

## 2. Data management planning How to comply with funders' and ETH Zurich requirements

Date: 4 October 2023

Speakers: Dr. Julian Dederke, Dr. Fabian Schmid

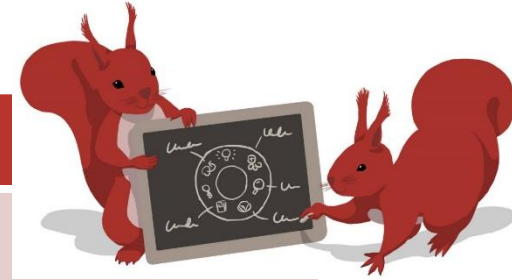


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# Today's Agenda



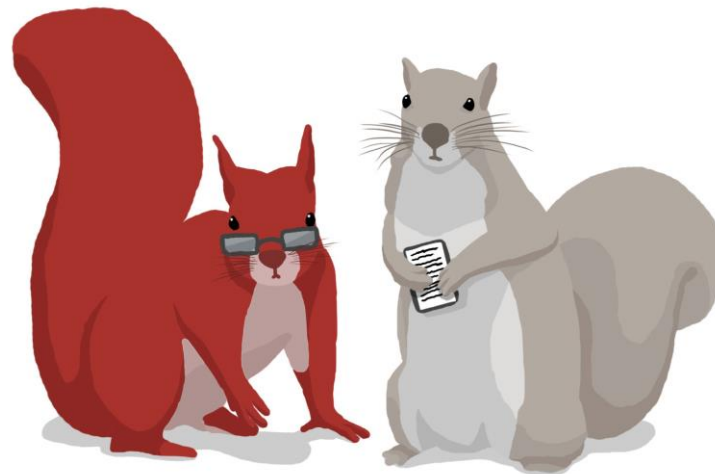
Session	From	To	Content
Overview	09:00	09:45	<ul style="list-style-type: none"><li>• Welcome and Warm-up</li><li>• Open Science and FAIR data</li></ul>
Rules and Regulations	09:45	10:00	<ul style="list-style-type: none"><li>• Swiss law</li><li>• Data protection</li><li>• ETHZ rules and regulations</li></ul>
Data Management Planning I	10:00	10:25	<ul style="list-style-type: none"><li>• Open Access and Open Data</li><li>• Funders' RDM requirements</li><li>• Aims of a Data Management Plan</li></ul>
Break	10:25	10:40	
Data Management Planning II	10:40	12:05	<ul style="list-style-type: none"><li>• SNSF's DMP template</li><li>• The DMP in a nutshell</li><li>• Miro-Exercise: How to write a DMP</li><li>• DMP writing (getting started)</li></ul>
RDM Support Information	12:05	~12:15	<ul style="list-style-type: none"><li>• Support at ETHZ</li><li>• Next workshops and contact points</li></ul>
Q&A	~12:15	12:30	

# Learning Goals

- You have a general understanding of the principles of **Open Science** and **FAIR data**.
- You know **rules and regulations** related to **Research Data Management (RDM)** that apply at **ETH Zurich**.
- You are aware of **open research data policies** of funders (SNSF, Horizon Europe).
- You are able to write a **Data Management Plan (DMP)** that meets ETH's and funders' requirements.

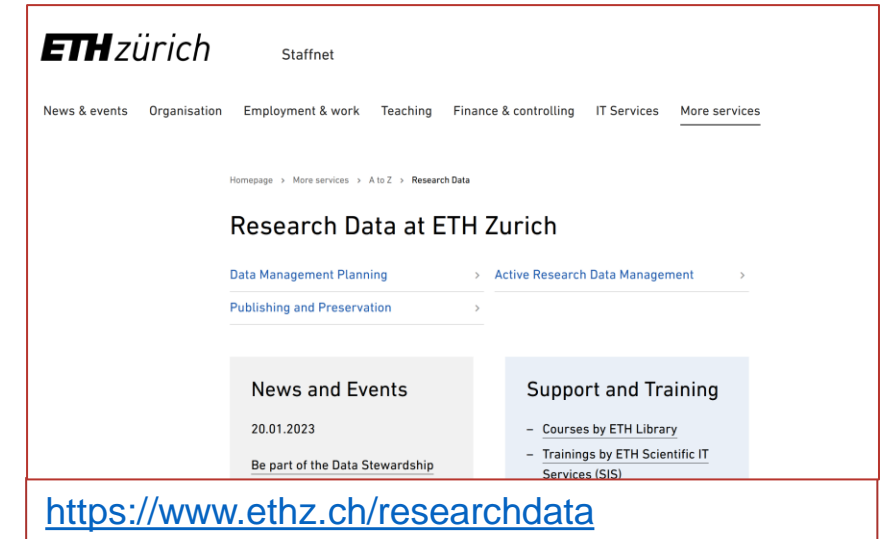


But first: Let's get to know each other



# Nice to meet you, we are.....

- From the
  - **Research Data Management and Digital Curation Team** at ETH Library, ETH Zurich
- **Sharing a scientific background** ourselves
- Here to **discuss data management** as part of your research
- To **learn more about your needs** in the process
- And to **motivate you to think critically** about the chances and **limitations of data management and re-use**



The screenshot shows the 'Research Data at ETH Zurich' page. The header includes the ETH Zurich logo and 'Staffnet'. A navigation menu lists 'News & events', 'Organisation', 'Employment & work', 'Teaching', 'Finance & controlling', 'IT Services', and 'More services'. The breadcrumb trail is 'Homepage > More services > A to Z > Research Data'. The main heading is 'Research Data at ETH Zurich'. Below it are links for 'Data Management Planning', 'Active Research Data Management', and 'Publishing and Preservation'. Two featured boxes are visible: 'News and Events' with a date of '20.01.2023' and the text 'Be part of the Data Stewardship', and 'Support and Training' with sub-links for 'Courses by ETH Library' and 'Trainings by ETH Scientific IT Services (SIS)'. A URL bar at the bottom contains <https://www.ethz.ch/researchdata>.



The screenshot shows the 'Research data management' page on the ETH Library website. The header includes the ETH Zurich logo and 'ETH Library'. A navigation menu lists 'Locations and media', 'Searching and using', 'Researching and publishing', 'Archiving and digitising', 'News and courses', and 'About us'. The breadcrumb trail is 'Homepage > Researching and publishing > ... > Data management and policies > Research data management'. The main heading is 'Research data management'. Below it are links for 'Research data life cycle', 'Data management planning', 'Active data management', and 'Publishing and long-term preservation'. A paragraph of text states: 'For researchers of all disciplines, sustainable research data management (RDM) is an integral part of the research process and one of the foundations of good scientific practice. It constitutes the professional and comprehensible organisation and handling of research data throughout their entire life cycle.' Below the text are four icons: a clipboard with a checklist, a folder with documents, a smartphone next to an open book, and a server rack. A URL bar at the bottom contains <https://www.library.ethz.ch/rdm>.

And who are you?

*I would like to ask you some questions...*

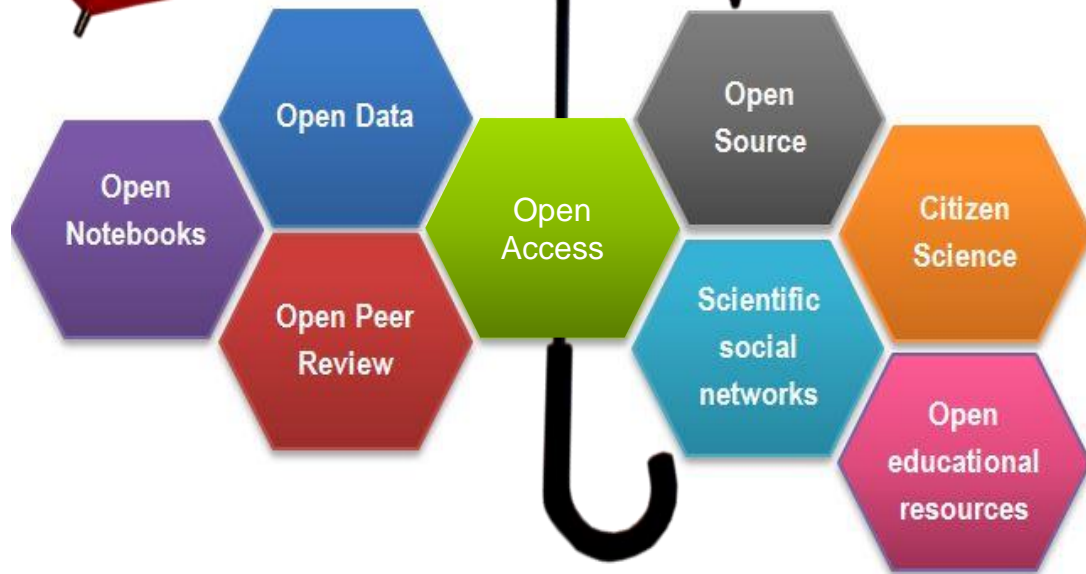


# Towards a gold standard for handling research data...





# Open Science



“Open Science facets as a beehive” (29.1.2019) by [fosteropenscience.eu](http://fosteropenscience.eu)

“Open Science is the **umbrella term** for all efforts aimed at **achieving more openness in science** and the necessary **paradigm shift**, e.g. **open access to publications and open data** as well as the transition towards research funding based on **DORA principles**.”

*(SNSF, [www.snf.ch/openscience](http://www.snf.ch/openscience))*

## In short:

The dissemination of scientific knowledge, that is **as wide as possible**, **free of charges**, to all users, and accessible online.

*(OS MOOC, TU Delft)*



## Special case:

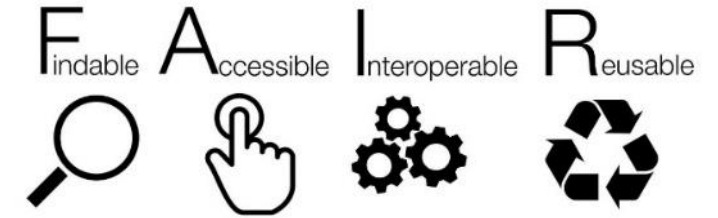
sensitive and confidential data (e.g. personal health data), more [information here](#)

# Towards the gold standard for handling research data...



# The FAIR data principles matrix

<https://www.go-fair.org/fair-principles>



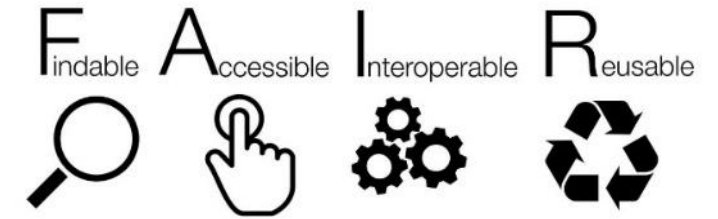
FAIR image (4.9.2018) by Sangya Pundir / CC BY-SA 4.0

## How do you know if your data is FAIR?

<b>Findable</b>	<p>F1. <b>(Meta)data</b> are assigned a globally unique and persistent identifier</p> <p>F2. Data are described with rich metadata</p> <p>F3. <b>Metadata</b> clearly and explicitly include the identifier of the data they describe</p> <p>F4. <b>(Meta)data</b> are registered or indexed in a searchable resource</p>
<b>Accessible</b>	<p>A1. <b>(Meta)data</b> are retrievable by their identifier using a standardised communications protocol</p> <p>A1.1 The protocol is open, free, and universally implementable</p> <p>A1.2 The protocol allows for an authentication and authorisation procedure, where necessary</p> <p>A2. <b>Metadata</b> are accessible, even when the data are no longer available</p>
<b>Interoperable</b>	<p>I1. <b>(Meta)data</b> use a formal, accessible, shared, and broadly applicable language for knowledge representation.</p> <p>I2. <b>(Meta)data</b> use vocabularies that follow FAIR principles</p> <p>I3. <b>(Meta)data</b> include qualified references to other (meta)data</p>
<b>Reusable</b>	<p>R1. <b>(Meta)data</b> are richly described with a plurality of accurate and relevant attributes</p> <p>R1.1. <b>(Meta)data</b> are released with a clear and accessible data usage license</p> <p>R1.2. <b>(Meta)data</b> are associated with detailed provenance</p> <p>R1.3. <b>(Meta)data</b> meet domain-relevant community standards</p>

# The FAIR data principles matrix

<https://www.go-fair.org/fair-principles>



FAIR image (4.9.2018) by Sangya Pundir / CC BY-SA 4.0

## How do you know if your data is FAIR?

What does it mean for YOU?

