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Environmental
Data Service

NERC EDS: Research Data Management Best Practice

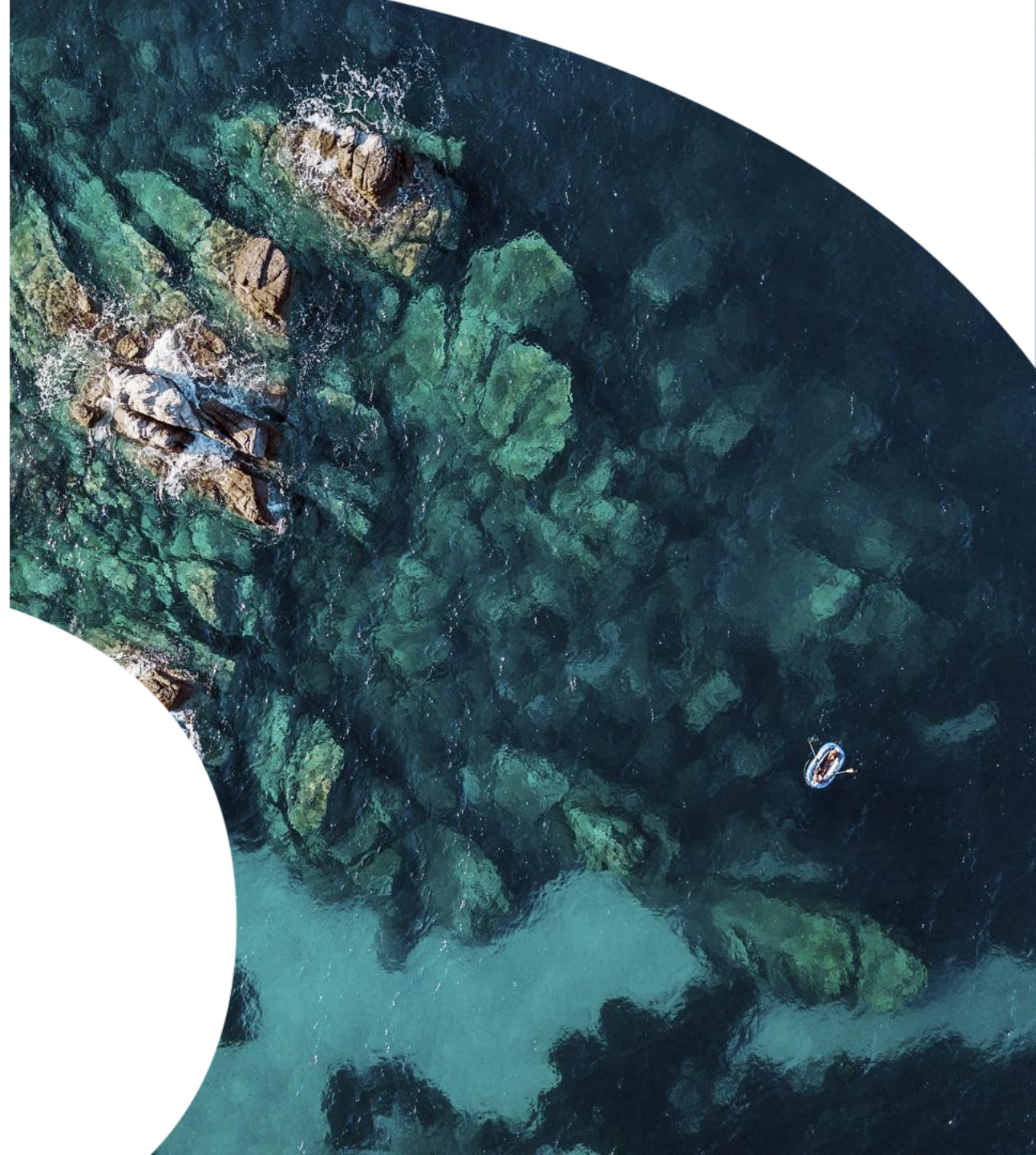
With thanks to the EDS Training
Activity Working Group

