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Research Data Management

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ULB PhD Day 2026

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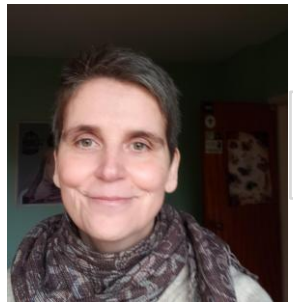

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Prevent Data Loss & Ensuring Longevity

- 80% of datasets older than 20 years have been lost.
- Can others easily reuse your data?
- Will you be able to access (and understand) your own data in 5-10 years?

Increase Your Research Impact & Citations

- Well-managed data enables greater visibility, reuse, and citations, enhancing researcher recognition.
- Data availability is now required by most journals.

Meet Funding & Compliance Requirements

- Major funding bodies require data management plans for funding approval.
- Proper documentation ensures legal and ethical compliance.

Why should *you* care about your research data?

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Enhance Scientific Integrity & Transparency

- Proper data management allows for verification of findings and facilitates reuse in future research.

Avoid scientific fraud and unverifiable research

- **Paper mills** are responsible for an **increasing number of fraudulent publications**, with up to **2%** of papers in some fields being fabricated *(Nature, 2021).*
- **54% of published data cannot be verified**
  (Vines et al., 2014)

Good reasons to care about your Research Data

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A massive growth in data
90% of global data generated in the last 2 years (WEF)
Scientific data output +30% per year (IDC)

Increasing data vulnerability
Political or institutional changes can restrict or delete data

RDM as a safeguard in a rapidly changing environment
Ensures long-term access, independent of external decisions

How do we actually manage research data in a way that is sustainable and realistic during a PhD?

Why this matters *now*: RDM as a form of Scientific Resilience

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Research Data Management (RDM) includes activities such as:

- 📁 Planning
- 🔍 Collecting
- 🏷️ Organizing
- 📝 Documenting
- 💾 Storing
- 📤 Sharing
- 🔒 Preserving

- Each researcher is accountable for the management of their data in accordance with the **ULB policy on research data management.**

What is Research Data Management (RDM)?

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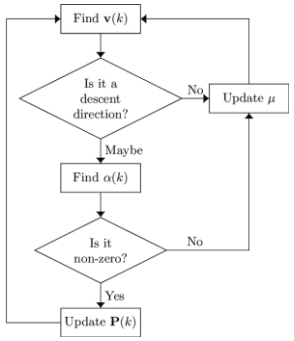
📊 **Research data** is any piece of information used to support research findings. It can be qualitative or quantitative, factual or interpretative, numerical, textual, or audiovisual, including:

- 📁 Spreadsheets, documents, test measurements
- 📷 Photographs, audio and video recordings
- 🧪 Slides, artifacts, specimens, samples
- 📊 Models (numerical, analytical, engineering)
- 🔢 Simulation software, algorithms, scripts
- 📝 Questionnaires, surveys, transcripts
- 📖 Methodologies



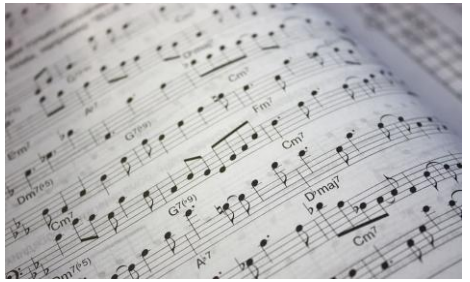
Questionnaire – Métro de Montréal

Pour chacune des questions suivantes, réponds par Vrai ou Faux.

