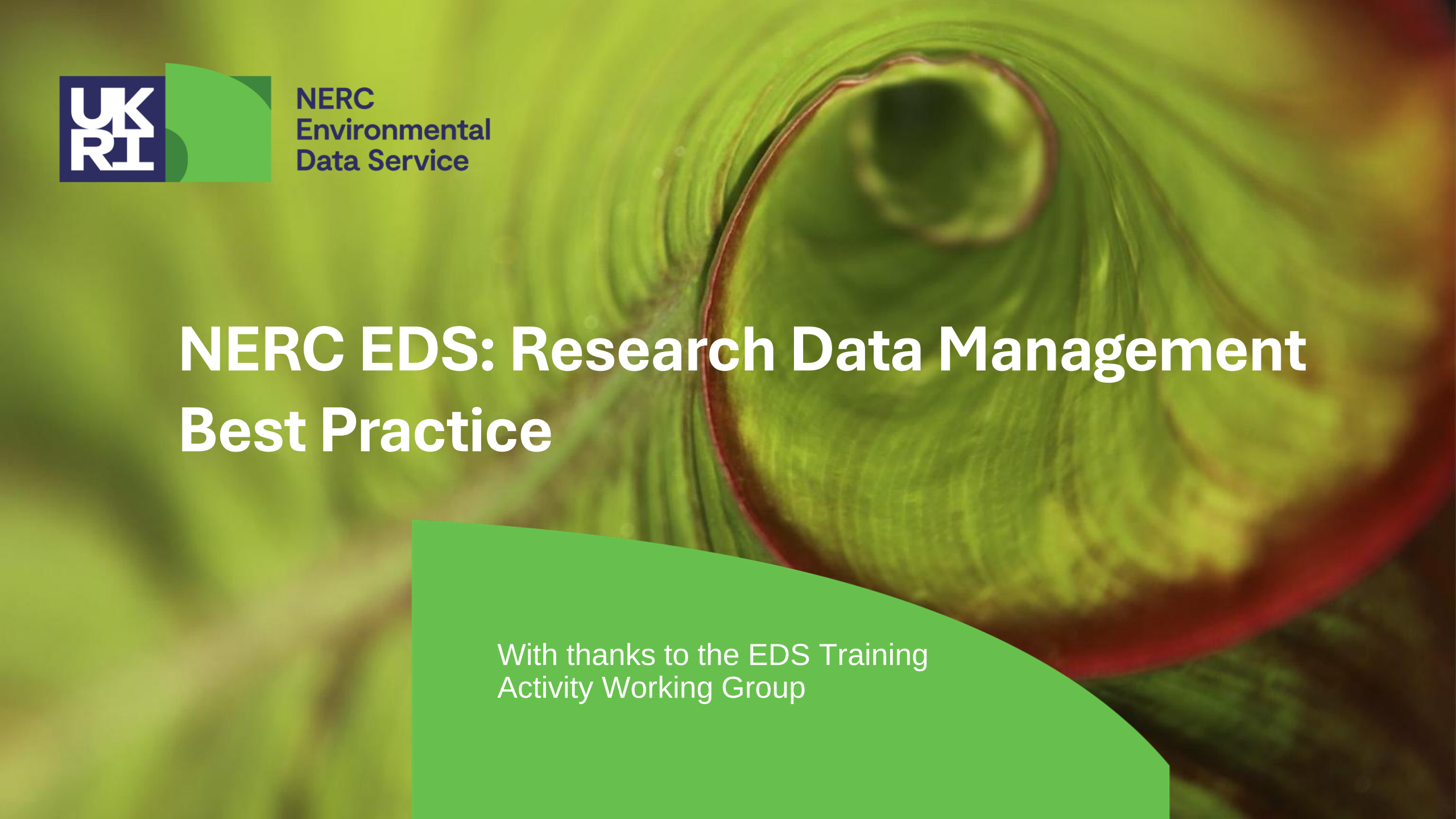

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