



# <Lecture 4>Expectations for open science – Shared and unshared challenges for Europe and Japan

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# Expectations from open science - Shared and unshared challenges for Europe and Japan

## オープンな科学の展望:ヨーロッパと日本 にとっての共通課題、固有課題

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## Open Science in “Openness movement”

- ▶ Open access: “free and unrestricted online availability” of “peer-reviewed journal literature” (BOAI, 2002);
- ▶ Open data: “Data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and sharealike” (Open Data Handbook, 2011-2012);
- ▶ Open source: Apache License, BSD license, GNU General Public License, and many more;
- ▶ Open reproducible research: “The act of practicing Open Science to enable the independent reproducibility of the research results” (Stodden, 2009);
- ▶ And, Open educational resources(OER) and MOOCs: “materials offered freely and openly to use and adapt for teaching, learning, development and research” (Commontwealth of Learning)

## Outline

**Caveat:** While respecting EU’s pro-open science decisions, I don’t and can’t quite say anything really constructive, but will confine myself to trying to better understand perceived challenges.

“Open science” is an oxymoron, to begin with. Science has been esoteric, monopolized by experts, sages, savants, gurus, authority *etc.* But, anyway,

1. Terminological reflections À la FOSTER
2. Open access and open data in Japan, 2020: Targets and predictions
3. Possible innovations and possible breakthroughs: Social and economic impacts of “open” science, really?
4. Obstracles and hindrances
5. Agenda to be shared

## Naive quesitons(1): Is open science a better science?

1. Open access: “Accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich”
2. Open data: Decreases costs, promotes new research, facilitates education of future researchers, expands unnoticed possibility *etc*
3. Open source: “Given enough eyeballs, all bugs are shallow,” ( *i.e.* the more widely available the source code is for public testing, scrutiny, and experimentation, the more rapidly all forms of bugs will be discovered.)
4. Open reproducible research: Improves reliability of scientific research
5. Open educational resources: Promotes education

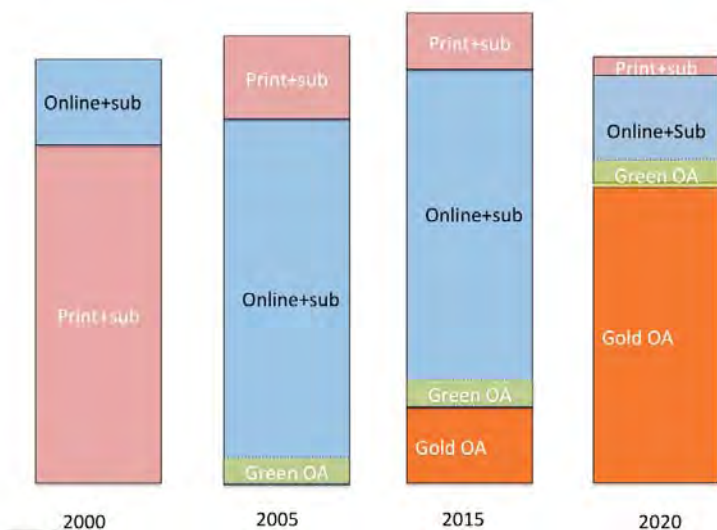
## Naive questions(2): Is “Open science” a scholarly communication concept, or a science practice concept?

1. Is open science cheaper?  
Good science does not have to be cheap, right?
2. Is open science “innovative”?  
Probably no
3. Is open science consistent with industrial innovations?  
Industry does not pay if it does not have to.
4. Is open science sustainable?  
Who pays for science?

Everything ending up with, or starting with **MONEY!**

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## Flipping for the second time



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## Open access in near future

- ▶ Funders emerging
  - ▶ RCUK
  - ▶ NWO
  - ▶ GRC
- ▶ Open access is easy to achieve when it is tied up to “research assessment, ” a lesson from UK’s REF2014, 2020I
- ▶ Open access secularized into business models
  - ▶ “Cascade” editing may be going to be prevalent with publishers with quality journals
  - ▶ No sales to libraries unnecessary any more
- ▶ “Predatory” publishers emerging anyway, with quality assurance yet to be lost

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## Will citizens be more educated and “scientific” ?

