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Webinar| 03 July 2023

Horizon Europe Open Science requirements in practice

Jonathan England





Horizon Europe reference documents Program Guide of Horizon Europe Annotated Model Grant Agreement (AGA) ERC Managing your project > Open Science MSCA Work Programme EC Participant Portal – 'Continuous reporting' guide

Q&A from previous webinars

OpenAIRE guides

- 'How to comply with Horizon Europe mandate for publications'
- 'Open Science in Horizon Europe proposal'
- 'RDM in Horizon Europe proposal'



Next webinar Thursday 16 November 2023 at 13:00 CET





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Open Science

"Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process"

European Commission







Requirements for publications



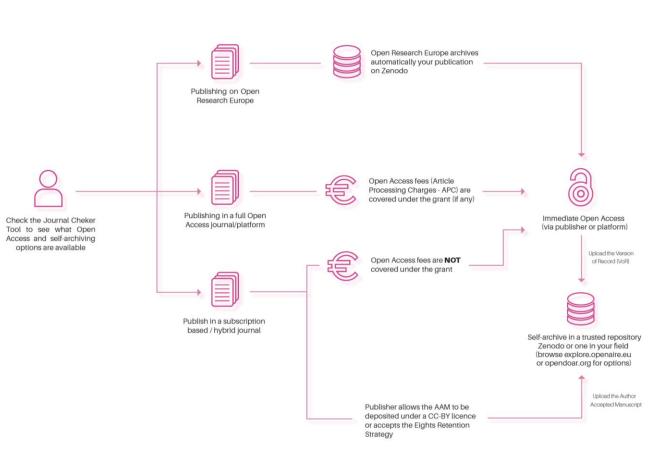


Requirements

- Peer-reviewed manuscript (AAM or VoR) in a trusted repository
- No embargo period (i.e. immediate OA)
- Authors retain their rights by having the AAM and/or the VoR under a CC-BY 4.0 licence
- Information about research outputs or tools/instruments needed to validate the conclusions of the publication
- Add the acronym/code of the project within

Specificities

- Publication fees (Article Processing Charges) are reimbursable if the venue is full OA
- No restrictions on where to publish (journal doesn't have to be full OA), but APCs for hybrid journals are not covered
- CC BY-NC/BY-ND allowed for long-text formats (e.g. monographs; a chapter in an edited book is not eligible)

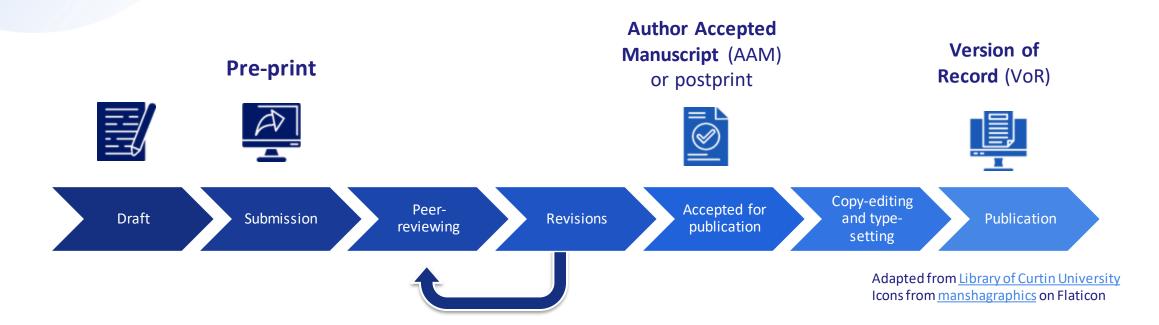








Author Accepted Manuscript (AAM) vs Version of Record (VoR)





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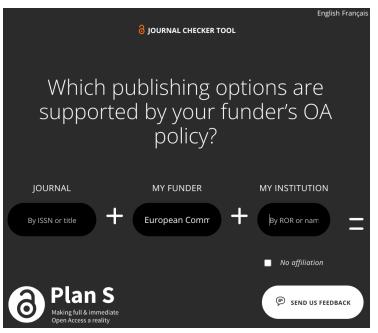




Self-archiving

Minimum for Open Access = **SELF-ARCHIVING**

Check the journal's eligibility



https://journalcheckertool.org/

Rights Retention Strategy

"For the purpose of Open Access, the author has applied a CC BY public copyright licence to any Author Accepted Manuscript version arising from this submission."

it is about where you

make it available in OA, NOT where you publish

- To assert ownership, the author as the intellectual creator and original copyright holder – applies a CC BY licence to the AAM
- Delivering publication services does not entitle publishers to ownership of the AAM, which remains the intellectual property of the author. Publication services should be paid for, but not with ownership of the AAM (from cOAlition S)

https://www.coalition-s.org/rights-retention-strategy/





Self-archiving

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Minimum for Open Access = **SELF-ARCHIVING**



Open Research Europe

If you publish in Open Research Europe, you do not need to self-archive. Your manuscript will be automatically archived on a repository (Zenodo) once it successfully passes peer-review







Requirements for research data





Requirements

- Must manage the digital research data in line with the **FAIR principles** (Findable, Accessible, Interoperable, Reusable)
- **Data Management Plan** (DMP) is required by M6; updated midproject and at end of project
- **Deposit (meta)data as soon as possible** after production/generation or after processing and quality controls
- Deposit data in a trusted repository and make them open as soon as possible (deadlines set in DMP), following the "as open as possible, as closed as necessary" (open by default) principles
- Data closed if necessary, but **metadata must be FAIR and under CCO** (trusted repositories will automatically share metadata in CCO)
- Open licence, preferentially CC-BY or CC0 licence
- Detailed information about research outputs or tools/instruments needed to re-use or validate the data (e.g. data, software, algorithms, protocols, models, workflows, electronic notebooks)



Examples of metadata author(s) name, author(s) ORCID, DOI, licence, language, journal, title, etc.







