The Turing Way Community. (2022). The Turing Way: A handbook for reproducible, ethical and collaborative research (1.0.2). Zenodo. https://doi.org/10.5281/zenodo.7625728

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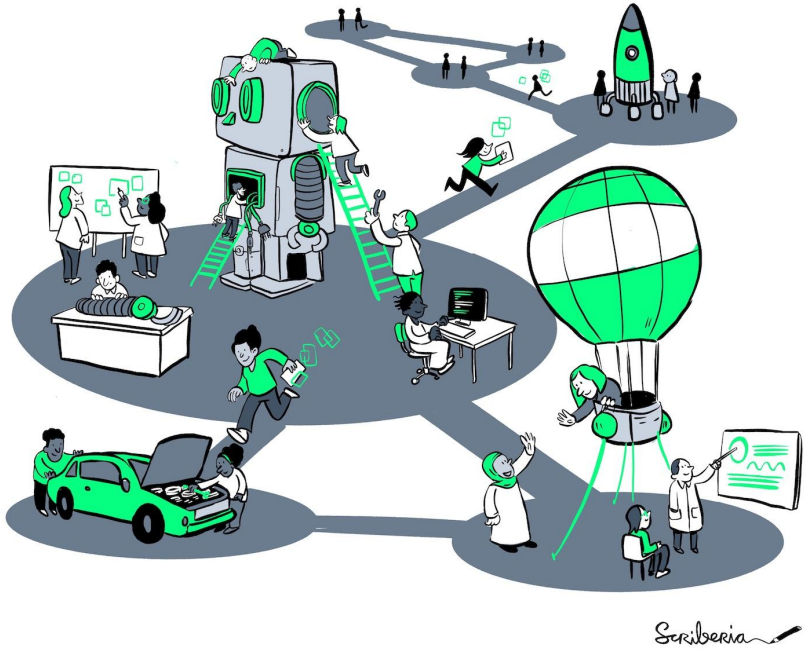
Open Research

Tuesday 12th November 2024



ATRIUM *Transnational Access - ADS Training School*

What is Open Research?

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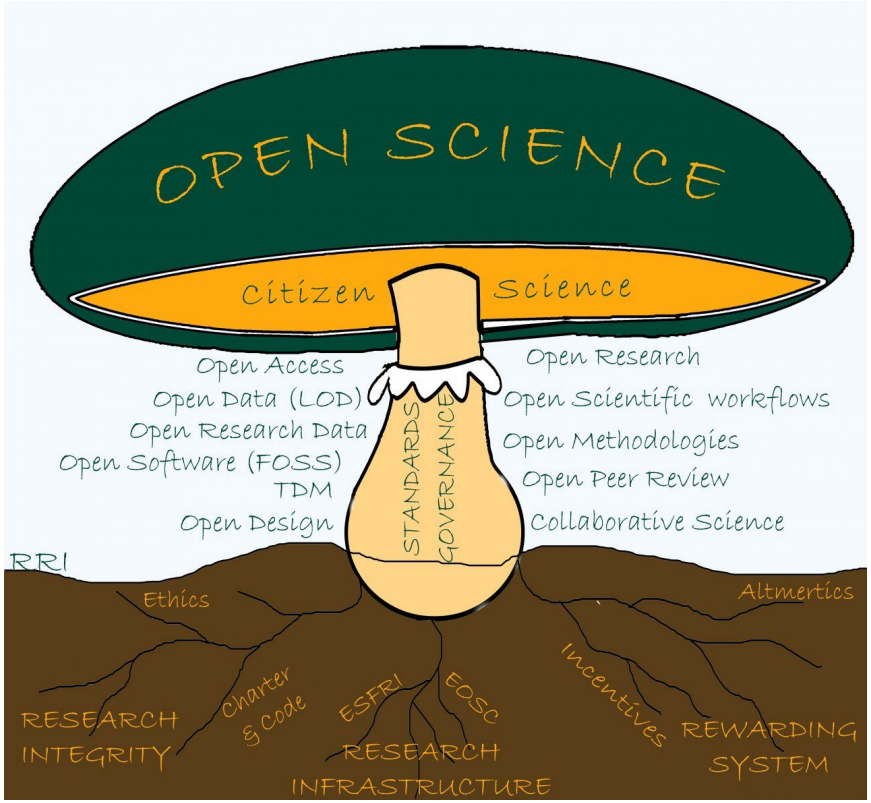
Open Research or Open Science?

