



EM TRAININGS



Europa Media Trainings

Data Management Plan, PEDR and Open Science

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Open Science

The origins

Open Science

= approach based on cooperative work and systematic sharing of knowledge and tools **as early and widely as possible**

Responsible Research and Innovation (RRI)

= societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole R&I process to better align both the process and its outcomes with the values, needs and expectations of society.

- Public engagement
- Gender equality
- Ethics
- **Open Science**
- Science education
- Governance



Open Science

The 3 Os

Open Innovation

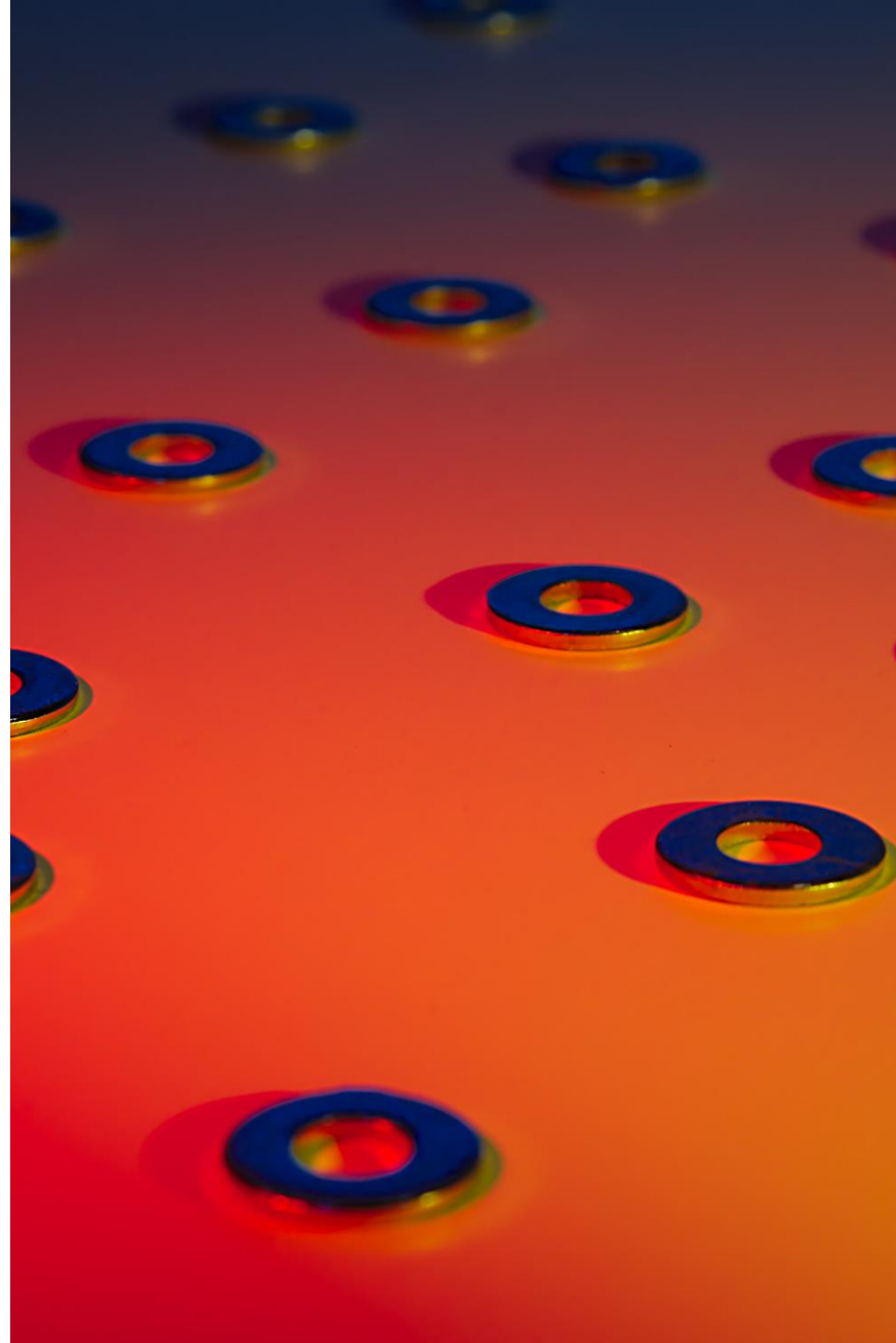
- ✓ in your methodology for collaboration with stakeholders you highlight how that leads to open innovation

