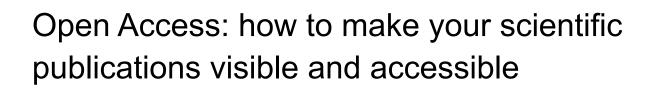


Open Access: how to make your scientific publications visible and accessible

C. Boldrini, C. Spinelli







Chiara Boldrini, Chiara Spinelli

Abstract:

Open access to scientific publications is now accepted as a best practice in scientific research and it is being pushed by funders and researchers alike. This report provides an overview of the H2020, HE and ANVUR requirements for the publications related to project outputs, a list of the main repositories that can be used by the authors to meet those requirements, a summary of the major publishers' current OA guidelines, and an practical workflow proposal for IIT researchers.

Table of contents

- 1. Introduction p.2
- 2. Requirements p.3
 - **2.1** Requirements from the European Commission [H2020]
 - **2.2** Requirements from the European Commission [HE]
 - 2.3 Requirements from ANVUR
- 3. Repositories p.6
- 4. Summary of Publisher OA rules p.8
- 5. Workflows and FAQ p.10
 - **5.1** Proposed workflow [H2020]
 - **5.2** Proposed workflow [HE]
 - **5.3** How to edit OpenAIRE metadata of manuscripts harvested from arXi
 - **5.4** FAQ
- 6. Post-publication rights from major publishers p.13
 - **6.1** ACM
 - **6.2** Elsevier
 - **6.3** IEEE
 - **6.4** Springer
 - **6.5** Wiley

1. Introduction

Open Access (OA) is the practice of making scientific publications immediately available in electronic format, at no cost to the user and in a format that allows unlimited reuse. The open access publication permits to disseminate and share research results without barriers or restrictions.

From Wikipedia[1]:

Open access is a set of principles and a range of practices through which research outputs are distributed online, free of cost or other access barriers. With open access strictly defined (according to the 2001 definition), or libre open access, barriers to copying or reuse are also reduced or removed by applying an open license for copyright.

[...] Open access can be applied to all forms of published research output, including peer-reviewed and non peer-reviewed academic journal articles, conference papers, theses, book chapters, monographs, research reports and images.

Open access publication is also required by the European Commission (H2020 and HE programs) and by ANVUR, so it's crucial for all the researchers of our Institute to be fully informed about the practices that have to be put in place to satisfy their requirements.

Open access can be achieved by two main practices (from the H2020 Online Manual[2]):

Self-archiving / 'green' open access – the author, or a representative, archives (deposits) the published article or the final peer-reviewed manuscript in an online repository before, at the same time as, or after publication. Some publishers request that open access be granted only after an embargo period has elapsed.

Open access publishing / 'gold' open access - an article is immediately published in open access mode. In this model, the payment of publication costs is shifted away from subscribing readers.

The most common business model is based on one-off payments by authors. These costs, often referred to as Article Processing Charges (APCs) are usually borne by the researcher's university or research institute or the agency funding the research.

In other cases, the costs of open access publishing are covered by subsidies or other funding models.

The versions of the article that can be deposited are:

- **Pre-print:** the article completed by the author before peer-review;
- · **Accepted manuscript:** the article after peer-review and ready for publication, integrated with the reviewers' comments;
- Published manuscript: the version of the article equal to the one that will be or has been published in the magazine, after being peer-reviewed, copy-edited and formatted by the publisher.

As a research institute we certainly should:

- **comply with the open access requirements** of the European Commission programs and the ones from ANVUR;
- ensure that we're not violating the publisher's copyright in the meanwhile;
- **choose a repository harvested by OpenAIRE**, the European infrastructure in support of Open Science, so that all the publications from the European projects can be grabbed automatically;
- do our best to increase publication visibility.

2. Requirements

2.1 Requirements from the European Commission [Horizon2020]

The European Commission has included in the H2020 grant agreement published a list of open access requirements that all the projects financed by H2020 have to meet. Each project beneficiary of the H2020 financing must ensure open access to all peer-reviewed scientific publications related to its results, choosing between different possibilities.