Valid justification for not opening the data

- Commercially valuable data if it would undermine its exploitation or other results (e.g. endanger trade secrets ('soft' IP)), or make IP protection of results more difficult
- Data protection/privacy rules of sensitive and/or personal data
- Security rules for projects dealing with strategic assets, interests, autonomy or security of the EU









A few definitions





Trusted repositories

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- Certified repositories (e.g. CoreTrustSeal, nesto Seal DIN31644, ISO16363)
- Disciplinary and domain repositories commonly used and endorsed by the international research communities
- General-purpose (e.g. **Zenodo**) or institutional repositories that present the essential characteristics of trusted repositories:
 - services, mechanisms and provisions in place to secure the accuracy, integrity, authenticity and access of contents
 - use of PIDs
 - machine-actionable, standardised and detailed metadata (including provenance and licencing)

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https://sherpa.ac.uk/opendoar/

For your research data:

REGISTRY OF RESEARCH DATA REPOSITORIES

For everything:



https://zenodo.org/





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- Removes ambiguity over what others can and cannot do with your work
- You keep (certain) rights, but you grant certain reuses without them needing to contact you
- Universally recognisable and juridically sound (you can still claim copyright infringements)



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You can share, adapt for any purpose as long as you **credit the author**

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Data Management Plan

A formal 'living' document

- Formal document that specifies how research data will be handled both during and after a research project.
- It identifies key actions and strategies to ensure that research data are of a high quality, safe, sustainable and where possible accessible and reusable.
- There are no absolute right answers
- But be clear, specific and detailed...
- And justify decisions
- The DMP is to prove to the funder that the researcher has taken time to reflect on what to do, that consideration has been given and the approach seems reasonable
- And that your data is "As open as possible, as closed as necessary" (FAIR principles)



Venkataraman, S. (2018, November). RDM, Open Research and DMP presentations and associated files. Zenodo, CC-BY 4.0 <u>http://doi.org/10.5281/zenodo.1489929</u>







FAIR principles

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Findable

- Persistent identifier (e.g. DOI)
- Rich metadata
- Searchable and discoverable online

Interoperable

• Open and/or standardised file formats



https://www.openaire.eu/how-to-make-your-data-fair

Accessible

- Deposited on a trusted repository (e.g. Zenodo)
- Data can be restricted and still FAIR – "as open as possible, as closed as necessary"

Reusable

- Well documented (e.g. README files), including provenance and tools / instruments needed to reproduce the results
- Clear licence (e.g. CC BY 4.0, CCO)





Data Availability Statement

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- All articles must include a Data Availability statement, even where there is no data associated with the article
- Should be added to the end of the article prior to submission
- The Data Availability Statement should not refer readers or reviewers to contact an author to obtain the data (i.e. not FAIR data – Accessibility issue)
- You can also mention the DMPs if it is published on Zenodo or on another repository







Requirements for specific cases





Validation of findings

 Restricted or closed data might need to be made available through agreements with relevant confidentiality provisions

Public emergencies

- Can be triggered by the request of the granting authority
- Immediate OA is extended beyond publications to any research outputs – as soon as feasible and in CC BY or CCO
- DMP provided with the proposal or before grant signature
- In case of conflict of legitimate interests for openness, beneficiaries must grant non-exclusive licences to legal entities that need the research to address the emergency (this provision applies up to 4 years after the end of the action)







Some useful tools





OpenAIRE EXPLORE

Makes the links

- A comprehensive and open dataset of research information covering 166m publications, 59m research data, 203k research software items, from 131k data sources, linked to 3m grants and 193k organisations
- Connect and view all of your research publications, datasets, ORCID, software, DMP, etc. All linked together through citations and semantics.
- Search for publications, research data, research software...
- Download reports for research products of projects, organisations and data sources
- Find statistics, metrics and graphs for projects, data sources, research products...
- Browse by Sustainable Development Goals or fields of research
- Add to ORCID your research products with the ORCID search and link wizard
- Find a repository to deposit or publish your research (publications, data or software) in Open Access.



OpenAIRE











EXPLORE

AMNESIA – anonymisation tool

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Why anonymise?

- Anonymised data are outside the scope of GDPR
- Anonymisation provides a statistical guaranty about the risk of information leakage
- It is the most suitable way to give information to third parties, without revealing personal data





Terrovitis, Manolis (2023) OpenAIRE webinar-Amnesia: High-accuracy Data Anonymization. CC-BY 4.0 <u>10.5281/zenodo.7636541</u>



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ARGOS – write your DMP

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- Free for researchers, open source, configurable and extensible tool for planning Research Data Management activities according to OA & FAIR data policies.
- Discoverable through OpenAIRE EXPLORE
- Accessible: Persistent Identifiers (ORCIDs & DOIs)
- Interoperable: Research Data Alliance DMP Common Standard
- **Reusable:** Licences
- Versioned (history/provenance)
- Published and preserved in Zenodo
- Enables research communities to create templates (dataset profiles) tailored to domain standards and practices.

Papadopoulou, Elli (2022) ARGOS - Unlock new potentials in writing DMPs. CC-BY 4.0 10.5281/zenodo.6703324

https://argos.openaire.eu/



arcos





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ARGOS – write your DMP

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Argos Community Calls

Are you a researcher or administrator of Argos? Got questions on how to write your Data Management Plan (DMP) or how to create your Template and connect DMPs with other data services and outputs? Join us and learn more!