Open Science

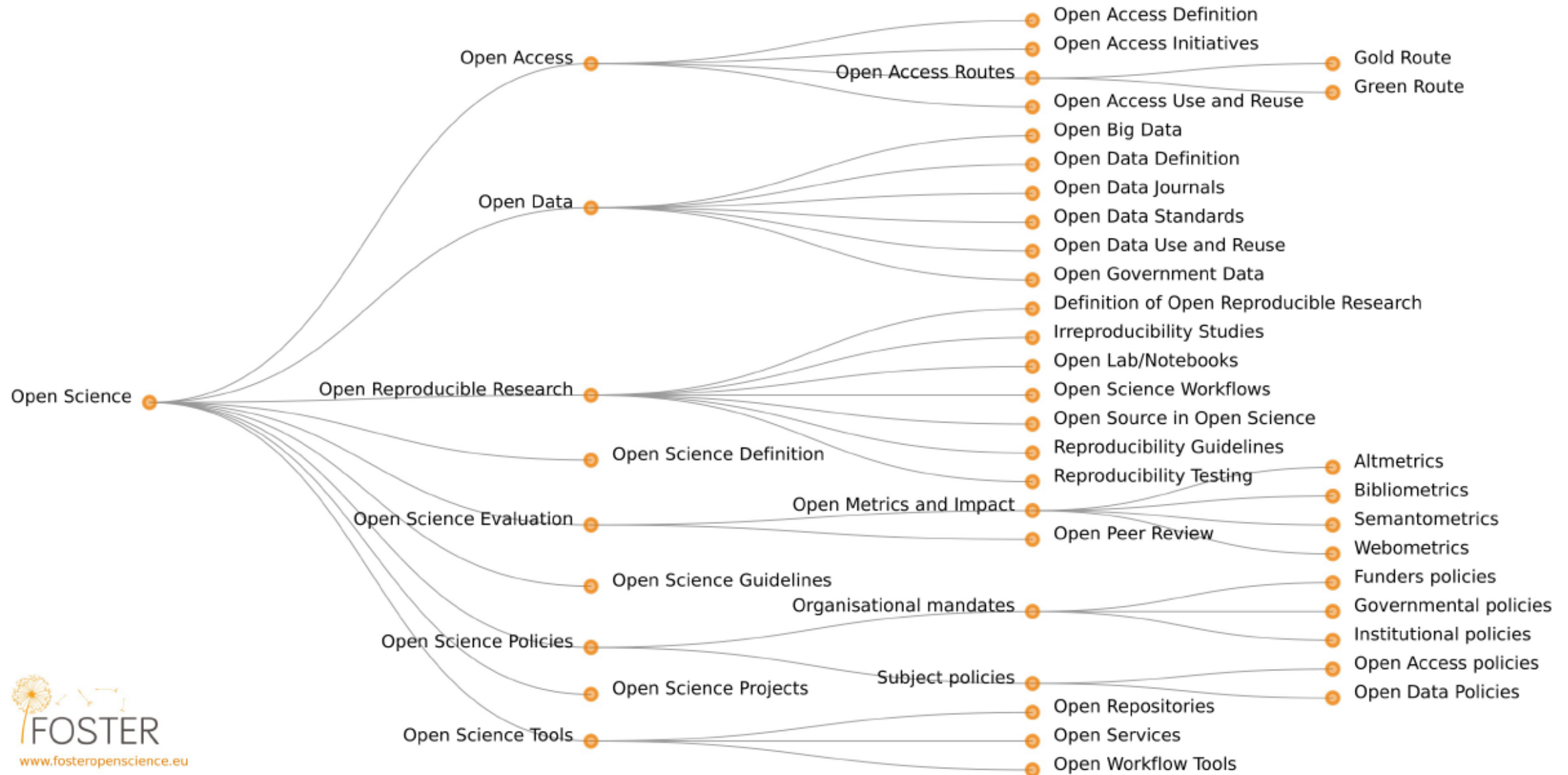
- ✓ new approach to the scientific process based on cooperative work and new ways of diffusing knowledge by using digital technologies and new collaborative tools
- ✓ practices like data management

Open to the World

- ✓ consider the existing international collaborations, the EU's regional and bilateral agreements



Open Science Taxonomy



Legal obligations

GA Art 17 + Annex 5

Open Access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- **at the latest at the time of publication, a copy of the published version or the final peer-reviewed manuscript accepted for publication**, is deposited in a trusted repository for scientific publications
- **immediate open access is provided to the deposited publication via the repository**, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights
- **information is given via the repository about any research output or any other tools and instruments** needed to validate the conclusions of the scientific publication.

Metadata of deposited publications must be open under a Creative Commons Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles.



Legal obligations

GA Art 17 + Annex 5

Research Data Management

The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- **establish a data management plan ('DMP')** (and regularly update it)
- as soon as possible and within the deadlines set out in the DMP, **deposit the data in a trusted repository**
- as soon as possible and within the deadlines set out in the DMP, **ensure open access — via the repository — to the deposited data**, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC0) or a licence with equivalent rights
- **provide information via the repository about any research output or any other tools and instruments** needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Commons Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles.



