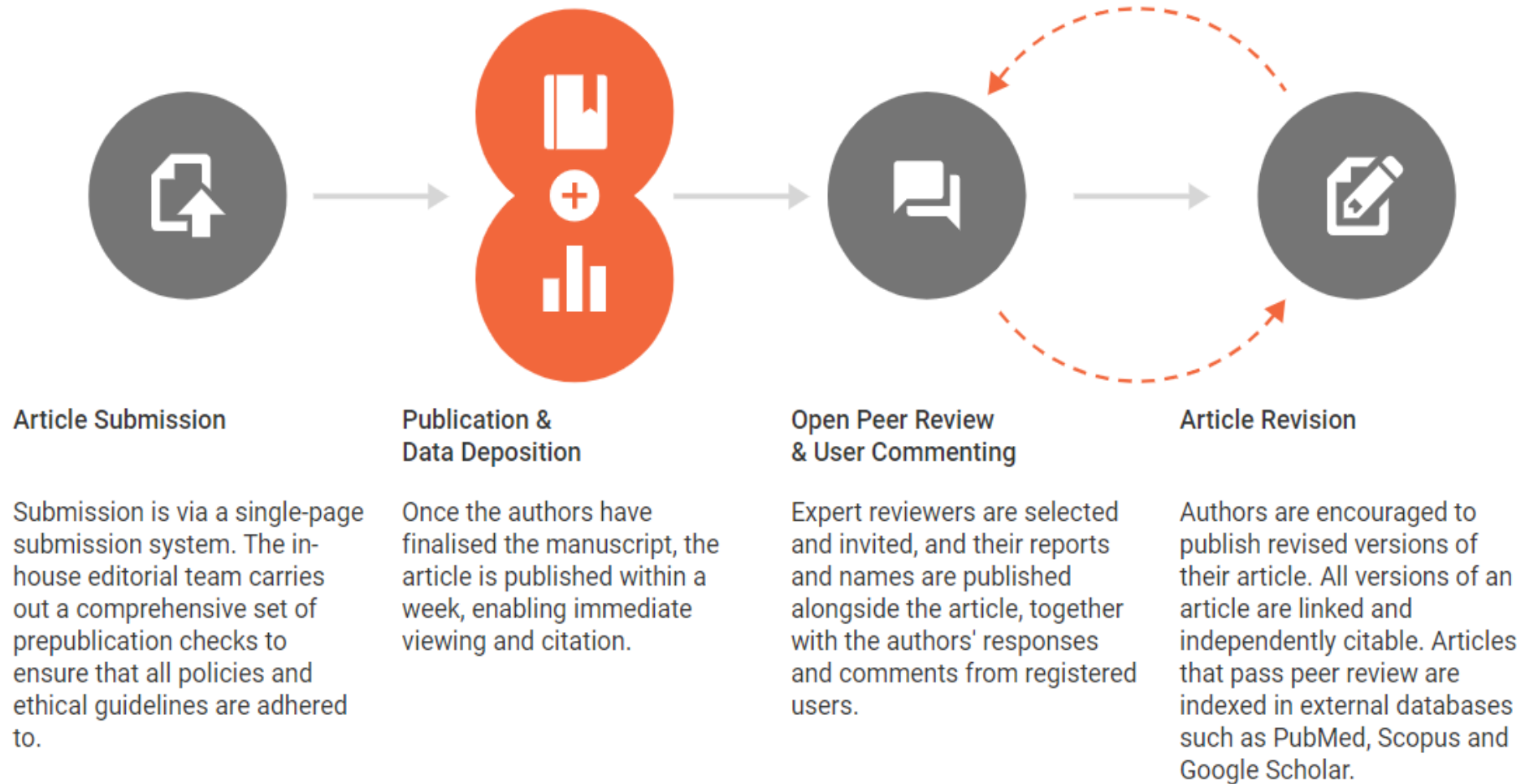# Open Science: catch phrase, or a better way of doing research?

**Dr. Rebecca Grant, Head of Data & Software Publishing, F1000**

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# The F1000 publishing model

**Article Submission**

Submission is via a single-page submission system. The in-house editorial team carries out a comprehensive set of prepublication checks to ensure that all policies and ethical guidelines are adhered to.

**Publication & Data Deposition**

Once the authors have finalised the manuscript, the article is published within a week, enabling immediate viewing and citation.

**Open Peer Review & User Commenting**

Expert reviewers are selected and invited, and their reports and names are published alongside the article, together with the authors' responses and comments from registered users.

**Article Revision**

Authors are encouraged to publish revised versions of their article. All versions of an article are linked and independently citable. Articles that pass peer review are indexed in external databases such as PubMed, Scopus and Google Scholar.

