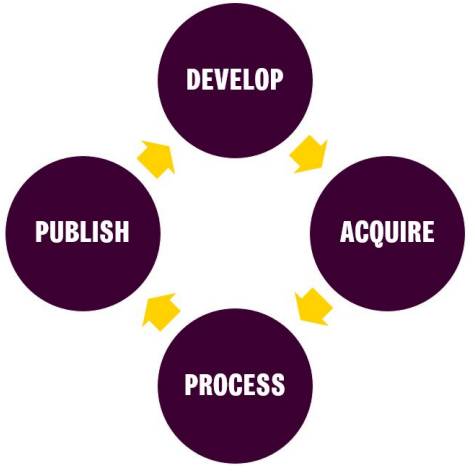

OPEN RESEARCH SKILLS FRAMEWORK

Research Coding Club, Feb 2023
Ben Catt, Open Research Librarian

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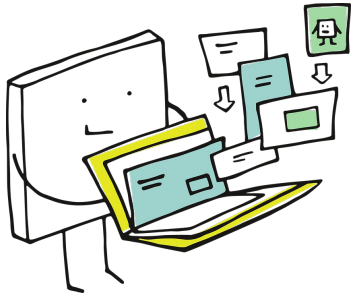
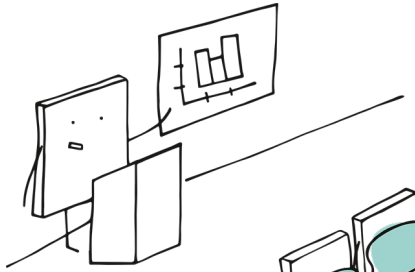
Why open research?



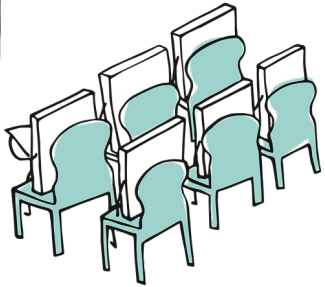
University of York Open Research Statement

- *all aspects of the research cycle should be **shared and accessible where possible… as open as possible, as closed as necessary***
- *[OR] makes the research process **transparent** and creates new opportunities for outputs and methods to be **reused, reproduced and credited**. It generates an environment for more **effective and efficient research**, and a culture where open is the default.*
- *[OR] is **relevant to all researchers**, but its applications differ between disciplines*

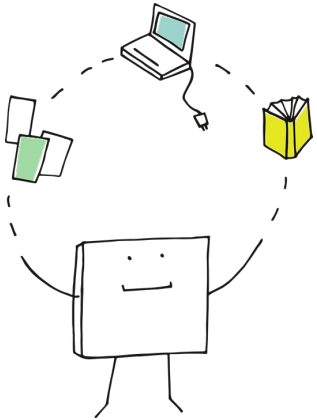
Who benefits?