OpenAIRE is running a series of community calls for Argos to support all researchers in meeting their Horizon Europe requirements by creating FAIR (Findable, Accessible, Interoperable, Reusable) DMPs. Similarly, it supports all research performing and funding organisations to orchestrate their data services around Argos and connect data workflows contributing to interconnected Research Data Management ecosystems.

These calls offer the opportunity to discover Argos novelties and learn how to benefit from them in your practice, share feedback and discuss the future of DMPs as FAIR and machine actionable outputs, i.e. as complete outputs that bring validated information, qualified references and automations to the table to assist the processes of collecting, documenting and publishing your data.

The Argos Community Calls will run every last Wednesday of the month at 14.00 CEST, starting from June 29th!

https://www.openaire.eu/argos-community-calls





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arcos

Reporting and monitoring





Reporting-Monitoring

- Extensive reporting of Open Science practices:
 - Structured reporting of requirements regarding OA
 - Free-text reporting of encouraged Open Science practices
- Monitoring by project officers and reviewers in periodic reviews
- Monitoring of the FP through Key Impact Pathways (KIPs)





European Commission

Alea López de San Román, Open Science in Horizon Europe, CC-BY 4.0 https://doi.org/10.5281/zenodo.4681073



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EC Participant Portal – Continuous reporting

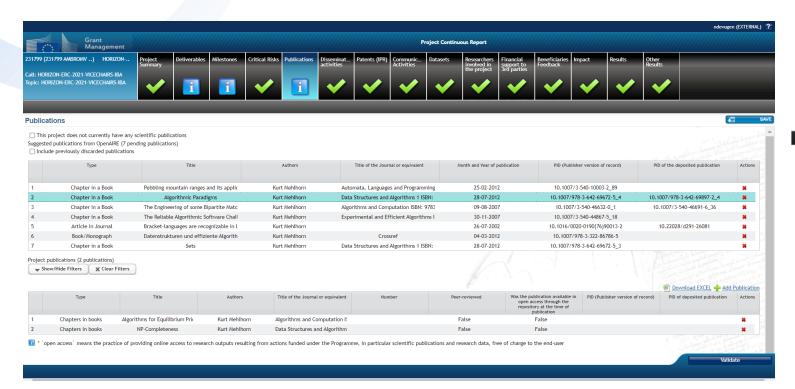
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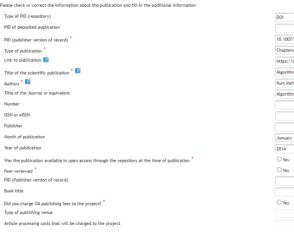
Publications



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Publications

- "Type of PID" = unique URL given by the repository or the publisher
- "PID of deposited publication" = URL to the repository where AAM/VoR is archived
- "PID (Publisher version of record)" = URL to the place where it was published (e.g. given by the journal)
- "Article processing costs that will be charged to the project" – remember that OA fees to publish in a non-full-OA journal/platform cannot be charged to the project

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Results vs Other Results

- 'Results' tab focused on the content of the results: discoveries and theories, products, services, methods, etc.
- 'Other Results' tab is for reporting about software, workflows, protocols, prototypes, etc.

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Open Research Europe

The Open Access Publishing Platform of the European Commission

Victoria Tsoukala, PhD European Commission, Directorate-General for Research & Innovation, Unit 'Open Science'

OpenAIRE training

July 3, 2023

ORE: the basics (1/2)

- Platform for H2020/Horizon Europe grantees
 - Including Euratom and COST actions
 - Optional service, at no cost to researchers during and after end of their projects
 - Publishes original research funded at least partially by the EC
- Innovative publishing model initiated by a funder
 - **Post-publication open peer-review**: first publication and then open review (both reviewer names and reviews open)
 - All articles and reviews in open access under CC BY licenses
 - High scientific standards, policies/guidelines and Scientific Advisory Board
 - Transparent publishing process, enhances transparent research
 - Publishes in all disciplines



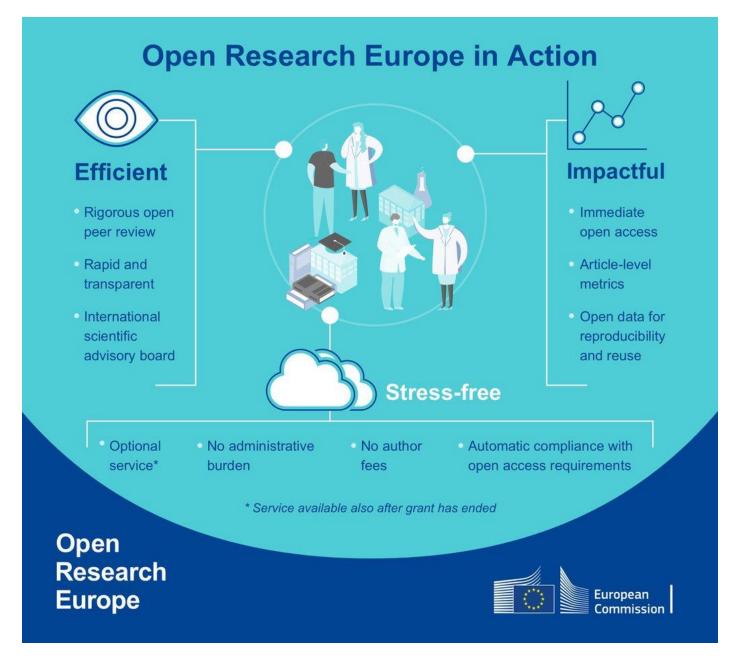
ORE: the basics (2/2)

- Launched in March 2021; a bit over **400 publications** in all fields
- Researcher-led community gateways and collections in particular fields (ca. 120 gateway/collections advisors; over 30 gateways, over 90 collections)
- Indexed in Scopus, ERIH+, Inspec and gradually other important indexers & national lists (no JIF!)
- Operated by F1000 Research Ltd, subsequent to public procurement; contract ends March 2024; procurement has helped bring price of service down.



