ENLIGHT RISE- RESEARCH AND INNOVATION AGENDA WITH AND FOR SOCIETY: LEVERAGING DIGITAL INNOVATION FOR A GREENER AND HEALTHIER EUROPE

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Description (short)
The Enlight Open Science, Open Access (OA) and Research Data Management (RDM) Starter Kit will bring together basics arguments and information on how to get started, generic information and information on OA and RDM – where to get started, where are places to get information for example on GDPR, Data Management Plans (DMPs), data repositories, required policies, licenses etc. Usable templates which can be adapted to local situation and different subject fields.

Contents

Executive Summary

This toolkit provides basic information on Open Science (OS) for researchers, students and other people affiliated to ENLIGHT partner universities, with a focus on Open Access (OA) and Research Data Management (RDM). We offer information on OS terms and concepts and provide guidance on what services and online tools are available at the local level. This toolkit is built by ENLIGHT partners based on network materials and takes into consideration the needs of ENLIGHT universities. This is complemented by pointers to information and services that are available through European research community initiatives. The toolkit is not an exhaustive resource, and any further inquiries can be made to your local Open Science experts.

Abbreviations

ENLIGHT Partner	Short Name	Country
University of Bordeaux	UBx	FR
Ghent University	UGent	BE
Comenius University Bratislava	CU	SK
University of the Basque Country	UPV/EHU	ES
National University of Ireland, Galway	NUIG	IE
University of Göttingen	UGOE	DE
University of Groningen	RUG	NL
University of Tartu	UT	EE
Uppsala University	UU	SE

I Introduction

For the benefit of scientists and society at large, Open Science is a set of concepts and practices that aims to make scientific knowledge from all domains available to everyone. To ensure that scientific information is accessible to all, inclusive, egalitarian, and sustainable knowledge creation must also be ensured.

According to the UNESCO Recommendation on Open Science, Open Science: "increases scientific collaborations and sharing of information for the benefits of science and society;
 makes multilingual scientific knowledge openly available, accessible and reusable for everyone; and
 opens the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community."

Furthermore, Open Science is also a priority for European Commission, since it enhances the quality, effectiveness, and responsiveness of research. Open Science is a strategic objective for the European Commission and the usual manner of operation under its research and innovation financing programs. In addition, may private and third-party funders be also increasingly requiring various aspects of Open Science in their funding streams.

Within ENLIGHT the Open Science experts of all partners have joined forces in the Open Science Network. To encourage Open Science principles and practices within partner universities, Open Science Network has come up with a toolkit that is mainly targeting researchers with basic questions about Open Access, Open Science and Research Data Management. The academic community is strengthened by openness and transparency, and the dissemination of research findings to the public and within the research community is sped up and improved.

II Open Science Basics

- **What is Open Science?**

From the perspective of its ambition, Open Science (or Open Research/Scholarship) is a global movement that aims to make scientific research and education openly available, accessible and usable by everyone. In practical terms, Open Science is an umbrella term for a range of practices that span from (open) educational materials to opening up the entire research process and to create new opportunities for interaction, collaboration, and engagement between academia and society.

More information:

Open Science – (University of Groningen)

Open Science – (Georg-August-Universität Göttingen)

- **What is Open Access (OA)?**

Open Access (OA) is a mechanism by which research outputs (literature and data) are made freely accessible for everyone and free of charge.

There are two primary areas of open access to scientific knowledge in research and innovation:

- scientific works that have undergone peer review, typically journal articles for scholarly periodicals
- data used in scientific study includes data that supports publications as well as additional data (such curated but unpublished datasets or raw data).

The current scholarship is largely behind paywalls and therefore only those who can afford access can truly contribute to moving knowledge of a subject forward. Non-Open Access academic journals can be very expensive, making scholarly research a costly undertaking for someone with a limited research budget. Open Access makes peer-reviewed scholarly research and literature available online to anyone interested in reading it.

More information:

Open Access - (University of Tartu)

Open Access in practice – (Uppsala University)

- **What is the research data life cycle?**

The research data lifecycle is a crucial concept within Research Data Management (RDM). It describes the research data's stages before, during, and after a research project. Various data management activities occur within each stage of the data lifecycle. It represents a structured framework that encompasses the entire lifespan of research data and highlights the important steps involved in managing and utilizing data effectively. The specific stages may vary slightly depending on the field or context, but the general research data life cycle (cf. Figure 1[1]) typically includes planning, collecting, store & protecting, processing, archiving, publishing and discovering/re-using/citing scientific articles.