Legal obligations

GA Art 17 + Annex 5

Additional practices

- **Where the call conditions impose additional obligations regarding open science practices**
- **Where the call conditions impose additional obligations regarding the validation of scientific publications**, the beneficiaries must provide (digital or physical) access to data or other results needed for validation of the conclusions of scientific publications
- **Where the call conditions impose additional open science obligations in case of a public emergency**, the beneficiaries must (if requested by the granting authority) immediately deposit any research output in a repository and provide open access to it under a CC BY licence, a Public Domain Dedication (CC 0) or equivalent. As an exception, if the access would be against the beneficiaries' legitimate interests, the beneficiaries must grant non-exclusive licenses —under fair and reasonable condition. **This provision applies up to 4 years after the end of the action.**



The practices



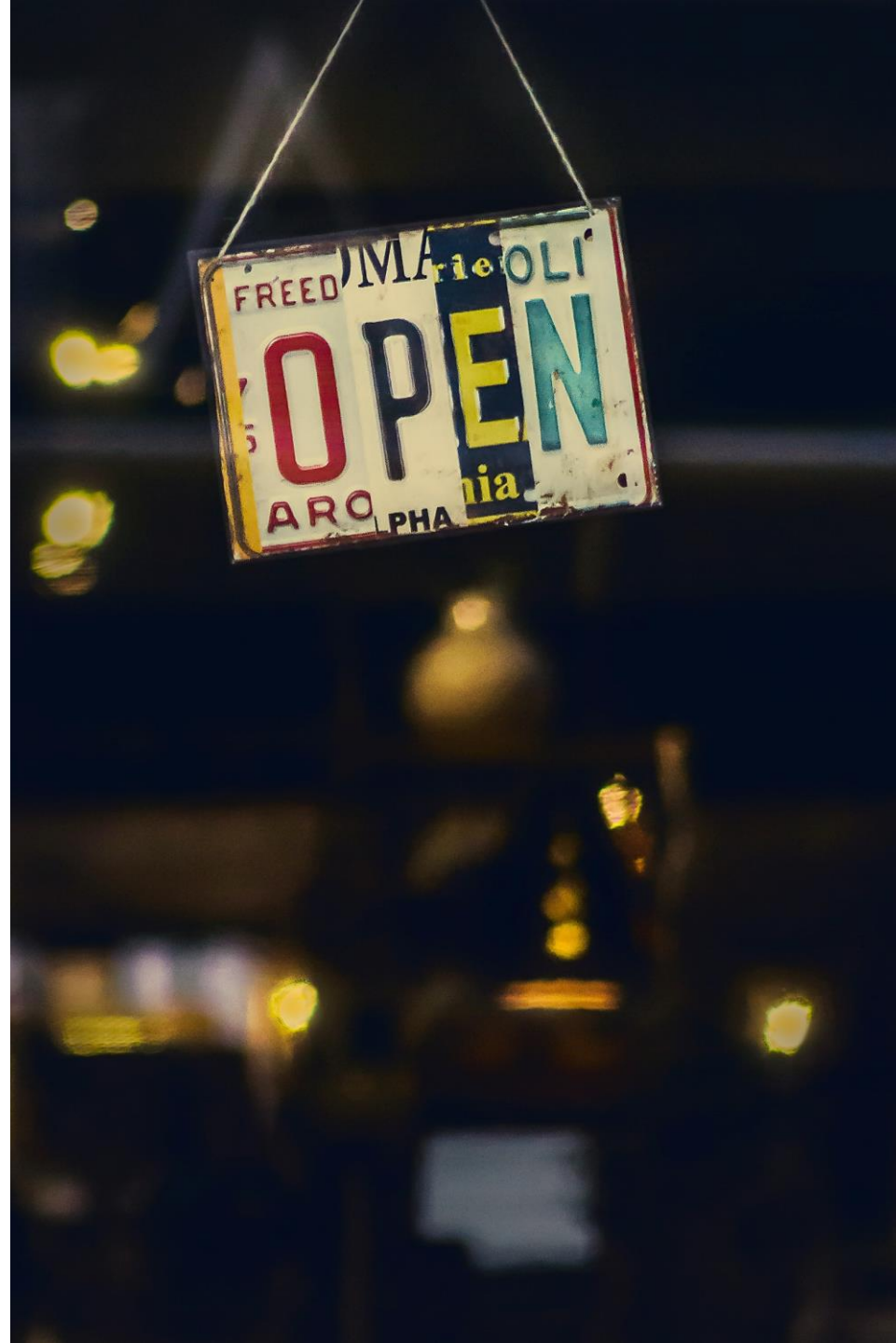
TIP

Open access

= **online access at no cost for the end user** of research outputs (e.g. scientific publications, data, software, algorithms, electronic notebooks etc.)

To consider:

- If scientific peer-reviewed publications are produced, they must be open access under open licenses (e.g. Creative Commons)
- Retain sufficient IPR
 - Retain the copyright on the work and grant, nonexclusive licenses to publishers
 - Put in place institutional policies to ensure copyright retention and compliance with the open access requirements
- Data should be deposited in a trusted repository as soon as possible after production
- 'As open as possible as closed as necessary'



Early and open sharing

= make available research, methodologies, outputs, and findings as soon as possible in the research process.

HOW?

- **Preregistration** in a public repository
- **Registered reports:** research articles that are peer-reviewed and published in 2 stages
- **Preprints:** scientific manuscripts that are publicly shared prior to peer-review and journal application via preprint platforms

Resources

- ORION
- The Centre for Open Science
- Sherpa Romeo
- Preregistration repositories: OSF, AsPredicted, etc.
- Preprint servers: Zenodo, Preprints, ArXiv, SocArXiv, etc.