Question	Vrai	Faux
1. L'inauguration du métro de Montréal a eu lieu en 1966.		
2. 5000 ouvriers pendant 4 années pour sa construction.		
3. Le métro de Montréal comptait à l'origine 20 stations.		
4. Il fût un jour le métro le plus rapide au monde.		
5. Ses voitures pneumatiques sont toujours utilisées aujourd'hui.		
6. Les locomotives actuelles sont en service depuis 10 ans.		
7. C'est dans la ville de Québec que sont construites les nouvelles voitures.		
8. C'est 468 nouvelles voitures qui seront mises en service graduellement à compter de 2014.		
9. Pour son transport, la voiture modèle a due être démantelée en 10 parties.		
10. Les tests techniques se déroulement pendant la nuit au métro de Montréal.		
11. Certains passages laissent à peine 5 centimètres de		

Date	Start Time	Lunch Start	Lunch End	End Time	Overtime	Hou
4/1/2019	8:00am	1:00pm	1:30pm	5:00pm	0	
4/2/2019	8:00am	1:00pm	1:30pm	5:00pm	0	
4/3/2019	8:00am	1:00pm	1:30pm	5:00pm	2	
4/4/2019	8:00am	1:00pm	1:30pm	5:00pm	0	
4/5/2019	8:00am	1:00pm	1:30pm	5:00pm	0	
4/6/2019	900am	2:00pm	2:30pm	6:00pm	0	
4/7/2019	900am	2:00pm	2:30pm	6:00pm	0	
4/8/2019	800am	1:00pm	1:30pm	5:00pm	1	
4/9/2019	800am	1:00pm	1:30pm	5:00pm	1	
4/10/2019	800am	1:00pm	1:30pm	5:00pm	1	

may mean that the Russians are about to announce the discovery of value added by manufacture. A section entitled "Examples of the application of composite indices in the Soviet Union and in People's Poland" is not very informative because there is no reference to anything that happened after 1952. A longer section, "Composite indices in the statistics of capitalist countries," makes the general point that such indexes may be completely unrealistic; if they are not it is usually a matter of coincidence, and even in the case of "correct indices published in capitalist countries a critical evaluation of their applicability from the point



What is Research Data?

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A **Data Management Plan** (DMP) is a formal “living” document that describes in detail how data collected within a research project will be managed throughout the entire life cycle of the project.

- A DMP helps to:
  - ✔ Ensure data is high-quality, secure, and sustainable
  - ✔ Guarantee accessibility and reusability of data
  - ✔ Update data management strategies as the project evolves

Start with a Data Management Plan

📌 **Data collection**– What data will be collected, processed, or generated?

📌 **Data Handling** –What formats, methodology and best practices will be used?

📌 **Data storage-** How will data be managed **during & after** the project?

📌 **Legal & Ethical Considerations** – Security, privacy compliance, and ethical aspects.

📌 **Data Sharing & Accessibility** – Will data be openly accessible? What restrictions apply? ➡ Remember: Justify your decisions.

📌 **Storage & Long-Term Preservation** – How will data be stored short-term and preserved for future usability?

📌 **Goal:** Ensure data remains usable even years after the project ends.

Data Management Plan: what to include

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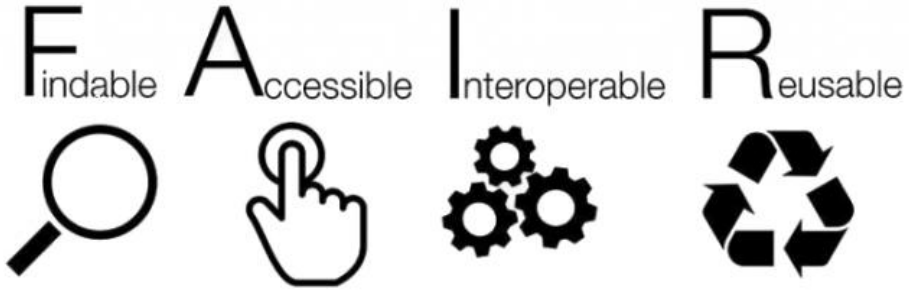


🔎 **Findable** - Use rich metadata*, keywords, and DOIs**.

📁 **Accessible** - Archive data in trusted repositories.

📡 **Interoperable** - Use common standards and formats (when possible choose open formats over proprietary ones).

♻️ **Reusable** - Include documentation (eg. README files) and licenses (eg.CCO, CCO BY 4.0).