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[1] Image Source: University of Gröningen, *Research (Data) Life Cycle* https://www.rug.nl/digital-competence-centre/research-data/?lang=en
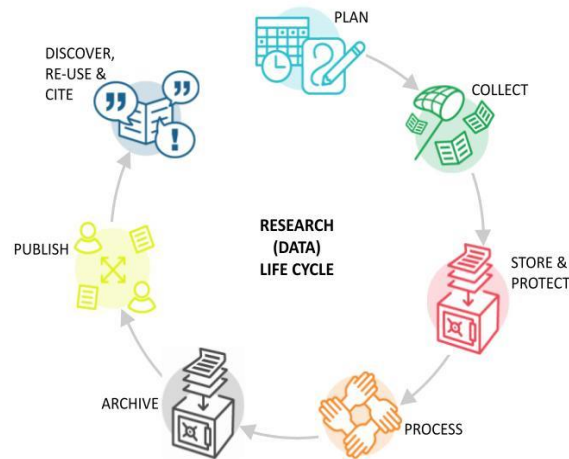
Figure 1. Research (Data) Life Cycle

More information:
[The research data lifecycle: What is it? - (Ghent University)](#)

- **What is [FAIR](#) data?**

The FAIR Data Principles (Wilkinson et al., 2016) were developed to provide guidance in the process of making data **F** - findable (others can discover your data), **A** -accessible (your data can be made available to others), **I** - interoperable (your data can be integrated with other data) and **R** - reusable (others can understand and reuse your data). The goal of applying the FAIR Data Principles is to enable and enhance the reuse of data (and other digital objects) for both humans and machines. Research data can be managed without a view to data sharing, in which case they are neither open nor FAIR (Higman, Bangert & Jones, 2019). Nevertheless, there are increasing expectations from research funders, institutions, publishers and other stakeholders to share research data.

- **What is Research Data Management (RDM)?**

Research Data Management is a broad term encompassing all practices and actions to ensure that research data are secure, sustainable, easy to find, understandable and (re)useable. RDM includes activities such as planning, collecting and organizing, documenting, storing and backing up, preserving, and sharing research data. It is about taking proper care of data, not only during a research project but also in the longer term.

More information:
[RDM explained — (Ghent University)](#)

- **What is open (research or scholarly) infrastructure?**

Open (research or scholarly) infrastructure refers to sets of services, protocols, standards and software along the research life cycle, typically collectively build and managed to deliver new or improved collective benefits without restrictions, and for a healthy global interrelated infrastructure system. Initiatives in support of open infrastructures address e.g. [good practice principles](#) and advocate for and organize collective funding (e.g. [Invest in Open Infrastructure,](#) and [SCOSS).](#)

- **Does my university have Open Access, RDM or Open Science policy or regulations?**
  - **The University of the Basque Country** has an [institutional policy and legal framework](#).
  - **The University of Galway** [Research Data Management Policy](#)

o   **Ghent University** established new open access procedural regulations as of 3 June 2022.
o   **The University of Groningen** has an Open Access policy, and a RDM policy, and an Open Science policy (as of June 2023).
o   **The University of Göttingen** supports Open Science through its policies and support measures for its practical implementation. In April 2014, a joint research data policy and in November 2016, a joint policy on Open Access to publications were adopted by the University of Göttingen and the University Medical Center Göttingen.
o   **The University of Tartu, the University of Comenius, and the University of Uppsala** do not have any OA, RDM or OS policy yet.

III Open Access (OA) publishing

Open Access (OA) is based on the idea that publicly funded research should be free to read and download so that the results are freely reusable while retaining your copyright as an author. OA publishing transforms the traditional scholarly publishing model, making research accessible to all and fostering a more equitable, collaborative, and impactful global research community.

- What do the common types of Open Access publishing models mean?

Green OA

Green Open Access typically involves depositing the final manuscript version of your publication in (an institutional, disciplinary or generic) repository.

Gold OA

Gold Open Access means that the primary publication is immediately openly available (e.g. journal paper or book). In particular in STM fields it often operates on the basis of paying an Article Processing Charge (also known as "article publication charges", or APCs) to the publisher of a subscription journal so that your article is made available without charge to the reader.

Hybrid OA

You publish in a traditional subscription journal that offers Open Access publication for individual articles on payment of an Article Processing Charge (APC).

Bronze OA

Bronze articles are made free-to-read on the publisher website, however, without an explicit open license.

Diamond OA

You publish in a fully Open Access journal or platform that does not charge publication fees (APCs). (Note that diamond OA is a subset of gold OA.)

Immediate OA

Immediate OA can be realised through formal publication (e.g. gold OA, Hybrid OA) or via deposit of the final author manuscript (or publisher version if rights are granted by the publisher) in an OA repository.

Publishing - predatory

When you submit your article to a journal, beware that you are not dealing with a (potentially) predatory (or questionable, unethical) publisher. Predatory publishers abuse the open access model by collecting Article Processing Charges without providing proper editorial and peer-review services. You can often recognize predatory publishers through aggressive marketing strategies and spam emails. Yet predatory journals may look legitimate at first sight. ThinkCheckSubmit is a recommended tool for identifying a trusted journal or publisher for your research. for identifying a trusted journal or publisher for your research.