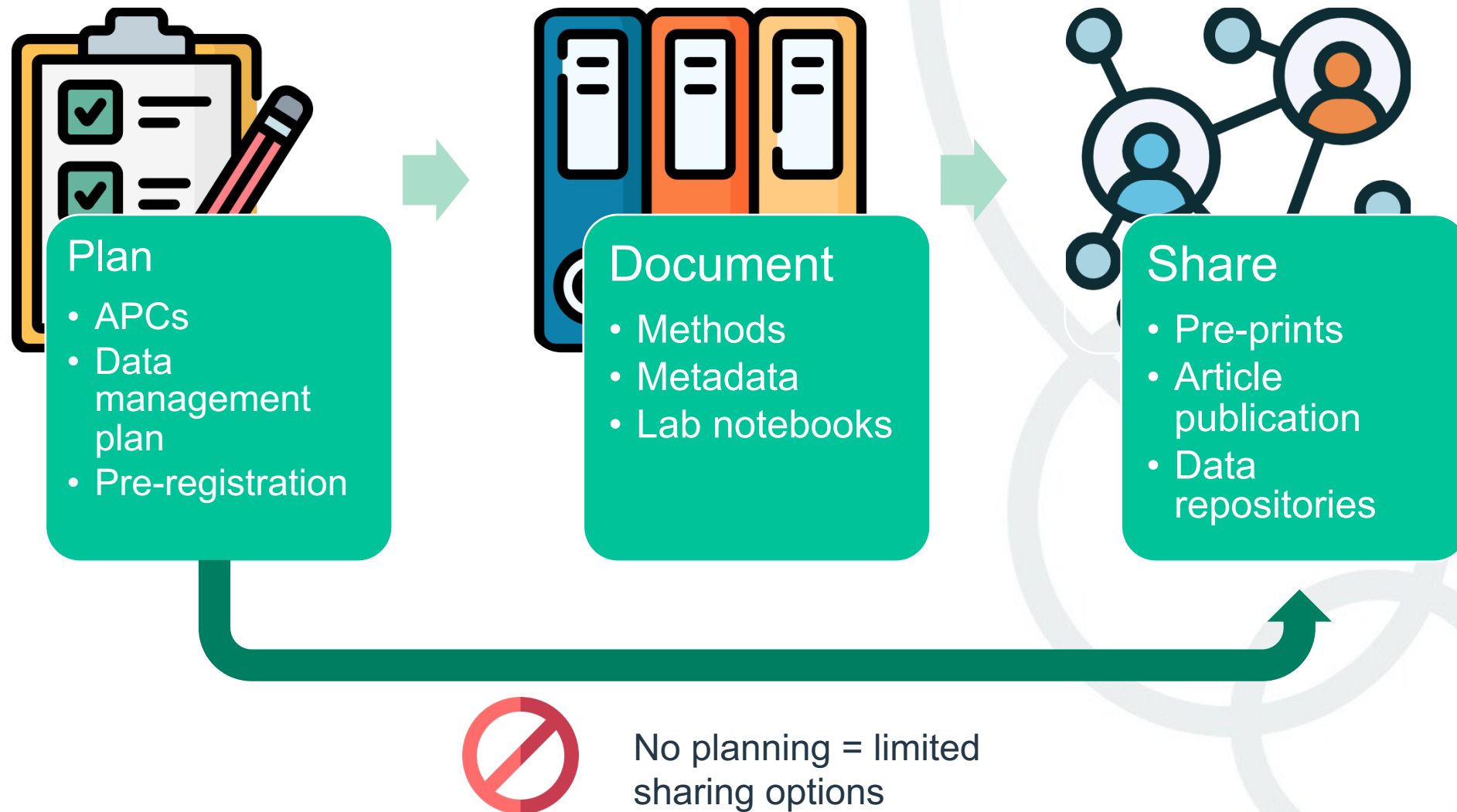| | | |
|---|---|---|
| Brief Reports | Case Reports | Case Studies |
| Clinical Practice Articles | Correspondence | Data Notes |
| Editorials | Genome Notes | Living Systematic Reviews |
| Method Articles | Opinion Articles | Policy Briefs |
| Registered Reports | Research Articles | Reviews |
| Software Tool Articles | Study Protocols | Systematic Reviews |

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# How do researchers work in the Open Science paradigm?

"Open science practices should [be] omnipresent in all stages of the research process from the kernel of an idea to the production of a final research report.."