Content

- Open Science



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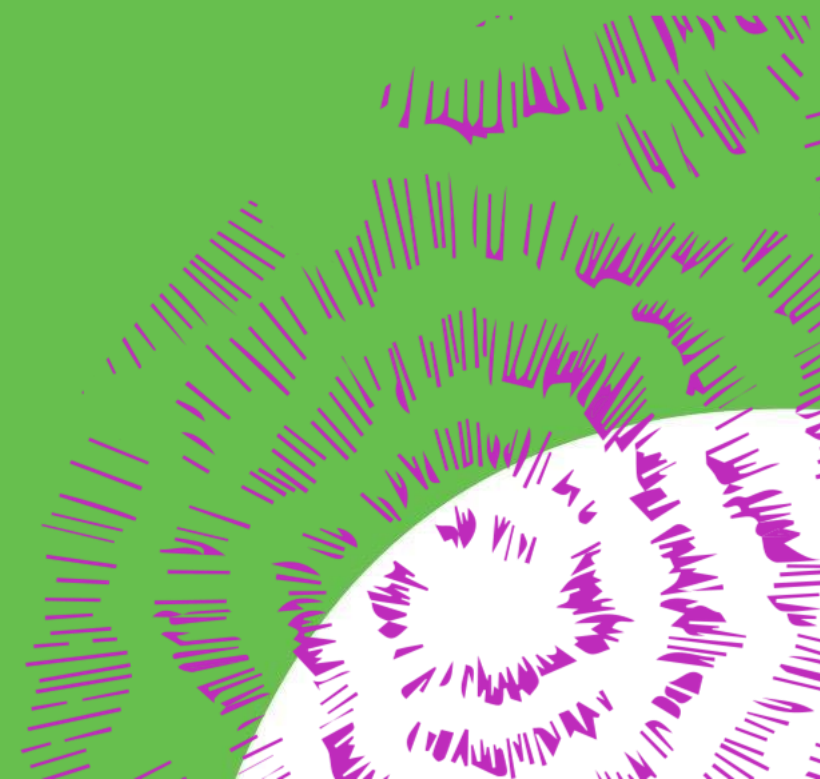
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Open science