More information:
Predatory publishers - (University of Groningen)

Open Access Publishing - Frequently asked questions (University of Göttingen)

- **How can I find a journal to publish my article?**
  Researchers can choose from thousands of scholarly journals to disseminate their research results.
  More information:
  Assessing the quality of journals – (Ghent University)

- **What are Article Processing Charges (APC)?**
  Article processing charges (APCs) and book processing charges (BPCs) are author-facing fees that are (sometimes) charged to publish open access. These fees may be covered by the author, the author's institution, or by the research funder. APCs are usually charged for publication in gold and hybrid journals, while diamond journals do not charge a fee for Open Access publication. APCs and BPCs vary enormously from journal to journal and from publisher to publisher. We advise that you consult the journal's/publisher's webpages for information on APCs and BPCs prior to submission.

- **Where can I find an Open Access Repository?**
  In addition to your institutional repository, you can use various tools to find Open Access Repositories: the Registry of Open Access Repositories (ROAR) with the aim to promote the development of open access by providing timely information about the growth and status of repositories throughout the world. Open access to research maximises research access and thereby also research impact, making research more productive and effective. The Confederation of Open Access Repositories (COAR) is an international association that brings together individual repositories and repository networks in order to build capacity, align policies and practices, and act as a global voice for the repository community. You can also check your local institution if there is an Open Access publication repository (for example, UGOE universal repository or University of Tartu DSpace). List of Enlight data repositories is below.

- **What is social sharing and what do I need to keep in mind?**
  Social sharing is the practice of sharing publications with others, typically via a commercial sharing site or scholarly collaboration network site. Responsible sharing means respecting publishers' policies about which versions of content can be publicly posted online and when the content can be posted. Ultimately, it means sharing in a way that does not undermine the sustainability of the high quality publications on which research and learning depend.

- **Am I allowed to make my published article openly available?**
  In order to find out if you are allowed to share your published article with others, you should find out the publisher's OA policies. Sherpa Romeo is an online resource that aggregates and analyses publisher OA policies from around the world and provides summaries of publisher copyright and open access archiving policies on a journal-by-journal basis.

- **What is a preprint?**
  There is still another legal possibility for making your article accessible via Open Access and at the same time, publishing it in a journal of high impact factor – this is archiving it in an archive of preprints. Sherpa ROMEO defines preprint as a draft of an article, its first version, which has not yet been submitted for review to a journal; the notion of preprint also includes conference papers and reports.

More information on Open Access publishing:
How to publish Open Access – (Ghent University)
Step-by-step guide to Open Access publishing – (University of Groningen)
Open Access to publications - (University of Tartu)

- **How to find a OA journal or OA book publisher? What are DOAJ and DOAB?**

  Open Access journals provide direct open access upon publication. To find a qualitative open access journal, you can consult the Directory of Open Access Journals (DOAJ) to browse OA journals by subject. Some Open Access journals require authors to pay a fee: article processing charge (APC).
  - DOAJ is a community-curated list of open access journals that use an appropriate quality control system.
  - Directory of Open Access Books (DOAB) is a discovery service for peer reviewed open access books and book publishers that indexes and provides access to high quality, open access, peer-reviewed books.

- **What are Open Journal publishing platforms?**

  Open Journal System (OJS) is an open publication platform suitable for Open Access peer-reviewed journals with international board of editors. OJS covers all aspects related to publishing an e-journal, starting from the creation of the journal's web page up to different activities in publishing a journal – submitting of an article by the author, expert evaluation, editing, publishing, archiving and indexing of the text. OJS helps to manage the work with the journal, monitor the activities of the authors, editors and reviewers, inform the readers and help in organising the paperwork.

  Open Journal publishing platforms within the ENLIGHT network:
  - The University of Bordeaux platform for journals proposes an open-access digital publishing service for researchers.
  - OJS-de.net is a German-language information platform and provides information on founding and operating an Open Access journal using the free open source software OJS (Open Journal Systems).
  - The University of Tartu Library offers the opportunity to publish open-access journals on the Open Journal System publishing platform. OJS (Open Journal System) is a system for publishing online journals used for publishing and managing the University of Tartu Open Access journals. The OJS platform includes peer-reviewed journals published by the University of Tartu (incl. the UT Press), containing full texts of articles in Estonian, English and Russian.
  - The Publications Service of the UPV/EHU has an OJS platform to manage the journals it publishes.
  - Uppsala University OJS platform for journals.
  - A journal service based on OJS is under development for the University of Göttingen.
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- **What kind of publishing agreements Enlight Network institutions have?**
  - Publishing deals and agreements for the staff of the University of the Basque Country
  - Publishing deals and agreements for the staff of the University of Galway
  - Publishing deals and agreements for the staff of the University of Groningen
  - Publishing deals and agreements for the staff of the University of Göttingen
  - Publishing deals and agreements for the staff of the University of Tartu
  - Publishing deals and agreements for the staff of the University of Uppsala

> o   The University of Comenius currently does not have any publishing agreement.