For peer-reviewed publications produced under the Horizon2020 open access is **mandatory** and publishing in open access journals does not exempt from publishing in an open access repository.

The first step to meet H2020 requirements is to deposit the publication (the accepted manuscript) in an open access repository. The publication doesn't need to be immediately accessible, but it has to be archived as soon as possible, at the latest on publication.

The kind of repositories that can be used are:

- · an institutional repository commonly used by the researchers;
- · a subject-based/thematic repository (e.g., arXiv, Europe PMC);
- Zenodo, the OpenAIRE repository hosted by CERN.

On that first step, it has to be ensured the open access to the descriptive metadata as well.

Metadata must include:

- the words ["European Union (EU)" and "Horizon 2020"] ["Euratom" and Euratom research and training programme 2014-2018"];
- the name of the project, the acronym and the grant number;
- the publication date and the length of the embargo period, if applicable.

The second step is to grant the public open access to the peer-reviewed publication. The deadline for this step is mandatorily at the time of publication or after the embargo period has expired (the embargo must be no more than six months).

Useful links:

Some useful information about the H2020 requirements on open access can be found at:

https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h202 0-amga_en.pdf#page=245 A good guide on "How to comply with H2020 mandate - for publications" can be found here:

https://www.openaire.eu/how-to-comply-to-h2020-mandates-for-publications

2.2 Requirements from the European Commission [Horizon Europe]

The set of requirements for open access publications under the Horizon Europe Program has some notable differences from the H2020 ones. Specifically:

- The authors must provide an immediate open access to the peer-reviewed publications: the embargo periods are not accepted anymore.
- The authors have to select a specific **type of licence** (CC BY [3] or equivalent).
- Only the publication fees paid for full open access journals will be eligible for reimbursement. The open access fees paid to publish on hybrid - open access journals will not be reimbursed.
- The metadata must include PID of tools needed to validate the scientific findings of the paper.

Useful links:

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/agr-contr/general-mga horizon-euratom en.pdf

https://www.biblio.polito.it/en/open_access/horizon_europe/how_to_comply_with_open_access_requirements

https://openaccess.univie.ac.at/en/funding/eu-oa-funding/

2.3 Requirements from ANVUR

Basically, the ANVUR requirements match the European Community ones, but maintaining a generous embargo period:

- The embargo period is set at 18 months from the first publication
- The article must be accessible in at least one of these ways:
 - Open access journal or volume;
 - Open access university archive;
 - Open access thematic repository (PubMed, ArXiv, etc.);
 - Author's personal website.

- The publication must be accessible in at least one of these versions:
 - Preprint;
 - Accepted manuscript;
 - Published article.

Useful links:

https://www.anvur.it/wp-content/uploads/2020/01/Bando-VQR-2015-2019_3_1_2020_formato-accessibile.pdf

3. Repositories

We'll now take a look at some of the most useful repositories we can use to give open access to our publications, making a list of advantages and drawbacks for each one of them

3.1 Repository of choice

The repository of choice is surely arXiv (https://arxiv.org/).

arVix is the most popular repository in the computer science area, internationally recognised and also harvested by OpenAIRE[4]. Nevertheless, some cons are to be taken into account:

- the approval/publication is not immediate;
- o arVix doesn't issue DOIs;
- the descriptive metadata fields are not aligned with H2020 requirements and need to be integrated manually on OpenAIRE;
- o you can't just deposit but you always need a public PDF.

Please remember also that arXiv is typically considered a thematic repository[5].

3.2 Other repositories of interest

The two other repositories of interest for us are:

• **Zenodo** (https://zenodo.org/): the de-facto open access repository of the European Commission.

Zenodo has some important differences with respect to arXiv:

- the publication is almost immediate;
- o the DOIs are assigned;
- o it can also be used for data and software;
- o it's easy to add grant information.