Hagger, 'Developing an open science 'mindset',' *Health Psychology and Behavioral Medicine* (2022), https://doi.org/10.1080/21642850.2021.2012474

"Awareness of [Open Science] practices is particularly low at early stages of the scientific life cycle. This lack of awareness can lead to 'path-dependencies', wherein historical decisions influence the suite of possible future outcomes"

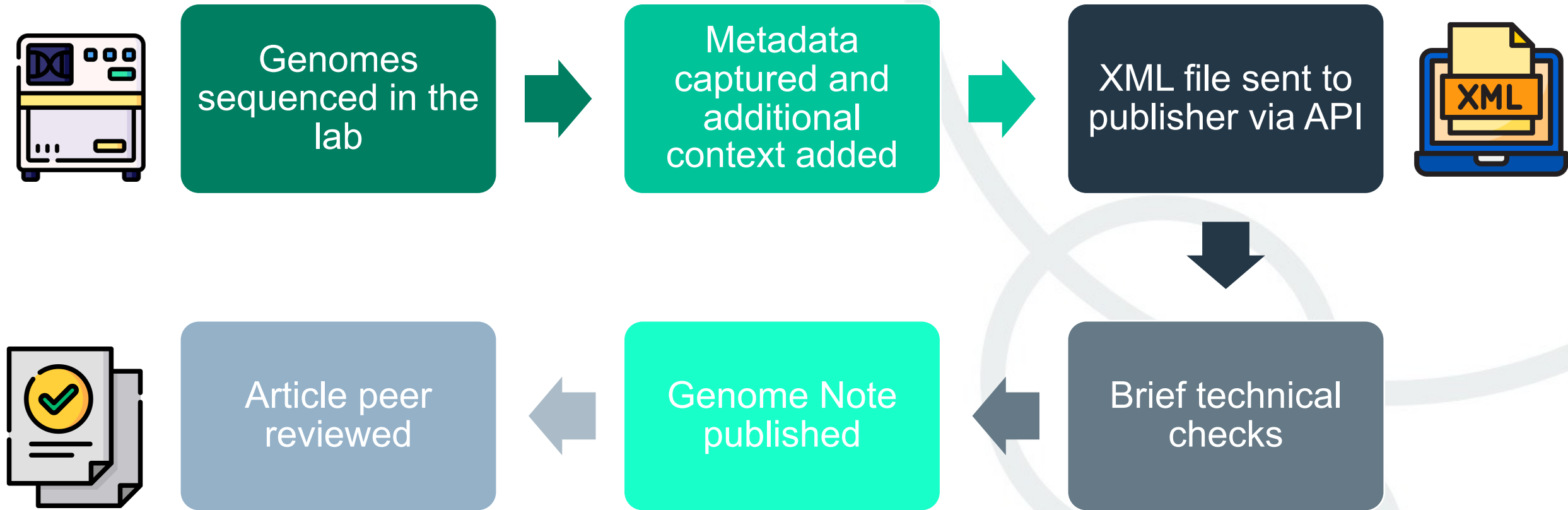Gownaris et al. 'Barriers to Full Participation in the Open Science Life Cycle among Early Career Researchers,' *Data Science Journal* (2022), http://doi.org/10.5334/dsj-2022-002

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# Open Science as a linear workflow

**Plan**
- APCs
- Data management plan
- Pre-registration

**Document**
- Methods
- Metadata
- Lab notebooks

**Share**
- Pre-prints
- Article publication
- Data repositories

No planning = limited sharing options

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# Automated publication from lab to publishing platform

Genomes sequenced in the lab → Metadata captured and additional context added → XML file sent to publisher via API

