The expanding scholarly record

Data & software & materials, *oh my!*

UKSG: Open Access Lifecycle Seminar
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These slides: http://bit.ly/uksg-jc-esr
Live transcript: http://bit.ly/uksg-jc-esr-transcript

Agenda

- RDM & Open Data: a (very) brief history
- Why do we want to be Open, anyway?
- Where is Open Research heading?

Research Data is...

- Text, documents, corpora, images, maps, web pages, spreadsheets, interview transcripts, video, audio, 3D models, ...
- Any source of information you use to support a research conclusion or argument

Brief aside: *I try to consistently treat "data" as a mass noun*

Other people prefer to treat it as plural;
I don't mind what you do as long as you're consistent!

BRITISH LIBRARY

Wait, let's back up a bit...

Some background

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- 2016: FAIR Principles for Data published
  - *More on this later…*

Aside

Much of this ☝ is becoming prey to link rot...

But it's still available thanks to the work of

- The National Archives
- UK Web Archive
- Internet Archive

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- Who is responsible for what parts?
- Who should pay for the costs of good RDM?
- Moving from RDM to Open Data where possible
- How Open is Open? How Open should / be?
- What should be Open?

Are we nearly there yet?

Photo by Priscilla Du Preez on Unsplash

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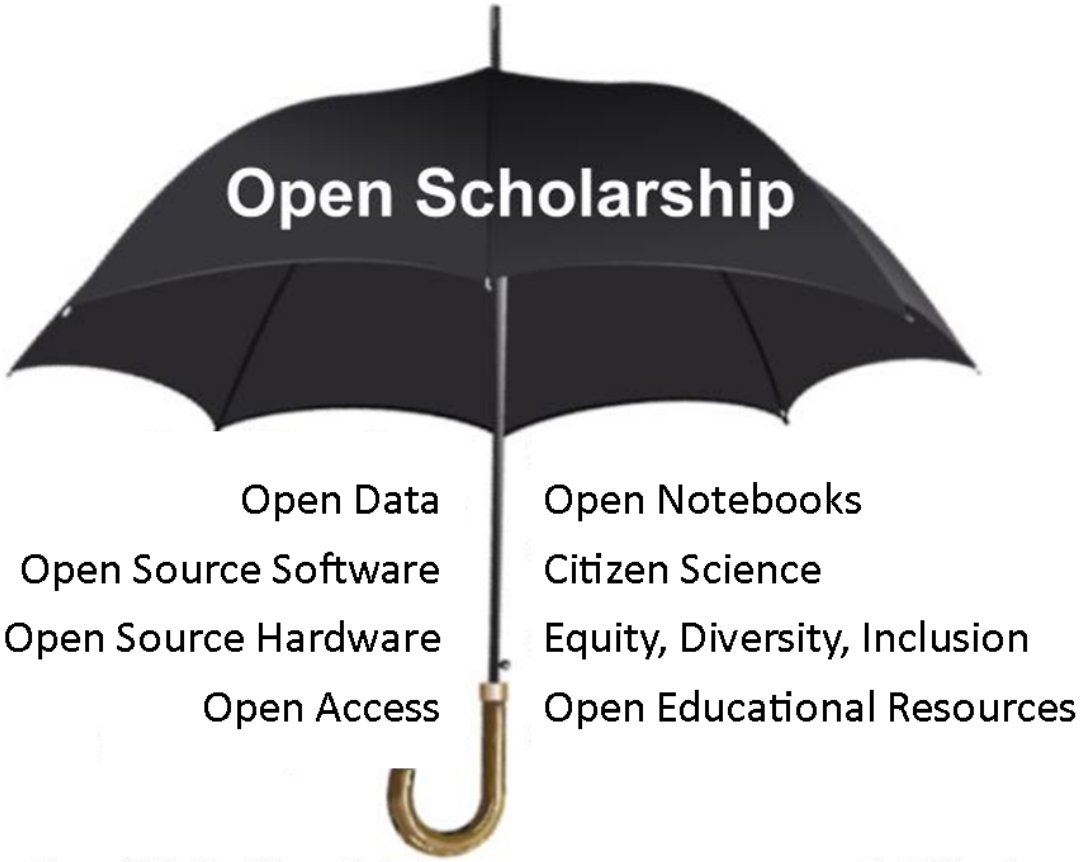
But we *are* making progress!

So where are we now...?



Adapted from: https://www.meetup.com/Berlin-Open-Science-Meetup/

Robin Champieux and Danielle Robinson

Why do we *want* to be Open?

- Transparency?
- Trustworthiness?
- Efficiency?
- Inclusivity?

FAIR principles for data (2016)

- Data should be:
  - Findable
  - Accessible
  - Interoperable
  - Reusable

FAIRsFAIR Project https://fairsfair.eu: *"Fostering Fair Data Practices in Europe - aims to supply practical solutions for the use of the FAIR data principles throughout the research data life cycle"*

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., Blomberg, N., … (2016). The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data, 3(160018). http://dx.doi.org/10.1038/sdata.2016.18

What is scholarship, anyway?