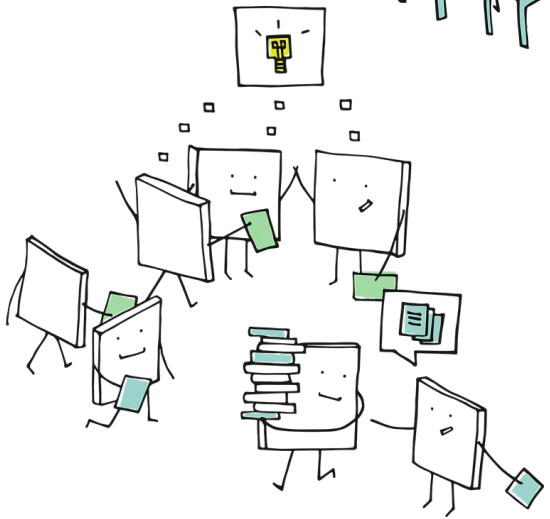


The research community



Researchers and their work

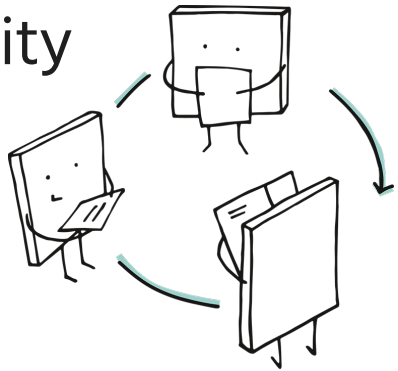


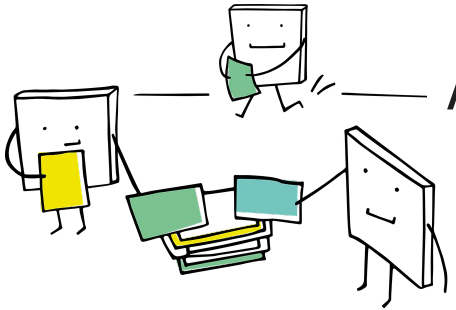


Wider society

Open research values

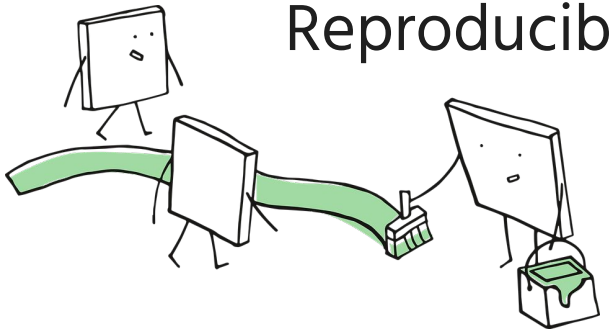
Reusability

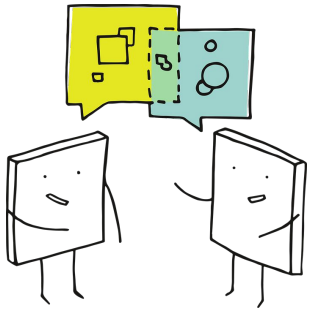




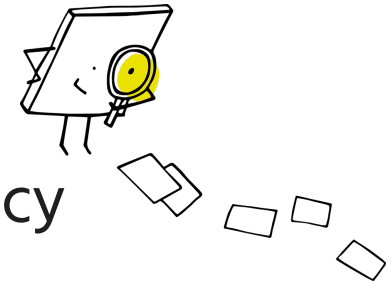
Accessibility

Reproducibility



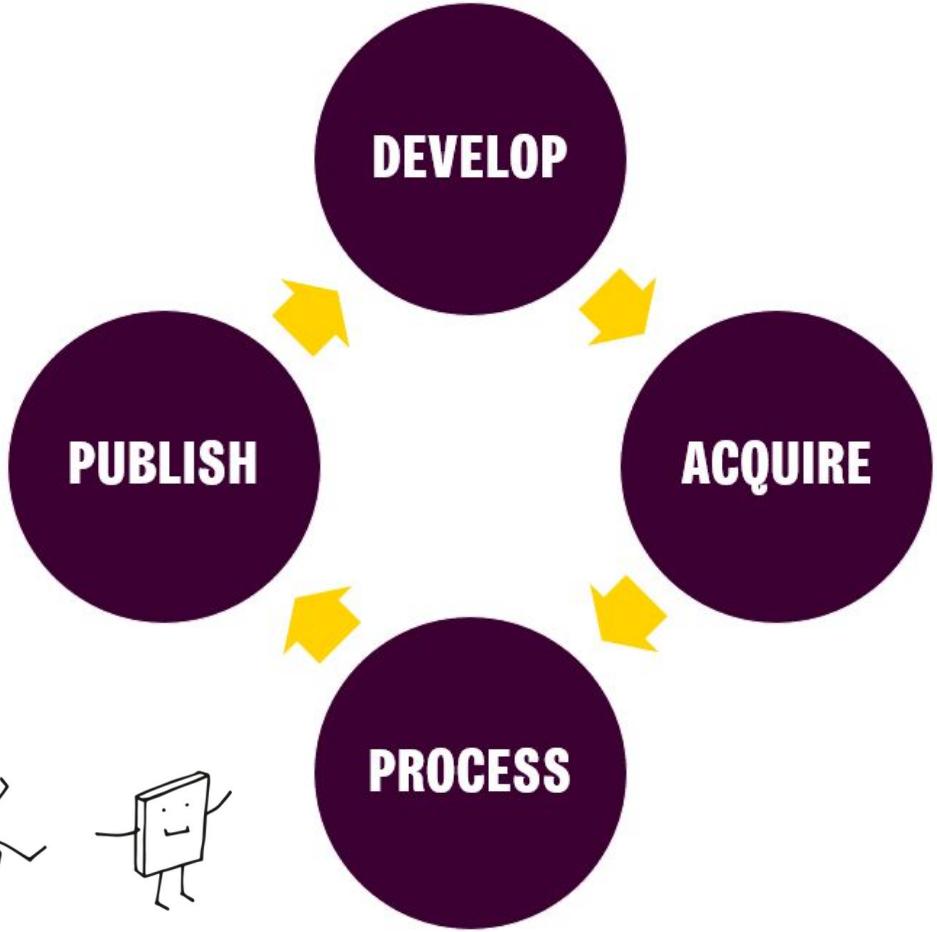