Open peer-review

- = like peer-review but more transparent and accountable
- Authors and reviewers are aware of each other's identity
- Review reports are published alongside the relevant article
- The wider community is able to contribute to the review process
- Manuscripts are made immediately available in advance of the formal peer-review procedure
- Review or commenting on the final 'version of record' is made possible
- Direct, reciprocal discussion between authors and reviewers and/or between reviewers is allowed and encouraged
- Review can be decoupled from publishing when facilitated by a different organisational entity than the venue of publication (e.g. publishing platforms)



Reproducibility of results

= possibility for the scientific community to obtain the same results as the originators of specific findings.

Practices to increase reproducibility

- Specify the research design and methodologies applied
- Specify how you deal with negative results
- Make prior searches and checks on existing results and data to avoid duplication
- Specify how you are making use or preprints, preregistration
- Detail steps you will take to make your research process and tools transparent
- Mention what steps you will take to ensure validity and quality of the project process and results (e.g. peer review)
- Plan to use the DMP and make sure your data are FAIR

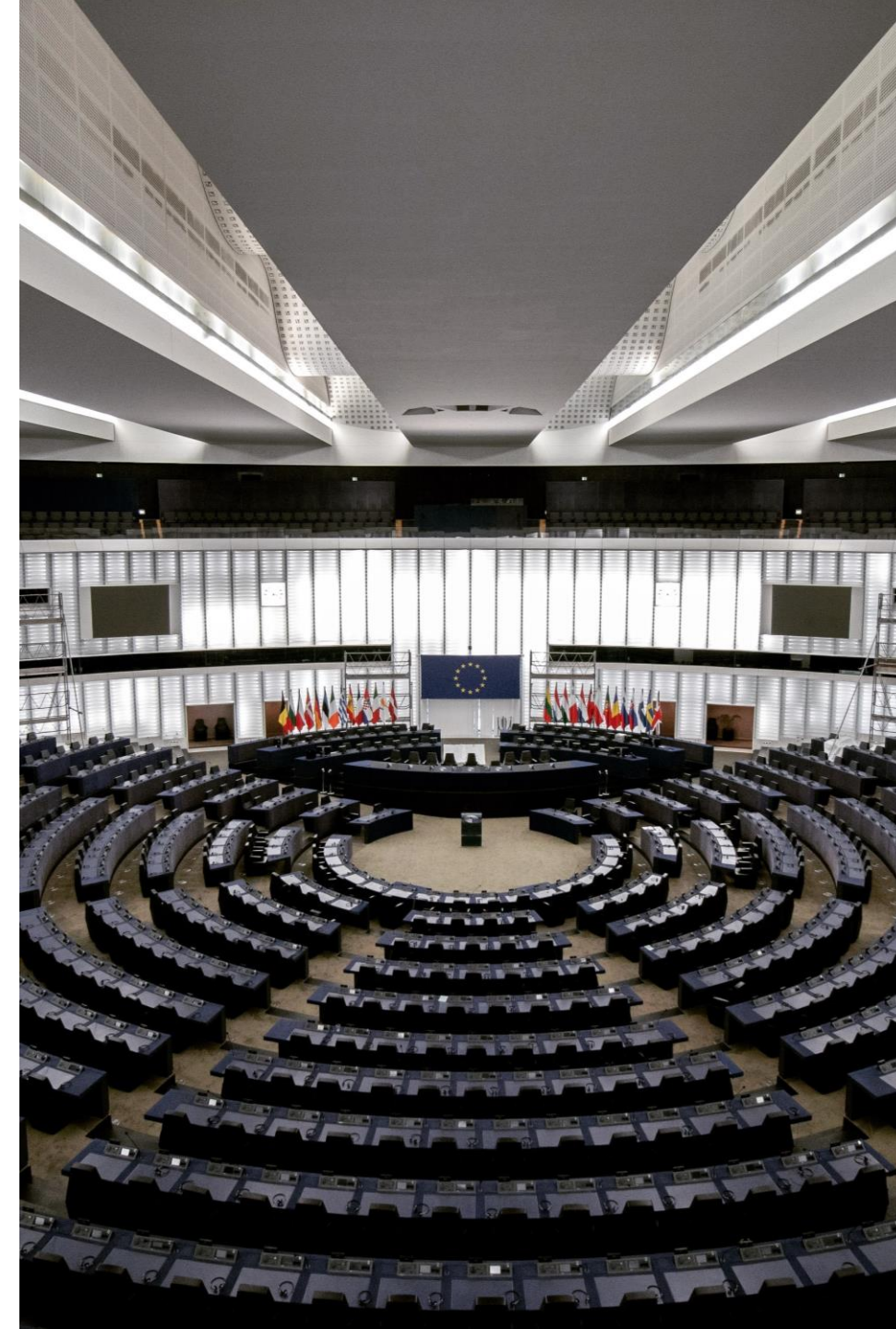


Citizen, civil society and end-user engagement

= refers to **opening of R&I processes to society** to develop better, more innovative and more relevant outcomes and to increase societal trust in the processes and outcomes of R&I