> "An article about computational science in a scientific publication is *not* the scholarship itself, it is merely *advertising* of the scholarship. The actual scholarship is the complete software development environment and the complete set of instructions which generated the figures."
> — *David Donoho in 1995, paraphrasing geologist Jon Claerbout*

Buckheit, J. B., & Donoho, D. L. (1995). Wavelab and reproducible research. In A. Antoniadis, & G. Oppenheim (Eds.), Wavelets and Statistics (pp. 55–81). : Springer New York. http://dx.doi.org/10.1007/978-1-4612-2544-7_5

Tell the *whole* story

Not just the book/article! Yes, data, but also...

- Methodology
- Software/analysis code
- Intellectual property
- Primary & secondary sources
- Public engagement activities
- Creative outputs: performances, artworks, poetry...

Wellcome Trust call this "Outputs Management"

Research Software

Any software used to conduct research

- *May* include:
  - Commercial software packages
  - Software modules & libraries
  - Even programming languages themselves (e.g. Python, R, Matlab)
  - Workflows
  - Simple analysis scripts

FAIR Research Software

- What does FAIR software look like?
  - FAIR4RS joint RDA/FORCE11/Research Software Alliance working group
- Ongoing work by: Software Sustainability Institute; Society of Research Software Engineers; *and many others*

What else?

- Physical artefacts
  - Museum collections
  - Archives
  - Cell lines
  - Tissue samples
- Methods and protocols
- Instruments
- Projects
- Funders
- ...

PIDs: Tying it all together

Persistent Identifiers (PIDs) provide a linking infrastructure for the scholarly record

- DOI (DataCite, Crossref); ORCID; ISNI; FundREF; RAiD; …

The PID Graph

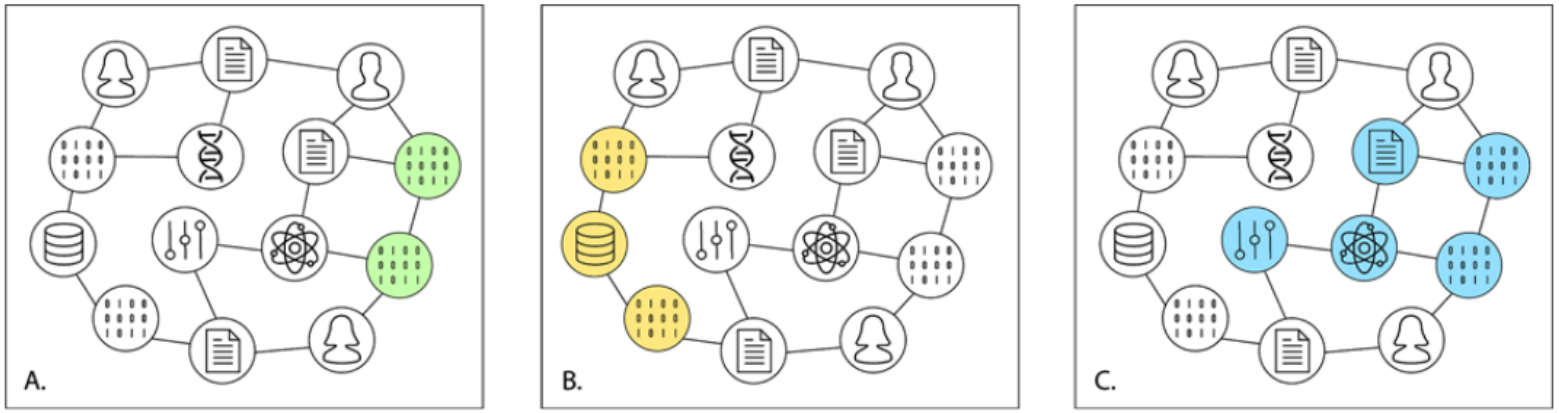


Figure 1 A schematic representation of the PID graph with digital objects connected by PIDs, showing three use cases: A: Different versions of software code, B: Datasets hosted by a particular repository, C: All digital objects connected to a research object.

From Project Freya: https://project-freya.eu

Where can I learn more?

The Turing Way, "an open source community-driven guide to reproducible, ethical, inclusive and collaborative data science https://the-turing-way.netlify.app

Library Carpentry FAIR Research lesson (work in progress) https://github.com/LibraryCarpentry/lc-fair-research/

Research Data Alliance working groups https://www.rd-alliance.org

- RDA 17th (Virtual) Plenary Meeting: 20–23 April 2021

GLAM (Galleries, Libraries, Archives, Museums) Data Science Network: *watch this space...*

Summary

- We're building a resilient scholarly record for the future

Photo by Courtney Hedger on Unsplash