- To make data FAIR a **lot of metadata** are required
- **F<sub>AIR</sub>**: Your research data need a **persistent identifier** (e.g. DOI)
- **F<sub>AIR</sub>**: **Protocols for data transfer** are open (e.g. **https** and **ftp**) to access at least the metadata and to allow **authentication of creator(s)** and to set **user-specific rights**.
- **F<sub>AIR</sub>**: (Meta)data should be **machine-readable** and follow **common standards** (e.g. Dublin-Core)
- **F<sub>AIR</sub>**: **Sufficient documentation** which enables exploitation by a **peer**; preferring **open, long-term viable file formats** for your data and metadata
- Many issues for compliance with FAIR data principles concern the **data repository** (e.g. discipline-specific repositories)

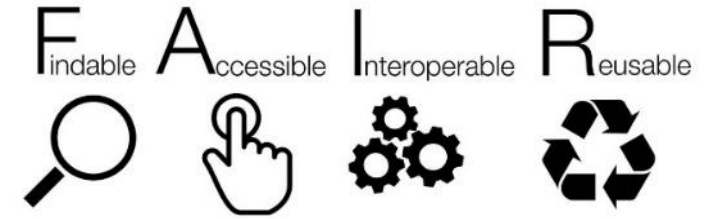
# Brief overview of the FAIR principles



FAIR Go: New resources to support FAIR data, FAIR data infographic, CC-BY by Keith Russell, Kerry Levett, Richard Ferrers, Andrew White (except [F.A.I.R. logo CC-BY-SA by Sangya Pundir](https://creativecommons.org/licenses/by-sa/4.0/))  
<https://conference.eresearch.edu.au/2018/09/fair-go-new-resources-to-support-fair-data/>



# Use cases of FAIRness



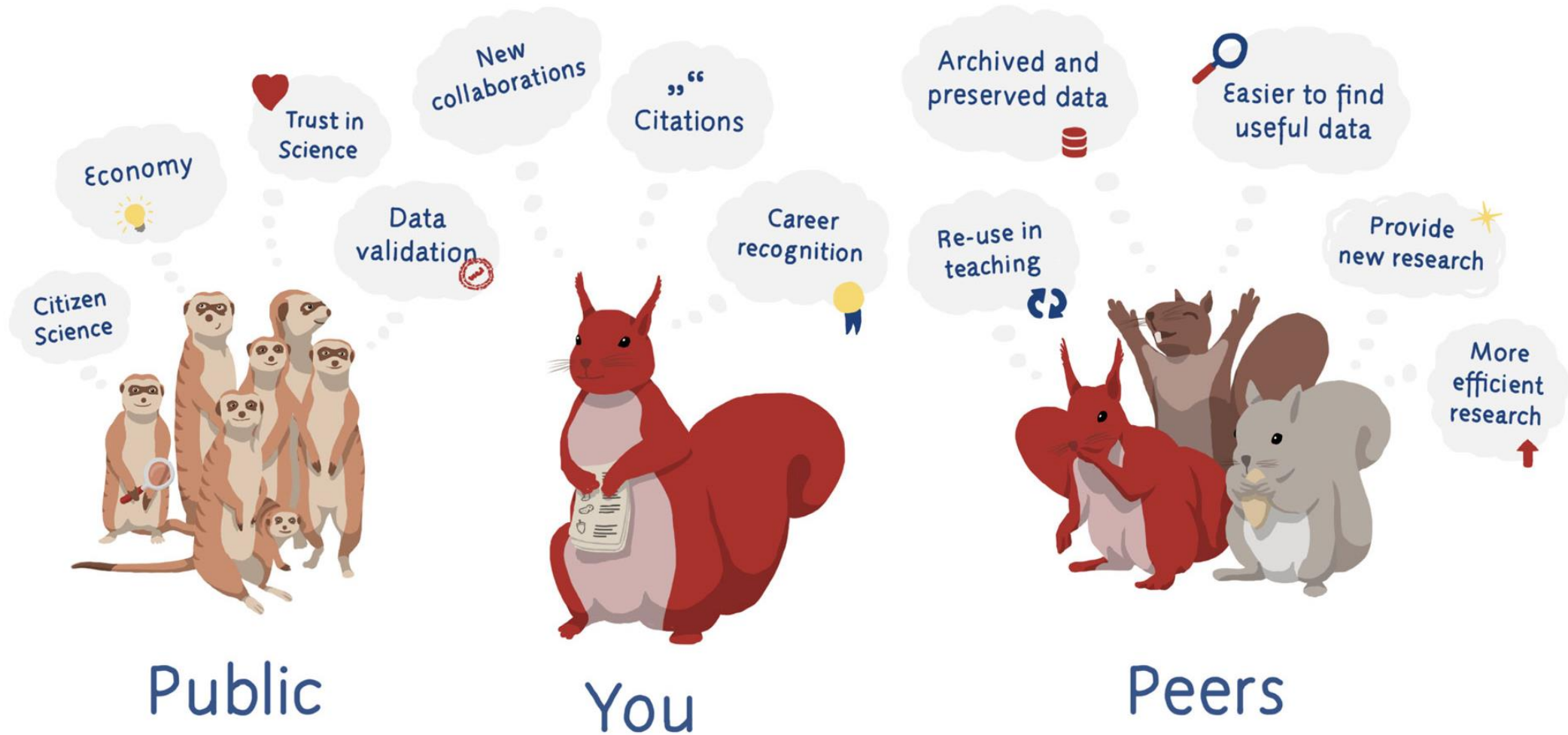
[FAIR image](#) (4.9.2018) by Sangya Pundir / [CC BY-SA 4.0](#)

X no    ✓ yes    ? unclear

Subject	Findable	Accessible	Interoperable	Reusable
research paper on a scientist's website (metadata: creator, title)	X	✓	?	?
table in a PDF document	?	?	X	?
microscopy data on a CD	X	X	?	?
metadata-only entry (provided with a DOI in a repository) that describes a dataset w/ patient data	✓	✓	?	?



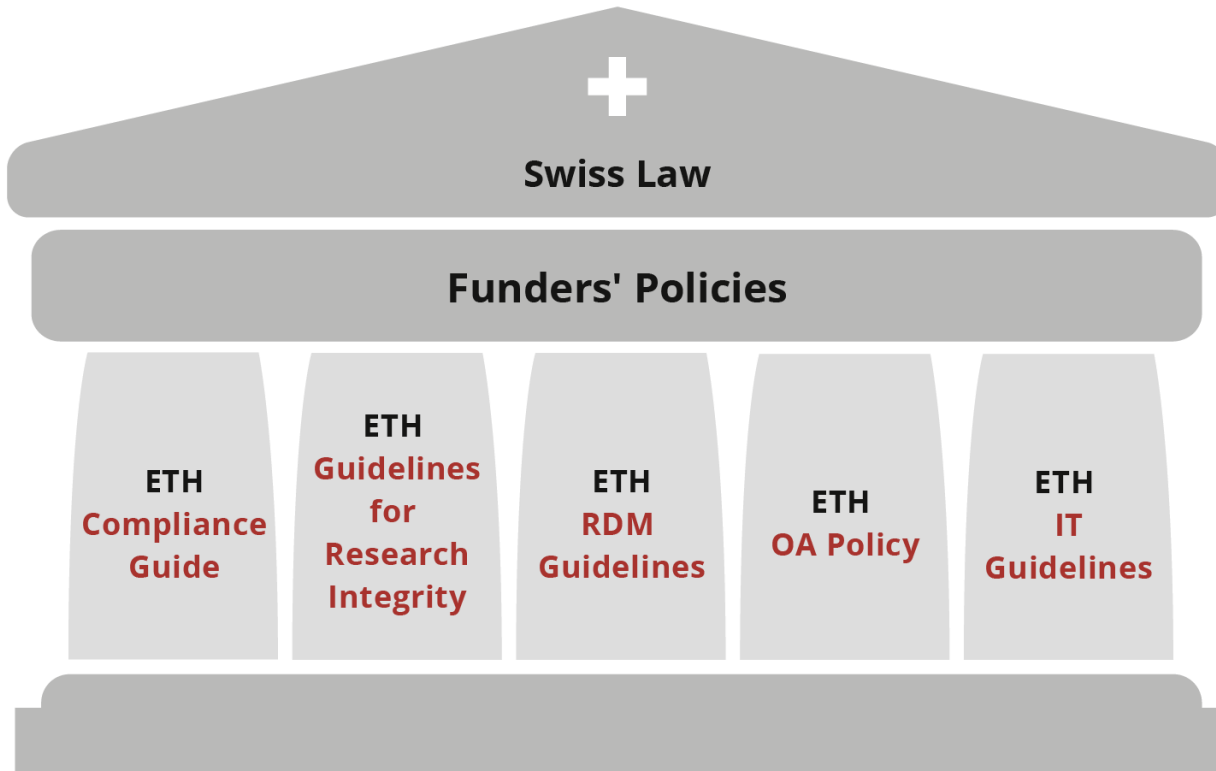
# What RDM helps you with...



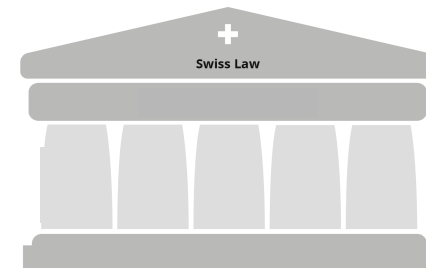
# Rules and regulations related to RDM



# Rules and regulations



- During the research data life cycle, there are **various rules and regulations** that act on **different levels**
- Rules and regulations are defined by **diverse stakeholders**
  - Political entities
  - Research funders
  - Research institutions
- Additional agreements with **contract partners**



- **Swiss data protection legislation**

- **links:** [Federal Act on Research involving Human Beings](#), [Federal Act on Data Protection \(revised in September 2023\)](#), [Swiss Criminal Code](#)
- applies when dealing with **any data related to a person**
- study participants must be **informed** and must give their **consent**
- appropriate **anonymization** is necessary
- **For sensitive data deletion** must be possible at any time

- **ETH-specific contact and support**

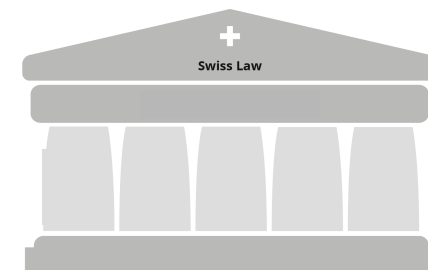
- [ETH Zurich Legal Office](#)
- [Factsheet: Data protection in research projects](#)
- [Information on ethical questions regarding human subject research](#)
- [SIS support on handling confidential research data](#)



«Incognito» (4.9.2018) by Hea Poh Lin / [CC BY](#)