Brief technical checks

Article peer reviewed ← Genome Note published ← Brief technical checks

# Automated benchmarking to support peer review
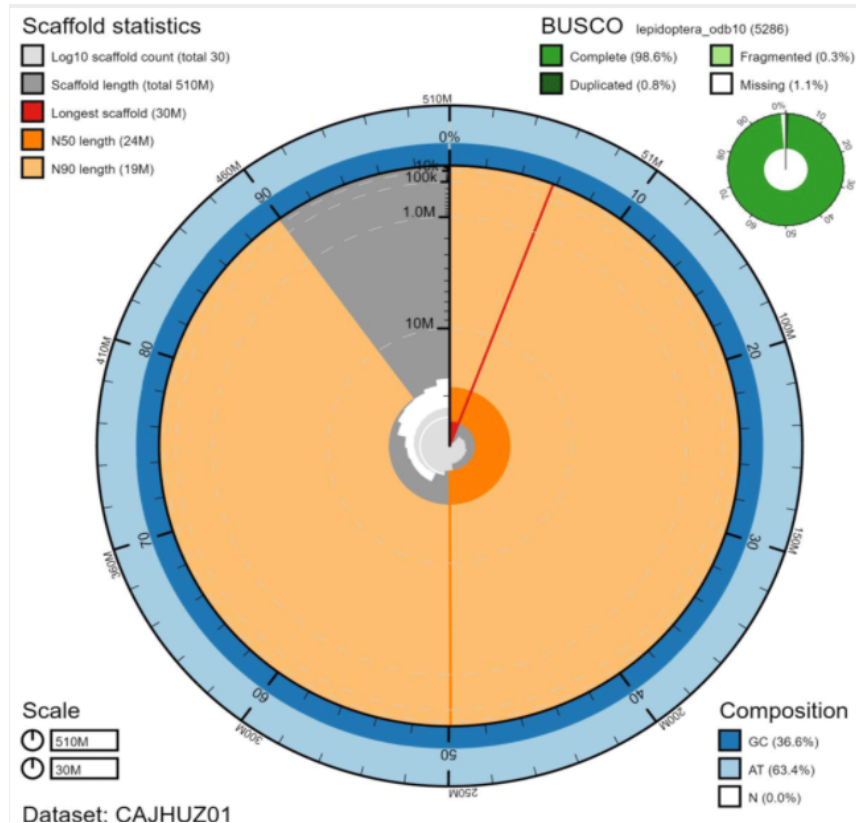


- Automated benchmarking report provides metrics on continuity, structural accuracy, base accuracy, functional completeness and chromosome status.

- Supports peer reviewers to assess the genome note.

- Available in article figures for all future readers.

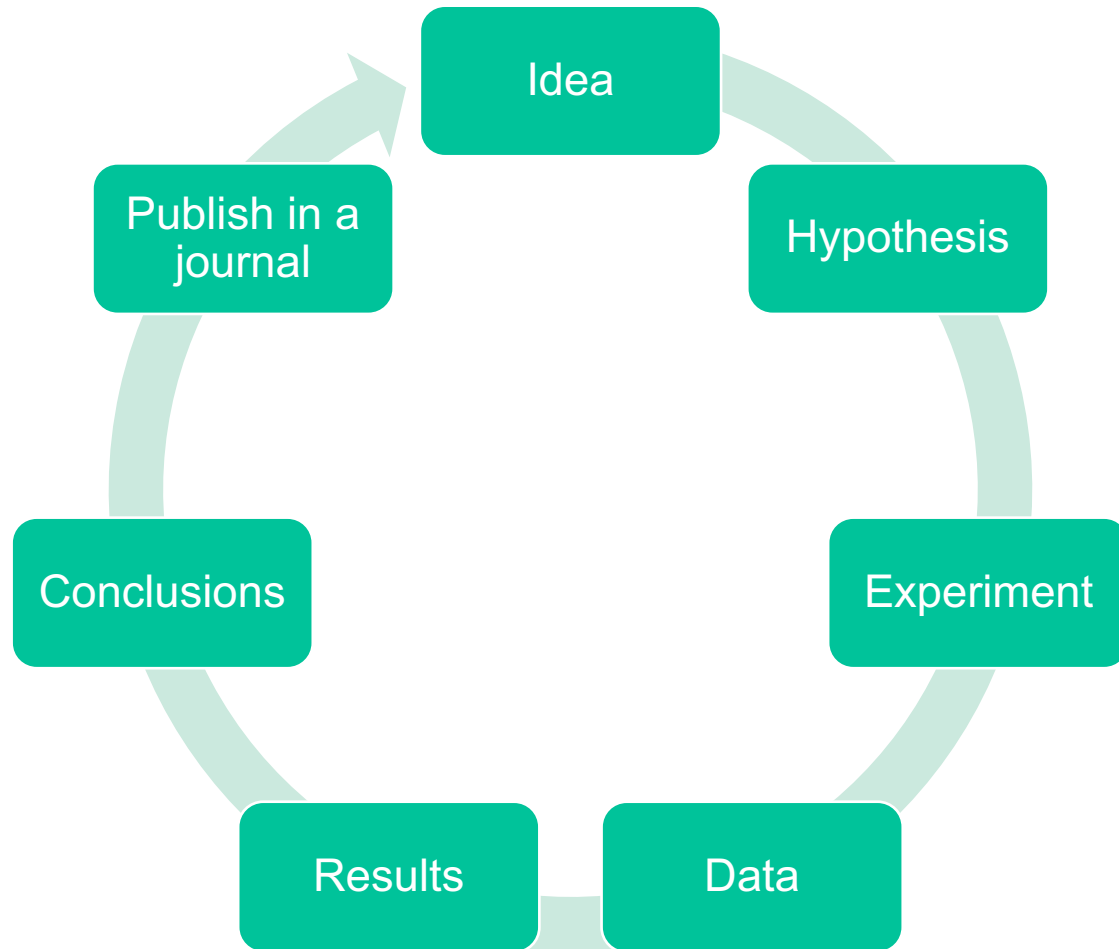# Innovation and collaboration in publishing



Industry and community → Technical → Policy

# Developing new Open Science publishing workflows



- Opportunities for automation of processes

- Technical solutions can create less friction in publication workflows (e.g. data repository integration with journal editorial submission systems)

- Stakeholders include publishers, policy-makers, researchers, technical providers

- Researcher awareness from beginning of a project is important

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# Thank you

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