Activities to consider

- **Co-design** = workshops, focus groups to develop R&I agendas, roadmaps, policies
- **Co-creation** = involve citizens or end users directly in the development of new knowledge or innovations
- **Co-assessment** = assisting in monitoring and evaluation of the project progress and ensure interaction with citizens, civil society and end users on quality, utilization and impact of project outputs



Research Data Management

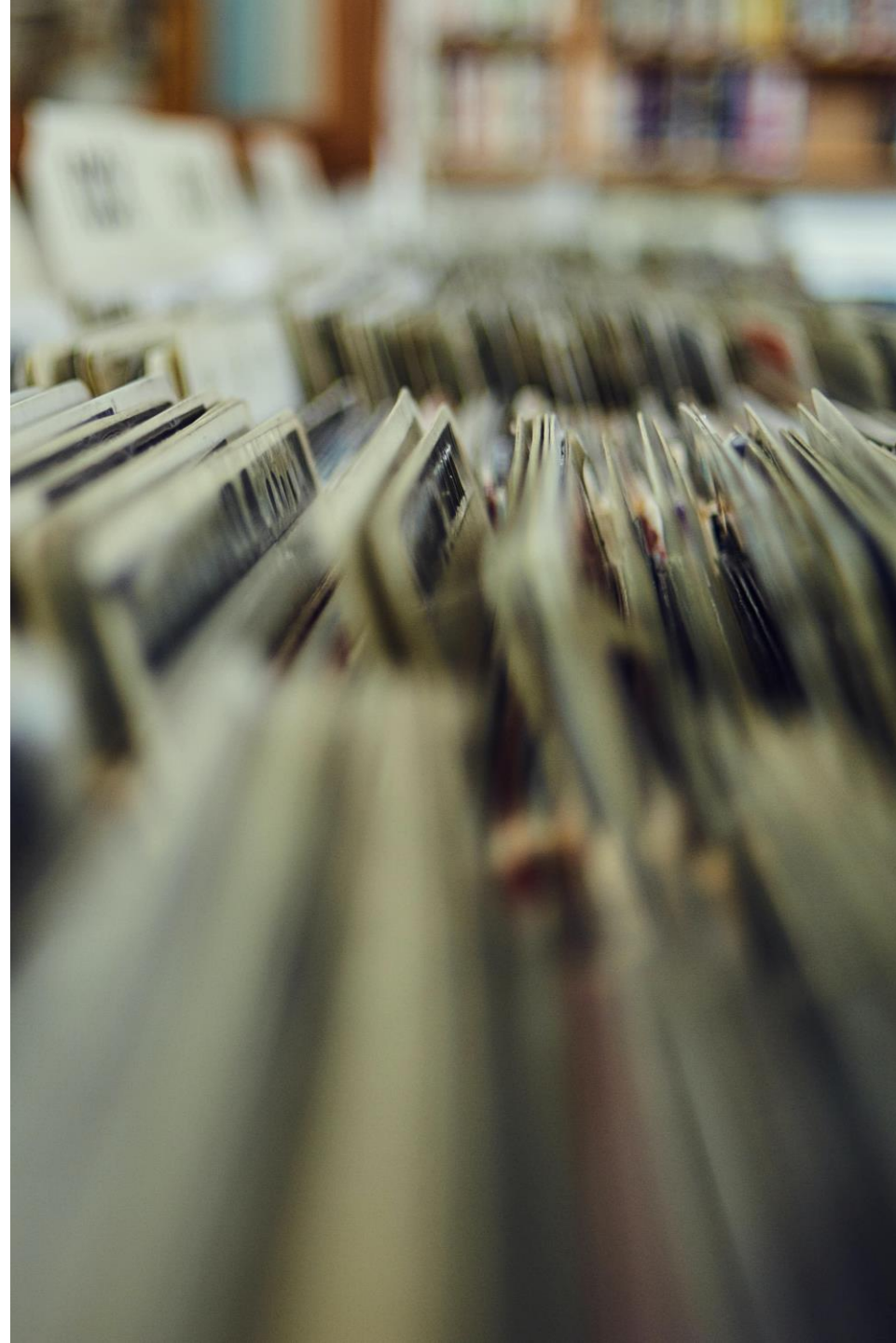
The concept

Research Data Management (RDM)

= the **process** within the research lifecycle that includes the data collection or acquisition, organisation, curation, storage, (long-term) preservation, security, quality assurance, allocation of persistent identifiers (PIDs), provision of metadata in line with disciplinary requirements, licencing, and rules and procedures for sharing of data.

Elements to consider in your project's RDM:

- **Persistent identifiers** (PIDs) to ensure findability of research outputs and data
- **Standardised metadata frameworks** for the findability of research outputs and their potential reuse
- **Trusted repositories** for the deposition of and access to publications and research data



Open science & implementation



Your first deliverables...

Data Management Plan

What is a Data Management Plan (DMP)?