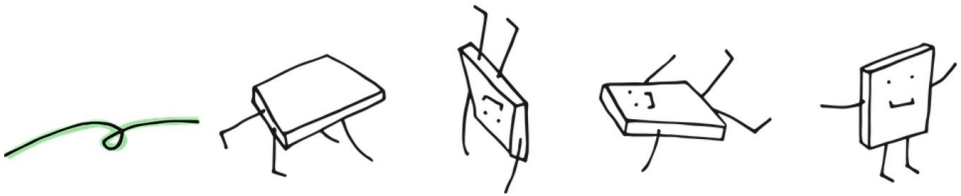
Collaboration



Transparency

The open research lifecycle



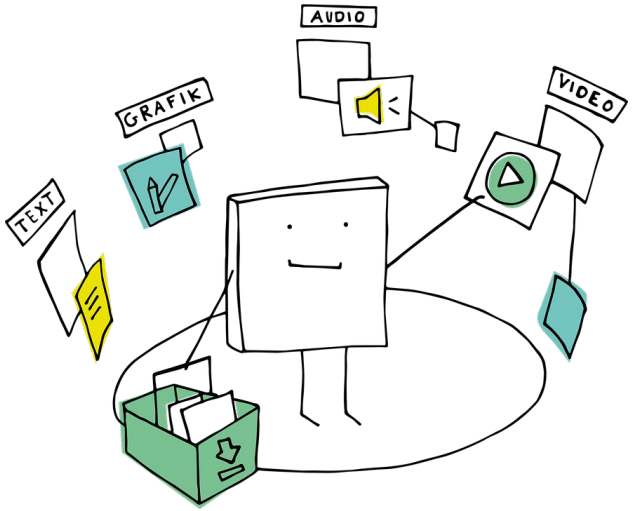


What is research data?

UK Concordat on Open Research Data

- The evidence that underpins the answer to your research question
- Many formats

A lot of what is said about research data can be applied to research software too - the simulation/analysis code can be just as important (if not more so) than the data itself.