On the other hand, Zenodo is quite less well-known than arXiv. Publishers often do not specifically include Zenodo in the list of accepted repositories, so you can risk violating their policies by publishing on it. It's also not clear if it can be considered a *funder's repository* for European projects[6].

CNR ExploRA/PEOPLE: the institutional repositories for CNR employees.

PEOPLE (https://intranet.cnr.it/servizi/people/) is a closed platform where CNR employees can deposit their publications.

CNR ExploRA (https://publications.cnr.it/) shows to the public the publications uploaded via PEOPLE.

As CNR employees we are mandated to use PEOPLE for our annual reporting of publications and for the VQR. The repository works like OpenAIRE for the metadata you can add to the publication, so it is compliant with the H2020 requirements.

The most important disadvantage is probably the fact that ExploRA has no visibility at all in the scientific community and it is not harvested by OpenAIRE.

	arXiv	Zenodo	CNR
Harvested by OpenAIRE?	Yes	Yes	No
Metadata H2020-compliant?	No	Yes	Yes
Deposit only?	No	Yes	Yes
High visibility?	Yes	No	No
Generally accepted by publishers?	Yes	No	Yes

4. Summary of Publishers' OA rules

	Preprint	Accepted manuscript available as PDF			Published manuscript PDF	
		At publication time	At publication time + embargo	Embargo duration	OA	Non-OA
ACM	arXiv, Zenodo, CNR (arXiv license)	arXiv, Zenodo, CNR (arXiv license) Post ACM DOI		No embargo	Immediately anywhere	Nowhere
Elsevier	arXiv, Zenodo, CNR (arXiv license)	arXiv (CC-BY-NC-ND license) Post Elsevier DOI	CNR, Zenodo Post Elsevier DOI	Check here (24 months for COMCOM and PMC)	Immediately anywhere	Nowhere
IEEE	arXiv, CNR (arXiv license) Credits to IEEE required	arXiv, CNR Funder's repository (waived if funders require an embargo < 24 months) (arXiv license) Credits to IEEE required	Funder's repository Credits to IEEE required	24 months (waived if funders require an embargo < 24 months)	Immediately anywhere (slight variations depending on the license selected)	Nowhere
Springer	arXiv, Zenodo, CNR (arXiv license)	-	CNR, Zenodo (?) Credits to Springer required	12 months	Immediately anywhere	Nowhere
Wiley	arXiv, Zenodo (?), CNR (arXiv license)	-	arXiv, Zenodo (?), CNR Credits to Wiley required	12 months	Immediately anywhere	Nowhere

To briefly summarize:

- arXiv is accepted by IEEE, ACM and Elsevier, but the metadata must be integrated manually.
- Springer and Wiley have an embargo period that is too long for the European Community, so it can be required either to choose a Gold Open Access or negotiate with the publisher.

5. Workflows and FAQ

5.1 Proposed workflow H2020

- 1. Preprints: researchers are encouraged to post their preprints on arXiv, but they will need to double-check if the paper is for conference with double-blind submission (usually not considered a conflict, though).
- 2. Before the submission they will need to check at https://v2.sherpa.ac.uk/romeo/ if the embargo policies of the selected journal are compatible with the EU requirements (less than six months). If they're not, the researchers will have to consider changing the journal or planning to pay the open access fee.
- 3. After acceptance, if there is no embargo for arXiv from the publisher, then **publish** the accepted manuscript on arXiv and, when OpenAIRE has harvested the paper, fix the metadata.

Note: for ongoing submissions, if it's not possible to negotiate with the publisher an embargo shorter than 6 months, it is recommended to get in touch with the project's PI as soon as possible.