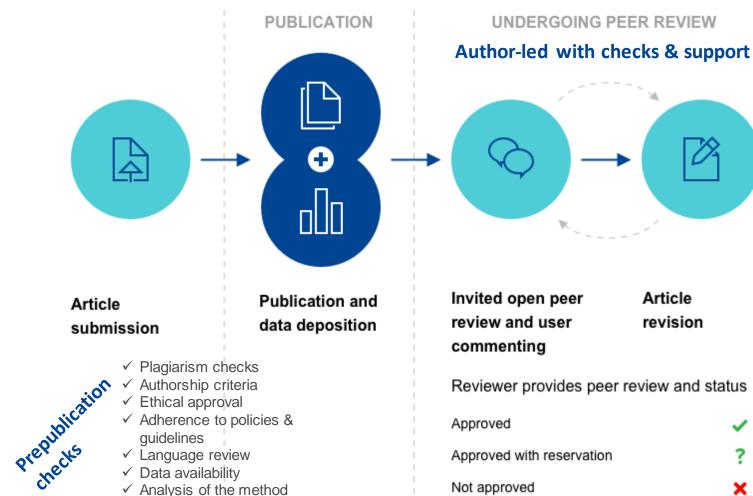
ORE in line with policy and programme strategy

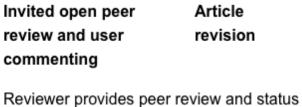
- EC leads by example in operationalising open science practices within scientific publishing in line with policy priorities
- Supports Horizon Europe strategy and compliance with contractual obligations
- Supports **institutional not-for-profit open access publishing** for the public good
- Supports transparency and cost-efficiency in publishing
- Long-term commitment by the Commission
- Discussions with national funders to collectively support ORE as of 2026





An innovative publication model







Article

revision

UNDERGOING PEER REVIEW

Send to indexers and repositories

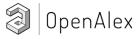
PASSED PEER REVIEW

✓ ✓ or ✓ ? ?