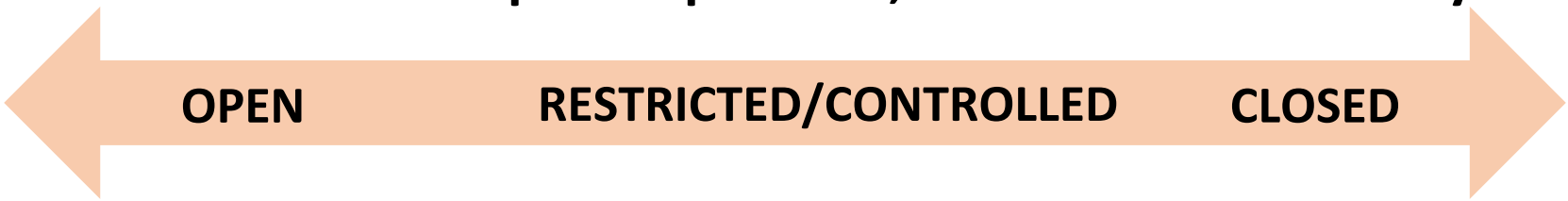
***Metadata:** structured information that describe, explain, locate, and contextualise data.
Eg: author(s) name, author(s) ORCID, DOI, licence, language, journal, title, etc.

DOI: A **Digital object identifier is a persistent identifier or handle used to uniquely identify various objects, standardized by the International Organization for Standardization (ISO).[1]

Follow FAIR Data Principles

FAIR DATA is different from OPEN DATA

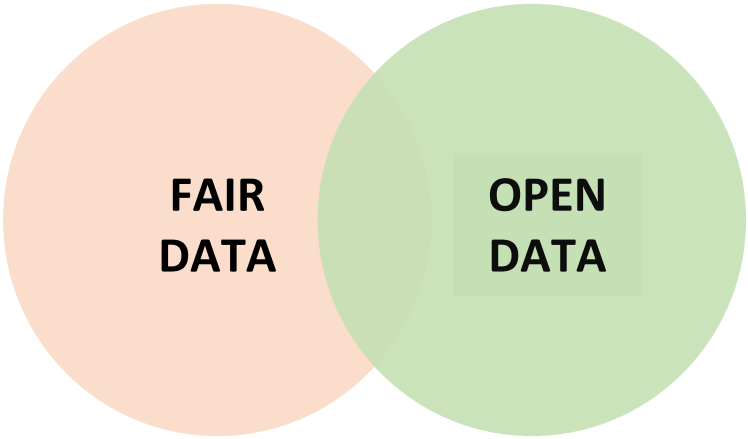
FAIR data: "As open as possible, as closed as necessary"