- **What are different journals' data availability policies?**
  Current journal data availability policies range from mere encouragements to share data (and related research materials) that underpin publications to hard mandates.
  [Journal and publisher policies on data — (Ghent University)](#)

IV Copyright

Belgium: T[he basics in Belgian law](#) and [Open Access in Belgian legislation](#) (Ghent University). This law gives authors the right to make scholarly publications available in Open Access with a maximum embargo period of 6 months for Science, Technology, and Medicine (STM) and 12 months for Social Science & Humanities (SSH) if the publication is a result of research funded for at least 50% by public funds.

Germany: Since the beginning of 2014, the [right of secondary publication](#) (in German) has been in force in Germany (§ 38 (4) of the Copyright Act (UrhG)). It allows authors, under certain conditions, to make the manuscripts of their scientific articles published in journals freely accessible via the Internet one year after their first publication. The right can be exercised by the authors themselves. However, you can also commission an institution, e.g., a library, to put the manuscript online for free access. According to the current understanding, the regulation applies to articles that have been published since the law came into force, regardless of which rights were transferred to the publisher with the publication contract.

The Netherlands: [The Copyright Act](#) of the Netherlands.   Article 25fa of the Dutch Copyright Act (Aw, Auteurswet), also known as the [Taverne amendment](#), grants the author of any short scientific work that is fully or partly financed by Dutch public funds the right to make this work freely available to the public, following 'a reasonable term' after its publication. The copyright act is so-called mandatory law and takes precedence over contract law. Therefore, article 25fa Aw supersedes any agreement made between the author and the publisher. Based on this, the UG decided to introduce the *[Open Access procedual regulations for short academic works by UG staff members](#)*, whereby publications by UG authors are automatically made available through the institutional repository (Pure) six months after their first publication in a journal or edited book.

Estonia: [The Copyright Act](#) which allows free access to materials for scientific and educational reasons, including for text and data mining.

Licensing

- **What license do I need to publish my work?**
  When you submit an article to a traditional journal, you may have to transfer your copyright by signing a 'copyright transfer agreement.' When you publish in Open Access journals, you retain the copyright. Open Access articles are published under public copyright licenses (such as Creative Commons licenses). This means that you have the copyright and indicate (by way of license) what others may do with the article.
  [Creative Commons](#) in an open license for copyrighted works. A Creative Commons license is an open license. These licenses allow certain, globally recognized, standardised re-use of copyrighted material. It is a so-called upfront license. You don't have to ask for permission to access, share or use a protected work; the permission is granted automatically. If you want to give people the right to

share, use, and even build upon a work you've created, you should consider publishing it under a Creative Commons license.
You can also try to use the license choosing tool Choose a License (creativecommons.org)

More information:
Creative commons: open license for copyrighted works – (Ghent University)
Frequently asked questions about copyright - (University of Groningen)

- **Is it possible for me to keep the copyright to my publication if I publish open access?**
When you submit an article to a traditional journal, you may have to transfer your copyright by signing a 'copyright transfer agreement'. When you publish in Open Access journals, you retain the copyright. Open Access articles are published under public copyright licenses (such as Creative Commons licenses). This means that you retain the copyright and indicate (by way of license) what others may do with the article.

- **Can I benefit from the Rights Retention Strategy?**
cOAlition S has developed a Rights Retention Strategy to give researchers supported by a cOAlition S organisation the freedom to submit manuscripts for publication to their journal of choice, including subscription journals, whilst remaining fully compliant with Plan S.
Read more: Rights Retention Strategy | Plan S (Coalition-s.org)

V Research Data Management
Making data FAIR

- **Why is FAIR data important?**
If your research data is FAIR, it can be reused by fellow researchers from other institutions and disciplines. The benefits are, for instance:
  - Better science - others can reproduce your findings, leading to more reliable research
  - Credit for your work - increased visibility and citations for your published articles and datasets
  - More impact - gain maximum potential from your dataset
  - Alignment with international standards and requirements of your institution and funder
  - Opportunities for new partnerships with fellow researchers and the broader community

More information:
FAIR data & Open Science – (University of Groningen)

- **How do you make your own data FAIR?**
The practical steps required to make data FAIR differ depending on the scientific domain. However, the FAIR Data principles, created as universal guidelines, aim to enhance the reusability of data. Creating a data management plan can assist in learning, considering, and deciding on methods to make your data FAIR. This includes determining how to document your data, selecting relevant metadata, choosing file formats, establishing data access protocols, licensing the data, and adding persistent identifiers. To gain a better understanding of these concepts, refer to the FAIR principles section. You can check your data FAIRness through various self-assessment tools (for example, FAIR Data Self Assessment Tool | ARDC)
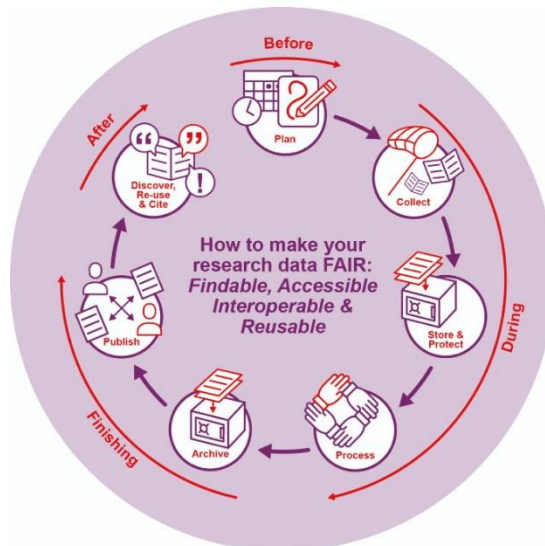
Figure 2 FAIR data & Open Science – (University of Groningen)