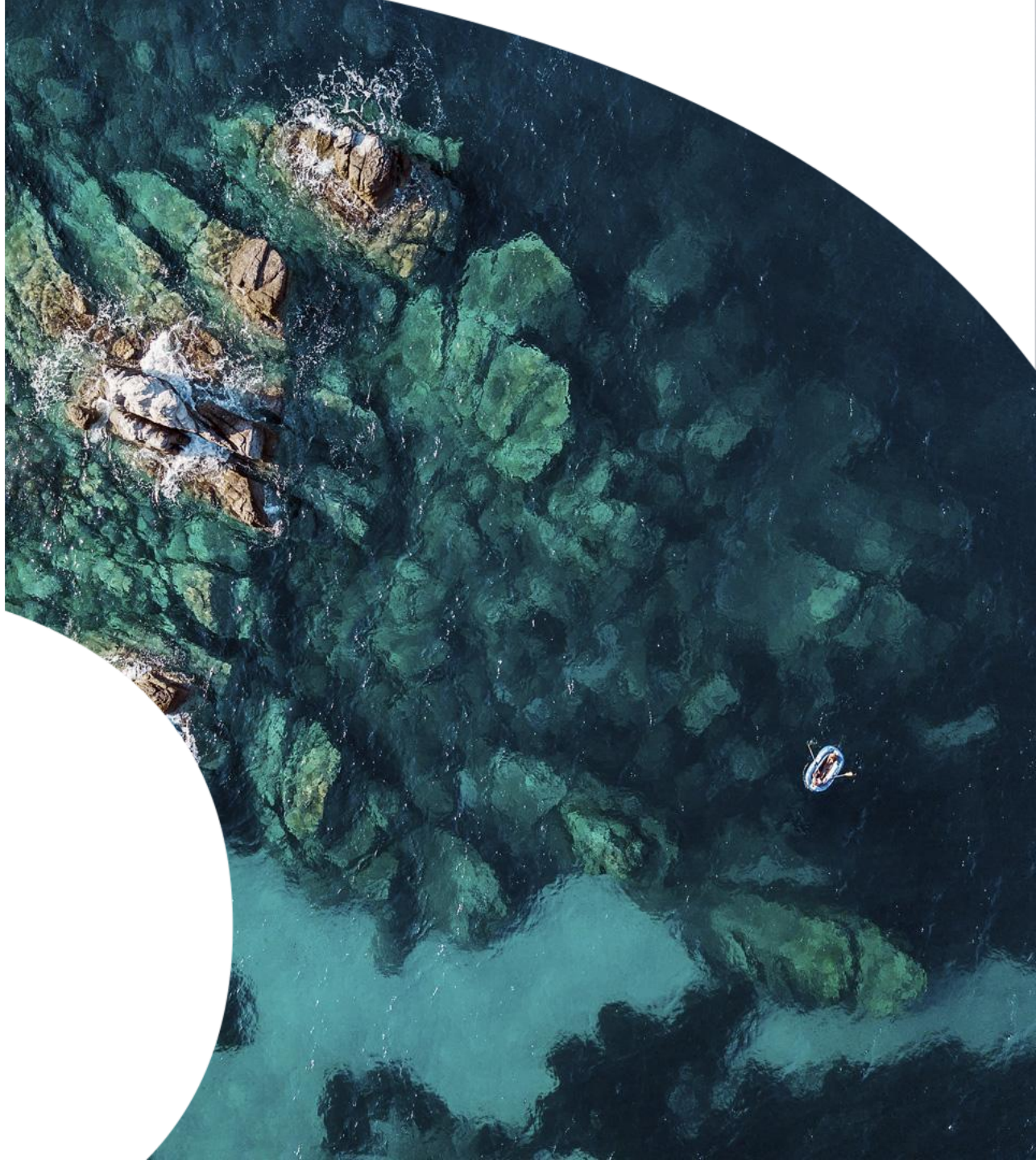
NERC EDS: Research Data Management Best Practice