Both terms widely used - in practice they are synonymous



The Open Science Mushroom (biologically incorrect)

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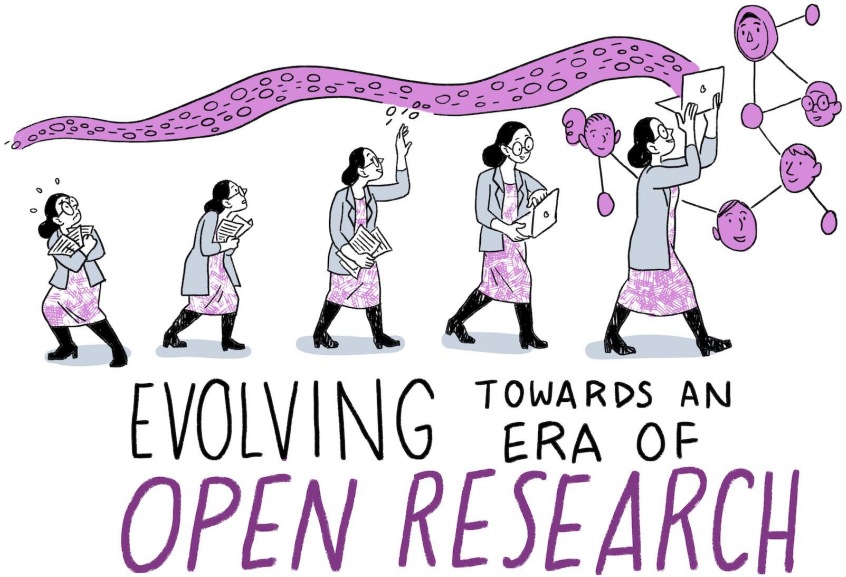
Open Research

"aims to transform research by making it more reproducible, transparent, reusable, collaborative, accountable, and accessible to society".



The Turing Way Community. (2022). The Turing Way: A handbook for reproducible, ethical and collaborative research (1.0.2). Zenodo. https://doi.org/10.5281/zenodo.7625728

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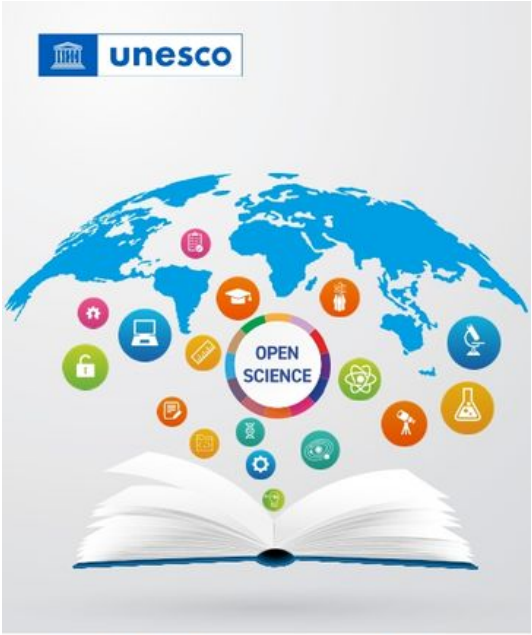
UNESCO on Open Science

"to make **multilingual** scientific knowledge **openly available, accessible and reusable for everyone**, to increase scientific collaborations and **sharing of information** for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors **beyond the traditional scientific community**."



UNESCO (2021). UNESCO Recommendation on Open Science. Paris: UNESCO https://doi.org/10.54677/MNMH8546

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Open Research - Funding Bodies

"Open research[....]relates to how research is performed and how knowledge is shared based on the principle that research should be as open as possible.".

UK Research and Innovation

Arts and Humanities Research Council

https://www.ukri.org/what-we-offer/supporting-healthy-research-and-innovation-culture/open-research/

Open Research in Practice

***Open Data*:** Documenting and sharing research data.

***Open Methods*:** Documenting and sharing the processes, procedures and materials used in research.

- *Open Source Software*: Documenting research code and routines, and making them open and freely available.
- *Open Hardware*: Documenting designs, materials, and other relevant information related to hardware, and making them open and freely available.

***Open Access*:** Making all published outputs freely accessible for maximum use and impact.

Illustration: Davide Bonazzi/Salzmanart
https://www.science.org/doi/10.1126/science.abo5947

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An example - Open Access and the British Academy

"The British Academy supports the principle of open access, recognising the valuable role it can play in broadening the readership of academic publications – so long as the delivery of open access is sustainable for the long term and does not jeopardise the academic dissemination ecosystem."