# Swiss law - Intellectual Property Rights (IPR)

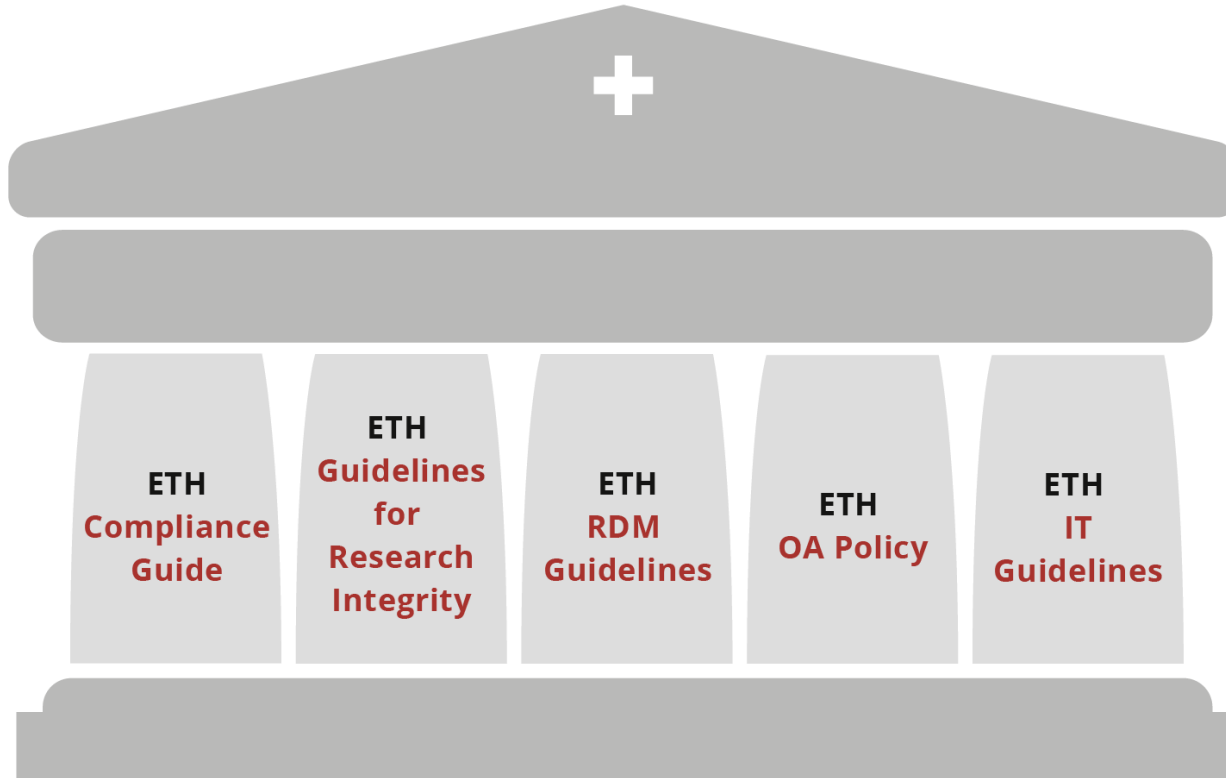


Works that “are **literary and artistic intellectual creations with individual character**, irrespective of their value or purpose”<sup>1</sup> are **protected by copyright**

<sup>1</sup>Federal Act on Copyright and Related Rights, [https://www.fedlex.admin.ch/eli/cc/1993/1798\\_1798\\_1798/en](https://www.fedlex.admin.ch/eli/cc/1993/1798_1798_1798/en)

- **Respect the rights of others** (e.g., third parties or individuals you work with)
- In case of doubt: **seek permission** even when an open CC-licence is assigned
- Note that according to ETH law, data generated during an employment **must be kept at ETH Zurich** at all times.
- Make sure you **keep sufficient rights**
  - E.g., **do not grant exclusive rights** for publishing and using your data to any service
  - E.g., **retain rights for Open Access Publishing** (green path e.g., via ETH Research Collection)
  - E.g., with respect to **IPR and patent applications**: contact **ETH transfer** early ([www.transfer.ethz.ch](http://www.transfer.ethz.ch))

# Rules and Regulations @ ETH Zurich



## Compliance Guide

Website (incl. link to compliance e-learning modules):

<https://ethz.ch/staffnet/en/finance-and-controlling/compliance.html>

## ETH Guidelines for Research Integrity

<https://rechtssammlung.sp.ethz.ch/Dokumente/414en.pdf>

fully revised  
version 2022

## ETH RDM Guidelines

<https://rechtssammlung.sp.ethz.ch/Dokumente/414.2en.pdf>

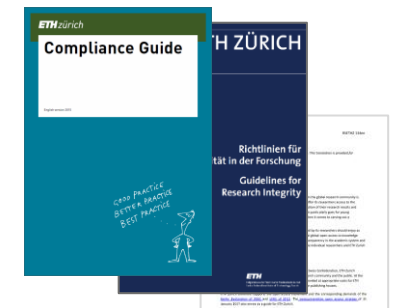
New in 2022

## ETH Open Access Policy

<https://rechtssammlung.sp.ethz.ch/Dokumente/134en.pdf>

## ETH IT Legal Documents

<https://www.ethz.ch/services/en/it-services/documents.html>



# Major RDM requirements at ETH Zurich



ETH Zurich researchers should **include RDM in the planning of their activities**<sup>1</sup>



A **DMP** is expected for every research project at ETH Zurich with clear temporal boundaries.<sup>1</sup>



Research data **must be published in a FAIR repository**, generally at the time of publication of results.<sup>1</sup>



All publications of research results **must contain a Data Availability Statement**.<sup>1</sup>



Research data must be **retained generally for at least 10 years (minimum storage period)**<sup>1</sup>



Project members **shall determine as early as possible how data is shared externally and how data may be used by persons leaving the project team**.<sup>2</sup> (legal department offers [templates](#))

<sup>1</sup>Guidelines for Research Data Management at ETH Zurich (RDM Guidelines), 1 July 2022, <https://rechtssammlung.sp.ethz.ch/Dokumente/414.2en.pdf> (own emphasis in bold)

<sup>2</sup>ETH Zurich Guidelines on scientific integrity (Integrity Guidelines), 1 January 2022, <https://rechtssammlung.sp.ethz.ch/Dokumente/414en.pdf> (own emphasis in bold)

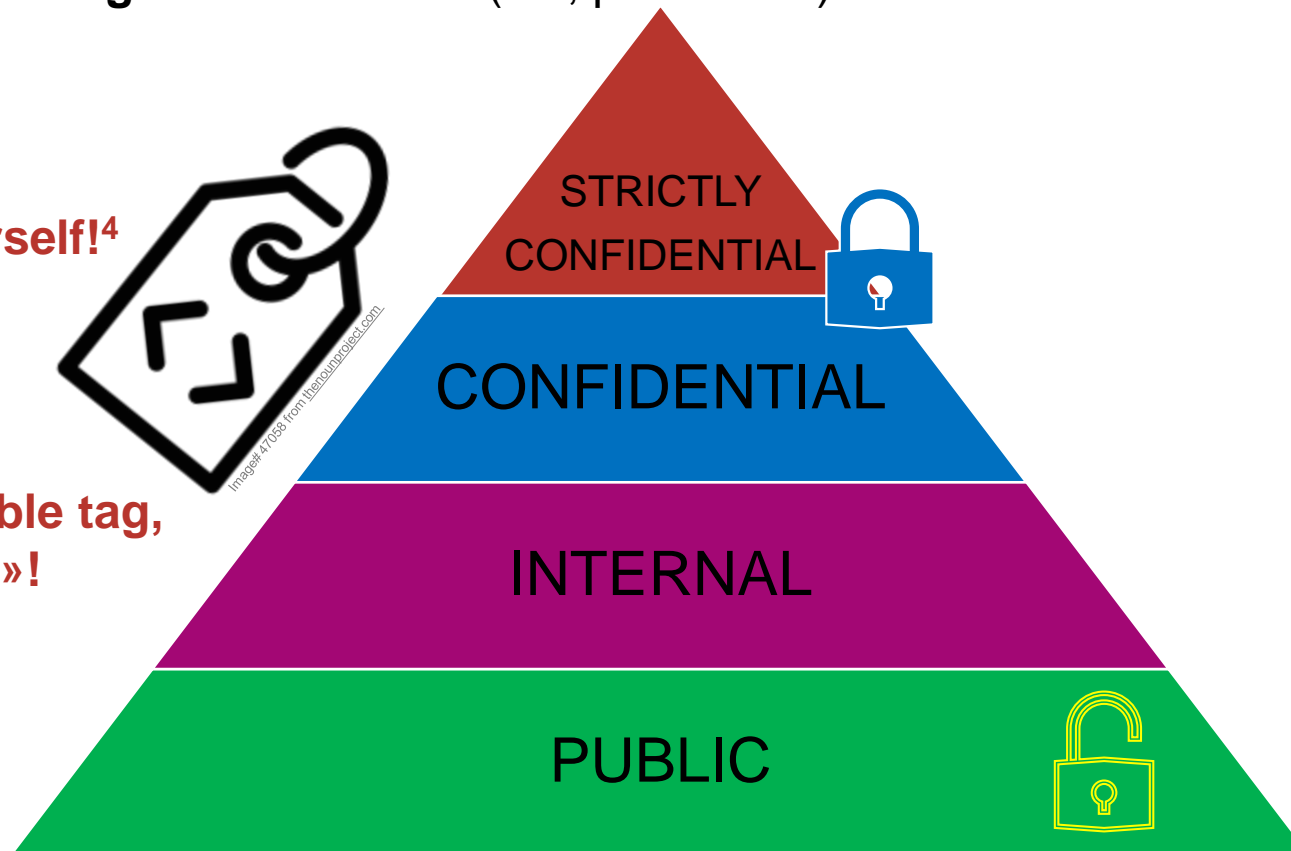
# Security Classification of (Research) Data

- **Four different classification** levels exist at ETH Zurich
- *“information owners are responsible for classifying information that falls within their remit”,<sup>3</sup>*  
i.e. organisational units are responsible for classifying data themselves and information owners are generally the **heads of organisation units** (i.e., professors)

Classify data by yourself!<sup>4</sup>



Provide a clearly visible tag,  
e.g. «CONFIDENTIAL»!

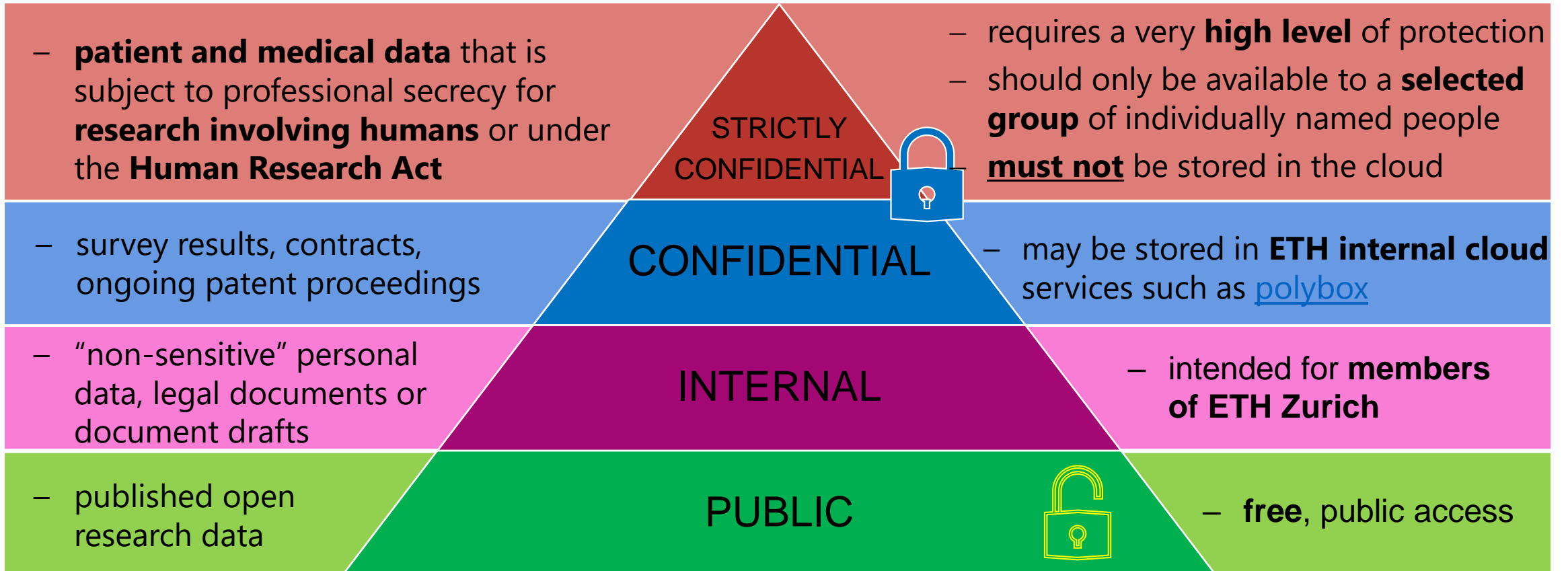


<sup>3</sup> Directive on “Information Security at ETH Zurich”, version 01/08/2021, <https://rechtssammlung.sp.ethz.ch/Dokumente/203.25en.pdf>; <sup>4</sup> See ibid. Appendix 1a-1c: Classification recommendation