With thanks to the EDS Training Activity Working Group

Content

- Open science



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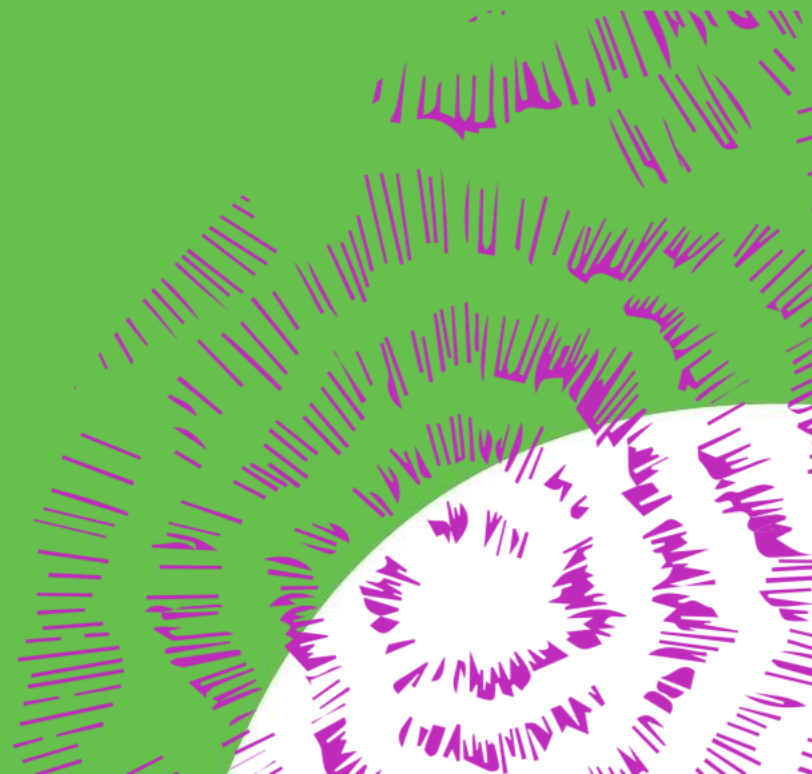
Open science

In this section, you will learn what open science is and its benefits for your research



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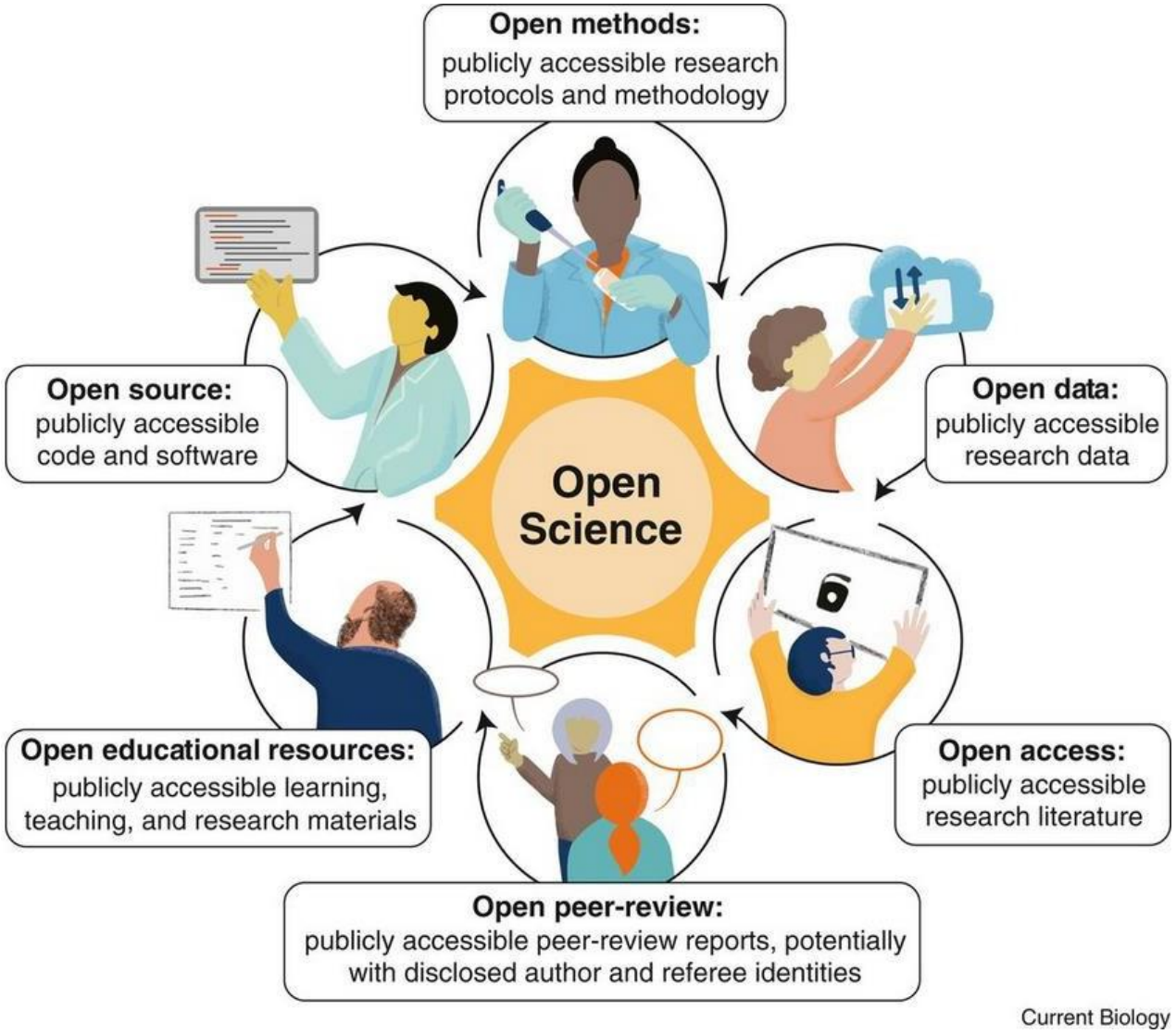
What is open science?