= your key to good data management

- Describes the data management life cycle
- The template = set of questions
- Living document (!)
- Deliverable – 1st version by M6

💡 Register your DMP as non-restricted public deliverable + publish it in journals, platforms or repositories (e.g. RIO, DMPOnline).

```
139         title="Home - Unsplash"
140         target="_blank"
141         rel="noopener noreferrer"
142         href={trackUrl(url)}
143       >
144         Instagram
145       </a>
146     </li>
147   </ul>
148 </div>
149 );
150 }
151
152 renderWhatsNewLinks() {
153   return (
154     <div className={styles.whatsNewLinks}>
155       <h4 className={styles.whatsNewLinksTitle}>What's new</h4>
156       <ul className={styles.whatsNewLinksList}>
157         {this.renderWhatsNewLink(1)}
158         {this.renderWhatsNewLink(2)}
159         {this.renderWhatsNewLink(3)}
160         {this.renderWhatsNewLink(4)}
161         {this.renderWhatsNewLink(5)}
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163         {this.renderWhatsNewLink(7)}
164         {this.renderWhatsNewLink(8)}
165       </ul>
166     </div>
167   );
168 }
169
170 renderWhatsNewItem(title, url) {
171   return (
172     <li className={styles.whatsNewItem}>
173       <a
174         href={trackUrl(url)}
175         target="_blank"
176         rel="noopener noreferrer"
177       >
178         {title}
179       </a>
180     </li>
181   );
182 }
183
184 renderFooterSub() {
185   return (
186     <div className={styles.footerSub}>
187       <Link to="/" title="Home - Unsplash" >
188         <img alt="Home icon" type="image" className={styles.footerSubLogo} />
189       </Link>
190       <span className={styles.footerSubLogo} />
191     </div>
192   );
193 }
194
195 renderFooterMain() {
196   return (
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198       <div className={styles.footerGlobal}>
199         <div className="container">
200           {this.renderFooterMain()}
201           {this.renderFooterSub()}
202         </div>
203       </div>
204     </div>
205   );
206 }
207
208 render() {
209   return (

```

Data Management Plan

What to include?