5.2 Proposed workflow HE

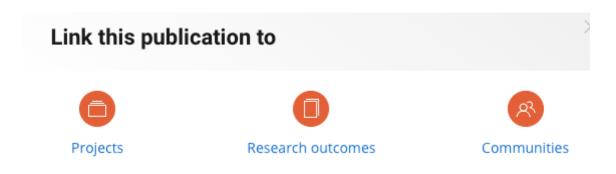
- 1. Preprints: researchers are encouraged to post their preprints on arXiv, but they will need to double-check if they are doing a double-blind submission.
- 2. Before submission they will need to check at https://v2.sherpa.ac.uk/romeo/: if the article is due to be published in a non-open access journal, then there shouldn't be any embargo. If it's an open access journal with reimbursement needed, please verify that it is not a hybrid open access.
- 3. After acceptance: researchers must publish the accepted manuscript on arXiv and when OpenAIRE has harvested the paper fix the metadata

5.3 How to edit OpenAIRE metadata of manuscripts harvested from arXiv

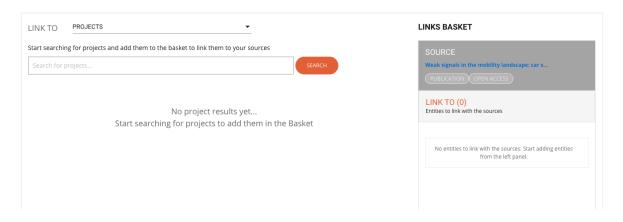
Log in on OpenAIRE and go to the publication page on OpenAIRE:



Then click on "Link this publication to":



Search for the projects you want to link:



5.4 FAQ

Q1: Can you hide the authors' names of an arXiv submission (useful for double-blind submissions)?

It doesn't seem possible.

Q2: Do you need to be endorsed to publish in arXiv?

ArXiv might request an endorsement if it's the first time you are publishing in a certain category. Share the endorsement link provided by arXiv with your colleagues. Most likely, someone will be able to endorse you. For more information: https://arxiv.org/help/endorsement

Q3: Is there a workaround to deposit the scientific results in an H2020-compliant way without paying the OA when the embargo of the selected journal is too long?

Yes. You can publish the scientific results as a preprint on arXiv. Formally, it will be a technical report, but the scientific contribution will be recognized by the H2020 project. This should be treated as a last resort option when you really don't want to pay the OA fee.

Q4: What about conferences?

Conferences are typically covered by the general rule of the publisher.

Q5: Does OpenAIRE provide a notification when a new publication from an author has been harvested?

No. OpenAIRE provides APIs, so it is technically possible to prepare a script that monitors IIT researchers, but its implementation is not expected in the foreseeable future.

6. Post-publication rights from major publishers

In the following, we provide a summary of major publishers' current guidelines (Updated to May 2021).

Remember to use Sherpa Romeo to double-check the OA policies of the journal/publisher you are interested in before sharing your manuscript publicly: https://v2.sherpa.ac.uk/romeo/

6.1 ACM

The extended version of the ACM guidelines about open access can be found here: https://www.acm.org/publications/openaccess

For a **preprint and accepted manuscript** ACM recommends to post it in any and all of the following repositories, with no embargo period:

- author's homepage;
- author's institutional repository;
- any repository legally mandated by the agency, or funder of the research on which the work is based:
- any non-commercial repository or aggregation that does not duplicate ACM tables of
 contents. Non-commercial repositories are defined as repositories owned by
 non-profit organizations that do not charge a fee to access deposited articles and that
 do not sell advertising or otherwise profit from serving scholarly articles (es. They
 recommend not to use ResearchGate, Academia.edu, Mendeley or Sci-Hub, "as
 these sites are all either commercial or in some instances utilize predatory practices
 that violate copyright, which negatively impacts both ACM and ACM authors." [7].

The license type is not specified: our strong recommendation is to use the arXiv license and never use CC0 (which waives all rights).

As post-publication activities, ACM asks to post the published version's Digital Object Identifier (DOI) alongside the pre-published version on these sites and public repositories.

For a **published manuscript**, the ACM guidelines state that it can be published anywhere only if the open access fee is paid; otherwise, it is not possible to publish it anywhere publicly.

