Open Science landscape in Japan (from my viewpoint)

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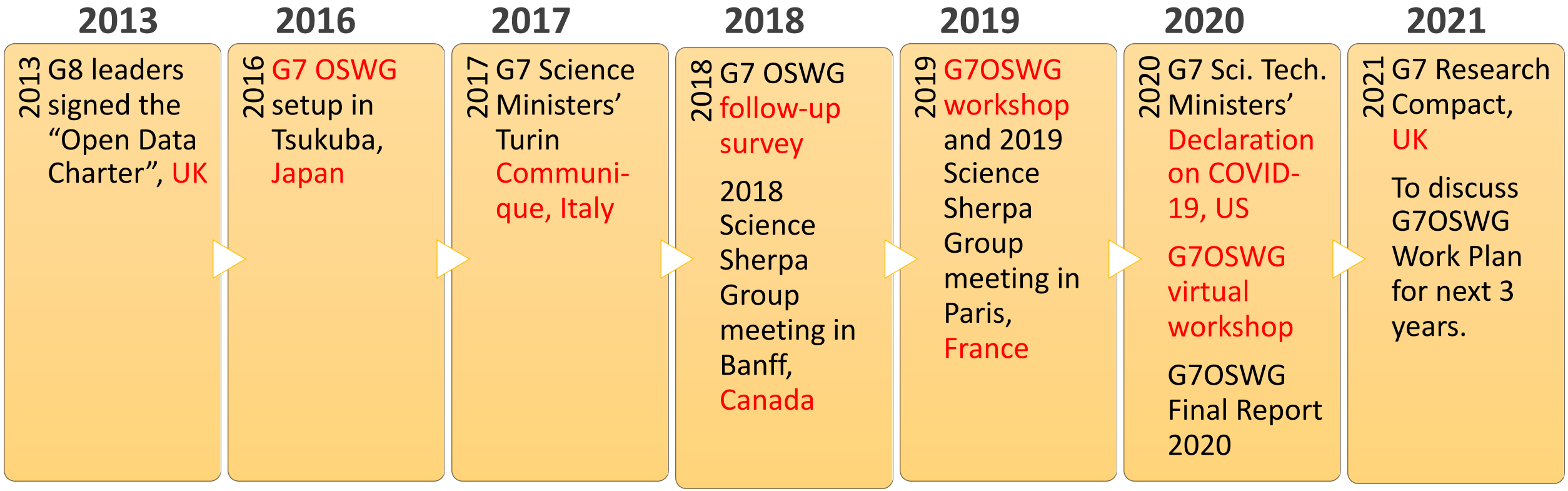
G7 Open Science Discussions and Japan

- In **2013, UK,** G8 agreement was a key for the JP govt's to start actions.
- In **2016, JP,** G7 Science Ministers agreed to establish G7 Open Science WG (G7OSWG) (co-chaired by **EC** & **JP**)
- Focused on 1) **incentives/rewards** for OS-practice and 2) research (data) **infrastructures**



Japanese national “Integrated Innovation Strategy”

- Cabinet Office & Natl. Expert Panel of Open Science Promotion
  - 2015: Frist National Report of Open Science Principles
    ”Opening up a new era for the advancement of science---” https://www8.cao.go.jp/cstp/sonota/openscience/
  - 2018: Guidelines for data policy (natl. research inst.)/for trusted data repository
    - Sub-WG for building res. data Infrastructure (1st report Oct. 2019, 2nd Mar. 2021)
  - “Moonshot Research & Development Funding Program” (by Cabinet Office)
    - promotes high-risk, high-impact R&D, including Res. Data Management with OS principles

Science Council of Japan

- Official “Open Science” committees 2015~ (proposed by the council presidents)
  1. Dec. 2015 –July 2016: Committee for examination of Open Science promotion
  2. Dec. 2018-Sept. 2020 : Committee for deepening and promoting Open Science
  3. 2020-Sept. 2023: Committee for building & use of data infrastructure to promote OS
- Disciplinary data committees: informatics, bio-informatics, earth science, …

(Note: All English on this slide is tentative translation by Y. Murayama except for the report 2015)