"to make the primary outputs of publicly funded research results – publications and the research data – publicly accessible in digital format with no or minimal restriction"

OECD, 2015:7



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Defining ‘Open Science’

- Transparency in experimental methodology, observation, and collection of data
- Public availability and reusability of scientific data
- Public accessibility and transparency of scientific communication
- Removing the barriers to sharing any form of research output

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Dan Gezelter (2009) http://openscience.org/what-exactly-is-open-science/

Why is open data important?

Open data facilitates reproducible research

Sharing leads to breakthroughs and increases the speed of discovery

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Horizon and Nature

Nature survey in 2016

- 1576 researchers responded
- 70% failed to reproduce another scientist experiments
- 50% could not reproduce their own experiments

Why do we make data open?

- More inclusive and accessible
- Millions of pounds invested in data acquisition / Net Zero
- Required by funder/journal/project (e.g. NERC/ Nature, Science / MOSAiC)

Data management on a day-to-day basis will help scientists:

- Increase research efficiency
- Improve quality of datasets
- Support overarching research projects
- Avoid data loss

Data publishing will help scientists:

- Build their reputation
- Get credit for their work
- Reinforce their scientific integrity
- Meet requirements from funders and legislation

But it will also help SCIENCE:

- Others can reuse the data
- Can guide policy and management
- Support new scientific approaches
- Promote innovation