6.2 Elsevier

The extended version of the Elsevier guidelines about open access can be found here:

https://www.elsevier.com/about/policies/sharing

For Elsevier a **preprint manuscript** can be shared anywhere at any time. As previously seen with ACM, a license is required and we strongly recommend using the arXiv licence and never use CC0 (which waives all rights).

An **accepted manuscript** can be shared immediately

- via the author's non-commercial personal homepage or blog;
- by updating a preprint in arXiv or RePEc with the accepted manuscript;
- via an institutional repository for internal use;
- providing copies to research collaborators for personal use.

If the accepted manuscript has an embargo, it can be shared publicly after the embargo period has expired, via non-commercial hosting platforms such as institutional repositories.

The license requested by Elsevier is a CC-BY-NC-ND, which is not accepted by the Horizon Europe Program.

As post-publication activity the author must link the document to the formal publication via its DOI.

After the article is published, if the open access fee has been paid the author can share it everywhere specifying the license chosen when paying the Article Processing Charges (APC). Otherwise, the article can't be shared publicly.

6.3 IEEE

The extended version of the IEEE guidelines about open access can be found here: https://journals.ieeeauthorcenter.ieee.org/become-an-ieee-journal-author/publishing-ethics/guidelines-and-policies/post-publication-policies/

https://www.ieee.org/content/dam/ieee-org/ieee/web/org/pubs/author_version_faq.pd f

For IEEE a preprint can be shared:

- via the author's personal website
- via the author's employer's website or institutional repository
- on arXiv.org, TechRxiv.org or any not-for-profit preprint server approved by the Publication Services and Products Board (PSPB)

A license is required but not specified, so the strong recommendation is to use the arXiv license and never use CC0 (which waives all rights).

The author must:

- include in the first page of the PDF the following statement: "This work has been submitted to the IEEE for possible publication. Copyright may be transferred without notice, after which this version may no longer be accessible."
- Upon submission, inform IEEE of the existence of the pre-print.

As post-publication activity the author must replace the posted preprint article with either the full citation to the IEEE work with the DOI or the accepted version of the article with the DOI and an appropriate copyright notice (as described in the "Accepted manuscript" section below).

An **accepted manuscript** can be posted on:

- the author's personal website;
- the author's employer's website or institutional repository;
- arXiv.org;
- TechRxiv.org;
- Funder's repository (with embargo).

IEEE policy provides that authors are free to follow funder public access mandates to post accepted articles in repositories. When posting in a repository, the IEEE embargo period is 24 months. However, IEEE recognizes that posting requirements and embargo periods vary by funder. IEEE authors may comply with requirements to deposit their accepted manuscripts in a repository per funder requirements where the embargo is less than 24 months.

The accepted license is not specified and it's safer to use the arXiv one, remembering that it will not be compliant with Horizon Europe's guidelines.

For a non-open access publication IEEE must be credited as the copyright holder by including, on the first page of the PDF, the statement "© 20XX IEEE. Personal use of this material is permitted. Permission from IEEE must be obtained for all other uses, in any current or future media, including reprinting/republishing this material for advertising or promotional purposes, creating new collective works, for resale or redistribution to servers or lists, or reuse of any copyrighted component of this work in other works."

After the article is published, if the open access fee has been paid the author can share it practically anywhere, according to the specific license selected; otherwise, the article can't be shared publicly.

An important note to remember: conferences should be treated as non-open access journals, because IEEE has no open access options for conferences.

6.4 Springer

The Springer guidelines about open access publication can be found here: https://www.springer.com/gp/open-access/publication-policies/self-archiving-policy https://www.springernature.com/gp/open-research/policies/journal-policies

(Please remember that Springer and Springer Nature are associated but formally different)

For Springer **a preprint** can be shared in any of the following repositories:

- the author's personal, self-maintained website;
- a legally compliant pre-print server such as (but not limited to) arXiv and bioRxiv.

The type of license requested by Springer is not specified but includes the Creative Commons licenses.