More information:
FAIR data guide - (University of Groningen)

- **Does FAIR always mean Open?**

    FAIR does not necessarily mean that your data is openly available to everyone, nor the other way around. There can be legitimate reasons to restrict access to your data, for instance, when this would affect participants' privacy, intellectual property rights, or commercial interests. Funders and institutions increasingly ask researchers to make their research data available to the research community and society. Although data can often be shared openly, sometimes access needs to be restricted. In these cases, data will only be shared if interested parties meet certain criteria. The leading principle is making your data 'as open as possible and as closed as necessary.' Placing data under restricted access is a way of making personal and sensitive data FAIR.

Levels of sharing

- **How to share and cite data?**
    - When **reusing existing data**, you must check and comply with the conditions of access and use. You may not be allowed to do whatever you want with the data, e.g., because of confidentiality or protection by intellectual property rights. Some data will be available as open research data, meaning they can be freely accessed and used. Some data will fall under the category of restricted data: in this case, specific access and/or use conditions are in place. Terms and conditions of access and use depend on the nature of the data. At best, these terms are made explicit in advance by means of a specified access category and a license or user agreement. If not, you will have to find out yourself whether and how you can access and use the data and obtain any permissions needed. Terms and conditions of access and use depend on the nature of the data.

    - When **making research data publicly available**, it is important to let potential users know in advance what they are allowed to do with those data. Licensing is an effective way to communicate such permissions. A trusted data repository will normally apply a license to any dataset it holds, which you typically select (from a list

of options) when depositing data. A good practice is to apply a standard and open license for open research data, as it ensures legal interoperability and the widest possible reuse.

More information:
[Sharing data — (Ghent University)](#)

Data Management Plan (DMP)

- **What is a Data Management Plan (DMP)?**

A Data Management Plan specifies how research data will be handled during and after a research project. It identifies key actions and strategies to ensure that research data are high-quality, secure, sustainable, and – to the extent possible – accessible and reusable. More and more research funders require a short data management statement or plan as part of the grant proposal process and a full-blown DMP after funding approval.

To get started with writing a DMP you may consult the following guides and checklists. There is also guidance available on reviewing a DMP based on funder requirements. Typically, your local RDM support services will be available to provide feedback before you submit your DMP to a funder.

More information:
[Writing your DMP – (University of Galway)](#)
[Preparing a Data Management Plan (DMP) — (Ghent University)](#)
[Data Management Plan GRO.plan – (University of Göttingen)](#)
[Data Management Plan (DMP) – (University of Tartu)](#)
[Data Management Plans – Uppsala University](#)

- **Which online tools for Data Management Plans are available in the ENLIGHT Network?**

The University of Comenius uses [DMPonline](#) tool.
Ghent University uses [DMPonline.be](#), the Belgian DMP tool.
The University of Groningen uses [RDMP online support tool.](#)
The University of Göttingen uses [GRO.plan..](#)
The University of Tartu uses [DMPonline](#) tool.
The University of Uppsala uses [DMPOnline](#) tool.

- **What is a research data repository?**

A data repository is an online platform that is used to deposit completed datasets with the purpose of publishing, sharing, and/or preserving them. A data repository is a database infrastructure that compiles, manages, and gives access to data and associated metadata and documentation.

More information:
[How to preserve and share data in data repositories? - (Ghent University)](#)

- **How to choose a data repository?**

There are hundreds of data repositories or archives to choose from. Keep in mind, however, that not all repositories are equivalent. Some repositories focus more on disseminating and making your data visible than on ensuring their preservation in the long term.

Here are some basic tips to take into consideration:
Check the list of repositories recommended by your journal/publisher.
Many journals and publishers with data-sharing policies recommend, and for some data types even require, the use of specific repositories.
Check best practices within your community by reaching out to peers, by reading data availability statements in publications, or by identifying research data management initiatives (e.g. Research Data Alliance (RDA)) in your scientific domain.

- o Check data portals that combine data from different data repositories (e.g. EOSC Portal).
- o Look for information about a specific repository or identify one suitable for your research data via the Re3data and FAIRsharing registries.
- o Select a general-purpose repository, such as Zenodo or Open Science Framework, if no established repository exists for your research domain.