NOTE: authors may continue to publish new versions, even once peer review passed

Scopus® Pub

IET Inspec



Dimensions

TOP FACTOR

DIRECTORY OF OPEN ACCESS JOURNALS

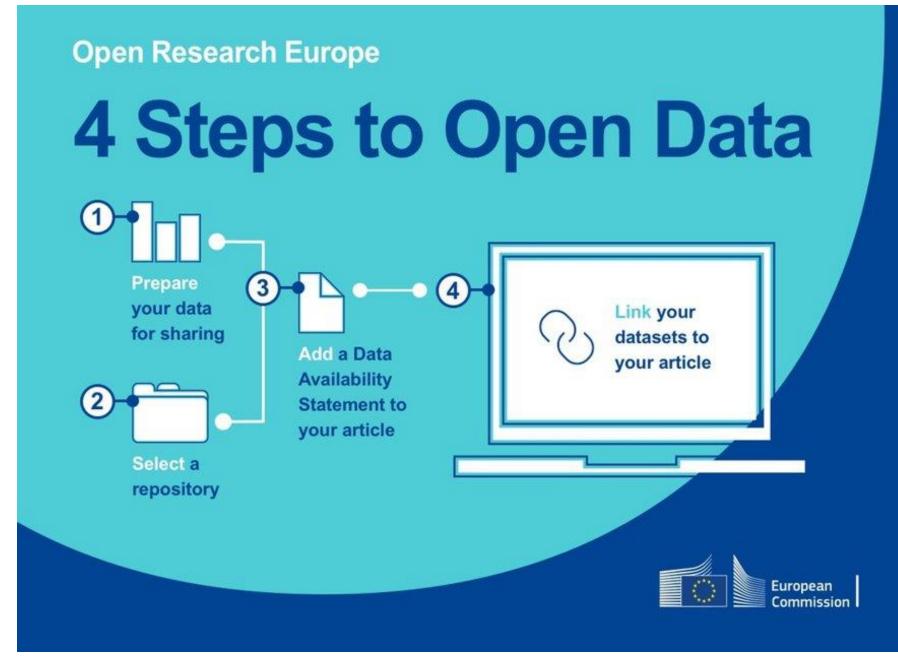
Reaxys

Google Scholar





Supporting reproducibility & transparency in research

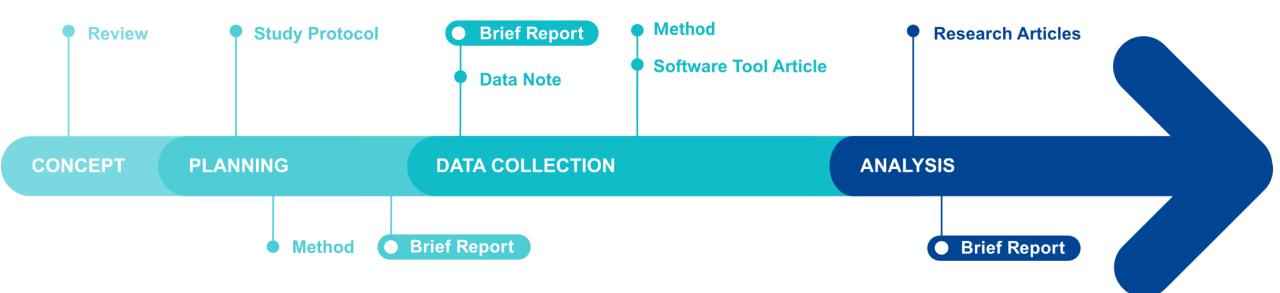


Research supported across all disciplines

	Natural sciences	Engineering and technology	Medical and health sciences	Agricultural and veterinary sciences	Social sciences	Humanities and the arts
Case Study	•	•	•	•	•	•
Research Article	•	•	•	•	•	•
Brief Report	•	•	•	•	•	•
Data Note	•	•	•	•	•	•
Method Article	•	•	•	•	•	•
Open Letter	•	•	•	•	•	•
Software Tool Article	•	•	•	•	•	•
Review	•	•	•	•	•	•
Case Report	•	•	•	•		
Registered Report	•	•	•	•	•	
Clinical Practice Article	•	•	•	•		
Study Protocol	•	•	•	•	•	
Systematic Review	•	•	•	•	•	
Essay					•	•



Publishing throughout the research process





Example of a publication

Open Researc	ch Europe			Q Search			The sur	BMIT YOUR	RESEARCH
Browse Gatewa	ays & Collections	How to Publish $ imes $	About ~	Resource Hub 👻 Blog					Sign in
0 Views 17 Downlo	pads 1 Citations				🕯 Cite 보	Download 👻 🏓 Ex	xport 🗸	Share 👻	(b) Track
iome > <u>Articles</u> > Pharm	aceutical pollution: Pred	liction of environmental				Open Peer Revie	W		
ATA NOTE 👌						Approval Status 🗸	? 🗸		i
REVISED Phari	maceutica	I pollution:	Predic	tion of environme	ental		1	2	3
		national wh 1 approved v		es data [version 2 eservations]	2; peer	Version 2 (Revision) 15 Sep 22	view		✓ <u>view</u>
amuel A. Welch 🗹 💿,	Kristine Olsen, Mohar	nmad Nouri Sharikabad, Ki	nut Erik Tollefs	en, Merete Grung 💿, S. Jannicke Moe	D	Version 1	\uparrow		
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This article is included	l in Horizon 2020 gate	Nay			H2020	 Gerd Maack Gern Maack Gernany 	nan Environment	Agency (UBA), Dessau-
This article is included in Marie-Sklodowska-Curie Actions (MSCA) gateway					2	 Ad M. J. Ragas, Rada Netherlands Caterina Zillien, Rada 			
Article	Authors	Metrics				Netherlands 3. Rosa Maria Marce 💿	, Universitat Rov	ira i Virgili, Ta	rragona,
Abstract						Spain			
epurposing of sales d sed market-based ris	lata to predict surfaces and its assessment assessment assessment as a specific	e water environmental neasurement approach	concentrationes. The Norv	d that of more prominent groups. H ns is a promising supplement to mo vegian Institute of Public Health (NI	pre commonly IPH) has	Comments on this a <u>All Comments</u> (0)	rticle		
	0	sale Statistics database and healthcare provider		all sales of both human and veterina	ary	Sig	gn in to comm	ent	



Stay informed

To date, most similar works have focused either on a small subset of Active Pharmaceutical Ingredients (APIs) or used only

The peer review process

- Reviewers are suggested by article authors, with the editorial team ensuring they meet necessary criteria (incl. conflicts of interest) or suggesting additional expertise
- An extensive list of questions, which must be answered, guides the review process, appropriate for different domains; there is also a reviewer code of conduct to be followed
- Once all necessary reviews performed, the editorial team checks for process, content, language and correct status, and completes the publishing process



Example of a peer review report

Reviewer Report 2 Views	©
? Approved with reservations	(i)
22 Jun 2022	VERSION 1
Gerd Maack (), German Environment Agency Roßlau, Germany	(UBA), Dessau-

Cite this Report

Responses (1)

The data for this manuscript is part of a larger project and utilize the unique Norwegian Wholesale Statistic database.

However, the text is quite difficult to read, as it misses an overall red line, especially for readers not involved in the project and those who did not read the project report.

One example of this is the data evaluation. For me, it is not clear why the author chose the data and publications they compared the results of this project to. Grung *et al.* (2005) and the Felleskatalogen data are very likely not known to anyone outside of Norway. Here a better explanation would have been needed.

Finally, all the effort of building the database and extracting the data should end in using the database and producing results. The