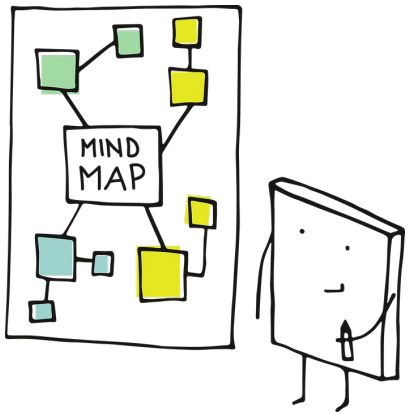


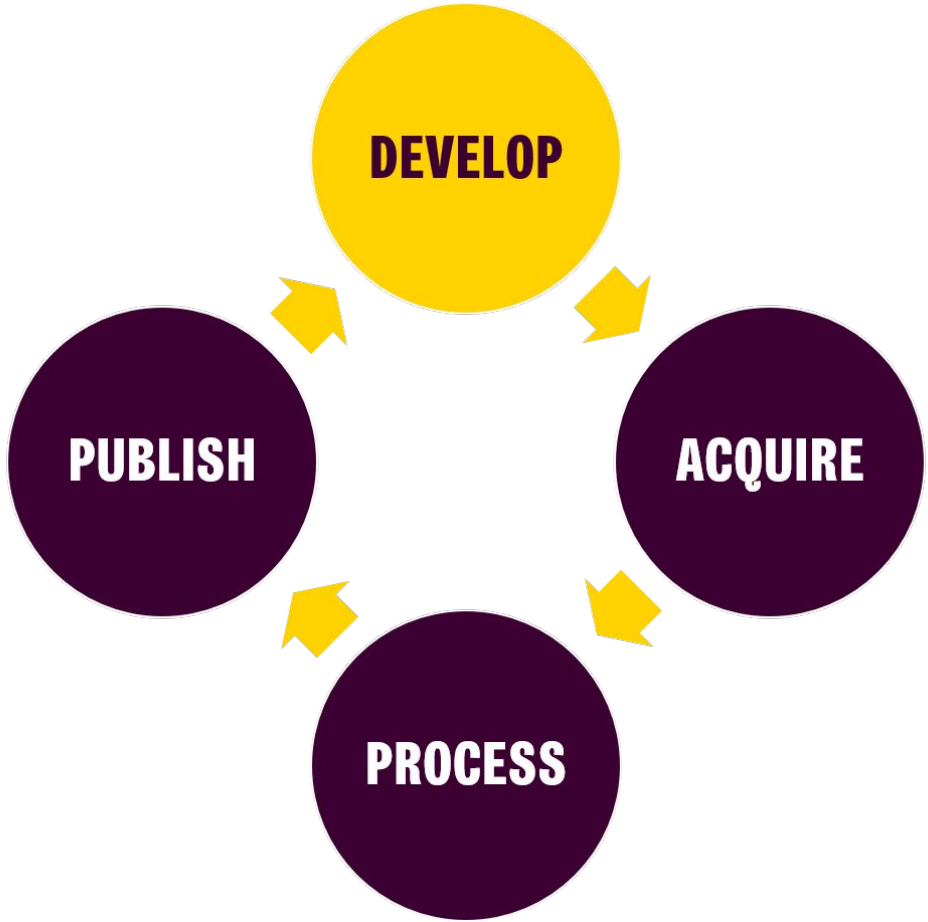
Develop:

- DMPs

  Planning your data management
- Open Notebooks

  Also:
  - Preregistration / Registered Reports / Protocols



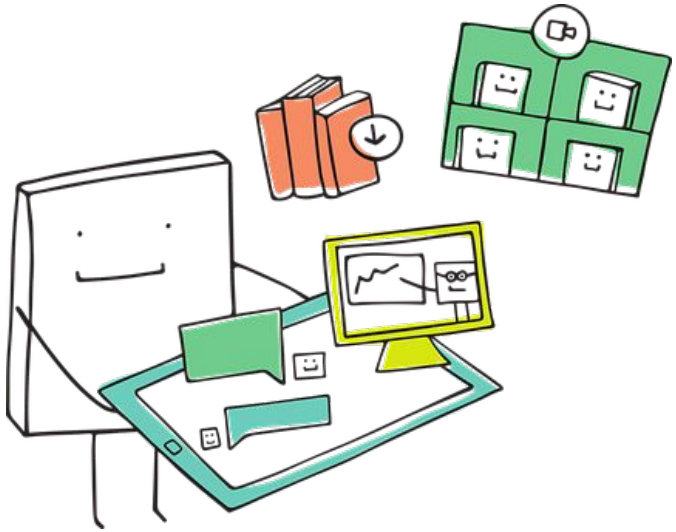


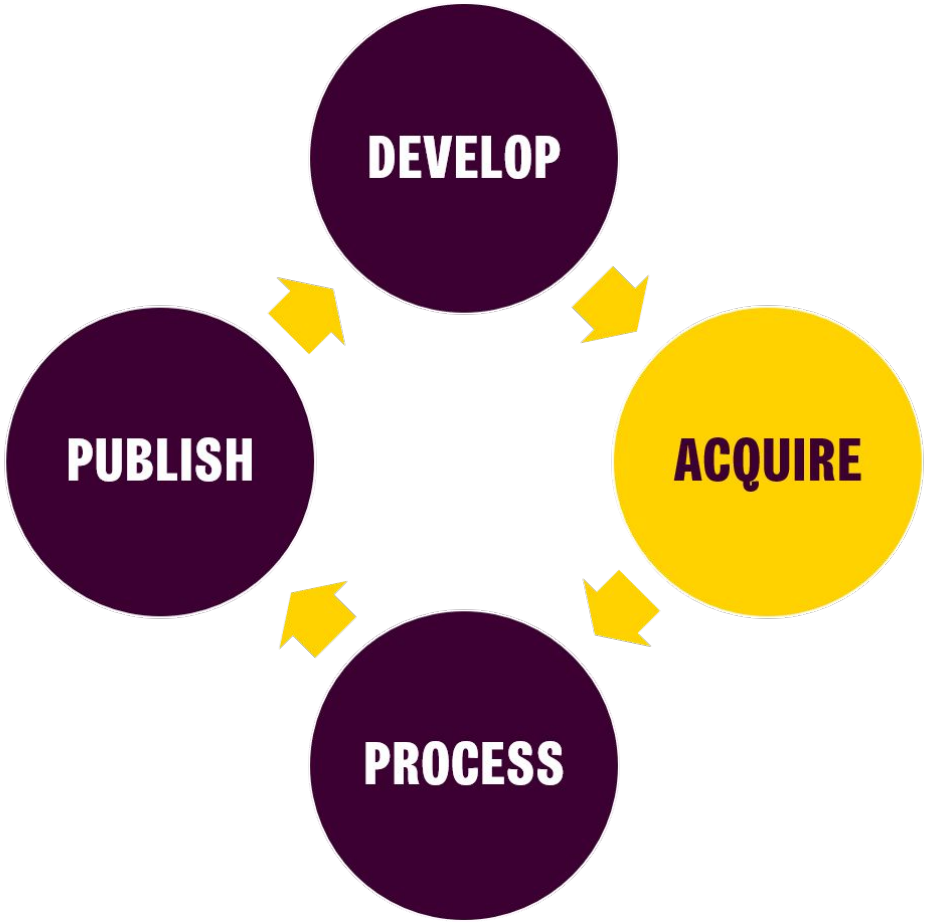
Acquire:

- Open Data Reuse

  Also:

  - Participatory Research / Citizen Science



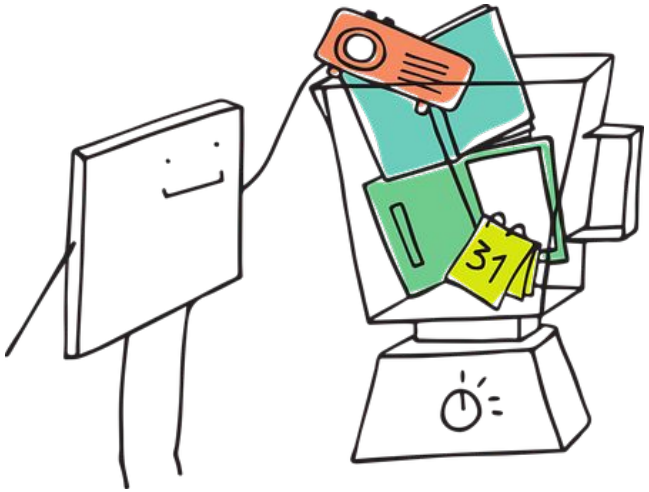


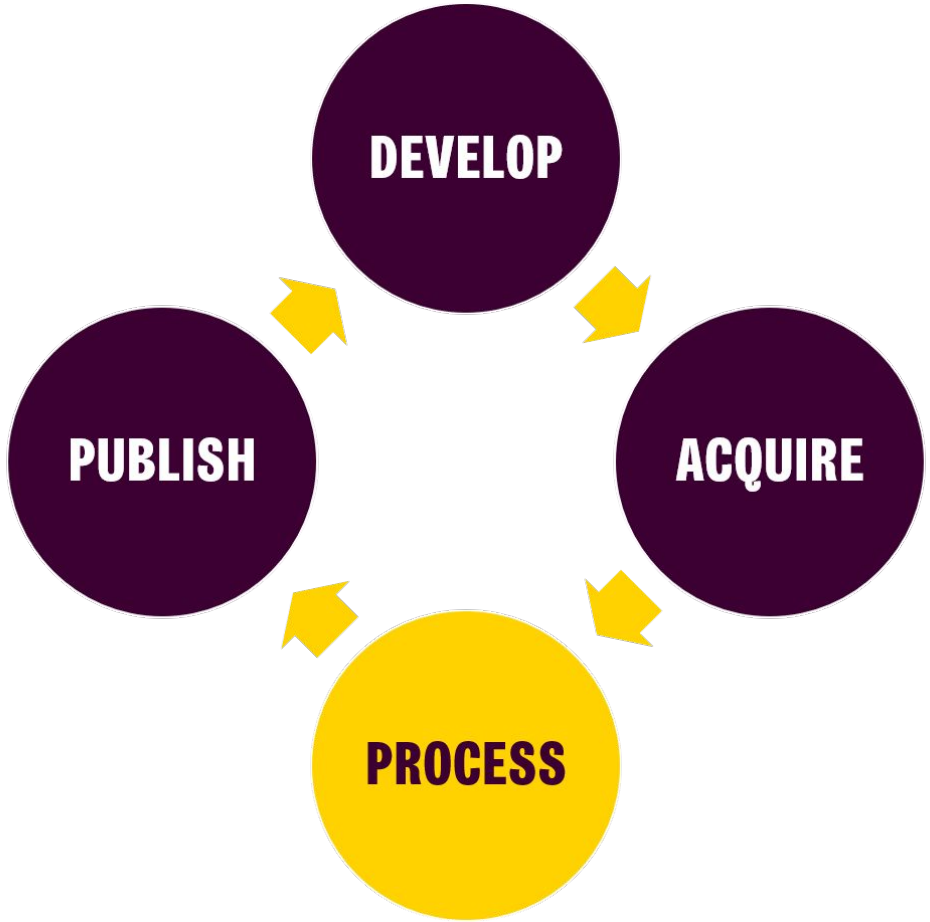
Process:

- Research Data Management

  RDM web pages

  University RDM Policy





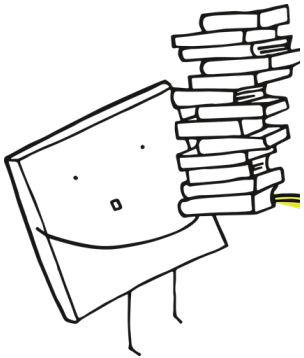
Publish:

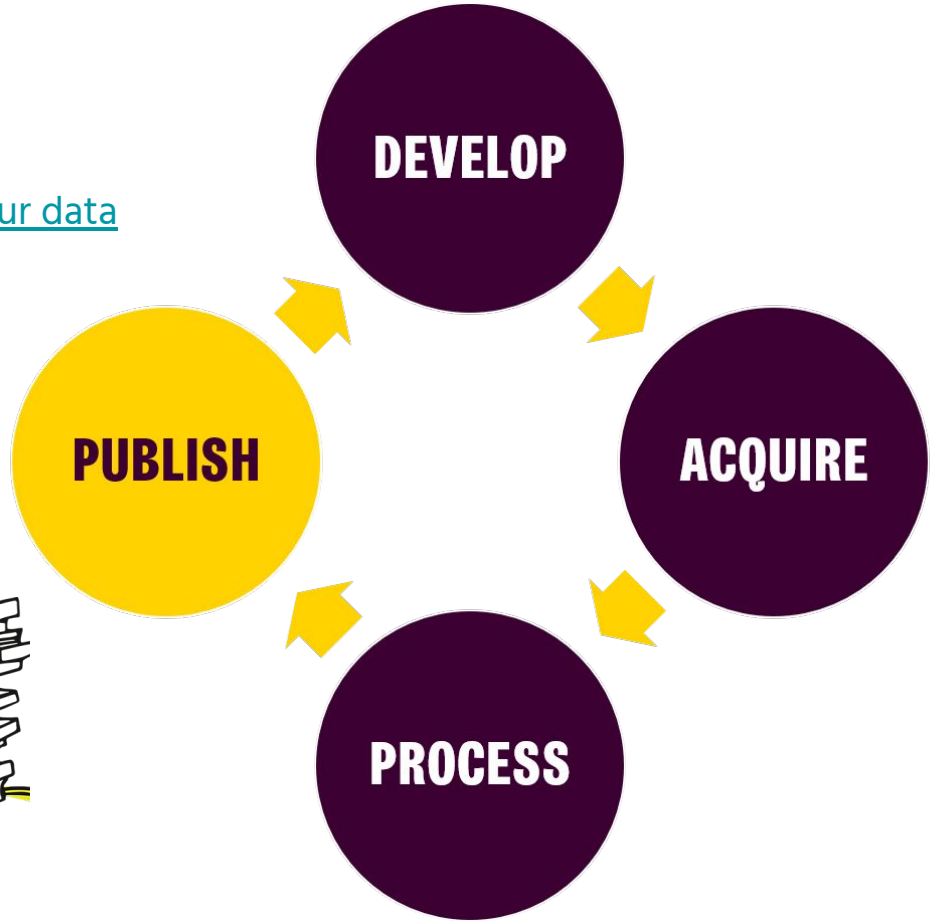
- Data and code sharing

  Sharing, preserving and depositing your data

  Research Data York

  Also:
  - Open Access Publication
  - Open Peer Review
  - Preprints
  - Open Access Theses



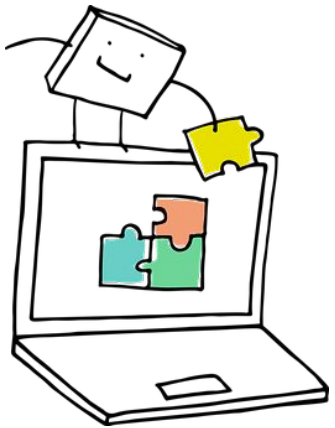


What to do? The short version

1. Run simulations with an identifiable version of the code
2. Document and keep all inputs used to produce published results
3. Document all post-processing steps from simulation output to graph
4. Put this information somewhere safe, and record its existence

- Note: Something is better than nothing!