- **What is Re3Data?**

Data repositories are registered in Re3data. Re3data is a global registry of research data repositories that covers research data repositories from different academic disciplines. It includes repositories that enable permanent storage of and access to data sets to researchers, funding bodies, publishers, and scholarly institutions.

Trusted data repositories

A certified and trusted data repository is the ideal storage location for your data and an interesting option to make your research data increase your scientific impact. Determining a suitable data repository depends on several factors, for example: Does a discipline-specific repository already exist? What requirements on the data, the metadata, and the repository exist on the publisher's side if the research data accompany a publication? Which legal restrictions need to be accounted for, e.g. copyright, data protection, embargo periods required in the project's context?
Trusted data repositories meet the following characteristics:

- Provide broad, unbiased, and ideally open access to the repository's content, respecting legal and ethical limitations.
- Assign persistent identifiers to the content for referencing and citing.
- Manage metadata to enable discovery, reuse, and citation and provide information about provenance and licensing. Metadata is machine-actionable and standardized.
- Ensure the preservation of the repository's content, also in the long term.
- Offer expert curation, guidance, and/or quality assurance services for the accuracy and integrity of datasets and metadata.
- Provide explicit information about policies.
- Run services, mechanisms, and/or provisions to secure the integrity and authenticity of the repository's content and prevent unauthorized access and release.

What are some universal data repositories?
Zenodo is a repository for all research outputs from across all fields of science and any file format which promotes Open Access but also allows restricted access. Zenodo is a service funded by the European Commission under the project OpenAIREplus.

ENLIGHT partners' data repositories
The University of the Basque Country- there is no institutional data repository.

The University of Bordeaux - there is no institutional data repository.

Comenius University Bratislava – data repository [DSpace](#)

The University of Galway - there is no institutional data repository.

Ghent University- there is no institutional data repository. There is a data registry, incorporated in the [publications' repository](#).

The University of Groningen – there is no institutional data repository.

The University of Göttingen– data repository [GRO.data](#)

The University of Tartu – Data repository [DataDOI](#)

The University of Uppsala – institutional data repository [DiVA](#) & [Swedish National Data Service](#)

VI European Open Science Initiatives

Open Science in Horizon Europe

Open Science has been an integral part of the EU's research policy since 2015 and, based on this, of funding measures in the EU Framework Programmes for Research and Innovation. The EU Commission distinguishes between mandatory and recommended Open Science practices. In particular, scientific publications from EU-funded projects are to be made openly accessible directly via suitable repositories (Open Access). In projects funded under Horizon Europe, responsible management of research data in line with the FAIR principles is mandatory, notably through the generalised use of data management plans (DMP), including regular updates, and ensuring open access to research data under the principle "as open as possible, as closed as necessary".

More information:
[Open Science in Horizon Europe – (University of Göttingen)](#)
[Horizon Europe tips – (Ghent University)](#)

Open Research Europe (ORE)

- **What is Open Research Europe (ORE)?**

The EU Commission officially launched Open Research Europe, the Open Access publishing platform for scientific articles that present the results of research funded by the EU framework programmes for research and innovation, Horizon 2020, and Horizon Europe (2021-2027). Publishing in Open Research Europe is an optional service. Because the EU Commission covers all costs upfront, there is no author fee or administrative burden.

More information:
[Open Research Europe: what is it – (Ghent University)](#)
[Open Science in Horizon Europe – (University of Göttingen)](#)

European Open Science Cloud (EOSC)

- **What is the European Open Science Cloud (EOSC)?**

The [EOSC](#) creates a virtual environment in which researchers in particular can use data across disciplines and national borders. The services of the EOSC are based on the "FAIR Principles". The data must be findable, accessible, interoperability and reusable. The EOSC is complemented by national initiatives. Furthermore, the EOSC is funded as one of around 50 partnerships in the Horizon Europe programme part "Global Challenges and European Industrial Competitiveness".

The EOSC will be developed as a data infrastructure commons serving the needs of scientists. It should provide both common functions and localised services delegated to community level. Indeed,

the EOSC will federate existing resources across national data centres, European e-infrastructures and research infrastructures; service provision will be based on local-to-central subsidiarity (e.g. national and disciplinary nodes connected to nodes of pan-European level); it will top-up mature capacity through the acquisition of resources at pan-European level by EOSC operators, to serve a wider number of researchers in Europe. Users should contribute to define the main common functionalities needed by their own community. A continuous dialogue to build trust and agreements among funders, users and service providers is necessary for sustainability. (EOSC declaration 26th Oct, 2017)

More information:
[Briefing Paper on EOSC: Federating Research Infrastructures in Europe for Fair Access to Data (University of Göttingen)](#)

VII General OS tools and services

Researcher Identifiers

- **What is a Researcher Identifier?**
  [ORCID](#) and [ResearcherID](#) (now the Web of Science ResearcherID) are two ways to uniquely identify a scientist. They are connected and improve each other.
  ORCID (Open Researcher and Contributor ID) is the researcher's unique and persistent identifier, which distinguishes them from every other researcher and supports linking between the researcher and all of their professional activities, such as their research institution, grants, research projects, publications, and research results. ORCID guarantees the researcher's credentials as the owner of their results. ORCID is linked only to the person, so moving from one institution to another does not change it.