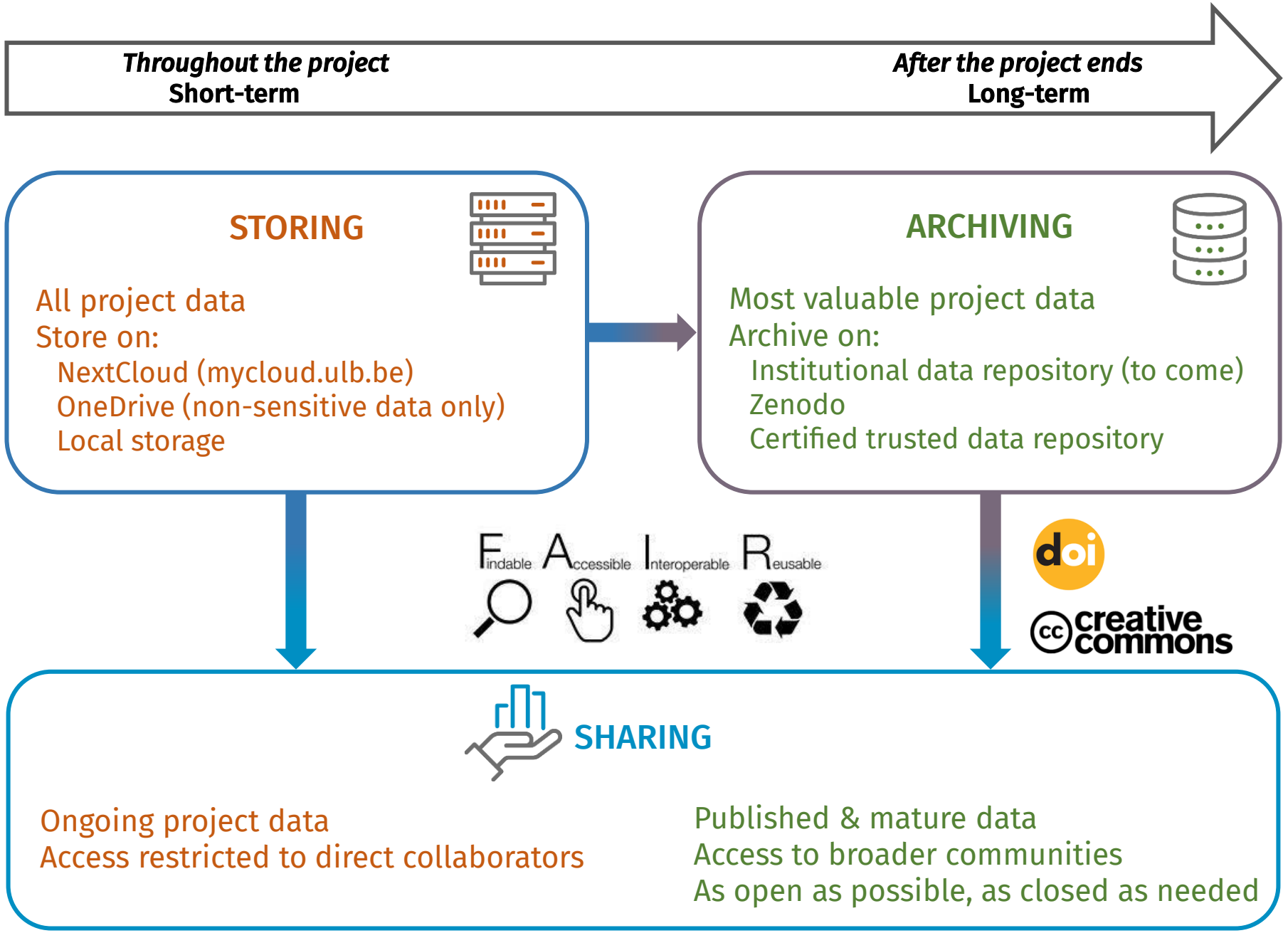
Freely used, modified & shared by anyone for any purpose

Limits on who can access & use data, how, or for what purpose

Under embargo, unable to share



Adapted from '[Managing and sharing research data](#)' by S. Jones, CC-BY


Throughout the project
Short-term
After the project ends
Long-term
STORING
All project data
Store on:
NextCloud (mycloud.ulb.be)
OneDrive (non-sensitive data only)
Local storage
ARCHIVING
Most valuable project data
Archive on:
Institutional data repository (to come)
Zenodo
Certified trusted data repository
Findable Accessible Interoperable Reusable
doi
creative commons
SHARING
Ongoing project data
Access restricted to direct collaborators
Published & mature data
Access to broader communities
As open as possible, as closed as needed

Different **data repository types**:

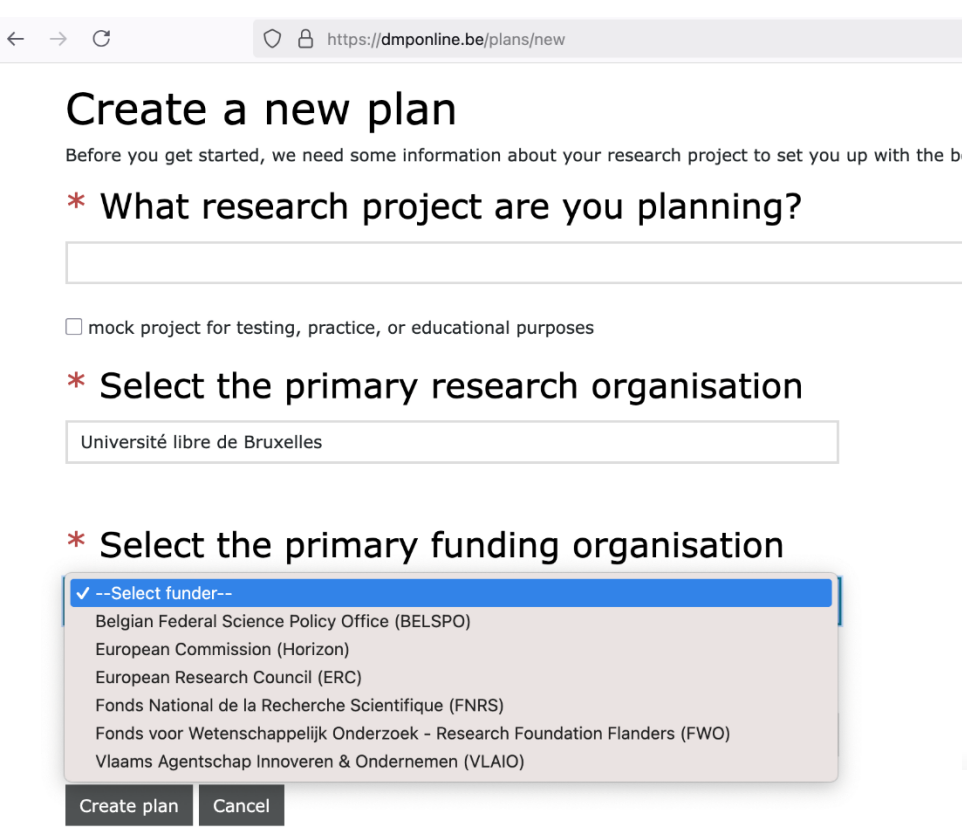
1. **General-purpose repositories** accept a wide range of data types (and sometimes other research outputs as well) from all disciplines.
   - Zenodo (nb: it does not allow to delete the files once uploaded)
   - Open Science Framework
2. **Domain-specific repositories** focus on specific data types or data from specific research domains.
3. **Institutional repositories** hold research data outputs from a particular research institution (Under development at ULB).

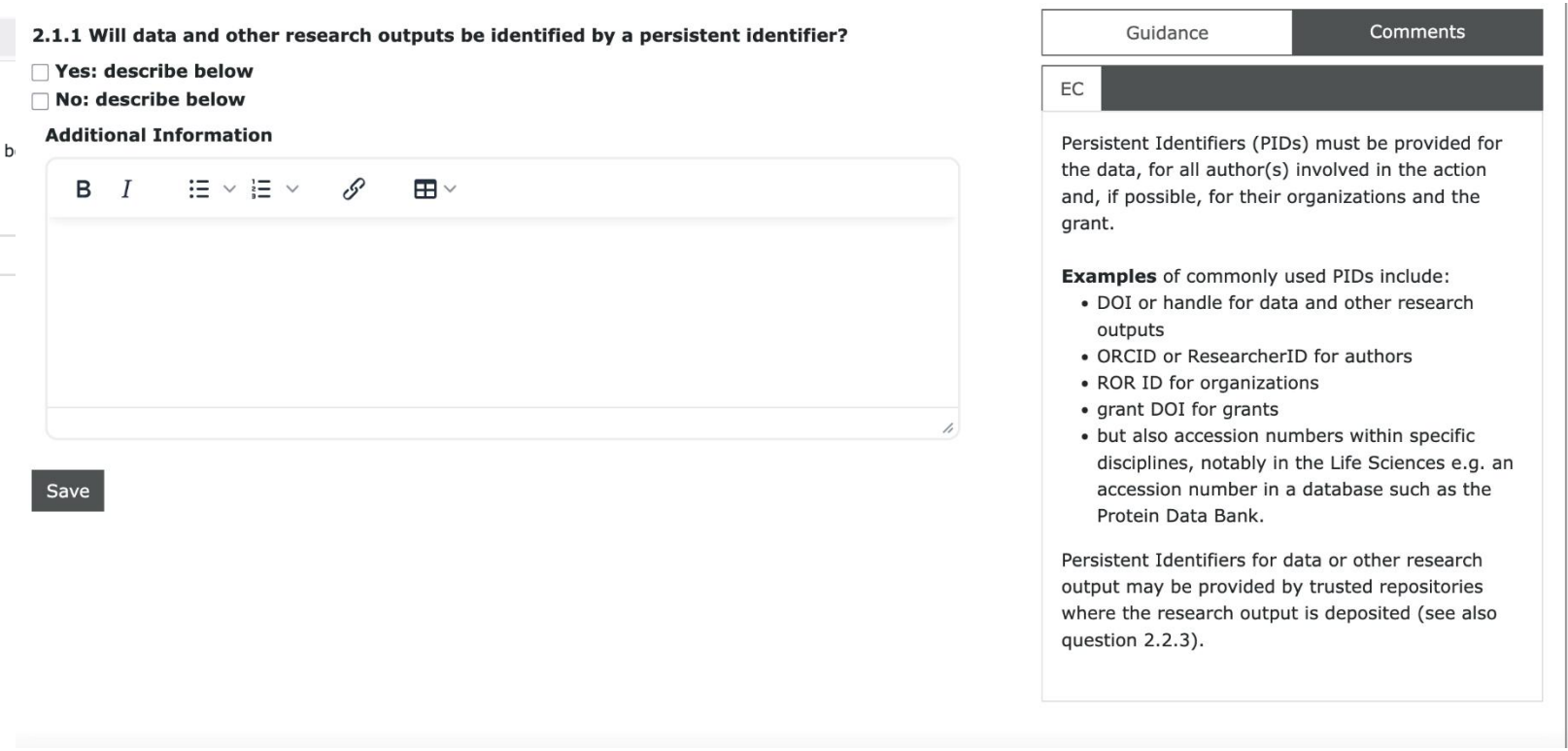
An international, searchable register of existing research data repositories is available at **re3data.org**. You can also search for repositories/databases via **FAIRsharing.org**.