# Security Classification of Research Data

## EXAMPLES

## CONDITIONS

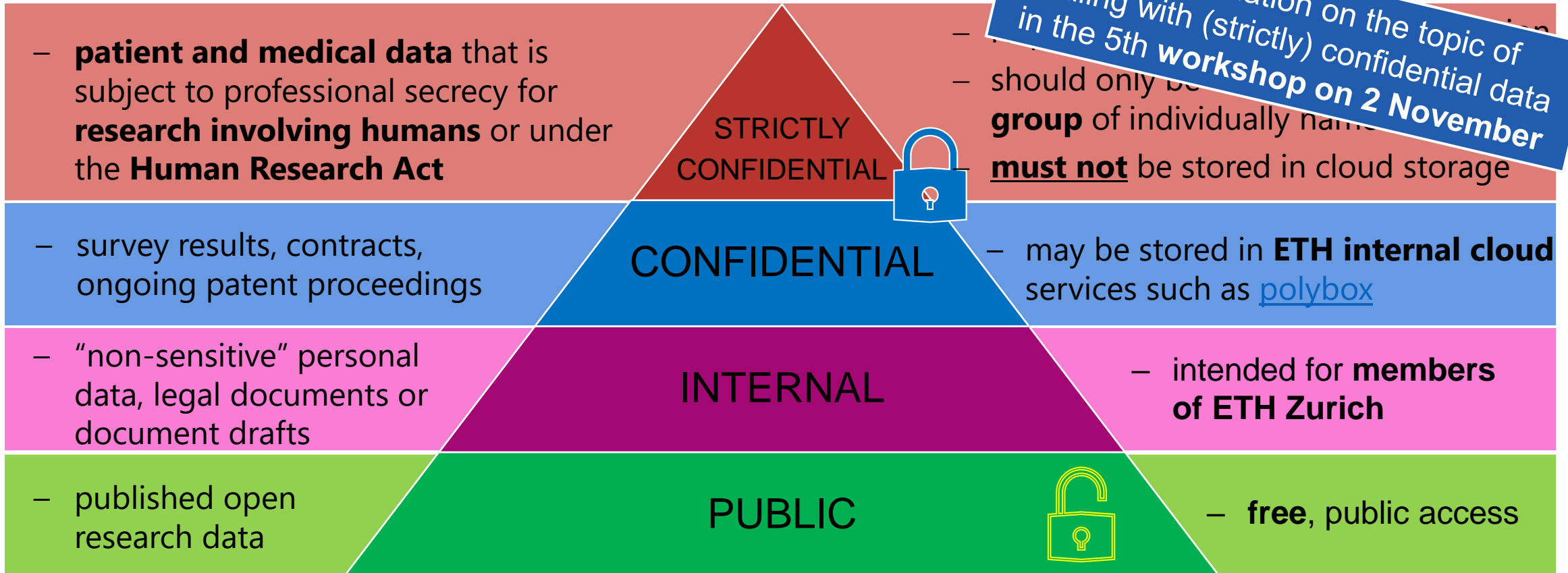


Adapted from Directive on “Information Security at ETH Zurich”, version 1 August 2021, <https://rechtssammlung.sp.ethz.ch/Dokumente/203.25en.pdf>



# Security Classification of Research Data

## EXAMPLES

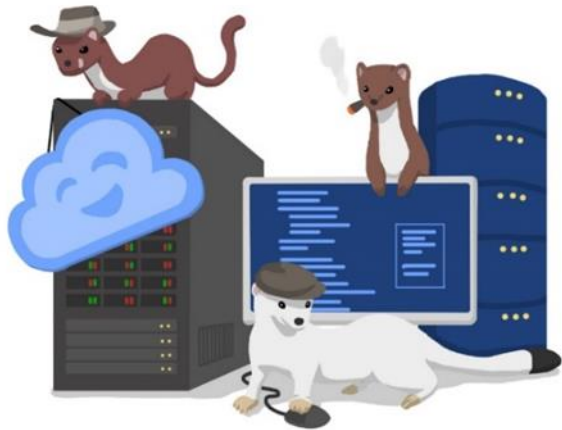


More information on the topic of dealing with (strictly) confidential data in the **5th workshop on 2 November**

Adapted from Directive on “Information Security at ETH Zurich”, version 1 August 2021, <https://rechtssammlung.sp.ethz.ch/Dokumente/203.25en.pdf>

# “Information Security” at ETH

There is no cloud



Just other weasels' computers

- Further information on the new classification of confidentiality at ETH: <https://ethz.ch/staffnet/en/service/information-security.html>
- Information on the assessment for the usage of external cloud services at ETH Zurich: <https://ethz.ch/staffnet/en/service/information-security/usage-external-cloud-services.html>
- A regularly updated list of external cloud services released for a specific confidentiality level: <https://ethz.ch/staffnet/en/service/information-security/usage-external-cloud-services/list-external-cloud.html>

# Data Management Planning

What? Why? How?



# Open Access and Open Data



Ideally, an **open access publication** is for anyone to

- read
- download
- copy
- distribute
- print
- search for
- search within
- use in education or another way

with few legal limitations.

## Open Data

“Research data should be freely accessible to everyone – for scientists as well as for the general public.”  
(*SNSF, Open Research Data Policy*)

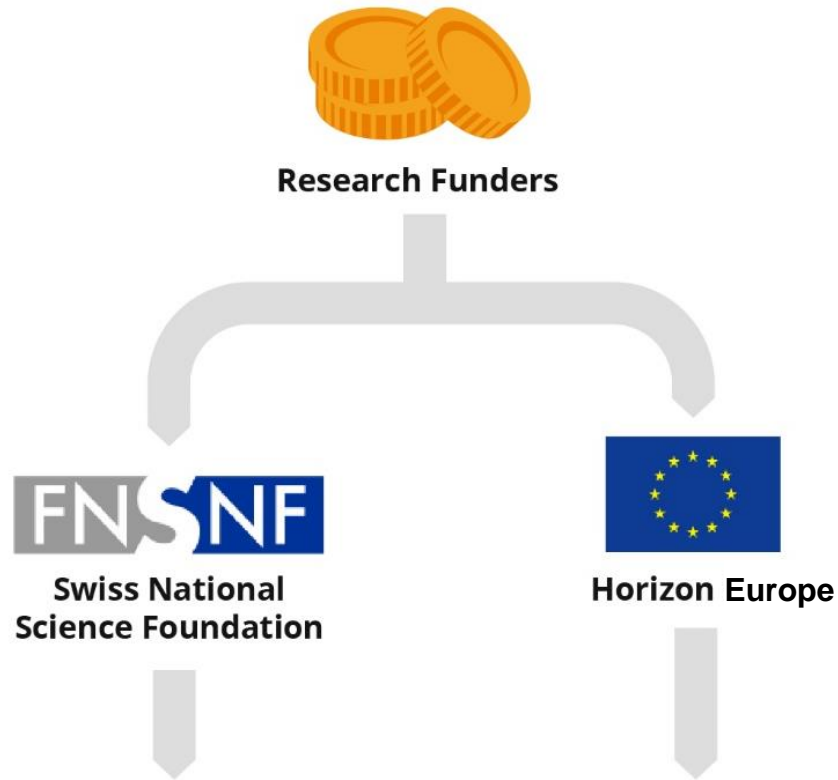


Data that are **freely** available to **everyone** to use and republish as they wish, **without restrictions** from copyright, patents or other mechanisms of control.

(*OS MOOC, TU Delft*)

See also from ETH Zurich Office of Research: <https://ethz.ch/en/research/open-science.html>

# Funders' Open Access and Open Research Data Policies



\* **Research data should be freely accessible to everyone** – for scientists as well as for the general public. ([http://www.snf.ch/en/theSNSF/research-policies/open\\_research\\_data/Pages/default.aspx](http://www.snf.ch/en/theSNSF/research-policies/open_research_data/Pages/default.aspx))

Article 47 of the Funding Regulations (1 Jan 2016)

[http://www.snf.ch/SiteCollectionDocuments/allg\\_reglement\\_16\\_e.pdf](http://www.snf.ch/SiteCollectionDocuments/allg_reglement_16_e.pdf)):  
“[...] the data collected with the aid of an SNSF grant must also be made available to other researchers for further research and integrated into recognised scientific data pools [...]”

\*\* “Horizon Europe [mandates] **open access to research data by default**, yet according to the principle ‘as open as possible, as closed as necessary’”

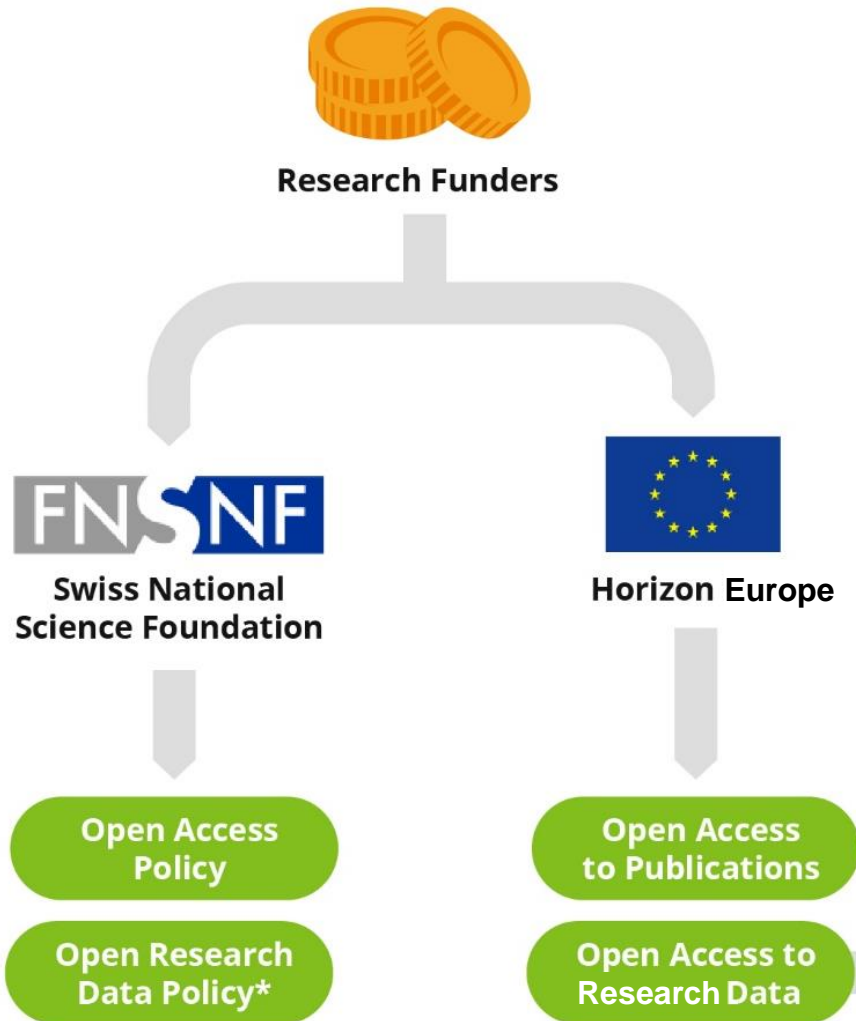
([https://ec.europa.eu/info/sites/default/files/research\\_and\\_innovation/knowledge\\_publications\\_tools\\_and\\_data/documents/ec\\_rtd\\_factsheet-open-science\\_2019.pdf](https://ec.europa.eu/info/sites/default/files/research_and_innovation/knowledge_publications_tools_and_data/documents/ec_rtd_factsheet-open-science_2019.pdf))



**One of the tools to reach this goal is a data management plan (DMP)**



# Funders' Open Access and Open Research Data Policies



\* **Research data should be freely accessible to everyone** – for scientists as well as for the general public. (<http://www.snf.ch/en/theSNSF/research-policies/open-access-and-data-publishing>)

Article 47 of the Swiss Federal Act on the Swiss National Science Foundation (SNSF) (1996) (<http://www.snf.ch/en/theSNSF/research-policies/open-access-and-data-publishing>):  
“[...] the data collected with the support of the SNSF shall also be made available to other researchers for future research. [...] Data shall be integrated into recognised scientific data pools [...]”