AUTHOR RESPONSE 15 SEPTEMBER 2022

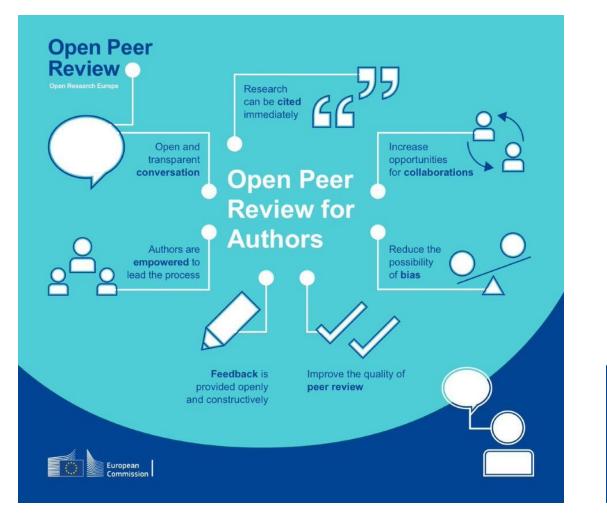
Sam Welch

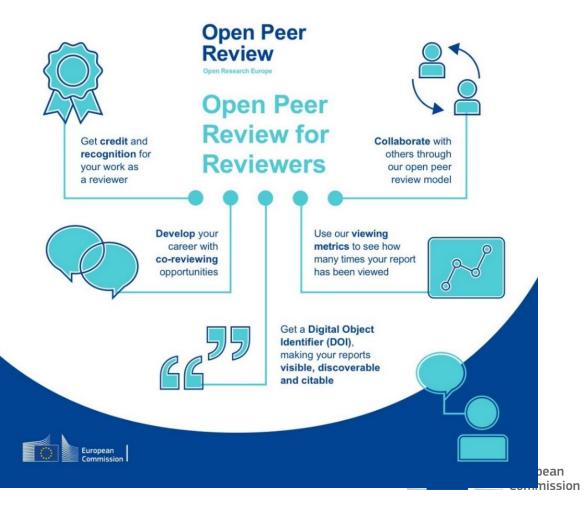
Thank you for your quick and comprehensive feedback on our paper. I've revised the paper in response to a number of your suggestions, and I'll attempt to respond to them all below. The data for this manuscript is part of a larger project and utilize the unique Norwegian Wholesale Statistic database.

However, the text is quite difficult to read, as it misses an overall red line, especially for readers not involved in the project and those who did not read the project report. I've rewritten part of the abstract and introduction, and I hope our intentions – to calculate PECs from Norwegian drug sales, and publish them – are clearer now.

One example of this is the data evaluation. For me, it is not clear why the author chose the data and publications they compared the results of this project to. Grung *et al.* (2005) and the Felleskatalogen data are very likely not known to anyone outside of Norway. Here a better explanation would have been needed. Pharmaceuticals sales data is not generally publicly available, in Norway or elsewhere, and both predicted and measured environmental concentration data for Norway are similarly scarce, compared with better-studied nations such as

Open peer review: a win-win situation





Interest and influence: altmetric indicators

Open Research B	Iurope									Article	e Metri
	Luiope								? What is this page?	Embed badge	🖻 Sha
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440	😮 🛛 So far, Alt	metric has seen 10 news sto	ories from 10 outlets.								
	Psychology Today	Are Humans Super Psychology Today, 14 Ma Source: Photo by Fredulie audience is that you occa	r 2023 e/Creative Commons One		is of writing a book for a ge		DISCOVER	Stone Toolmaking May Not Have Discover Magazine, 21 Jul 2022 Scientists have long pointed to excavated stor down their culture.	·		
About this Attention Score in the top 5% of all research outputs scored by Altmetric more entioned by 10 news outlets	TECHNOLOGY NERVOOR News Team Tests Primates' Ability To Solve Stone Tool Problems A study has found that unlike early human species, chimpanzees do n seem to be able to spontaneously make and use sharp stone tools, even when they have all the materials and incentive to do Technology Networks, 21 Jul 2021 Unlike early human species, chimpanzees do not seem to be able to spontaneously make and use sharp stone tools, even when they			do not ols,	Популярная Месантка	Ученые показали, что шимпан: Popmech. 21 Jul 2021 , 09:52 Исследование показало, что в отлич похоже, не способны самостоятельно созда	ие от предков соврем				
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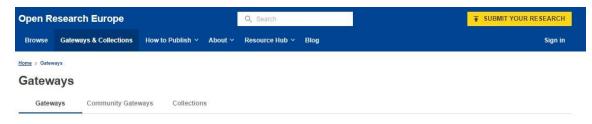
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Three different ways to organize your research in ORE

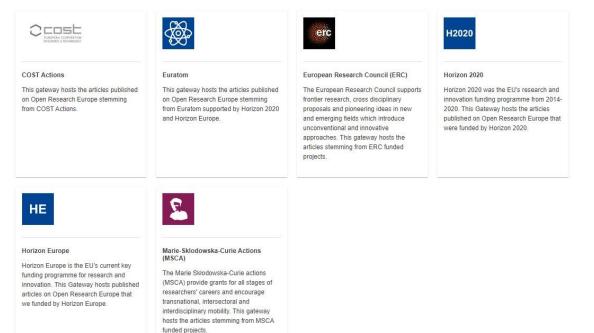


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By funding programme



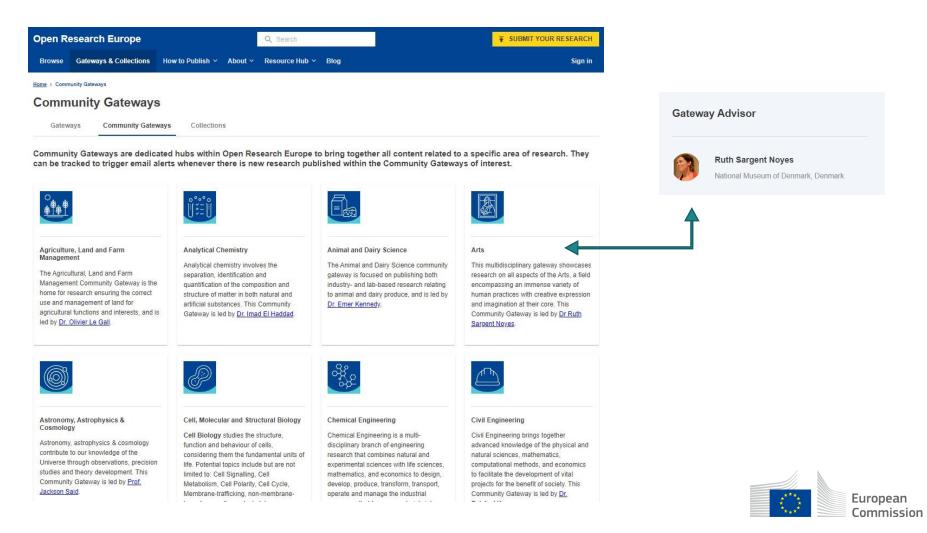
Gateways provide dedicated portals for the different funding programmes, programme areas and their thematic sections. In each gateway, you will find articles published on Open Research Europe that are linked to projects funded under each funding.