- **Why should I use a Researcher Identifier?**
  - Avoid name confusion, and increase visibility
  - To link your unique identifier with your publications and research activities.
  - International standard
  - More and more journals and funders request or even require a Researchers ID if you send in your manuscript or grant application.
  - Save time
  - Open and transparent
  - Privacy well protected
  - Researchers own and control their own Researcher Identifier information
  - Not limited to a single institution
  - You can take your Researcher Identifier with you throughout your academic career, even when you move from one university or research institute to another.

More information:
[ORCID: what is it? – (Ghent University)](#)
[ORCID – (University of Groningen)](#)
[ORCID and ResearcherID – (University of Tartu)](#)
[Scientific signature and researcher profiles – (UPV/EHU](#))

Open Science communities

[International Network of Open Science & Scholarship Communities -](#) INOSC is an international network of local Open Science & Open Scholarship communities (OSC). OSCs are hubs where

academics learn from their peers how to make their workflows more open. Over 1000 academics have joined OSCs, ready to put Open Science to practice!

[Open Science Community Galway](#)
[Open Science Community the Netherlands](#)
[Open Science Community Sweden](#)

Training opportunities in the ENLIGHT Network
- [Training and events — (Ghent University)](#)
  Contains RDM training and upcoming events, training materials, and RDM knowledge clips.
- [RDM Trainings – (Ghent University)](#)
  Materials from RDM training activities by Ghent University's data stewards
- [Open Science Göttingen Meet-ups - (University of Göttingen)](#)
  Initiated in Autumn 2016, the Open Science Göttingen Meet-up brings together enthusiastic researchers and librarians which aim to promote Open Science principles in the scientific community in Göttingen. On these pages, you will find information about past and forthcoming meet-ups, working groups, and useful tools for implementing Open Science.
- [Workshops at Groningen University – (University of Groningen)](#)
  Various online webinars on different topics of OS.

More resources from the ENLIGHT Network
- [Tools for Open Science - (University of Göttingen)](#)
  This list highlights tools and services which enable Open Science practices. Please note that this list is a living document.
- [Data Stewards Shared Outputs – (Ghent University)](#)
  Outputs of Ghent University's data steward team.

VIII External resources

Here is a list of some additional external resources. This list is not exhaustive.

Training resources
- [Open Science: the very idea](#)
  This open access book provides a broad context for the understanding of current problems of science and of the different movements aiming to improve the societal impact of science and research.
- [The Open Science Training Handbook](#)
  The focus of the new handbook is not spreading the ideas of Open Science but showing how to spread these ideas most effectively. Bringing together methods, techniques, and practices, the handbook aims at supporting educators of Open Science. The result is intended as a helpful guide on how to forward knowledge on Open Science principles to our networks, institutions, colleagues, and students.
- [How to be FAIR with your data: A teaching and training handbook for higher education institutions](#)
  This handbook was written and edited by a group of about 40 collaborators in a series of six book sprints that took place between 1 and 10 June 2021. It aims to support higher education institutions with the practical implementation of content relating to the FAIR principles in their curricula while also aiding teaching by providing practical material, such as competence profiles,

learning outcomes, lesson plans, and supporting information. It incorporates community feedback received during the public consultation, which ran from 27 July to 12 September 2021.

- Courses on Open Science - (FOSTER)

The FOSTER portal is an e-learning platform that brings together the best training resources addressed to those who need to know more about Open Science or need to develop strategies and skills for implementing Open Science practices in their daily workflows. Here you will find a growing collection of training materials.

FAIR data

- FAIR principles

In 2016, the 'FAIR Guiding Principles for scientific data management and stewardship' were published in Scientific Data. The authors intended to provide guidelines to improve the Findability, Accessibility, Interoperability, and Reuse of digital assets.

- F-UJI Automated FAIR Data Assessment Tool

FAIRsFAIR has developed F-UJI, a service based on REST, and is piloting a programmatic assessment of the FAIRness of research datasets in five trustworthy data repositories.

- FAIR-Aware: Assess Your Knowledge of FAIR – (FAIRsFAIR)

FAIR-Aware is an online tool that helps researchers and data managers assess how much they know about the requirements for making datasets findable, accessible, interoperable, and reusable (FAIR) before uploading them into a data repository.

- How to make your scientific data accessible, discoverable, and useful. Specialists offer seven tips for effectively sharing your data.

