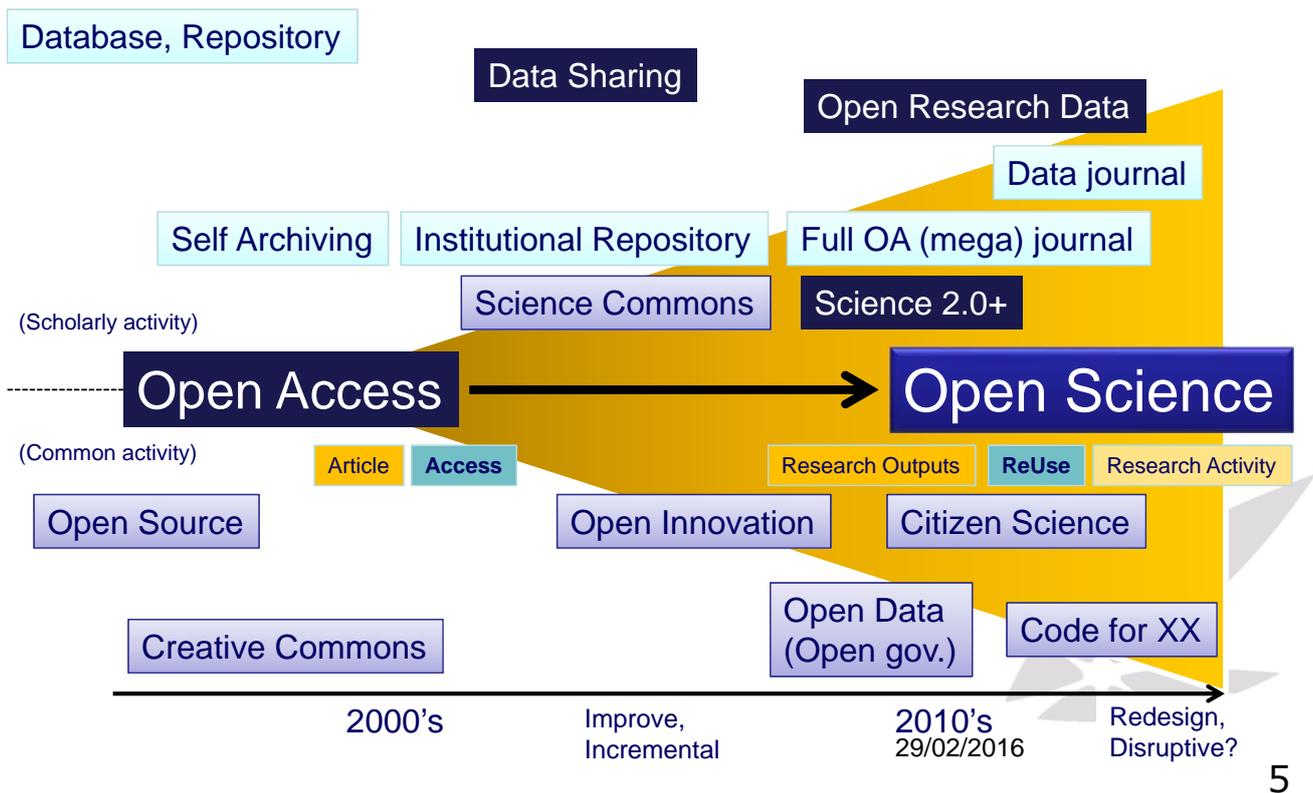
RDA
RESEARCH DATA ALLIANCE

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From Open access to Open Science



Where we are today in Japan?

- **In place**
 - Open access: institutional repositories
 - Database development in specific research fields
 - NBDC, WDC,....
- **But still catching-up global trends, if not**
 - Possible disadvantage in global-scale research
 - Inefficiency in conducting research
 - Losing visibility of Japan's research within the global science community



Actions by the CSTI

- **An Expert Panel on Open Science (12/2014 – 3/2015)**
 - Mandate
 - To identifying guiding principles to promote Open Science based on the whole-of-government approach
 - Members
 - Stakeholders from universities, R&D institutions etc.
 - Observers from relevant ministries and funding agencies
 - Hearings
 - From Stakeholders Including research institutions & publishers
 - Output
 - Report “Promoting Open Science in Japan” (03/2015)
 - To be integrated in the 5th S&T Basic Plan (FY2016-2020)

http://www8.cao.go.jp/cstp/sonota/openscience/150330_openscience_en1.pdf

Who should do what?