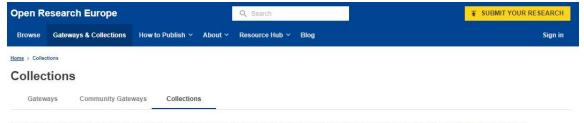
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By specific area of research



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By community, project or conference



Collections are compilations of content relating to a specific Horizon 2020 or Horizon Europe-funded community, project or conference.

			Q ≫ →	
Active Living as a Lifestyle Being habitually active is regarded as a healthy lifestyle, leading to healthy ageing and longevity. Ensuring all society members are able to lead an active lifestyle is paramount for reducing costs to health services. This collection is a dedicated area for research on activity	Adaptation to Climate Change This collection draws on the interdisciplinary nature of climate research in the Horizon funding programmes, looking at both current climatic conditions as well as the lessons that can be learned from climatic changes in the past. It is led by Dr. Jana VoiTisková.	Additive Manufacturing Additive Manufacturing refers to technologies that produce three- dimensional objects one superfine layer at a time. It has many applications across Engineering. Examples include the creation of weight-saving, complex geometric designs for Aerospace	Advances in Optics Optics is concerned with studying and understanding the behavior and properties of light, specifically in relation to its interaction with different media. This collection focuses on the latest developments within this field of physical sciences.	Collection Advisor
prescription, promotion and monitoring, with a particular focus on inclusivity.	in the past. It is need by <u>Dr. Jana Voliskova</u> .	geolinearic designs for Aerospace Engineering, the rapid prototyping in Automotive Engineering, and creating custom on-demand surgical implants in Medical Engineering.	Sciences.	Toma Susi University of Vienna, Austria
Advances in Photonics	Agricultural Chemistry	Amines	Analytical Techniques	
Photonics is the science of light waves, specifically relating to the generation, letection and manipulation of light. The ield focuses on the creation and	Chemistry is involved with agriculture in two core ways: it can be used to understand the underlying reactions that govern plant growth & behavior and it can	Amines are versatile organic compounds that form the basis of several naturally occurring & chemically synthesized products. This collection aims to bring	Quantitative study & result validation is a common practice spanning across multiple disciplines in science and this can be achieved by using different	Europ

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Commission

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Thank you



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www.openaire.eu

Webinar| 03 July 2023

Horizon Europe grant proposals

Jonathan England





Open Science parts

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- PART A Application form
 - List 5 publications, widely-used datasets, softwares, goods, services or any other achievements relevant to the call
- PART B Project proposal technical description
 - Under 'Excellence' '1.2 Methodology' (Open Science, RDM and management of other research outputs)
 - Under 'Impact' '2.2 Measures to maximise impact' (dissemination, exploitation and communication)
 - Under 'Quality and efficiency of the implementation' '3.1 Work plan and resources' and '3.2 Capacity of participants and consortium as a whole'



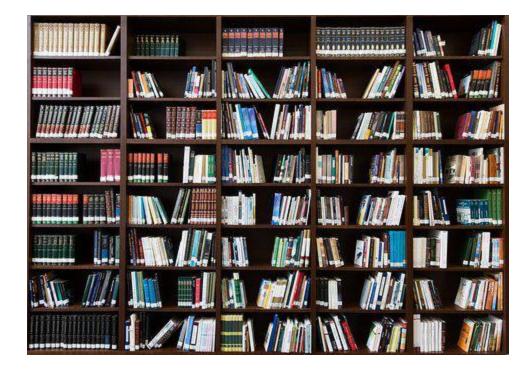
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Publications

- Your publications cited should be in OA
- Your publications cited will only be evaluated qualitatively (i.e. the Impact Factor is irrelevant)
- Give insights in where you are hoping to publish (e.g. Open Research Europe, full OA journals)







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Data

- Your data listed should be FAIR, on a repository and the PID provided
- An official DMP is not needed but the grant proposal does include aspects very similar to a DMP (e.g type and size of data, PIDs, IPR, interoperability, licences, curation, responsabilities
- Distinct WP on 'project management' that must include the DMP as a deliverable







Other aspects eligible in the budget

- "engagement of citizens, civil society and endusers" – citizen science and participation in crowdsourcing activities
- Data curation costs
- Article Processing Charges (hybrid journals not eligible)







Writing tips

- Be as specific as possible
- Don't let the project officer dig for information
- You do not need to explain what Open Access, FAIR data, Open Science, etc. mean. Focus on what concretely you will do









Special cases





ERC

- No explicit evaluation or requirement to describe Open Science practices; but if included, will (implicitly) positively affect assessment of 'scientific excellence'
- ERC projects do not have scientific work packages or deliverables.
- But now requires a "Research Data Management" WP, with "Data Management Plan" as the one deliverable (type "R – Document, report" with due data M6)

ERC DMP template



European Research Council

Established by the European Commission



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MSCA

- Underlying principles: Open Science, Responsible Research & Innovation
- Award criteria will consider the "soundness of the proposed methodology" (**'Excellence' criteria** weighing 50% of the evaluation) which must consider "the quality of Open Science practices"
- **Training activities** and **Career Development Plan** must address key transferable skills "fostering the culture of Open Science, innovation and entrepreneurship" and prepare to the increase in "research collaboration and information-sharing" (e.g. collaborative tools, OA, open data, FAIR data, public engagement, citizen science)