Preserving research data

DMP

Data Management Plan - tool





Tool : https://dmponline.be/ *Support*: rdm-support@ulb.be

Research involving personal or sensitive data, or human or animal subjects

- Approval from the **relevant** **Ethics committee** may be needed;
- Data must be **anonymised or pseudonymised** before any sharing;
- **Informed consent** must explicitly mention data reuse or sharing.
- Because personal data is subject to **GDPR**, researchers are strongly encouraged to **involve the ULB Data Protection Officer (DPO)** early in the project.
- A **Data Protection Impact Assessment (DPIA)** may be required depending on the risks involved.

Research conducted in or with non-EU countries

- Researchers must assess whether the **partner institution or country** may be involved in **serious or systematic violations of fundamental rights**. ULB researchers are expected to conduct a **fundamental rights test** **before collaboration.**
- **If the research** involves formal partnership: approval from the **Committee for Compliance with International Law and Dual Use.**

Ethical and Legal aspects

Research involving Artificial Intelligence tools and methods:

Legal Requirements

- GDPR: Personal data requires legal basis, minimisation,and a **Data Protection Impact Assessment (DPIA)** when needed
- Database/IP rights: Respect copyright, database rights, Text Data Mining exceptions
- Terms of Service: Scraping must follow website ToS to avoid breach or liability
- Avoid cybercrime risks (e.g., overloading websites)
- EU AI Act: Follow transparency, risk management

Research with a potential dual-use (military-civil):

Research that can be used for both legitimate civil purposes and potentially harmful applications (e.g., military, security, public health).

What to Do if Your Research Might Be Dual-Use

Contact the **ULB Committee for Dual-Use** for support and review of institutional partnerships and sensitive technologies

ULB Dual-Use Committee Contact Page

Ethical and Legal aspects

Resources for ULB Researchers:

In the ULB intranet Research Data Management section you will find:

- **Guidelines, tools, and policies** on how to manage data effectively
- Downloadable **RDM guide** and best practice documents, including the **ULB policy on research data management** outlining both institutional commitment and research responsibilities.
- Centralized **RDM webpages** with up-to-date resources
  - ENG: https://portail.ulb.be/en/research/research-data-management
  - FR: https://portail.ulb.be/fr/recherche/gestion-des-donnees-de-recherche

Training sessions (recordings and material)

- ENG: https://uv.ulb.ac.be/course/view.php?id=103853
- FR: https://uv.ulb.ac.be/course/view.php?id=103880

RDM Support: ULB Resources

DMPonline: online tool to create DMP (including various funders templates and writing tips) – free for the ULB staff www.dmponline.be (login with your ULB netID)

Contact: rdm-support@ulb.be (questions related to RDM, Data Management Plans review)

ULB MyCloud: Institutional Cloud for research data storage https://mycloud.ulb.be/.

