T4EU Open Science Snack 01:
What is Open Science and what is in it for you?

Dear Open Science Snackers,

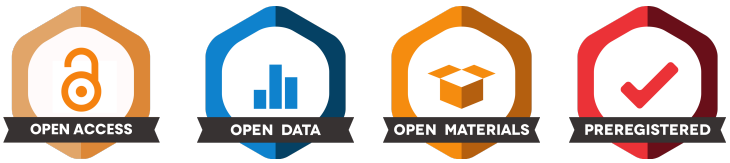
Welcome! And let's get right to it: **What is Open Science?**

First of all, Open Science - doing your research in a more transparent and collaborative way - is important for everyone. Whether you work in the humanities, social sciences or natural sciences, engineering, medicine or computer science, teaching or research, Open Science is relevant to your work!

Now for the definitions. As you might expect, there is no ONE definition of Open Science. Two popular definitions will provide a common ground for this series of Open Science Snacks:

- The Center for Open Science briefly states that "Open Science is about transparency [making research visible], sharing [making research accessible and usable], and inclusivity [involving and crediting more contributors to research]".
- According to the European Union's FOSTER Open Science Initiative, "Open Science is the practice of science in such a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, under terms that enable reuse, redistribution and reproduction of the research and its underlying data and methods".
- Prefer the spoken word to the written? We have you covered:
    - A 4-minutes introduction to Open Science by the Royal Society: What is 'open science'? | The Royal Society
    - Prof. Simine Vazire, University of Melbourne, on Open Science, its benefits and obstacles for researchers: Open Science

In some scientific disciplines, especially in the arts and humanities, other terms than Open Science are preferred to convey similar things (e.g., "Open Scholarship" or "Open Research"). By any definition, Open Science is an umbrella term that encompasses several aspects at the different stages of the research lifecycle. The most prominent are Open Access and Open Data (stay tuned for Snacks 3 and 4). Other aspects include Open Methods and Materials, Open Code, Open Educational Resources, Citizen Science, Preregistration (Snack 5) and Open Peer Review.



Badges to signal adherence to Open Science Practices (e.g., in published articles).
Sources: https://osf.io/tvyxz/, https://de.m.wikipedia.org/wiki/Datei:Open_Access_PLoS.svg

And what is in it for you?

At the level of research in general, Open Science is expected to improve the quality of research and help ensure that scientific results are robust and trustworthy. For the individual researcher, it is probably most important that Open Science practices reward quality (which is under your control as a researcher) rather than results (which are not).

Concrete benefits for you as a researcher:

1. **Increase your visibility**: Open Access publications are disseminated more widely. They are downloaded and referenced more often, even in non-scientific publications such as the news media.[1] By publishing Open Access, you can increase the transfer of your knowledge to society.
2. **Be cited more and for more**: Open Access publications tend to get cited more often. This is true for journal articles - but you can also be cited and credited for a range of other contributions such as data, code, and research materials for which one does not traditionally receive official recognition.[2]
3. **Build your reputation**: By practicing Open Science, you can show the world that you are an honest and careful researcher who can be trusted.[3,4] Adherence to Open Science practices is an increasingly important aspect in hiring decisions at all levels and, in the bigger picture, in society's image of science and academia.[5]
4. **Ensure continuity, get feedback, and avoid embarrassment**: Well-documented and easily accessible research methods, data, and code are critical to the success of long-term projects. They ensure the smooth handover of projects from one person to the next. Errors at all stages of the research lifecycle and in research results are more easily detected by collaborators and reviewers before anything is published. And before they are difficult to change without unpleasant consequences such as corrections or retractions.[3]
5. **Meet the requirements of journals, funders and committees**: A growing number of journals require Open Data, Materials, or Code. Funders are increasingly demanding transparency and Open Access, and (grant, hiring and promotion) committees are increasingly valuing Open Science activities.[5]

But doesn't following Open Science practices take a lot of time, and can't others easily steal my ideas if I work openly? We will address these and other "**Myths about Open Science**" in the next Open Science Snack.

In the meantime: Want to dive deeper into Open Science? Here are three free and asynchronous self-study courses to learn more about Open Science, its ideas, concepts and meaning

- at an introductory level: the Re:ERUA Open Science Fundamental Course (English) or the FOSTER introductory free online course "What is Open Science?" (English & Spanish),
- and at an advanced level: the Re:ERUA Open Science Advanced Course (English).

Best regards,
The Science4All Initiative
[Transform4Europe research & innovation project T4ERI]

Upcoming Snacks

- Myths about Open Science
- Open Access
- Open and FAIR Data
- Preregistration 101
- The value of replications

You can find all the Snacks also on our website: https://transform4europe.eu/t4eri/science4all/

Further reading

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