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Open Science recommended practices





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Evaluation

- Mandatory Open Science practices score will be lowered for not sufficiently addressing them unless duly justified
- Recommended Open Science practices no impact on score if not addressed but score will be increased if sufficiently addressed
- Open Science practices listed in the template for proposals (section Excellence > Methodology) but is a non-exhaustive list







Open Science practices

What?	How?	Mandatory in all calls/recommended
Early and open sharing of research	Preregistration, registered reports, preprints, etc.	Recommended
Research output management	Data management plan (DMP)	Mandatory
Measures to ensure reproduciblity of research outputs	Information on outputs/tools/instruments and access to data/results for validation of publications	Mandatory
Open access to research outputs through deposition in trusted repositories	 Open access to publications Open access to data Open access to software, models, algorithms, workflows etc. 	 Mandatory for peer-reviewed publications Mandatory for research data but with exceptions ('as open as possible') Recommended for other research outputs
Participation in open peer-review	Publishing in open peer-reviewed journals or platforms	Recommended
Involving all relevant knowledge actors	Involvement of citizens, civil society and end-users in co-creation of content (e.g. crowd-sourcing, etc.)	Recommended

- Open science practices listed in the template for proposals (section excellence>methodology)
- Non-exhaustive list
- Mandatory in all calls: Model Grant Agreement or call requirement; all the rest recommended

European

Commission





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Pre-registration

- Quantitative evaluation of research outputs has pushed towards less responsible research practices and the replication crisis (e.g. data dredging/p-hacking, cherry picking, HARKing [Hypothesising after the results are known])
- Pre-registration = "practice of publishing the plan for a study, including research questions/hypotheses, research design, data analysis before the data has been collected or examined" (FORRT)
- Some research domains have standard procedures in place; e.g. pre-registration of clinical trials, check ECRIN: <u>https://ecrin.org/</u>



OpenAIRE webinar | 03 July 2023

https://www.cos.io/initiatives/prereg

Nosek et al. (2018). The preregistration revolution.

https://doi.org/10.1073/pnas.1708274114

•

Pre-prints

- Traditional scholarly publishing is usually time-consuming and slow
- Preprints allow authors to share their results ahead of peer-reviewing on preprint servers
- Faster dissemination and broader access to research outputs, opportunities for early feedback
- Visible outputs for early-career researchers, can increase employability



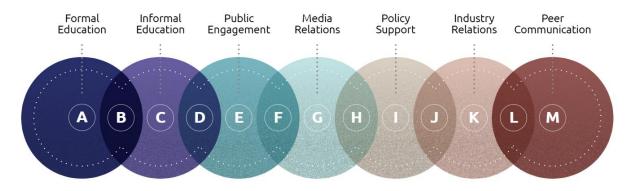






Public engagement

- Open and inclusive research and innovation includes society that can be listened to, awarded relevant input and influence during all stages of the research process (<u>RRI Tools</u>) – public engagement contributes to the democratisation of science
- Increases scientific literacy of the public, improves societal relevance of science, increases the support and uptake of research
- E.g. <u>European Researchers' Night</u>, <u>Science is</u> <u>Wonderful</u>, public talks, talks in schools or cultural centres, popular science books, social media, documentaries, TV shows, school activities, art/science projects



Pompea & Russo (2020). The role of astronomers in the astronomy education ecosystem. <u>https://doi.org/10.48550/arXiv.2011.11350</u>





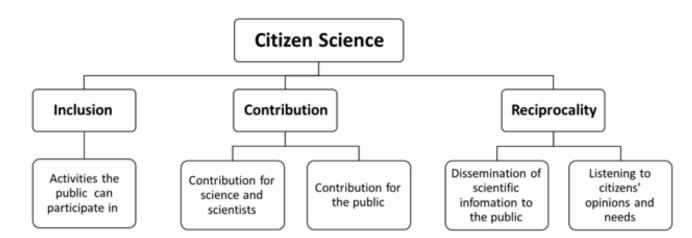


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Citizen Science

- Projects that actively involve the general public, in any of the stages of research, acting as collaborators, contributors or project leaders (FORRT)
- Increases scientific literacy of the public, empowers citizens with scientific approaches, improves societal relevance of science, increases the support and uptake of research, explores new pathways for participatory governance
- <u>European Citizen Science Association</u>, <u>EU</u> <u>Citizen Science platform</u>
- E.g. <u>Zooniverse</u>, <u>School Network Alerts Citizens</u> analysing seismograms, in video games (e.g. <u>Borderlands 3</u>)... and many more



Golumbic et al. (2017). CC-BY 4.0. <u>http://doi.org/10.5334/cstp.53</u>







Final tips





Overall tips

- Design an Open Science strategy for your project.
- Include specific provisions in the Consortium Agreement about where publications and data will be deposited and who is responsible for doing this. Who will make sure that all outputs have been deposited in the appropriate repositories?
- Implement your Open Science strategy, report at reviews and provide updates.
- Keep track of issues, discuss the solutions.











OPEN SCIENCE IN HORIZON EUROPE

70

- Sequirements in practice
- COMPLIANCE TIPS
- 🔮 TOOLS TO SUPPORT

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4th Open Science Train the Trainer Bootcamp

Online interactive training, 27 Nov – 01 Dec 2023

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TRAIN-THE-TRAINER BOOTCAMP 27 Nov – 01 Dec 2023

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