The British Academy

https://www.thebritishacademy.ac.uk/programmes/open-access/

Benefits of Open Research

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Benefits to Society!

Benefits of open science.
CC-BY Danny Kingsley & Sarah Brown

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Benefits to our disciplines!

- Improves our practice (including transparent and reproducible research practices).
- Disseminates knowledge and as such advances research.
- Fosters a research community and enables collaboration within and across disciplines.

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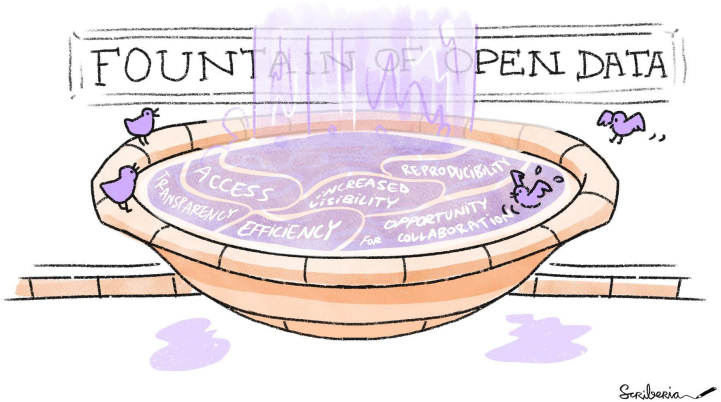

Benefits to You!

- Assist your own future work
- Greater Visibility
- Greater Impact
- Greater collaborations
- Give and Get Credit

TOPS NASA

NASA TOPS Open Science 101 Team. (2023). NASA TOPS Open Science 101 version 1.0. Zenodo. DOI: www.doi.org/10.5281/zenodo.10161527

Putting Open Research into Practice

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Open Access -Journals

***Preprints*:** A manuscript uploaded uploaded to a server prior to peer review (aka Green Access)

- Where: institutional repositories, arXiv
- Benefits: Gets research out quickly, receive rapid feedback

***Fully Open Access Journals*:** Academic Journal (aka Diamond)

- Where: Directory of Open Access Journals (DOAJ)
- Benefits: Free to access, no Article Processing Charges (APCs)

***Open Access Article in a Journals*:** Hybrid academic journal (aka Gold)

- Where: Most major publishing companies
- Benefits: Free to access for reader, still published in highly rated journal

Open Access - Monographs

***Fully Open Access version*:** A fully open access version is available to download from an online publication platform.

- Benefits: Free to access, flexible format

***Parallel Online Version*:** A basic manuscript is uploaded online and freely available, while a physical copy and/or enhanced versions is for sale (aka Freemium Open Access).

- Benefits: Balances an open access version with potential revenue for publishers

***Delayed Open Access*:** Initially published online behind a paywall but made open access after an embargo period (usually 6-12 month period).

- Benefits: Publishers can recoup initial costs through sales.

  Free version available to wider audience in due course.

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Open Data

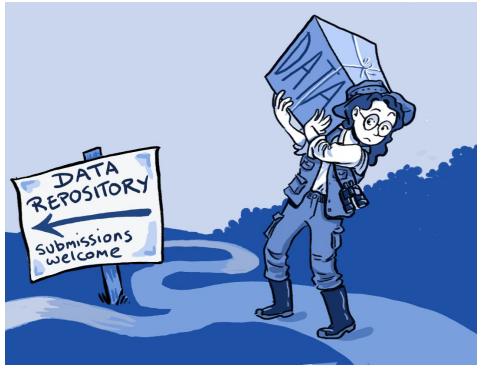
Documenting and sharing data from your research with an appropriate licence

Creative Commons

- Requires organisation of data
- Depositing Data with a suitable digital repository
- Sharing your data with an appropriate licence so that it can be reused and cited by other
- Shared with appropriate metadata (info about your data) and paradata (contextual information about the data collection and analysis)

Barriers: Privacy and Data Protection, Time/Resources

Credit: Ainsley Seago



Digital archive / Data repository

- To collect, store and preserve digital data.
- Ensure that each archive is accompanied by rich metadata (data that provides info on data).
- Catalogue archives using provide persistent identifiers (e.g. DOIs).
- Standardised practices for collection & preservation
- Different repositories for different usage, geographic location, data type, discipline (i.e. ADS, tDAR, Figshare, Zenodo, Literary and Linguistic Data Service).
- Accreditation important - Core Trust Seal

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Open Methods

Documenting and sharing the processes, procedures and materials used in your research.