Examples OS Practices in Japan

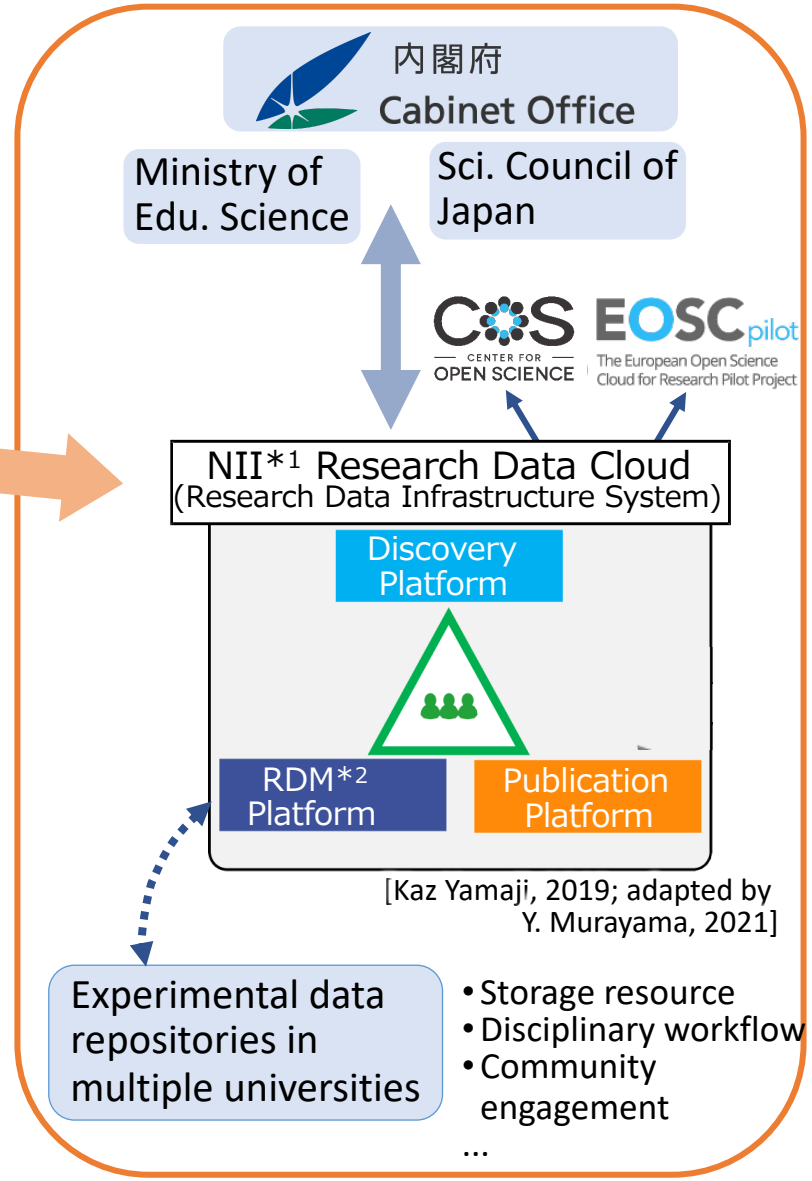
[Kaz Hayashi, JpGU, 2020; Adapted by Y. Murayama, 2021]

To-DO or Doing

- Community engagement (for culture change)
- Research Communities

1. Guideline of Data Policy for Natil Research Inst. (2018)
2. DMP by Public Funders JST, AMED, NEDO (2017-)
3. Data Management Infrastructure (RDM, IR, Search)
   NII Research Data Cloud etc. Ongoing (2020-)
4. Guideline of Research Data Repository (2019)
5. Association with E-journal (Data Publishing) JST (2021-)
6. OS Progress Monitoring (Natl. Inst. S&T Policy) (2019-)
7. Pilot program (Cabinet Office) (2019)

"Moonshot R&D Program"



*1) Natl. Inst. Informatics
*2) Research Data Management

Findable Accessible Interoperable Reusable

'www.codata.org/working-groups/fair-data-expert-group

Genome data: academic data sharing incl. COVID-19

INSDC

- International Nucleotide Sequence Database Collaboration
- Consists of ENA, NCBI GenBank and DNA Data Bank of Japan
- Databases are synchronized on a daily basis
- http://www.insdc.org

ENA European Nucleotide Archive

NCBI

DDBJ DNA Data Bank of Japan

Goal

To provide a comprehensive record of the world's nucleotide sequencing information, covering raw sequencing data, sequence assembly information and functional annotation

[Bert Overduin (2012)
Is adapted by Y. Murayama]
[Acknowledgement: M.Arita, DDBJ, 2021]

Lessons Learned, helpful for Climate research output, research ecosystem

1. Importance was recognized of the timely sharing of scientific knowledge and data (likely pushing Open Science in the govt.).
   (NB: Climate science seems more ready to share data.→e.g. IPCC TG-data)
2. Part of the scientific community found needs of culture changes in the S&T sector. The citizen, economy and governmental sectors will need also, with help of ICT infrastructure and social technology (or Digital Transformation; DX).
3. "Society 5.0", a concept proposed by Japan's govt. 5 years ago --- the Human-centric society with sophisticated fusion of cyber & physical spaces, to enable economic growth and to solve societal challenges (including SDGs etc.).
4. In 2021, the new 5-year Basic Plan started with deeper insight of DX, in the COVID-19 situation and beyond.
5. Its ultimate target is to contribute to the welfare of the human society with DX, and the society with "Trust", giving them a global value of "Society 5.0".

[Acknowledgement: K. Hayashi, 2021]