Data Reporting – Open Science

Jung PARK, PhD
Research Fellow in Data Science

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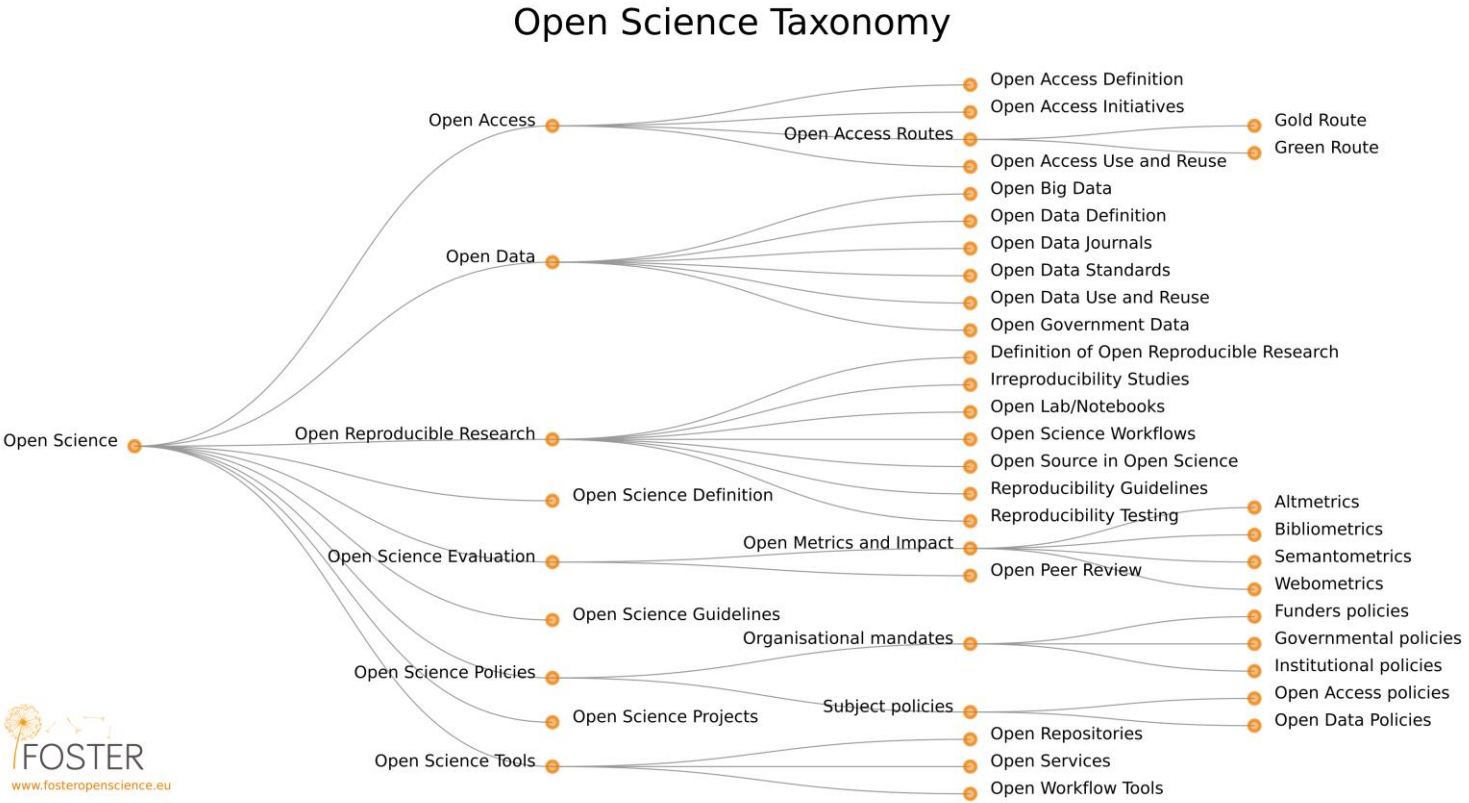
Executive summary

- Open science is a new trend that computer science and biology are leading
- EPFL is one of the pioneers pushing its research culture in this direction
- The basic principle is that science has to be open to everyone for the benefit of the society
- While open science has a broad meaning, not all the principles are (easily) applicable in business research
- Open reproducible research can be the first one to achieve

Open Science as an umbrella term



Open Access
- open as much as possible

- The world is facing very difficult challenges that have to be solved together
- Sharing data and codes as well as the article with other scientists can help them jump start the research to solve the common problems
- This will be beneficial for the science community in general and for the society

Examples of common challenges listed by UN

(http://www.who.int/mediacentre/events/meetings/2015/un-sustainable-development-summit/en)

Open Reproducible Research
- open as much as necessary

- Some researchers are reluctant to share their know-hows
- However, any scientific finding ought to prove its reproducibility
- Establishing systematic procedures also enables the original researchers to reproduce the research by oneselves, and eventually help expanding sthe research

- Tools
  - Github: cloud-based repository with version control
  - Sharing data and codes after publication

Open Peer Review
: open to get feedbacks before completion

- Uploading the preprint of a manuscript online such as at SSRN (Social Science Research Network)
- This is common in the fields where one-side blind review is acceptable (biology and finance)
- Some editors may challenge you as it breaches the double-blind review policy in most management journals; most universities doesn't count preprints as achievement
- [Caution!] a publication record at SRRN will remain forever; once published, you cannot erase the record completely even though you found mistakes in the research. You may want to upload an updated version or publish erratum. Therefore, it is recommended to publish only a completed work.
- [Completed work?] In some scientific fields (ex. biology), experimental data are highly valuable so that you don't expect to change the conclusion a lot from a draft to the final published manuscript. However, in a management study, you may decide to rewrite an article completely during a long review process.

Open Publication

- Some criticise the excessive power of mega-publishers for impeding the scientific development

  “For researchers, getting published is like going to a restaurant, bringing all of your own ingredients, cooking the meal yourself, and then being charged $40 for a waiter to bring it out on a plate for you.” - Jon Tennant, open scientist

- A journal publisher has done a valuable role as a gate keeper for good research. But the change from paper to digital version didn’t lower the price
- Some scientists promote fighting back back by publishing research in open access journals
- This is retarded by the cultural inertia of pursuing a high impact-factor journal publication despite the awareness of Goodhart’s Law: "When a measure becomes a target, it ceases to be a good measure.”

References

Open Science Mooc
https://opensciencemooc.eu/

EPFL
https://www.epfl.ch/research/open-science/