***Open Source Software*:**

Documenting research code and routines, and making them open and freely available.

Using open source software allows your research to be more reusable & you can also contribute.

> Examples - QGIS (Spatial), R (see Ben Marwick's list), RVT (Lidar) - Resource: Open-archaeo by Zack Batist

***Open Source Hardware*:**

Documenting designs, materials, and other relevant information related to hardware, and making them open and freely available.

Documenting physical processes so that others can use the same set up with an appropriate licence.

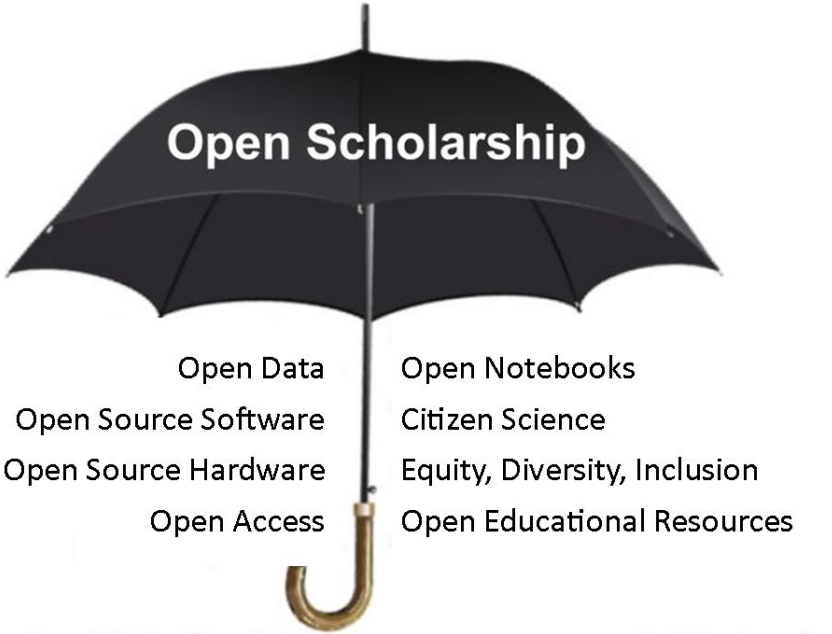
> Examples - Geophysical survey, Topographic survey, Lidar (including UAV)

Open Scholarship

***Citizen Science*:** The "involvement of the public in scientific research", whether data collection or processing/analysis

Open Educational Resources: "learning, teaching and research materials ..... released under an open license" for use by others.

***Equity, Diversity, Inclusion*:** "open to everyone without discrimination based on ... race, gender, sexual orientation, or any number of other factors".



https://book.the-turing-way.org/reproducible-research/open/open-scholarship

https://www.unesco.org/en/open-educational-resources

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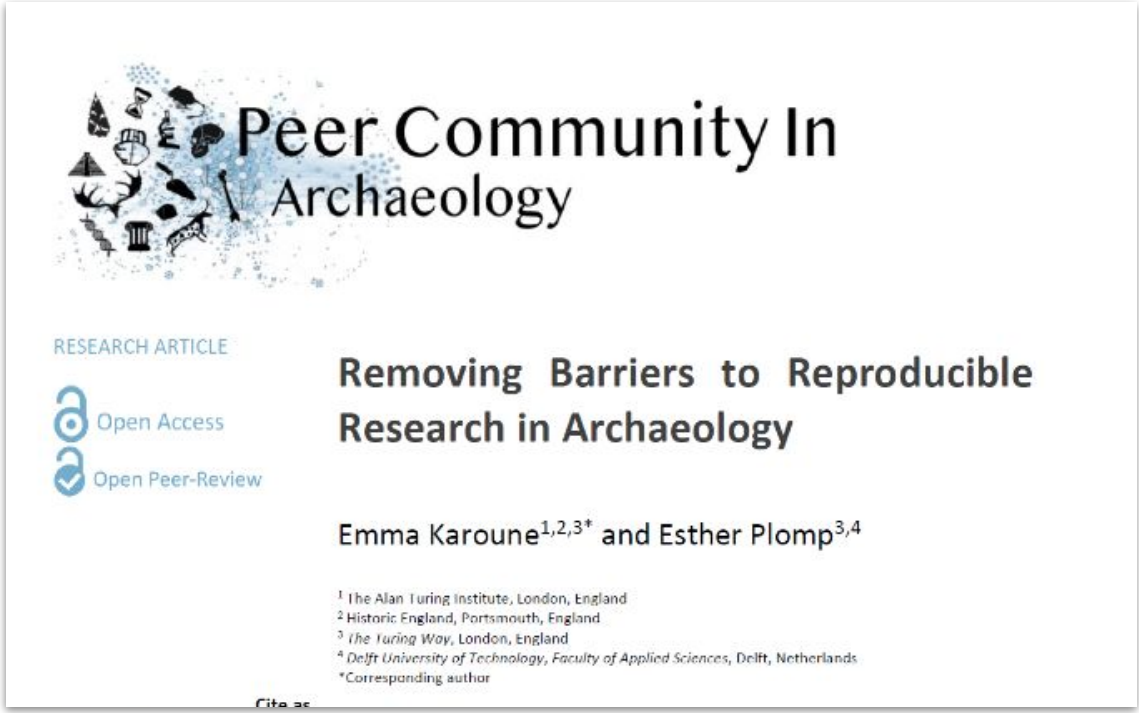
Karoune, E., and Plomp, E. (2022) Removing Barriers to Reproducible Research in Archaeology. Zenodo, ver. 5 peer-reviewed and recommended by Peer Community in Archaeology. https://doi.org/10.5281/zenodo.7320029