- **Data set description:** what kind of data is your project generating or reusing? Estimate the size of the data set
- **Standards and metadata:** how do you structure your data and what protocols are you using?
- **Name and persistent identifier for data sets:** unique and persistent identifier and a stable link to directly access the data
- **Curation and preservation methodology:** how will you ensure the integrity of the data sets and for how much time? How will it be preserved and kept?
- **Data sharing methodology:** how can the data sets be accessed? Terms of use and license
- **Research output management** other than data and publications
- **Related costs and personnel:** data collection, documentation, storage, preservation, availability and reuse, person/team in charge

```
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191         />
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193       <span className={styles.footerSubLogo}>
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198 render() {
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```

Plan for Exploitation and Dissemination of Results

Draft PEDR – Proposal stage


Strategic level

Section 2.2 – Measures to maximise impact
Dissemination, exploitation and communication
[e.g. 5 pages]

Operational level (binding!)

Work Package on Dissemination and
Communication (and Exploitation)

- Describe the planned measures to maximise the impact of your project by providing a first version of your 'plan for the dissemination and exploitation including communication activities'. Describe the dissemination, exploitation and communication measures that are planned, and the target group(s) addressed (e.g. scientific community, end users, financial actors, public at large).


 *Please remember that this plan is an admissibility condition, unless the work programme topic explicitly states otherwise. In case your proposal is selected for funding, a more detailed 'plan for dissemination and exploitation including communication activities' will need to be provided as a mandatory project deliverable within 6 months after signature date. This plan shall be periodically updated in alignment with the project's progress.*

PEDR

Draft PEDR – Proposal stage

Communication: informing about the project

- Newsletter
- Press release
- Factsheets
- Brochure
- Social media

 *Communication^{5,6} measures should promote the project throughout the full lifespan of the project. The aim is to inform and reach out to society and show the activities performed, and the use and the benefits the project will have for citizens. Activities must be strategically planned, with clear objectives, start at the outset and continue through the lifetime of the project. The description of the communication activities needs to state the main messages as well as the tools and channels that will be used to reach out to each of the chosen target groups.*

5 See participant portal FAQ on how to address communication activities

6 For further guidance on communicating EU research and innovation for project participants, please refer to the Online Manual on the Funding & Tenders Portal or project participants.

Informing about results

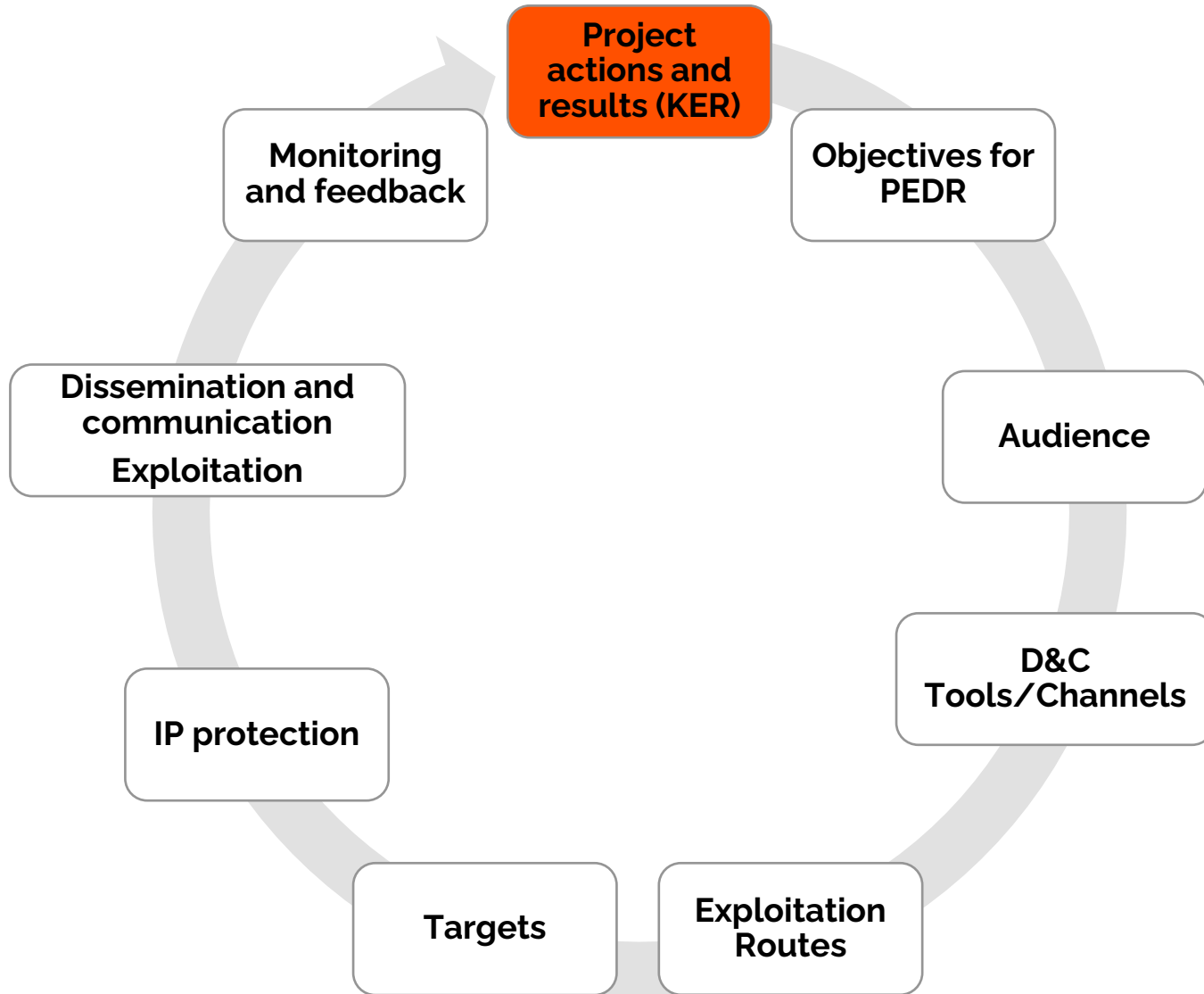
- Videos, interviews
- Articles
- Conferences, etc.

Dissemination: making results available for use

- Scientific publication
- Workshop
- Demo
- Roadmap, etc.

Strategic level

PEDR Deliverable – by M6



The EC tools