DMP

- Data Stewardship Wizard: Researchers are truly guided through composing a DMP, which can be exported using a selected template and format, including machine-actionable.
- Argos DMP: Joint effort of OpenAIRE and EUDAT to deliver an open platform for Data Management Planning that addresses FAIR and Open best practices and assumes no barriers to its use and adoption.
- DMP checklist - Checklist for a Data Management Plan. v.4.0. Edinburgh: Digital Curation Centre.

EOSC

- EOSC-Pillar Legal Compliance Guidelines for Researchers: a Checklist (interactive digital version)

This document provides a guideline in the form of checklists to help researchers comply with the legal requirements of publishing, sharing, and integrating research data. In particular, the challenges raised by intellectual property rights, data protection laws, and regulations on non-personal data are addressed. The purpose of the guideline is to promote the implementation of FAIR principles beyond their original scope, and to lay down the conditions for the effective realisation of Open Data and Open Science policies.

- EOSC-Pillar RDM Training and support catalogue

The EOSC-Pillar RDM Training and support catalogue is a collection of online searchable resources for Data Stewardship and Research Data Management support. It includes training materials, but it also includes day-to-day, operational, and readily available resources that can be used by data stewards to support researchers. However, these resources might be useful for other target groups as well.

Open Access

- [OA Journals Toolkit](#). The Toolkit answers a need for an online resource to support new and established Open Access journals in navigating the rapidly changing landscape of Open Access publishing. Intended for anyone involved in journal publishing and with a strong focus on helping under-resourced journals globally, the Toolkit enables empowered and informed decision-making. It will contribute to the advancement of scholarly publishing standards and best practices.
- [EU ready to back immediate open access without author fees](#)

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- Kreutzer, T., & Lahmann, H. (2019). Rechtsfragen bei Open Science. Hamburg University Press. Hamburg University Press. (in German) https://doi.org/10.15460/HUP.195

Licencing

- [Open Licencing - (Foster Open Science)](#)
  This course helps you to find the best open license for your research outputs.
- [Choose an open source license](#) - licenses for code

Glossary

- [Glossary - Open Science Training Handbook (gitbook.io)](#)
  Like any other emerging field, Open Science uses quite a lot of sometimes difficult terminology. Some of it you may not be familiar with. Don't lose heart! The "Glossary" will explain most of the less familiar terms and concepts.

IX Local ENLIGHT institutions' contacts

If this toolkit does not cover the questions you have about different aspects of Open Science, we recommend contacting your local university Open Science experts directly.

Partner	Contact person and information	OS/OA English website
University of the Basque Country		https://www.ehu.eus/es/web/biblioteka/ikerkuntzarako-baliabideak (Research Support Service) https://www.ehu.eus/es/web/biblioteka/publicar-en-acceso-abierto (Publishing in open access)
University of Bordeaux		https://www.u-bordeaux.fr/recherche/ambition-scientifique/science-ouverte (institutional site) https://open.u-bordeaux.fr/journals/ (open access journals platform) https://oskar-bordeaux.fr/ (open archives platform)

		https://bibliotheques.u-bordeaux.fr/Soutien-a-la-recherche (library open science services) https://bibliotheques.u-bordeaux.fr/Soutien-a-la-recherche/Science-ouverte-l-engagement-de-l-universite2 (open science roadmap)
Comenius University Bratislava	kniznica@vili.uniba.sk	https://midas.uniba.sk/
University of Galway		https://library.nuigalway.ie/openscholarship/ https://libguides.library.nuigalway.ie/oer https://library.nuigalway.ie/openscholarship/openpublishing/deals/ https://www.universityofgalway.ie/researchcommunityportal/
Ghent University (UGent)	openscience@ugent.be	https://www.ugent.be/en/research/datamanagement https://researchtips.ugent.be/en/tags/open%20science/ (other resources only intranet)
University of Groningen	For open science: v.e.heininga@rug.nl For open access: g.trentacosti@rug.nl For FAIR data: l.j.f.g.ter.schure@rug.nl For Public Engagement: a.ranitovic@rug.nl For Open Education: m.zhuk@rug.nl	https://www.rug.nl/research/openscience/
University of Göttingen	For open access: oa@sub.uni-goettingen.de For research data management and e-science: info@eresearch.uni-goettingen.de	https://www.uni-goettingen.de/en/487290.html https://www.sub.uni-goettingen.de/en/publishing-open-access/open-science-open-access/ https://www.sub.uni-goettingen.de/en/publishing-open-access/publication-funds/ (OA publication funds) https://www.sub.uni-goettingen.de/en/eresearch-alliance/ (research data management)
University of Tartu (Tartu Ülikool)	University of Tartu Library: Tiiu Tarkpea, tiiu.tarkpea@ut.ee Grant Office	https://utlib.ut.ee/en/open-science

Uppsala University	For open science: ask.library@ub.uu.se For data management dataoffice@uu.se	https://www.ub.uu.se/publish/open-access/
Enlight Rise Open Science Ambassadors		ENLIGHT (enlight-eu.org)

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