More information on the topics of Open Access and Data Publishing in the 6th workshop on 8 November

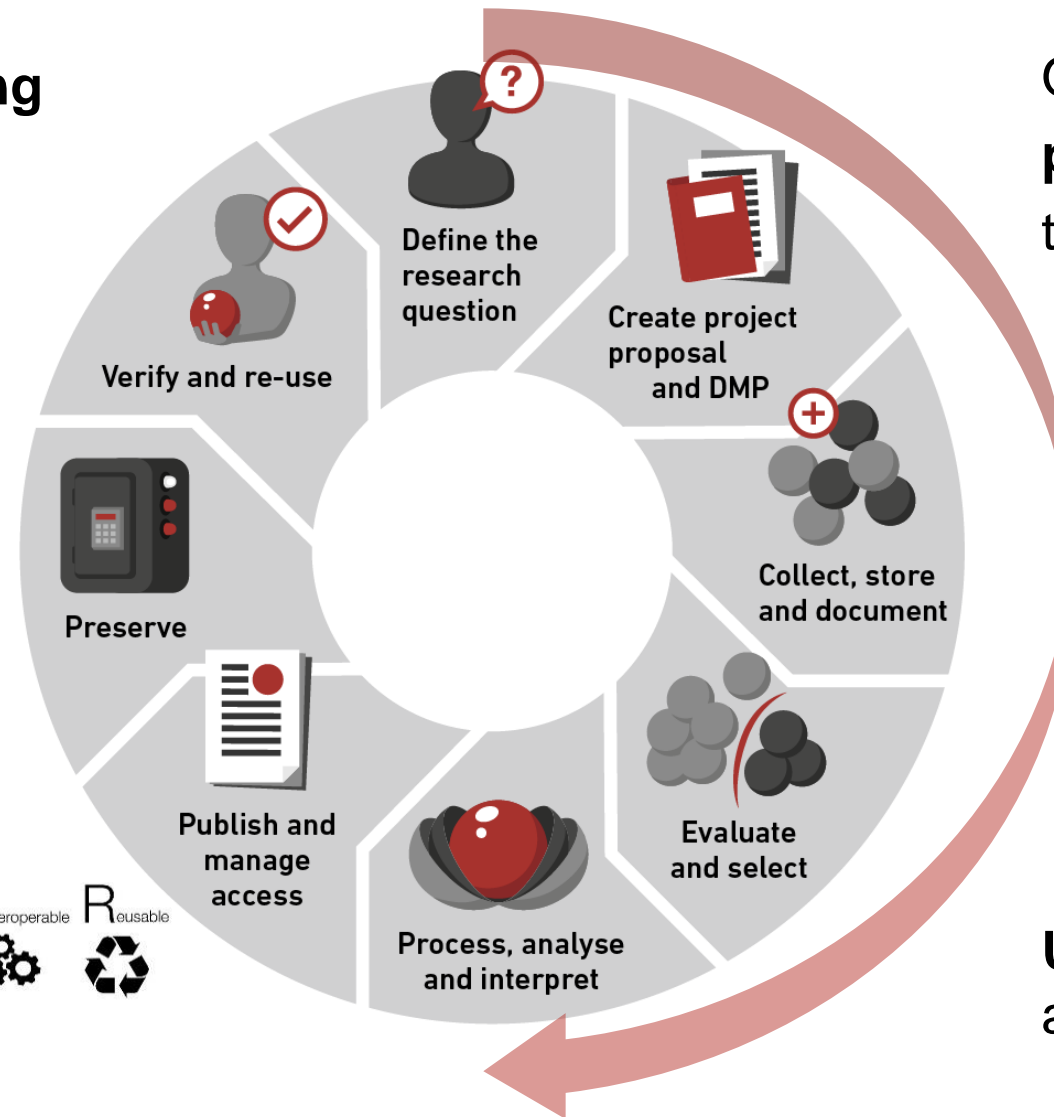
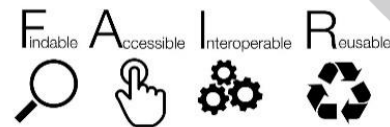
\*\* “Horizon Europe [mandates] **open access to research data by default**, yet according to the principle ‘as open as possible, as closed as necessary’”  
([https://ec.europa.eu/info/sites/default/files/research\\_and\\_innovation/knowledge\\_publications\\_tools\\_and\\_data/documents/ec\\_rtd\\_factsheet-open-science\\_2019.pdf](https://ec.europa.eu/info/sites/default/files/research_and_innovation/knowledge_publications_tools_and_data/documents/ec_rtd_factsheet-open-science_2019.pdf))



**One of the tools to reach this goal is a data management plan (DMP)**

# Data Management Planning along the Data Life Cycle

- **Planning and documenting the life cycle** of data
- In the ideal case, you only need to **document** your current practice / **best practice** in your field
- **Making data FAIR:**
  - Findable
  - Accessible
  - Interoperable
  - Reusable



Offering a **long-term perspective** by outlining how the data will be:

- Generated
- Collected
- Documented
- Shared / Published
- Preserved

**Updating the plan** as the project progresses

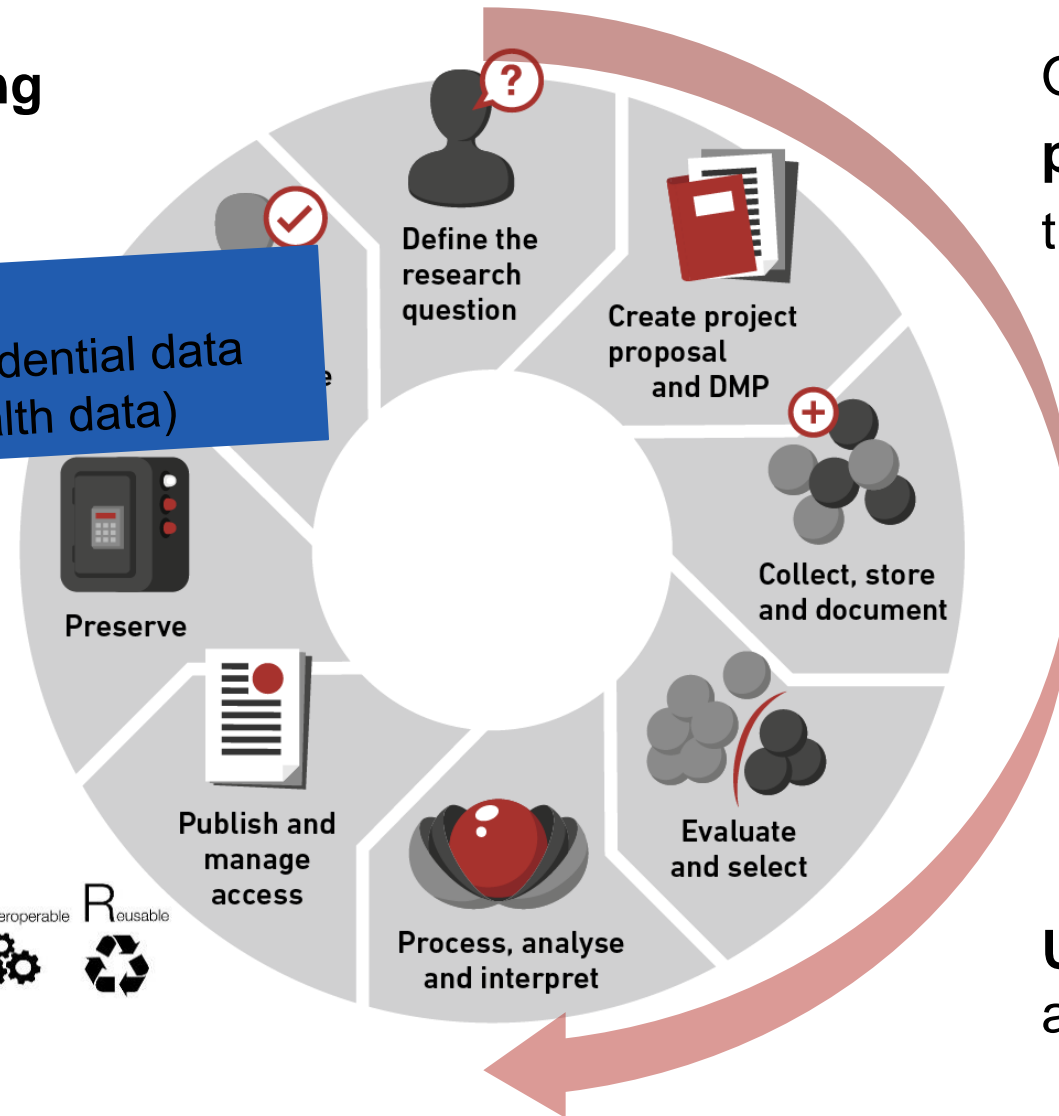
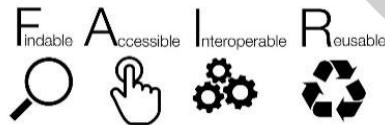
# Data Management Planning along the Data Life Cycle

- **Planning and documenting the life cycle** of data

- In the case of **Special case:** sensitive and confidential data (e.g., personal health data) practice / best practice in your field

- **Making data FAIR:**

- Findable
- Accessible
- Interoperable
- Reusable



Offering a **long-term perspective** by outlining how the data will be:

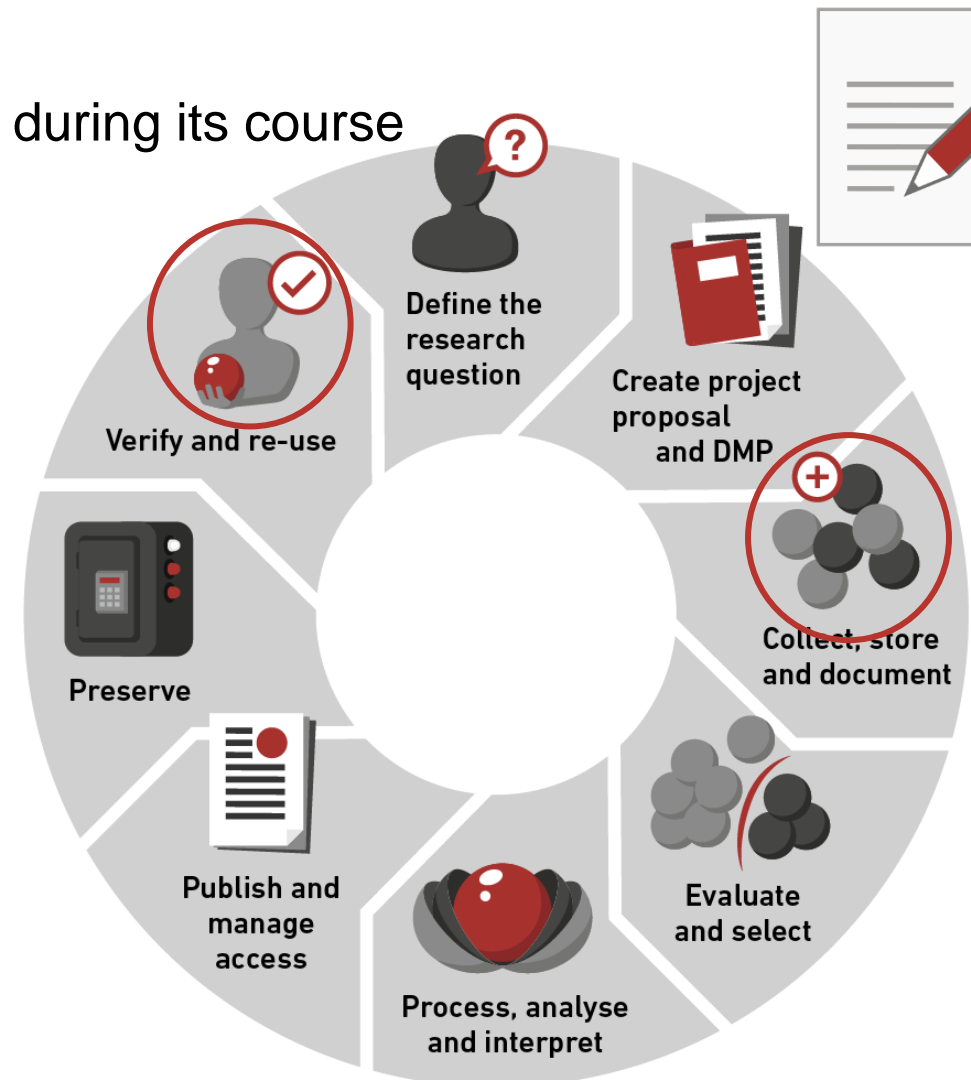
- Generated
- Collected
- Documented
- Shared / Published
- Preserved

**Updating the plan** as the project progresses

# What is a Data Management Plan (DMP)?

A brief plan written at the start of a project and updated during its course to define:

- **What data** will be collected or created?
- **How** will the **data be documented and described**?
- **Where** will the data be **stored**?
- **Who will be responsible** for data security and backup?
- Which data will be **shared and/or preserved**?
- **How will the data be shared** and with whom?