- ▶ This is not new
  - ▶ William Whewell’s tidal research 1833 – 1840, made possible by British Association for Advancement of Science (currently, British Science Association)
  - ▶ SETI@Home, SOHO, Galaxy Zoo, The Great Sunflower Project, FoldIt etc.
  - ▶ Polymath
  - ▶ *Lorenzo’s Oil*(1992), *Extraordinary Measures*(2010), etc.
- ▶ Citizens are tools, not really beneficiaries?
- ▶ If citizen science is more or less confined to data collection and puzzle solving, which are both features of “normal science,” it is hard to expect innovations from citizen science.

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## Data is tough to make open

- ▶ Data sharing is necessary for sure
  - ▶ Explosion of data creation/generation
  - ▶ Size
  - ▶ Reproducibility
  - ▶ Constraints on resources. Budget.
- ▶ However,
  - ▶ Are seemingly “all-purpose,” though actually article-oriented, “institutional” repositories tough enough?
  - ▶ Cybersecurity on campus generally tends to be miserable world wide
  - ▶ What is the “given”(=datum) anyway? Isn't it that all observation is theory-laden?
  - ▶ “Open” means “Unwarranted,” a forgotten principle, *i.e.* who curates?
  - ▶ Whoever cares will curate and share, but that's what we do now

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## What about Japan?

- ▶ “Open access” is not so much of success so far, nor will it be
  - ▶ Only a small number starting or turning to open access journals as well as a low green rate of capturing articles on institutional repositories
- ▶ “Open science” is an “imported” idea, not necessarily indigenous
  - ▶ The logic is that because open science could make for the country's sustainable development, open science is good and necessary, so that it is necessary to “respond to the global trend in open science.” by “the expert panel on open science, based on global perspectives, Cabinet Office” (March, 2015)
- ▶ Open data is being discussed and will be only discussed except for niche fields, like bio and earth sciences, with many difficult cases in the humanities and social sciences
- ▶ Open source will stay

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## Changes apparently, but nothing is new except for “digital”

- ▶ “Big science” funding since the mid-20th century, and “science for progress and prosperity” since the 19th century
- ▶ Scientists since the early 19th century
- ▶ Modern university à la Humboldt with higher education and research for “the country”
- ▶ Scholarly society/associations since the early 19th century
- ▶ International collaboration by scientists across borders since a long time ago
- ▶ employment and promotion based on research performance in research institutions since nobody knows when

Is “digital” ominous for an overall restructuring?  
Or will the changes be assimilated into the scientific establishment?

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## The role of libraries/librarians ready to disappear?

- ▶ Given the progress of gold open access, authors will be readers more literally, probably still assisted by publishers
- ▶ Given the slow progress, hopefully, of green open access, repositories will be merely platforms which can be managed by anyone, not excluding librarians but including many others
- ▶ Given the progress of OER, teachers are free to choose anything available on line, thus unburdening libraries of the duty of providing learning materials for students, like reserve stack
- ▶ Data is of such diversity that the relatively homogenous library methods may not handle.

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## In (place of) conclusion

- ▶ What is the role of green open access in the world where gold open access is the rule? ⇒ Libraries will be publishers of locally generated knowledge for all to share
- ▶ Data sharing is necessary and vital, as evidenced by our past practice. Science has long since been a community activity. ⇒ “Digital” has made it easier.
- ▶ Open source will be normal in various ways
- ▶ Open reproducible research will be more appreciated than before in the sense that research will be more “ethical.” But data sharing is more important in UNreproducible research, like geosensing, ecology, *etc.*
- ▶ Higher education as a place for research, why? ⇒ The question will still remain.