After the publication the author should update the acknowledgment and provide a link to the definitive version on the publisher's website: "This is a preprint of an article published in [insert journal title]. The final authenticated version is available online at: https://doi.org/[insert DOI]".

As **the manuscript is accepted**, the authors must post it immediately on their own personal, self-maintained website.

On any of the following 12 months after first publication (Springer's embargo period) the manuscript can be shared on:

- their employer's internal website;
- their institutional and/or funder repositories.

The manuscript may also be deposited in such repositories immediately on acceptance, provided that they are not made publicly available until after the Embargo Period. The type of license requested by Springer is not specified.

Please note that the 12-month Springer embargo is not compatible with the H2020 requirements. The European Commission has provided a model of Request letter[8] the corresponding author may submit to the publisher, in order to find an agreement between the two parties. If the publisher refuses the request, the Project Coordinator must inform the Project Officer.

The authors must include on the manuscript an acknowledgment in the following form, together with a link to the published version on the publisher's website: "This is a post-peer-review, pre-copy edit version of an article published in [insert journal title]. The final authenticated version is available online at: http://dx.doi.org/[insert DOI]".

After **the manuscript is published**, if the open-access fee has been paid the author can archive the article in an institutional, a funder or any suitable subject repository with no embargo period. Otherwise, the manuscript cannot be posted publicly.

The same rules we described apply to proceedings and journal-like book series.

6.5 Wiley

The Wiley guidelines about open access publication can be found here:

https://authorservices.wiley.com/author-resources/Journal-Authors/licensing/self-archiving.html

https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/author-compliance-tool.html

For Wiley a preprint can be shared in any of the following repositories:

- the author's personal website;
- the author's company or institutional repository or archive;
- on any not-for-profit subject-based preprint server or repository.

The type of license requested by Wiley is preferably a "no re-use" license or a CC-BY (-NC/-NC-ND), while a CC requires a special agreement to be published later by Wiley.

Following the final publication, authors may include the following notice on the <u>first page</u>: "This is the pre-peer reviewed version of the following article: [FULL CITE], which has been published in final form at [Link to final article using the DOI]. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions."

After 12 months from publication, the **accepted version** may be placed on:

- the author's personal website;
- the author's company or institutional repository or archive;
- not for profit subject-based repositories such as PubMed Central.

Please note that the 12-month Wiley embargo is not compatible with the H2020 requirements. The European Commission has provided a model of Request letter[9] the corresponding author may submit to the publisher, in order to find an agreement between the two parties. If the publisher refuses the request, the Project Coordinator must inform the Project Officer.

The accepted license is not specified.

The version posted on the selected repository must include the following notice on the first page: "This is the peer reviewed version of the following article: [FULL CITE], which has been published in final form at [Link to final article using the DOI]. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions."

After **the manuscript is published**, if the open-access fee has been paid the author can archive the article anywhere, with no embargo period. Otherwise, the manuscript cannot be posted publicly.

Note: Article Processing Charges (APC) do not need to be paid if the corresponding author is from a CRUI-affiliated institution (CNR is not on the list[10]).

[1] https://en.wikipedia.org/wiki/Open_access

[2]

https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access_en.htm

- [3] https://en.wikipedia.org/wiki/Creative Commons license#Types of license
- [4] You can check whether a repository is officially registered as OpenAIRE-compliant at the following links:

https://explore.openaire.eu/participate/deposit/learn-how

https://v2.sherpa.ac.uk/opendoar/

[5]https://explore.openaire.eu/search/dataprovider?datasourceId=opendoar____::6f4922f455 68161a8cdf4ad2299f6d23

[6]

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq;keywords=/8289

[7] https://www.acm.org/publications/openaccess

[8]

https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-oa-guide-model-for-publishing-a en.pdf

[9]

https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-oa-guide-model-for-publishing-aen.pdf

[10]

https://authorservices.wiley.com/author-resources/Journal-Authors/open-access/affiliation-policies-payments/institutional-funder-payments.html#ltaly