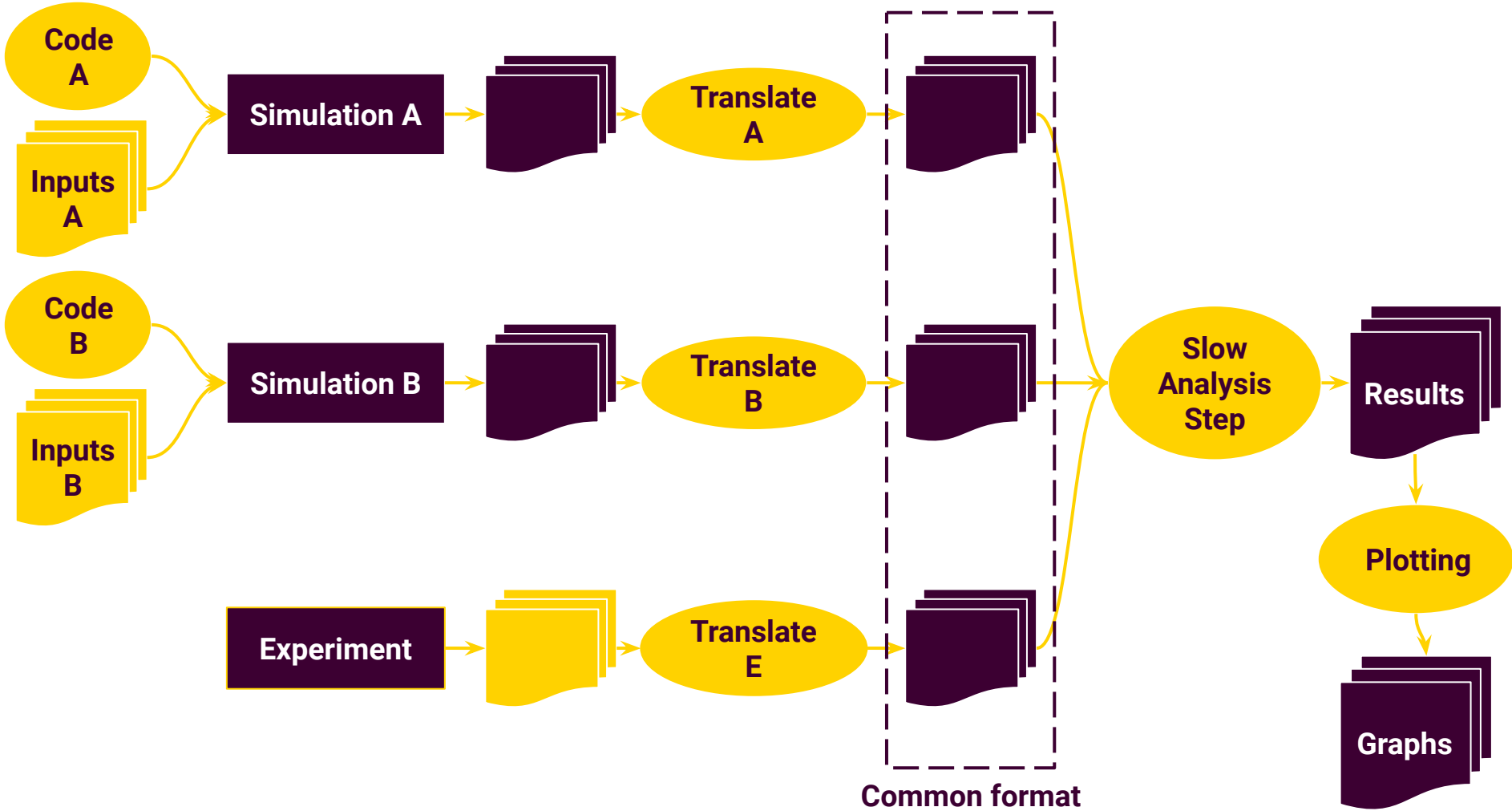
(Dudson, 2017)



Case Study

Comparison of simulations using different software to experiment

- Experimental data is irreplaceable — must keep!
- Simulation data could be recreated — if we keep code and inputs
- Translate different data sources to a common format, then apply the same analysis code to all of them
- Separate slow analysis from plotting
- Keep the scripts and essential inputs (in yellow)
- Keep as much of the rest as you can, starting from the end and working back


Code A
Inputs A
Simulation A
Translate A
Code B
Inputs B
Simulation B
Translate B
Experiment
Translate E
Common format
Slow Analysis Step
Results
Plotting
Graphs

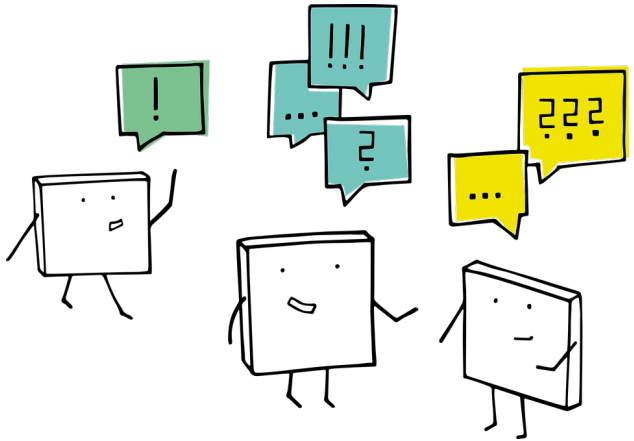
Open research in practice at York

York Open Research Wiki

- Open Research in practice case studies
- York Open Research Awards
- Open Research events

Our open research community

- Advocates network
- Training, support and discussion groups in departments (list)

Further support

- Open Research Skills Framework: a Practical Guide
- Slides from 2021 session on RDM (Lindsey Myers)
- Slides from 2017 session on RDM (Prof Ben Dudson)
- Open Research team (lib-open-research@york.ac.uk)
- @UoYOpenRes on Twitter
- #york-open-research on Slack