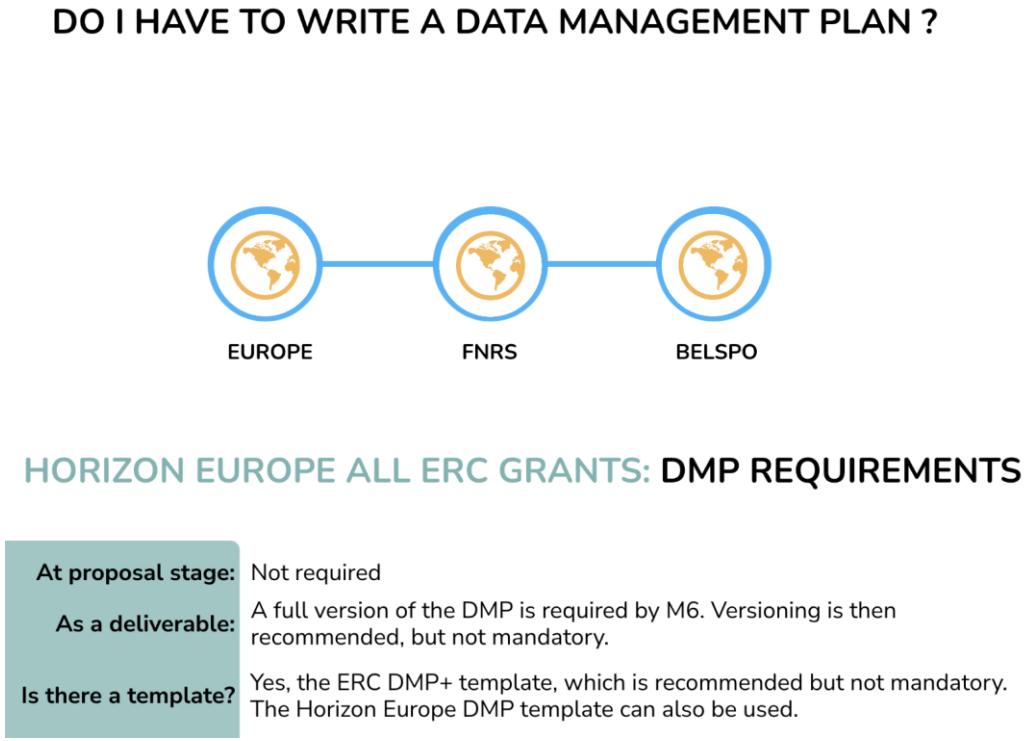
If you need help with MyCloud settings/Functionalities contact: support@ulb.be

RDM Support: ULB and External Resources

External Resources:

- **Do I have to write a DMP?** A practical decision-making tool to identify when a Data Management Plan (DMP) is required and *what obligations apply*, depending on different funding instrument.

- Compass to Research Data Management. An interactive questionnaire to guide researchers through the various regulations, recommendations and obligations related to the management of research data in FWB.



RDM Support: external resources

RDM and DMP support: rdm-support@ulb.be

GDPR related questions: rgpd@ulb.be

https://portail.ulb.be/fr/documents-officiels/protection-des-donnees-a-caractere-personnel

Ethical committees: Ethics committees - ULB

Compliance with International Law and Dual Use: https://www.ulb.be/fr/partenaires-et-reseaux/developper-un-partenariat

Valorization/Intellectual property rights: ulbkto@ulb.be

- https://portail.ulb.be/en/research/service-technology-transfer-tto
- https://portail.ulb.be/en/research/intellectual-property

Open Science and Open Publications:
https://www.ulb.be/fr/transparence-et-integrite/science-ouverte-open-sciencece ouverte (Open Science) - ULB

Who to Contact at ULB for RDM, Ethics & Legal Questions?

To contact us: rdm-support@ulb.be

"Your Future Self Will Thank You"