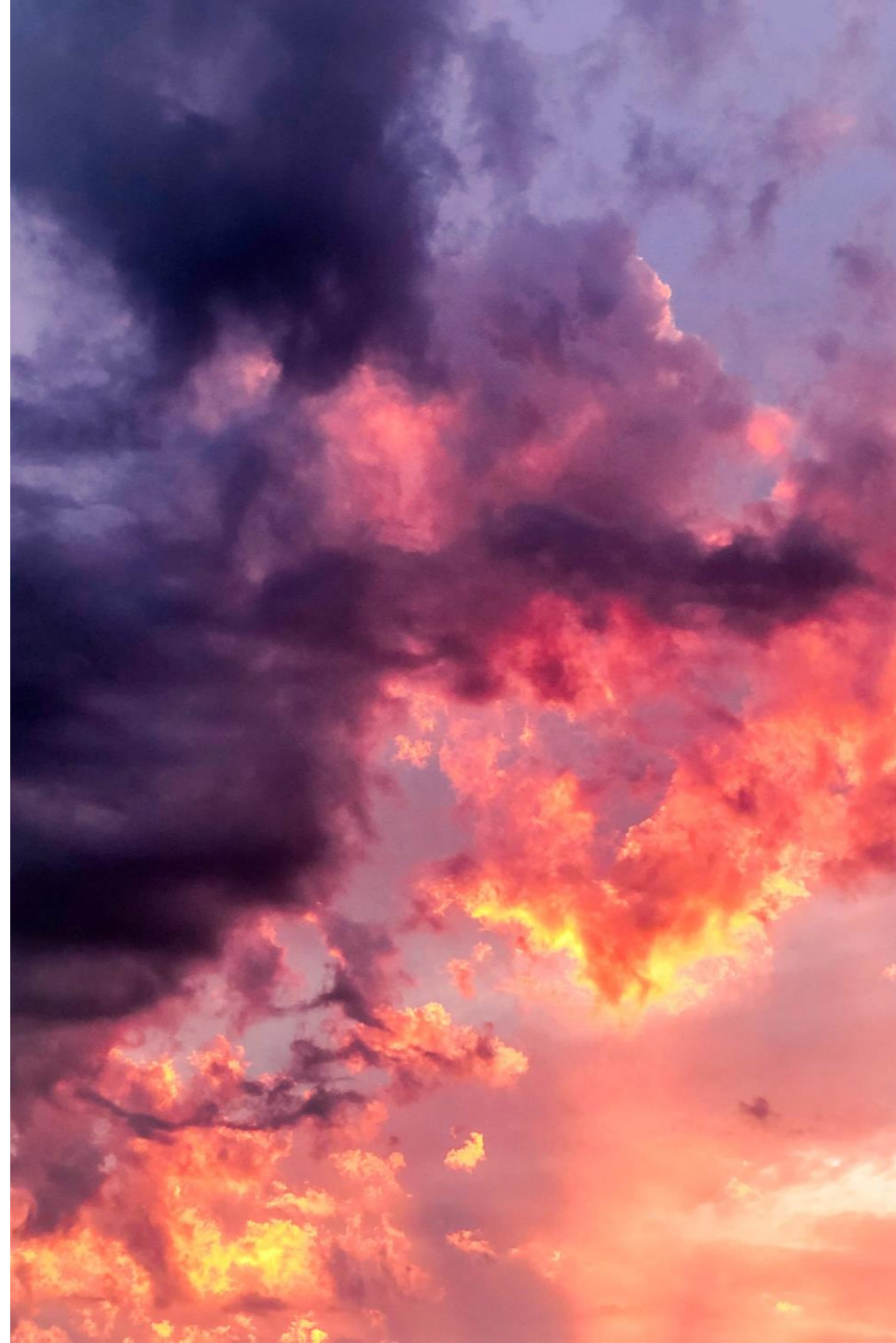


European Open Science Cloud (EOSC)

= open trusted virtual cloud to enable researcher to store, share, process, analyze, and reuse research data, publications, and software across disciplines and borders.

- Use cases on [EOSC in Practice](#)
- EOSC community and stakeholders on [events](#) and [news](#) sections
- [EOSC-Hub](#)
- [Catalogue](#) & [Marketplace](#) for services and resources for researchers
- [Training](#)

💡 Work programmes may require the use of trusted repositories federated in EOSC for depositing research data



OpenAIRE

- = network of dedicated Open Science experts + training
- = infrastructure harvesting research output from connected data providers

Services and perks:

- Integrated scientific information (links publications, project info, datasets in one place)
- Training sessions on Open Access/Open Science
- [Zenodo](#) = all-purpose open research repository (publications, datasets, code, posters, presentations...)
- Open Science helpdesk
- 34 [National Open Access Desks](#) (NOADs)
 - UNIT in Norway

💡 All OpenAIRE services can be used for free, however some of them may require logging in.



Open Research Europe

= open access publishing platform for the publication of research coming from H2020 and HE funding

Some characteristics:

- Helps beneficiaries comply with the open access terms of their funding
- Publishing venue to share results and insights rapidly
- Facilitate open, constructive research
- Author-driven model = authors make sure the article is peer-reviewed by independent experts
- All articles are published open access under a CC-BY license

Process:

1. Article submission
2. Publication & data deposition
3. Open peer review & article revision
4. Send to indexers & repositories



Other sources



Tools and platforms

Digital profile

- [ORCID](#) (for researchers)
- CRIS (for organizations)
- [ImpactStory](#)
- [Publons](#)
- [Open Science Framework](#) (OSF)

OpenAIRE – Zenodo – Argos

- Putting your work into OpenAIRE-compliant repositories ensures that
 - you comply with H2020 mandate on Open Access
 - saves you time as you can import your project publications into the F&T Portal in one click

[Open Research Europe](#)

European Open Science Cloud (EOSC)



Open Science

Sources and guides

- [HE Programme Guide](#)
- OpenAIRE guide: *Guiding you in Open Science*
<https://www.openaire.eu/guides>
- Research Data Alliance
 - <https://www.rd-alliance.org/>
 - <http://rd-alliance.github.io/metadata-directory/>
- Open Science Framework <https://osf.io/>
- Re3Data <https://www.re3data.org/>
- GitHub <https://guides.github.com/>
- Choosing a License <https://choosealicense.com/>
- FOSTER Open Science
<https://www.fosteropenscience.eu>
- FIT4RRI project <https://fit4rri.eu/guidelines/>



Research Data Management

Sources and guides

- [Research data management \(RDM\) open training materials](#) (Zenodo)
- FOSTER Open Science e-learning
- Data Management Plans
 - [DMPonline](#)
 - [OneHealth EJP DMP Guide](#)
 - Webinar (video: DOI: 10.5281/zenodo.2564974; slides: DOI: 10.5281/zenodo.2565750)
- EC Guide for FAIR data management in H2020



A black clothespin is attached to a white card, which is hanging from a string. The card has the word "QUESTIONS?" written on it in bold, orange, uppercase letters. The background is a plain, light gray wall.

QUESTIONS?

Thank
you

for your attention

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