OPEN SCIENCE IN HORIZON EUROPE

FFG
Promoting Innovation.

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OPEN SCIENCE IN HORIZON EUROPE

WHY do we need Open Science?

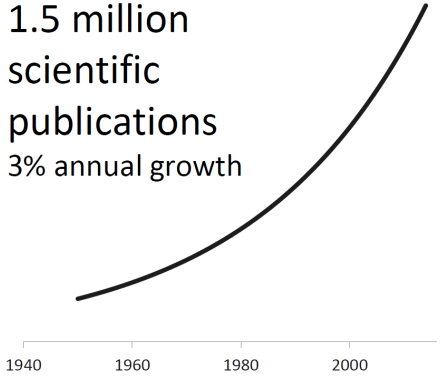
HOW is Open Science embedded in Horizon Europe?

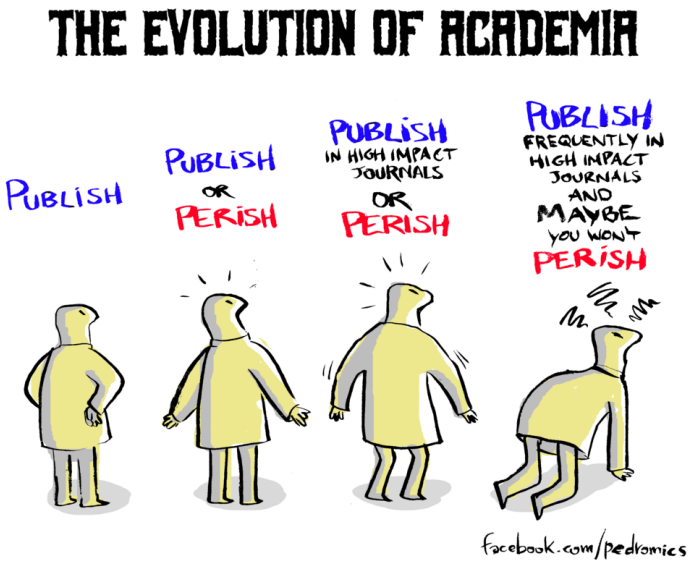
HOW is Open Science evaluated in Horizon Europe?

WHY DO WE NEED OPEN SCIENCE?

Today, annually ≈ 1.5 million scientific publications

3% annual growth





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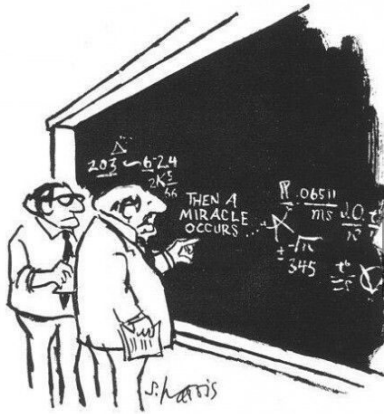
Replication crisis



"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

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WHY DO WE NEED OPEN SCIENCE?

Open Science is based on open cooperation and systematic sharing of knowledge and tools and grounded in the principles of **inclusion, fairness, equity, and sharing.** It contributes to

- increase the quality and efficiency of research
- accelerate the advancement of knowledge and innovation
- improve reproducibility and reuse of results
- involve relevant knowledge actors

HOW IS OPEN SCIENCE EMBEDDED IN HORIZON EUROPE?

In Horizon Europe, Open Science is to be implemented from the proposal stage to project reporting. Distinguishable are:

- **Mandatory Open Science practices**, and
- **Recommended Open Science practices**

Open Science practices are considered in the evaluation of proposals under

- **Excellence**, and
- **Quality and efficiency of implementation**

HOW IS OPEN SCIENCE EMBEDDED IN HORIZON EUROPE?

Mandatory Open Science practices for all beneficiaries per the Grant Agreement (GA)

- **Open Access to scientific publications** (required by the GA)
- **FAIR principles applied in responsible management of research data** and open access to research data under the **principle of "as open as possible, as closed as necessary".** Data Management Plans compulsory for all grants, by M6
- **Information about research outputs, tools and instruments** needed to validate conclusions of scientific publications or to validate and re-use research data
- **Digital or physical access to results** needed to validate conclusions of scientific publications (unless exceptions apply)
- **Public emergency** requires immediate open access to all research outputs under open licenses if requested by the granting authority, or, if exceptions apply, access under fair and reasonable conditions to legal entities needing research outputs to address public emergency

Related references

Mandatory Open Science practices:

Detailed guidelines in the Annotated Grant Agreement Article 17

Recommended Open Science practices:

Guidance in the Horizon Europe Programme Guide

HOW IS OPEN SCIENCE EMBEDDED IN HORIZON EUROPE?