A [DMP](#) is expected for every research project at ETH Zurich with temporal boundaries. ([RDM Guidelines](#), Art. 4(3))

# General RDM requirements: SNSF

To fulfil the [SNSF's requirements](#) for RDM, the following is necessary:

- Completion of a **Data Management Plan (DMP)** **solely for projects that have been approved** by the SNSF
- At least the **data underlying the publication** need to be shared
- Datasets must always be **documented with sufficient and appropriate metadata**
- The data should be shared on **publicly accessible, digital repositories** following the **FAIR Data Principles**
- It is permissible to upload data to **commercial repositories**, but only the data preparation costs can be covered by the SNSF



# General RDM requirements: Horizon Europe

With the research framework programme [Horizon Europe](#), the following is now mandatory:

- **Open Science practices in the grant proposal** as part of the **scientific assessment**
- A **data management plan (DMP)** draft together with the grant proposal or at latest by **signing the grant agreement** in exceptional cases
- **Depositing the data in a trusted and FAIR data repository**, e.g. the [ETH Research Collection](#)
- **Open access** to the deposited data
- **Specification of tools and instruments** needed to reuse or validate the data
- **Corresponding Metadata of deposited data** are open under **CC0 license** or equivalent



Horizon Europe

Open access to publications

Open access to research data



Detailed RDM requirements within Horizon Europe are available in the [factsheet of the EU GrantsAccess-Office](#). Up to date information on the status of Switzerland in participating in the European framework programmes of Horizon Europe can be found on the [webpage of SERI](#).

# How a DMP looks like





# DMP Examples (I)

## 1. Data collection and documentation

### 1.1. What data will you collect, observe, generate, or reuse?

The data produced from this research project will fall into three categories:

1. Magnetic Resonance Imaging (MRI) data from the human brain (functional, anatomical, diffusion), as well as robot trajectories, electromyogram, and other physiological signals;
2. Questionnaires and motor test scores indicating traits, ability levels, or subjective experiences from participants, as well as minimum personal information, such as age and gender and individual diagnosis/severity of the disease (in the case of patients);
3. Simulated data generated computationally for means of processing optimization. In addition, existing data from our own acquisition or from collaborators/available repositories can be used.

MRI Data in category 1 will be documented in the NIfTI format (Neuroimaging Informatics Technology Initiative), as well as their processed by-products; the other data files in this category will be documented in TXT format. Data in category 2 will be documented in CSV, JPEG, and PDF formats. Data in category 3 will be produced in MATLAB and R as .mat and .r, but converted to and documented in HDF format; existing data can be re-preprocessed and may be documented in the NIfTI format. All questionnaire/test data will be stored in digital form, allowing us to convert them to PDF or JPEG when necessary. Excel files (XLSX) will be converted to CSV files, which are more suitable for archiving and reuse.

We anticipate that data produced in category 1 will sum up to 400 - 500 GB. Data in category 2 will amount to 100 MB. Data in category 3 will amount to 300 GB.

A list of data types (1., 2., 3.)

Descriptive information on data formats and file types

Information on amount of data

# DMP Examples (II)

**Key criteria:** completeness and plausibility

## 2.3 Are there any necessary limitations to protect sensitive data?

The project *does not* involve usage of any sensitive data. Therefore, no special limitations to data use or reuse are necessary.

A statement on what the project *does not* include (e.g., sensitive data)....

... can complete an open question!

However: It gets more complicated when dealing with CONFIDENTIAL or STRICTLY CONFIDENTIAL research data (e.g., patient data or personal income data).

# DMP Examples (III)

## 2.3 How will you handle copyright and Intellectual Property Rights issues?

Data is suitable for sharing. They are observational data (hence unique) and could be used for other analyses or for comparison with similar developments in other world regions. Reuse opportunities are vast. For this reason, I aim to allow the widest reuse of our data and will release them under Creative Commons CC0.

1. A statement on suitability of the data for sharing
2. A statement on the value of the data for reuse
3. Information on the conditions/ license of sharing data

... an excellent example for sharing research data openly!

One could add:

“With regards to data sharing, there are no restrictions due to copyright or intellectual property rights.”

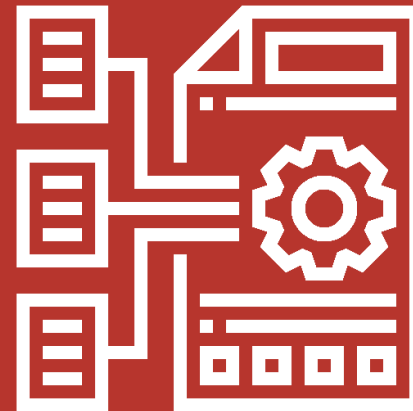
# A closer look at the SNSF DMP template

Data collection and documentation (Section 1)

Ethics, legal and security issues (Section 2)

Data Storage and Preservation (Section 3)

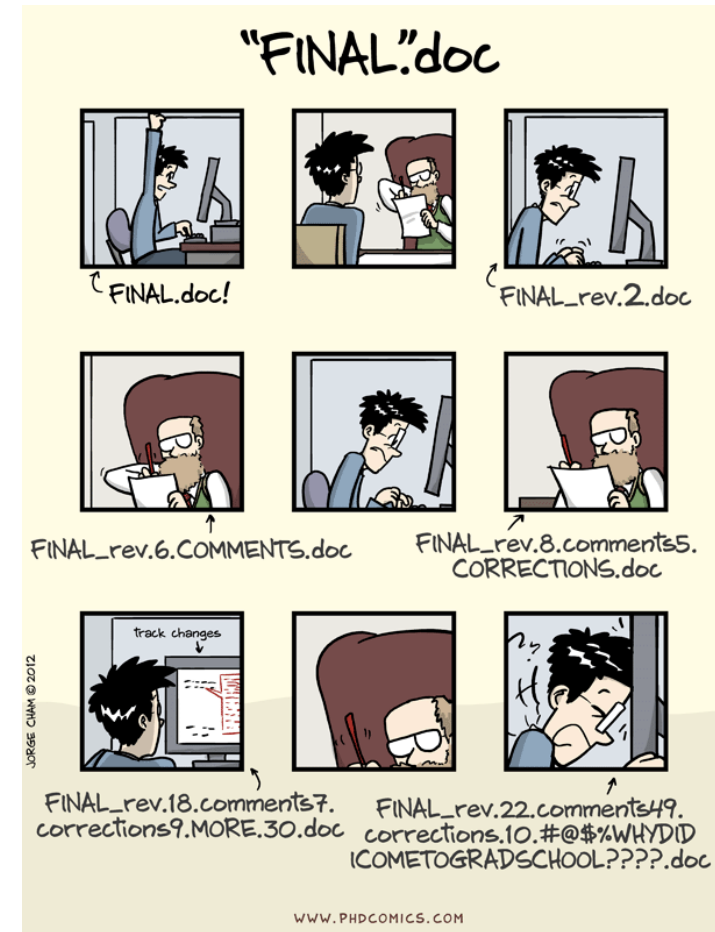
Data sharing and reuse (Section 4)



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# Data collection and documentation (DMP Section 1)

- **What** data will you collect, observe, generate or reuse?
  - Data origin, formats, estimated data volume
- **How** will the data be collected, observed or generated?
  - What standards, methodologies or quality assurance processes will you use?
  - What is your file naming convention and how will you organize your files and handle versioning?
- What **documentation** and **metadata** will you provide with the data?
  - E.g. metadata standard, software version, etc.



"Piled Higher and Deeper" by Jorge Cham  
[www.phdcomics.com](http://www.phdcomics.com)

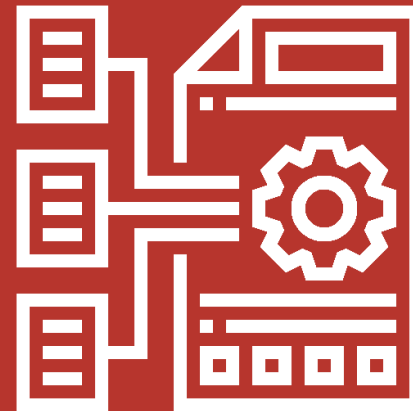
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# Ethics, legal and security issues (DMP Section 2)

- How will **ethical issues** be addressed and handled?
- How will **data access and security** be managed?
  - Consider e.g. if password protection is sufficient or if you need to encrypt data, especially on mobile devices
  - Consider relevant regulatory frameworks (Swiss data protection law, EU GDPR)
- How will you handle **copyright and intellectual property** rights issues?
  - Consider under what licenses data will be made available and when

More information on the topic of dealing with confidential and strictly confidential data in the 5th workshop on 2 November

More information on the topics of Open Access and Data Publishing in the 6th workshop on 8 November





# Advice: Research with human participants

- **Any research concerning human subjects must be approved by an ethics commission** which is located in the canton of Zurich.  
<https://ethz.ch/en/research/ethics-and-animal-welfare/research-ethics.html>
- For research directly concerning **structure and function of the human body and human diseases**, the **Ethics Committee of the Canton of Zurich** is responsible. If this is not the case, your project needs to be approved by the **ETH Zurich Ethics Commission**.
- [ETHics Resource Platform](#) encourages students to learn about **ethics in research**. Provided resources should assist students in **making ethical decisions**.



# Confidential data handling: ETH supporting information and services

- **Scientific IT Services (SIS) support** on handling (strictly) confidential research data:  
<https://sis.id.ethz.ch/services/sensitiveresearchdata/>
- **FAQs: Dealing with sensitive data** (e.g., pseudonymization vs. anonymization) in Wiki for Research data management and digital curation  
<https://unlimited.ethz.ch/x/9ieSCw>
- **Glossary - Research Data Management**  
What does “Anonymisation”, “Personal Data”, “Pseudonymisation”, “Sensitive Data” or “Sensitive Personal Data” mean?  
<https://unlimited.ethz.ch/x/ySeSCw>



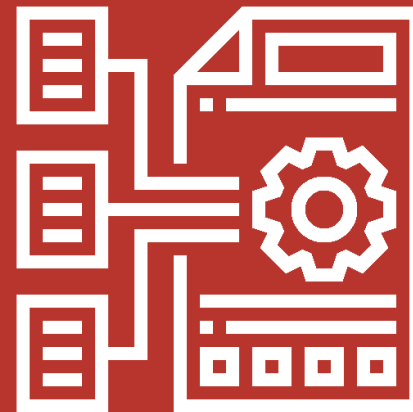
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## Data storage and preservation (DMP Section 3)

How will your data be **stored and backed-up** during the research?

- Routine operation while the project is running and data is being worked on

What is your **data preservation plan**?

- Must be implemented as part of your project, but **points far beyond its end**
- **Which data** must be preserved – and for how long?
- How do you ensure that **data remains accessible** that are required to justify and reproduce your results?



## Advice: Data storage and backup (DMP Section 3.1)

- Local **storage only on laptops**, external disks etc. **is risky**
- **Professional storage provided via your IT Support Group**
- Always make **backups**
  - Good practice: **3** copies, **2** different media, **1** copy being off-site (**3-2-1 rule**)
  - Backup procedures should be automated (i.e., daily)
  - Windows Backup tool, OS X Time Machine, Linux FreeFileSync



## Advice: Data preservation (DMP Section 3.2)




- How will data be preserved in the longer run?
- Is the **repository** you choose **sustainable**?
- Will data be available in an **open and stable format**?
- Is your data **citable** via persistent identifiers, e.g. DOI?