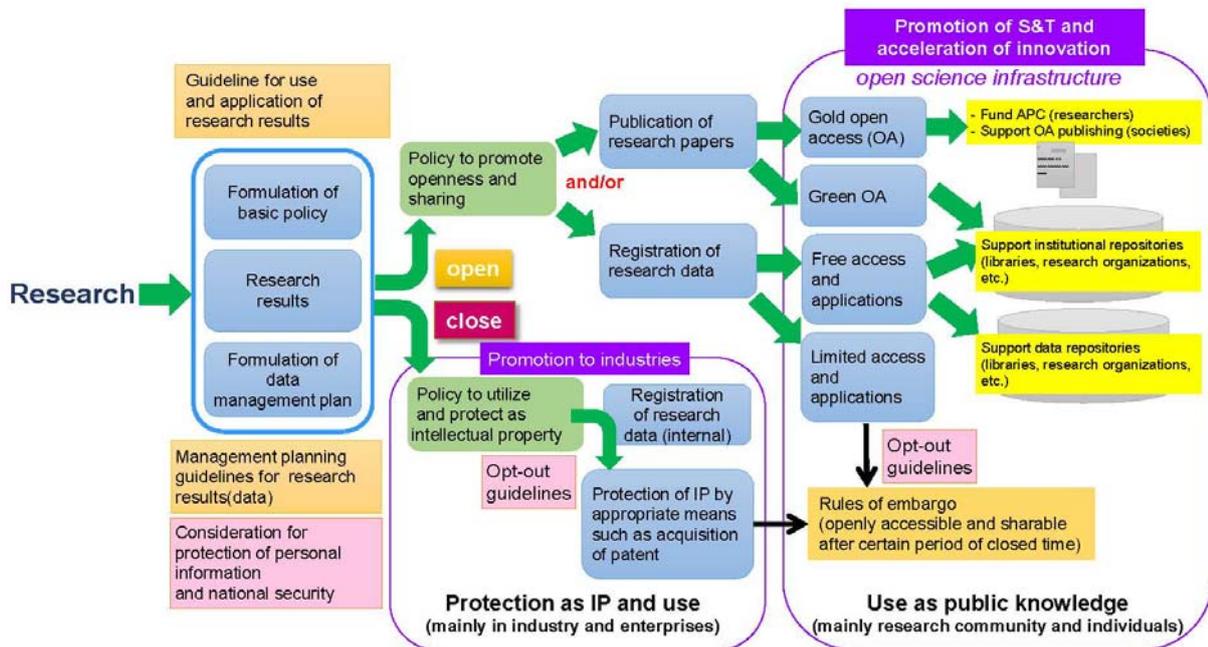
- CSTI
 - To present whole-of-government principles on Open Science, and follow-up on the implementation status and progress of relevant ministries and institutions
- Relevant Ministries/Funding Agencies
 - To formulate a specific **implementation plan** for Open Science
- Research institutions
 - To formulate regulations on the management of research data, esp. a mechanism to provide persistent identifier

Scope: Publicly-funded* research

- Publications & underlying data ➡ Open
- Other data ➡ Open wherever possible

* “Publicly funded” refers to research funding raised by the government or via an open call
“Research data” includes meta data, numerical data, text records, images and visual data

Policy map for Promotion of Open Science



Reference:
 Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020 Version 1.0 11 December 2013 p.4
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

Implementation plans

- **Guiding principles**
 - Reinforcing innovation and competitiveness
 - Transparency in all process for stakeholders
 - Identifying the location of and access to digitalized research data
 - Assessing operating costs
 - Including roadmap based on priorities
 - Specifying the development plan of data infrastructure
- **Access to research articles**
 - In line with the Budapest Open Access Initiative (2002)
- **Access to digitalized research data**
 - Accessible, searchable, readable, re-usable
 - Specificity of disciplines
- **Implementation and follow-up**

Actions on the ground

- Kyoto University, Tsukuba University
 - Open Access Policy
- Science Council of Japan
 - Committee on Open Science
- MEXT
 - “Implementation Policy of Earth Observations for 10years”
- Data Integration and Analysis System (DIAS)
- ...



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Follow-up Expert Panel (07/2015~)

- Members
 - Stakeholders from universities, R&D institutions, Academic community and attorney, ...
 - Observers from relevant ministries and funding agencies
- To be discussed
 - Common base rules versus Discipline-grounded rules
 - Funding mechanism
 - Copyright policy
 - Privacy issue
 - International collaboration



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Future Tasks

- Scope
 - Research articles and data to be open (or not to be open)
- Mechanism for data storage
 - Including data repositories
 - Selection of data for storage and storage periods
- Mechanism for quality assurance of the research data
 - e.g. “Peer review” system
 - Data publication and reference mechanism
- Compliance
 - Compatibility with the existing legal framework
 - Data privacy
- Human resources to support data-driven research
 - In particular data-scientists



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Our Challenges

*“Making Open Science a **Reality**”*
(OECD, 2015)



*Making Open Science as a **Practice!***

And exploiting together
new ways to advance science!



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