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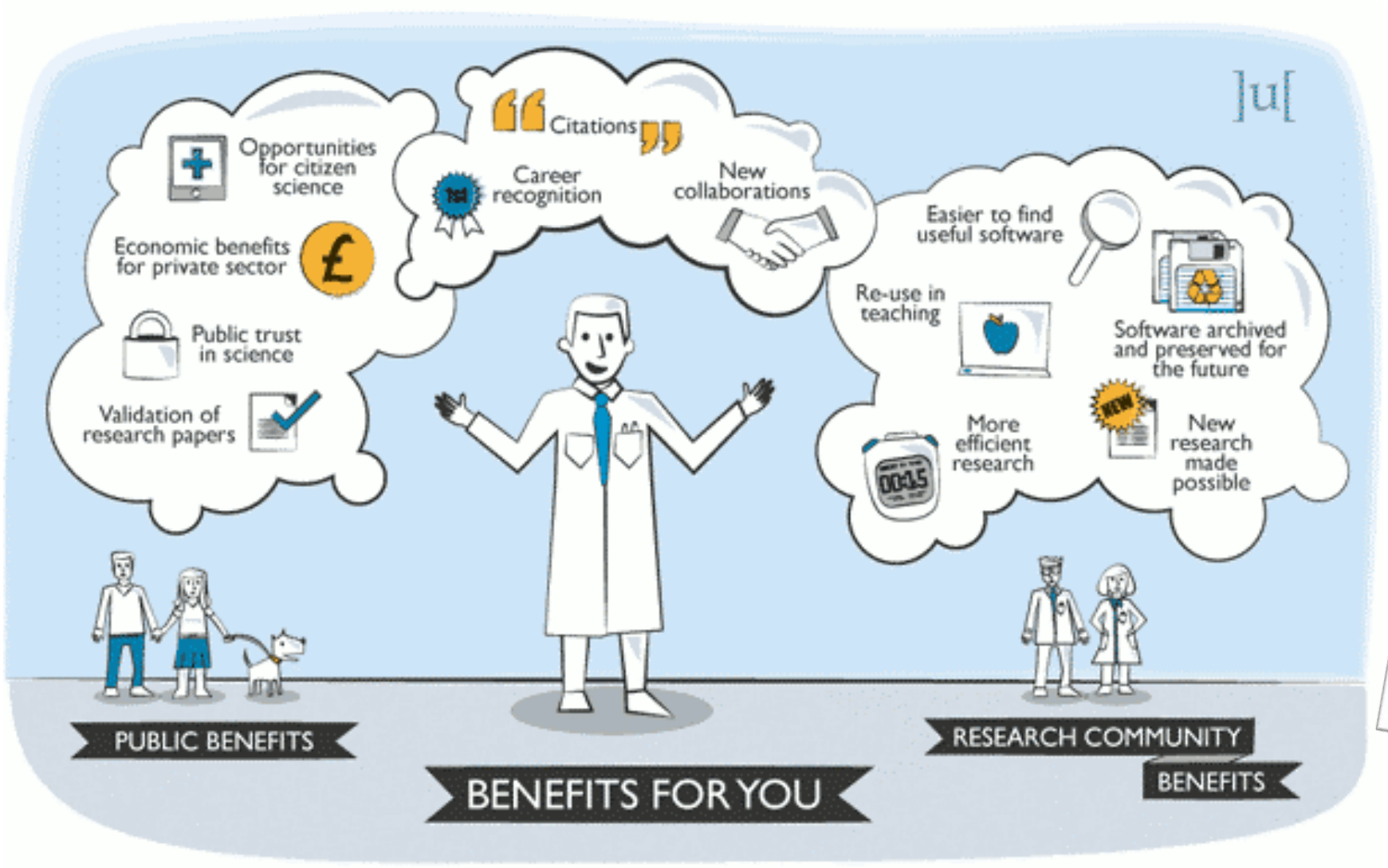
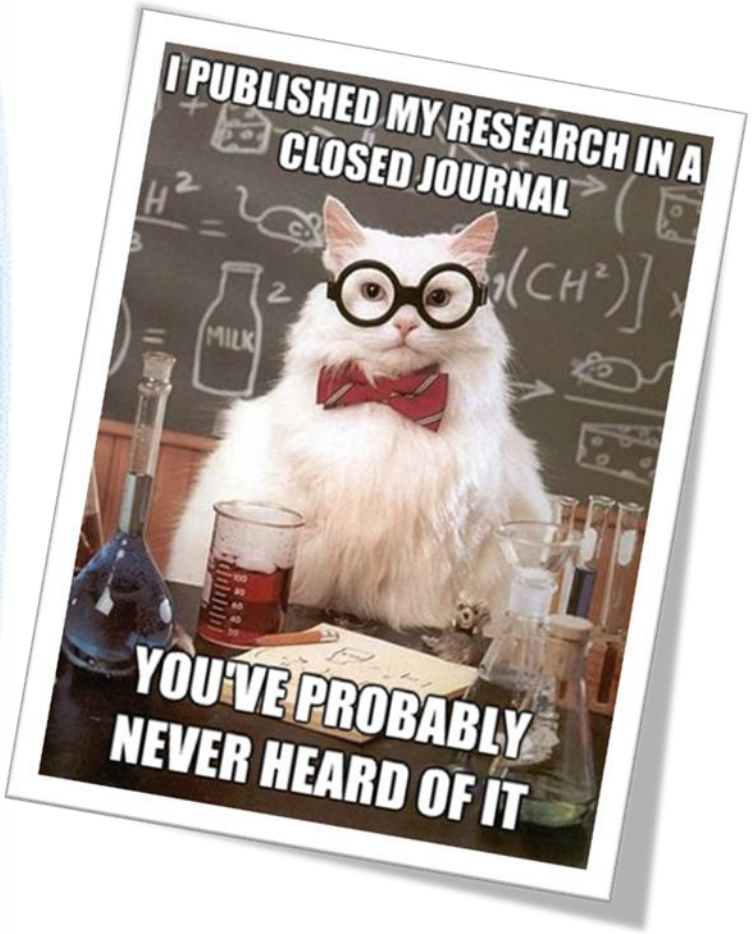
Benefits of Open Science





Benefits of open science for the broader community

- Food security, climate change mitigation, pandemics etc…
- Complex questions require collaborative, inter-disciplinary approaches – requires **sharing of data**, incl across domains
- Maximising cost-effectiveness of resources - **sharing of data** for **innovative re-use**
- Government & public confidence requires **high quality, openness**