Peer Community In Archaeology

RESEARCH ARTICLE

Open Access

Open Peer-Review

Removing Barriers to Reproducible Research in Archaeology

Emma Karoune[1,2,3*] and Esther Plomp[3,4]

[1] The Alan Turing Institute, London, England
[2] Historic England, Portsmouth, England
[3] The Turing Way, London, England
[4] Delft University of Technology, Faculty of Applied Sciences, Delft, Netherlands
*Corresponding author

Cite as

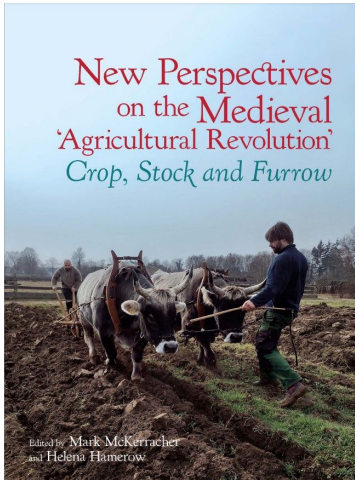
A useful resource!

Case Study

Example of integrated data and research - open research in practice

FeedSax - Feeding Anglo-Saxon England

Stroud, E. *et al.* (2023). Turning up the heat: Assessing the impact of charring regime on the morphology and stable isotopic values of cereal grains, Journal of Archaeological Science 153, https://doi.org/10.1016/j.jas.2023.105754.



McKerracher, M. & Hamerow. H. (2022). New Perspectives on the Medieval 'Agricultural Revolution' | Liverpool University Press https://www.liverpooluniversitypress.co.uk/doi/book/10.3828/9781802077230

Hamerow, H. *et al* (2019). Feeding Anglo-Saxon England: The bioarchaeology of an agricultural revolution. Antiquity, 93(368), https://doi.org/10.15184/aqy.2019.27

Example of integrated data and research - open research in practice

FeedSax - Feeding Anglo-Saxon England

UNIVERSITY OF OXFORD

McKerracher, M. *et al.* 2023 Feeding Anglo-Saxon England: a bioarchaeological dataset for the study of early medieval agriculture (Data paper), *Internet Archaeology* 61. https://doi.org/10.11141/ia.61.5

internet archaeology

McKerracher, M. et al. (2023) Digital Archive for Feeding Anglo-Saxon England (FeedSax): The Bioarchaeology of an Agricultural Revolution, 2017-2022 [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1057492

Hamerow, H. et al. (2023). Feeding Anglo-Saxon England grain photographs. University of Oxford. Collection. https://doi.org/10.25446/oxford.c.6641474.v3

https://feedsax.wordpress.com/

Exercise

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Exercise: Brainstorm barriers and solutions to adopting open research practices

1. Split into pairs, each group taking a open research practice (access, methods, data, scholarship)
2. Brainstorm possible barriers to your open practice
3. Propose solutions to each barrier
4. Report back to the group

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Feedback:

Barriers and solutions to sharing data

Q & A Session