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



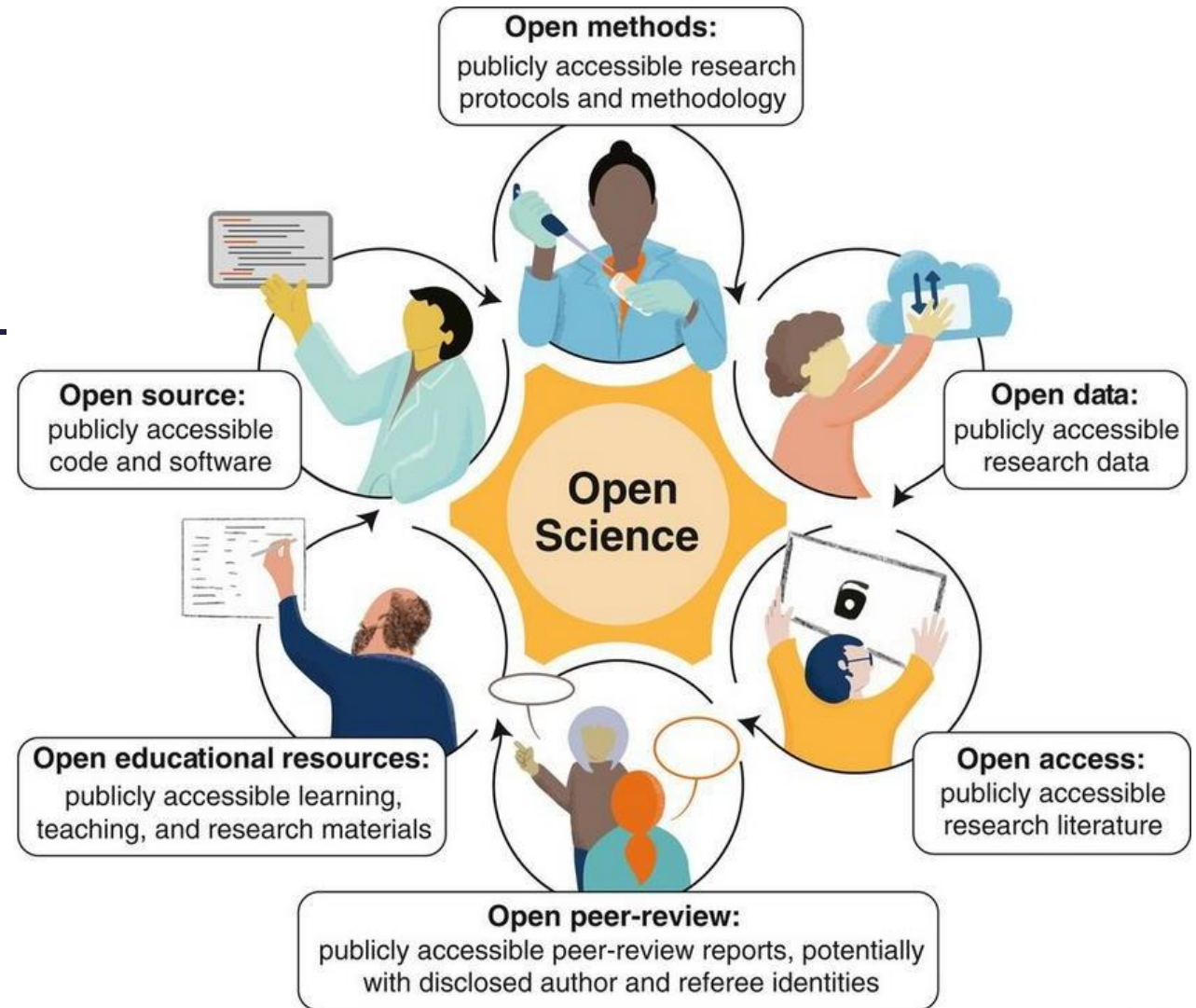
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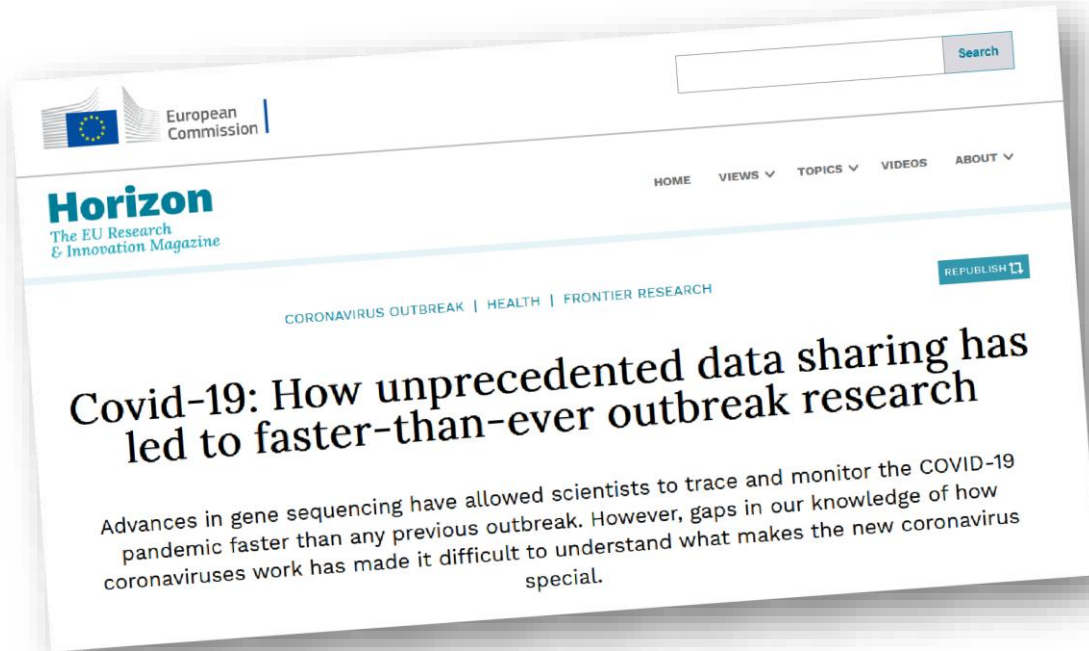
What is open science?