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https://help.eds.ukri.org/article/5113-data-as-a-science-output

Projects based on open data

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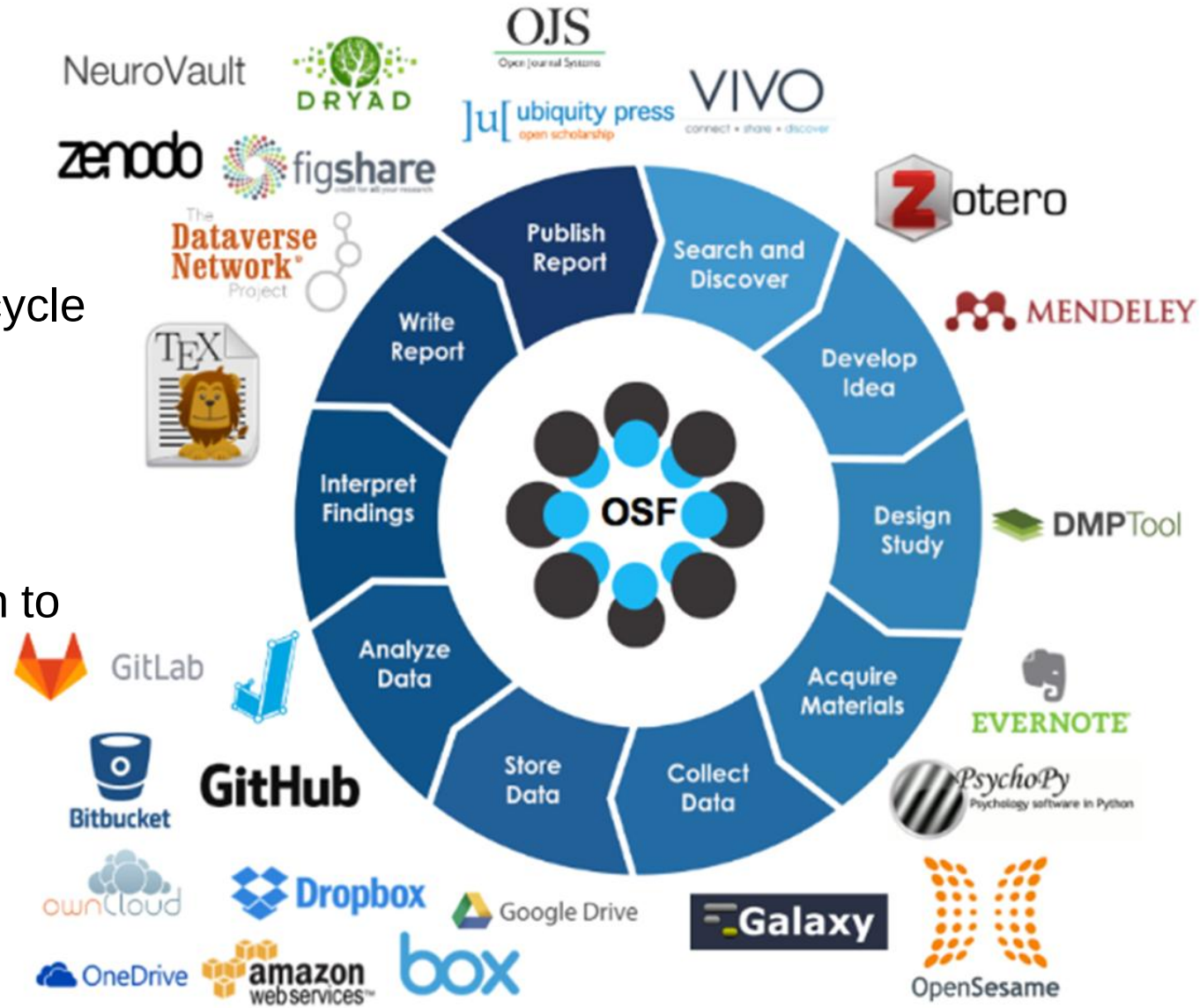
Sharing can better address international efforts and research goals

Open Science Framework

- Open source collaboration platform
- Functionality across complete research lifecycle
- Integration with other third-party tools and services
- Additional metrics for assessing contribution to scientific endeavour
- Persistent identifiers assigned to research assets (data, software code etc.)
- Supports FAIRness in research lifecycle



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