Ideal case:

- You **use open, documented file formats** and document others comprehensively
- You **choose a sustainable repository** which ensures preservation and registers persistent identifiers automatically

# Basic Criteria for Data Sharing

Data Categories	Publishing/Sharing?
Data underlying publications	Yes, minimum requirement by ETH <sup>1</sup> and SNSF <sup>2</sup>
Data related documentation / metadata	Yes, required by ETH <sup>1</sup> and SNSF <sup>2</sup>
Code needed for processing	Yes, required by ETH <sup>1</sup> and SNSF <sup>2</sup>
Other processed data – if not fully recreatable from raw data	Encouraged by ETH <sup>1</sup> and SNSF <sup>2</sup>
Raw data	Encouraged by ETH <sup>1</sup> and SNSF <sup>2</sup> , but often not easily feasible
Lab Notebooks / Lab Logs (paper and electronic)	No
Confidential data [note that data from research in humans might need to be destroyed at some point]	No 
Internal project documentation (correspondence etc.)	No

<sup>1</sup>Guidelines for Research Data Management at ETH Zurich (RDM Guidelines), 1 July 2022, <https://rechtssammlung.sp.ethz.ch/Dokumente/414.2en.pdf>

<sup>2</sup> from: [http://www.snf.ch/en/theSNSF/research-policies/open\\_research\\_data/Pages/data-management-plan-dmp-guidelines-for-researchers.aspx](http://www.snf.ch/en/theSNSF/research-policies/open_research_data/Pages/data-management-plan-dmp-guidelines-for-researchers.aspx)



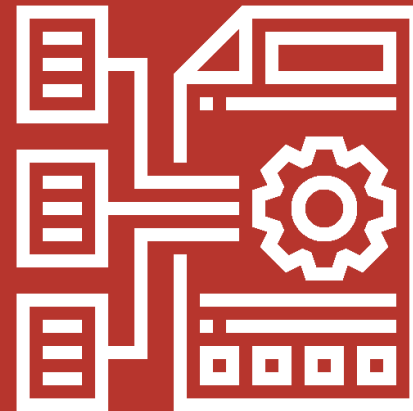
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# Data sharing and reuse (DMP Section 4)



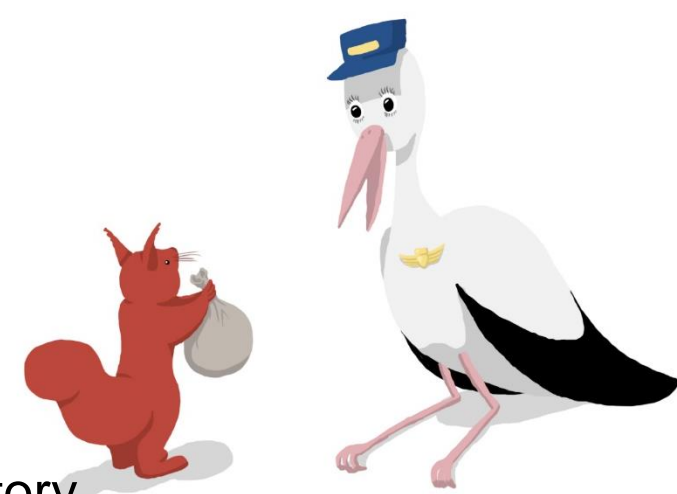
- How and where will which data be **shared**?
- Are there any necessary limitations to **protect sensitive data**?
- I will choose digital **repositories** that are conform to the **FAIR Data Principles**
- I will choose digital repositories maintained by a **non-profit organisation**

Meaning:

- You can **opt out of data publication** with a cause, but **you must give reasons**
- You choose a repository meeting the criteria. It can be **subject specific, generic** or an **institutional** one

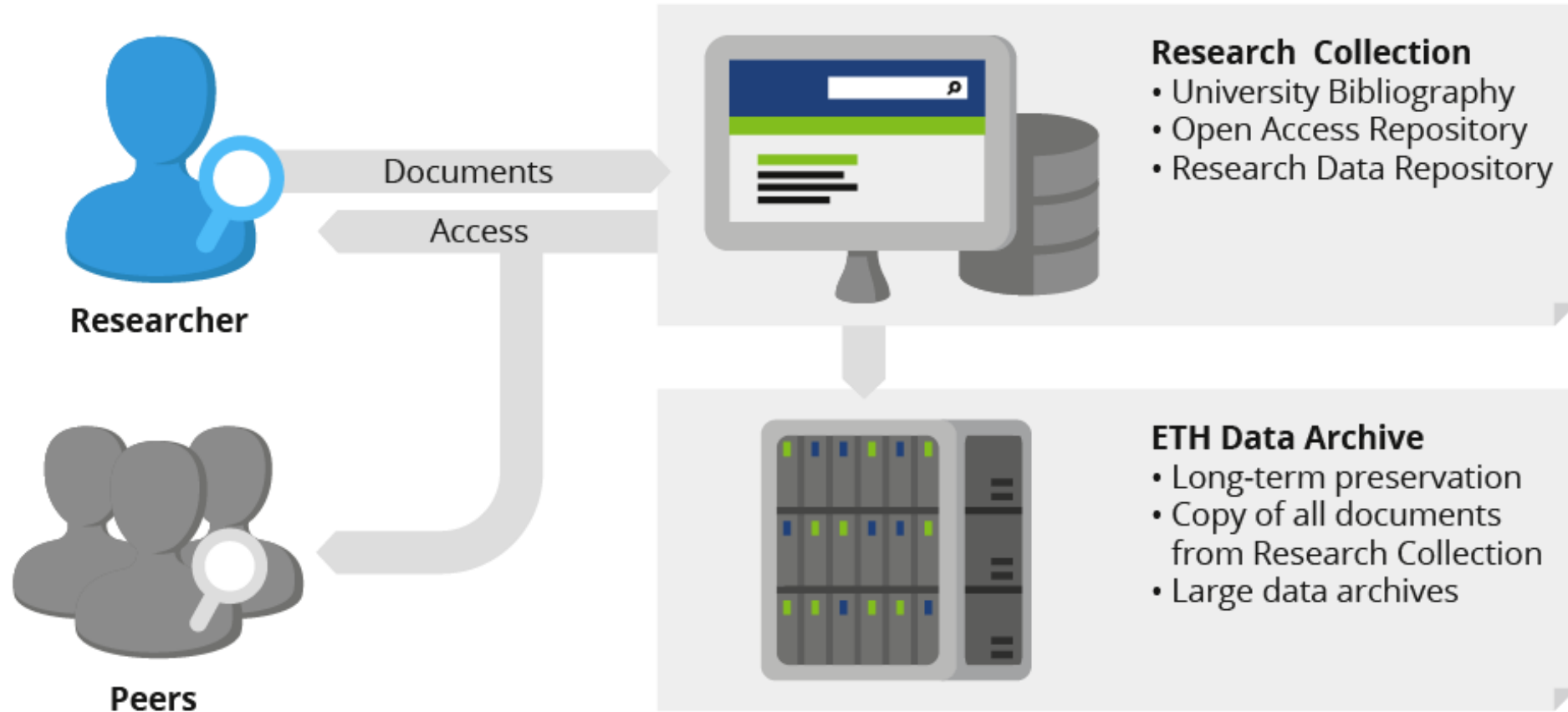
# SNSF's criteria for data repositories

- Compliance with **FAIR data principles**
- Data repository is **public** and **metadata** must be openly available
- **Non-commercial** data repositories are recommended, but not mandatory
- A **persistent identifier** (e.g. DOI) to your research data should be assigned
- Type of **licenses used for data sharing** should be evident, and **common, open licenses** such as CC 0 or CC-BY should be applied
- A **long-term preservation plan** for the deposited data must exist
- List of **commonly used data repositories** that comply with the **SNSF's ORD policy**:  
[http://www.snf.ch/en/theSNSF/research-policies/open\\_research\\_data/Pages/data-repositories.aspx](http://www.snf.ch/en/theSNSF/research-policies/open_research_data/Pages/data-repositories.aspx)
- Find alternative **repositories that work according to the FAIR principles** at  
<https://www.re3data.org> or <https://fairsharing.org>



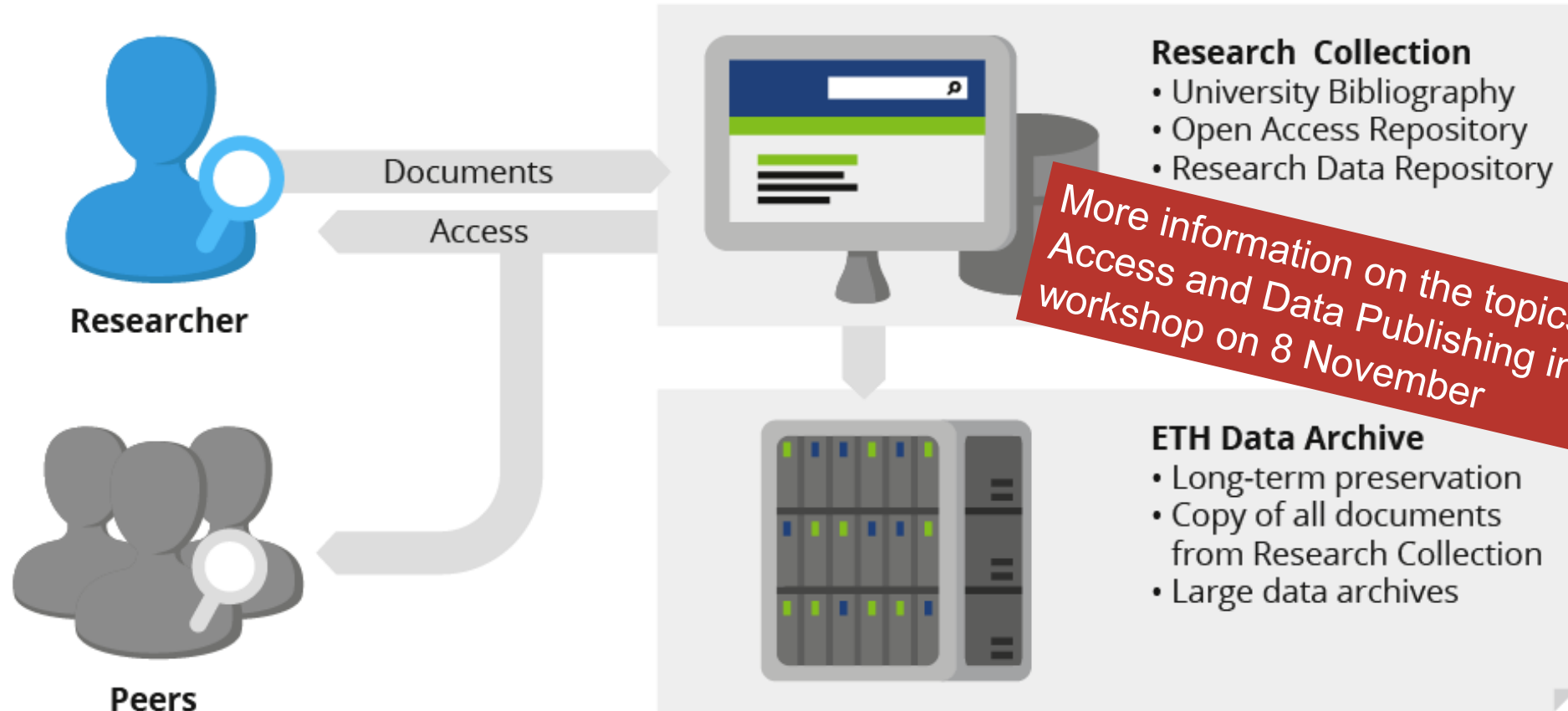
# ETH Research Collection and ETH Data Archive

Repository and digital preservation solution for ETH Zurich, operated by ETH Library

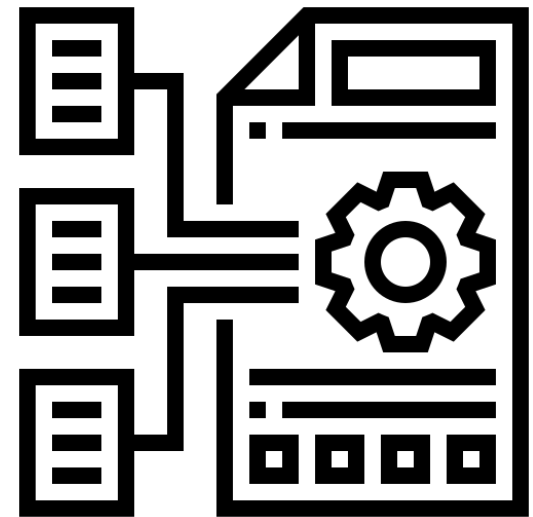


# ETH Research Collection and ETH Data Archive

Repository and digital preservation solution for ETH Zurich, operated by ETH Library