“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



Why is open data important?



Sharing leads to breakthroughs
and increases the speed of
discovery



Open data facilitates
reproducible
research



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



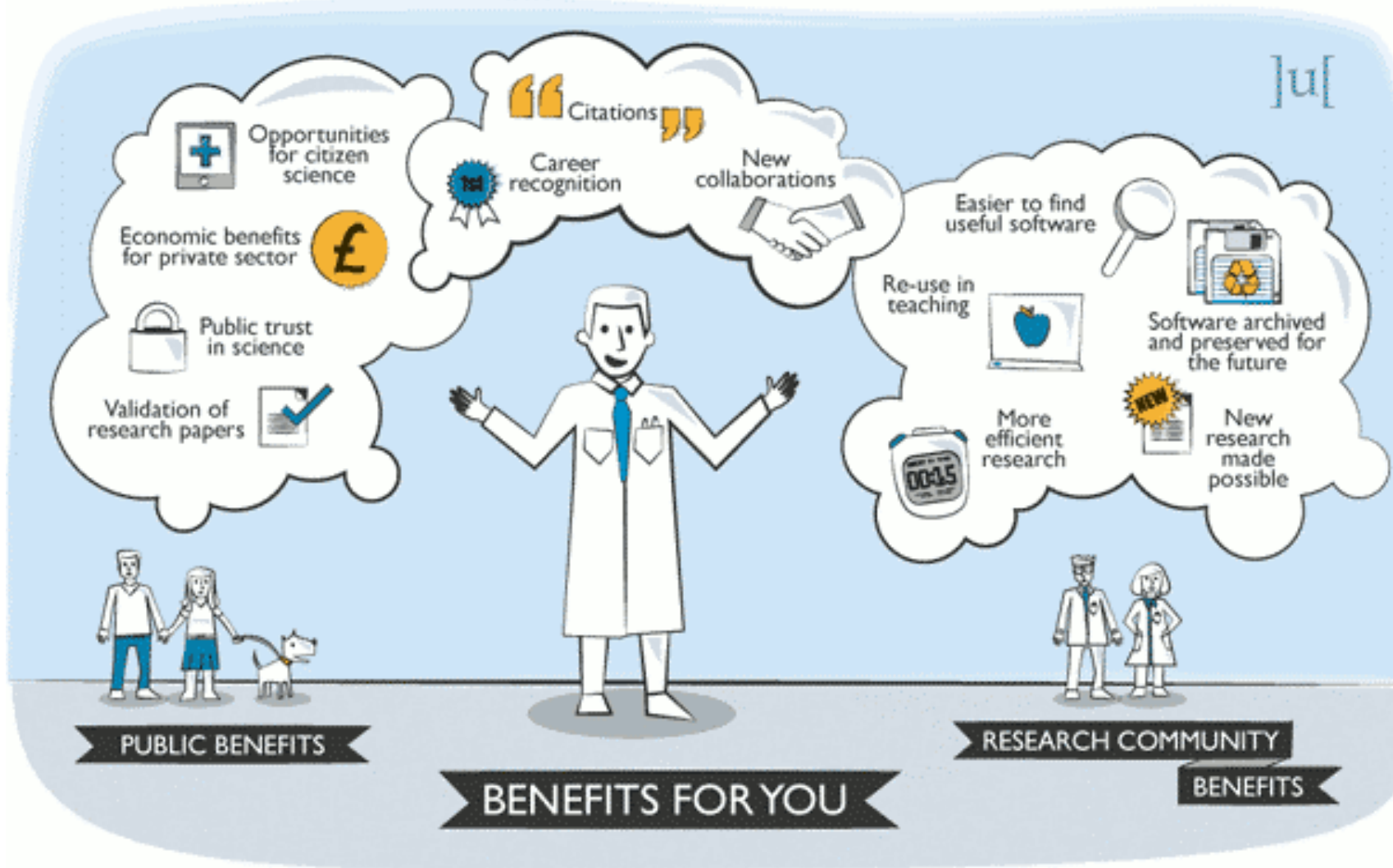
But it will also help SCIENCE:

- 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



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