Recommended Open Science practices (non exhaustive list)

- Involvement of all **relevant knowledge actors**, incl. citizens
- **Citizen science**, involving citizens, civil society and end-users in the co-creation of R&I agendas, contents, etc.
- **Early and open sharing** of research, e.g. preregistration, registered reports, preprints, crowdsourcing, etc.
- **Research output management** beyond research data
- Measures to ensure **reproducibility of research outputs**
- **Open access to research outputs**, such as publications, data, software, models, algorithms, workflows, etc.
- **Open peer-review** participation
- Publish also e.g. negative results on **Open Research Europe**

Related references

Open Research Europe
the open access publishing platform of the European Commission for all disciplines, for research stemming from Horizon Europe

https://open-research-europe.ec.europa.eu

HOW IS OPEN SCIENCE EVALUATED IN HORIZON EUROPE?

Evaluation of Open Science practices under Horizon Europe

- ✓ Under ***Excellence*** explain **HOW are Open Science practices implemented** as an integral part of the proposed methodology?
  - ✓ "If you believe that none of these practices are appropriate, […] **provide a justification**"
- ✓ Under ***Quality and efficiency of implementation*** describe **HOW does Open Science accelerate the advancement of knowledge and innovation?**
- ✓ Under ***Capacity of participants and consortium as a whole*** describe **HOW does the consortium bring together necessary** disciplinary and interdisciplinary knowledge, including **expertise in Open Science practices?**
- ✓ In ***Part A*** **list up to five relevant OA publications, widely used datasets or other achievements of consortium members**

Proposals under Horizon Europe need to explain:

HOW are **mandatory Open Science practices** ensured?

HOW are **recommended Open Science practices** integrated?

Justify why no Open Science practices are considered appropriate.

HOW IS OPEN SCIENCE EVALUATED IN HORIZON EUROPE?

*The proposal **will provide very convincing Open Science practices** in relation to research outputs and research data. The proposal **promotes the highest standards of transparency and openness**, going well beyond documentation and **extending to aspects such as assumptions, code and data** that is **managed in compliance with the FAIR principles**.*

*Accordingly, **all scientific publications, datasets, analysis and modelling tools** developed through the proposal and associated codes **will be made available for reuse and exploitation by others, through GitHub**. A **comprehensive data management plan will be developed** at the beginning of the work and regularly updated, ensuring high quality and reliable datasets.*

Evaluation Summary Report of **main-listed RIA** in Cluster 5 “Climate Sciences”

HOW IS OPEN SCIENCE EVALUATED IN HORIZON EUROPE?

*The **open science practices envisaged are in general very good** (open datasets, open source codes, open raw model results, etc.).*

***However, the commitment to green open access is not total** ("where possible"). It is **also unclear to which extent the access to models and script will be user-friendly** (e.g. providing a script in an uncommon language versus providing a graphical interface and/or detailed readme files facilitating reusability). **This is a minor shortcoming**.*

Evaluation Summary Report of **main-listed RIA** in Cluster 5 "Climate Sciences"

HOW IS OPEN SCIENCE EVALUATED IN HORIZON EUROPE?

*Overall, the proposed project **aims to comply with additional Open Access obligations** embracing Open Science principles, i.e. making data, software, publications fully accessible through collaborative networks.*

…

***However, the availability of source code** for the [xxx] **is not specifically mentioned and it is not clear whether this will be made freely available**. The **quality of commitment to open science practices is therefore not sufficiently clear** and this constitutes a minor shortcoming.*

Evaluation Summary Report of **rejected RIA** in Cluster 5 “Climate Sciences”

HOW IS OPEN SCIENCE EVALUATED IN HORIZON EUROPE?

*Positively, **a clear presentation of how open science practices will be adopted is provided**. However, it is **unclear the extent to which data will be made accessible to external researchers**. The proposed development of a detailed data management plan is also appropriate.*

…

*However, **expertise in open science practices and gender issues has not been adequately presented** and is a shortcoming.*

Evaluation Summary Report of **rejected RIA** in Cluster 2 “Democracy and Governance”

WHAT DO OPEN SCIENCE PRACTICES ADDRESS?

Open Science addresses

- Early and **open sharing** (e.g. preprints, preregistration, registered reports, platforms)
- Research **data management** (RDM)
- **Reproducibility** of research outputs
- **Open Access**
- Open peer review
- **Citizen**, civil society and end-user **engagement**

QUOTE

Nothing in life is to be feared,
it is only to be understood.
Now is the time to understand more,
so that we may fear less.

Marie Skłodowska-Curie

THANK YOU FOR YOUR ATTENTION!

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