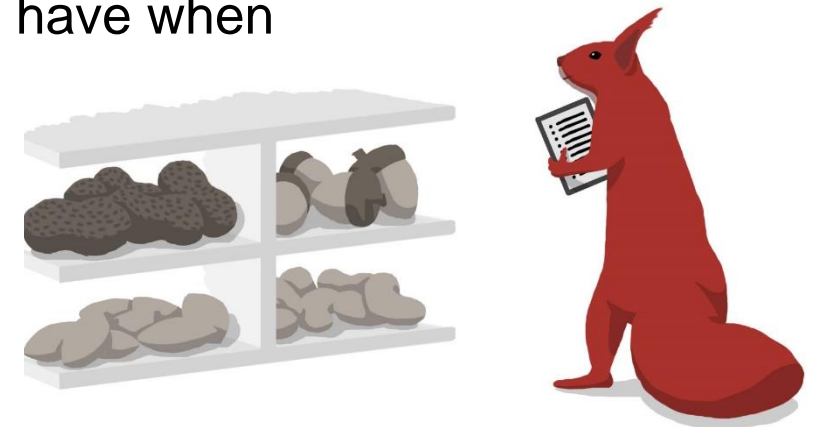


# The DMP in a nutshell



# So – what makes a good data management plan?

- Keep it as **simple**, **short** and as **clear** as possible
- Mostly around **2-4 pages** in a first draft
- A DMP has to be **understandable** for “outsiders”
- Try to solve **open questions** concerning IT and ethics issues before, **NOT while writing your DMP**
- The **more complete the first draft**, the **less work** you will have when updating your DMP during the lifetime of your project
- There is **little right and wrong yet...**
- ...but **you must give valid reasons!**





# SNSF: Submission and Assessment of the DMP

- A DMP for SNSF **must be created online in mySNF** (not as a document)
- The DMP is assessed by SNSF staff for **plausibility and compliance** with its Open Research Data policy
- It is **not part of the scientific evaluation** process (RDM practices: part of Horizon Europe project applications)
- Applicants **can be assigned «tasks»** for enhancing their DMP as part of the funding decision
- Consider your **first DMP** version as a **draft to be adapted later**
- For technical questions, **contact the SNSF via [ord@snf.ch](mailto:ord@snf.ch)**



mySNF

Willkommen bei mySNF

mySNF ist die Web-Plattform des Schweizerischen Nationalfonds zur Interaktion zwischen Geschwstellenden, Evaluierenden, Forschungsinstitutionen und der Geschäftsstelle des SNF. Sie ermöglicht die Einreichung, Evaluierung und Verwaltung von Gesuchen und Projekten.

Bitte informieren Sie sich auf der Webseite des SNF (<http://www.snf.ch>) über die verschiedenen Förderungsinstrumente. Eine Liste der nächsten Eingabetermine finden Sie unter [Ausschreibungen - SNF](#).

Um mySNF nutzen zu können, benötigen Sie ein Benutzerkonto. Unter "Neue/n Benutzer/in registrieren" können Sie sich für ein Benutzerkonto registrieren lassen.

**Wichtig:** Neue Benutzerkonten können erst nach einer Prüfung durch den SNF genutzt werden. Eine entsprechende Bestätigung über die erfolgreiche Erstellung des Benutzerkontos wird Ihnen anschliessend per E-Mail zugestellt.

Login

Benutzername  Benutzer/in neu registrieren

Passwort  Zugangsdaten vergessen

Anmelden

Weiterführende Links

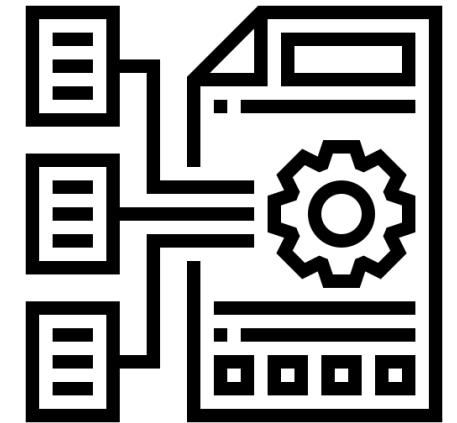
- Benutzerregistrierung und Anmeldung: Kurzanleitung & FAQ
- mySNF Benutzungsordnung

<https://www.mysnf.ch>



# Information to support you

- **Blank template and instructions for writing a general DMP at ETH Zurich**  
<https://unlimited.ethz.ch/x/aiiSCw>
- **Collection of SNSF information on Open Research Data including FAQ**  
[http://www.snf.ch/en/theSNSF/research-policies/open\\_research\\_data/](http://www.snf.ch/en/theSNSF/research-policies/open_research_data/)
- **SNSF's explanation of the content expected in a DMP**  
[http://www.snf.ch/SiteCollectionDocuments/DMP\\_content\\_mySNF-form\\_en.pdf](http://www.snf.ch/SiteCollectionDocuments/DMP_content_mySNF-form_en.pdf)
- **Guidance for ETH researchers on completing of SNSF DMPs**  
<https://unlimited.ethz.ch/x/WyiSCw>  
Includes: explanations per question, examples from DMPs, contacts and links specific for ETH Zurich
- **FAQ on RDM issues related to SNSF requirements**  
<https://unlimited.ethz.ch/x/9ieSCw>



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**What can we help you with:**

- (individual) training on data management planning
- consultation on DMP
- review of DMPs

# What to do for other funders?

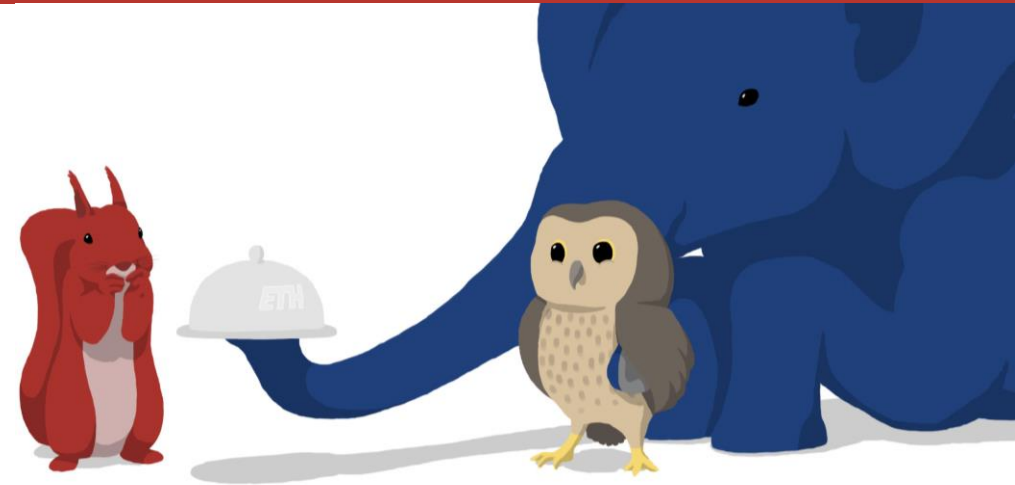
- **Data Management Checklist by ETH and EPFL**
  - Supports you in the creation of a DMP or in discussing data management in general, even if you don't need to do it to comply with funders
  - <https://unlimited.ethz.ch/x/AiiSCw>
- **Collection of DMP examples**
  - <http://www.dcc.ac.uk/resources/data-management-plans/guidance-examples>

- **DMPOnline**
  - A tool by the UK Digital Curation Centre that helps you create Horizon Europe compliant data management plans, by answering a questionnaire
  - <https://dmponline.dcc.ac.uk>
- **Factsheed by EU GrantsAccess on RDM requirements in Horizon Europe**
  - <https://ethz.ch/content/dam/ethz/associates/eu-grantsaccess-dam/documents/Repository/GeneralInfo/EUGA-HE-Factsheet-OpenAccess-ResearchDataManagement.pdf>



# Where to get useful information, help and further training

Additional links and trainings



# Services and Support along the DLC at ETH Zurich

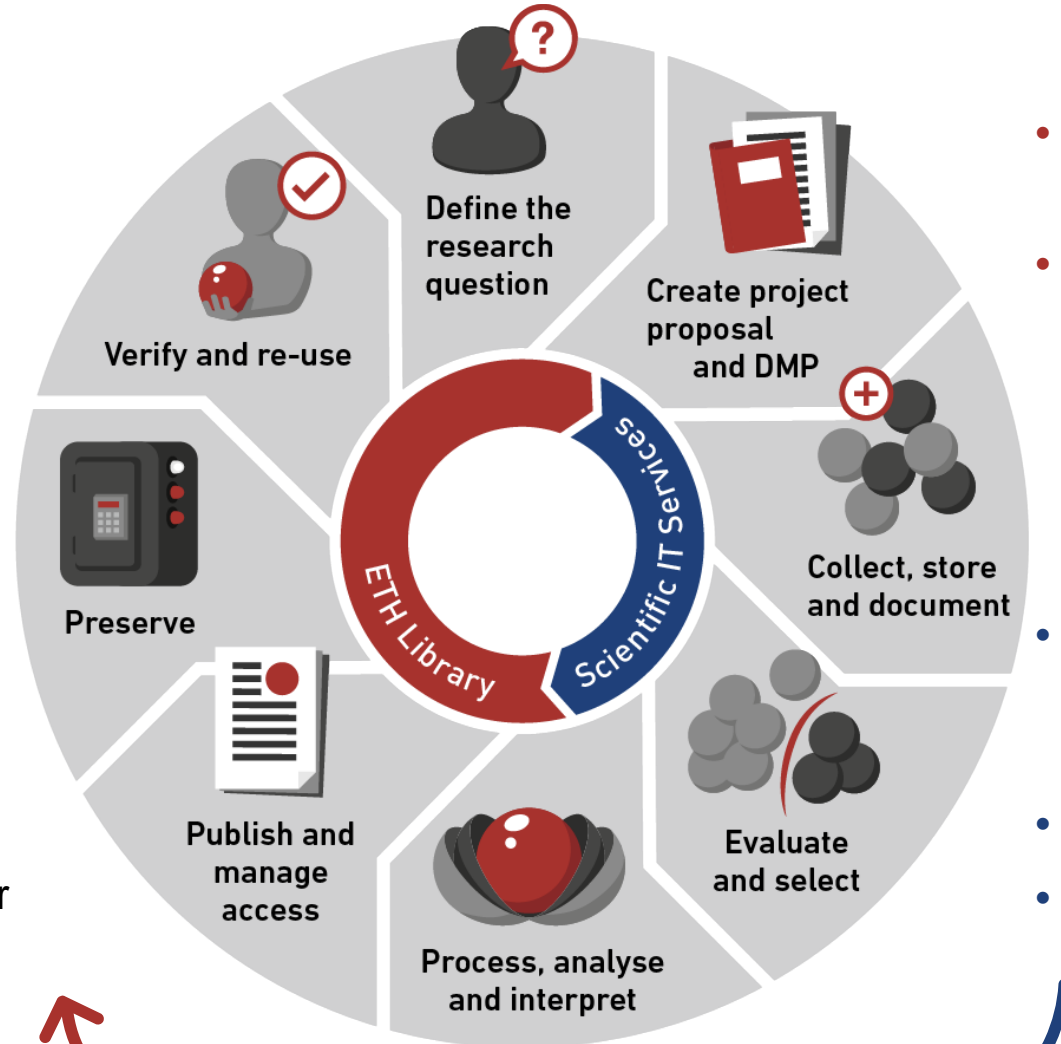
## • Preservation and Archiving Services

- ETH University Archives
- ETH Web Archives
- Preservation planning
- Metadata preparation

## • ETH Research Collection

## • Publication services

- Open access publishing
- DOI registration
- Indexing in Google Scholar



- Reference management software: licences and courses

- DMP guidance, templates, and review:

- <http://www.snf.ch>  
→ DMP Guidelines
- <https://unlimited.ethz.ch/x/aiiSCw>

- Active data management services (storage, wikis, openBIS etc.)

- High-performance computing

- Research with confidential data



ETH library:  
<https://library.ethz.ch>

Advice / Training / Infrastructure

Scientific IT Services:  
<https://sis.id.ethz.ch/>

# Services and Support along the DLC at ETH Zurich

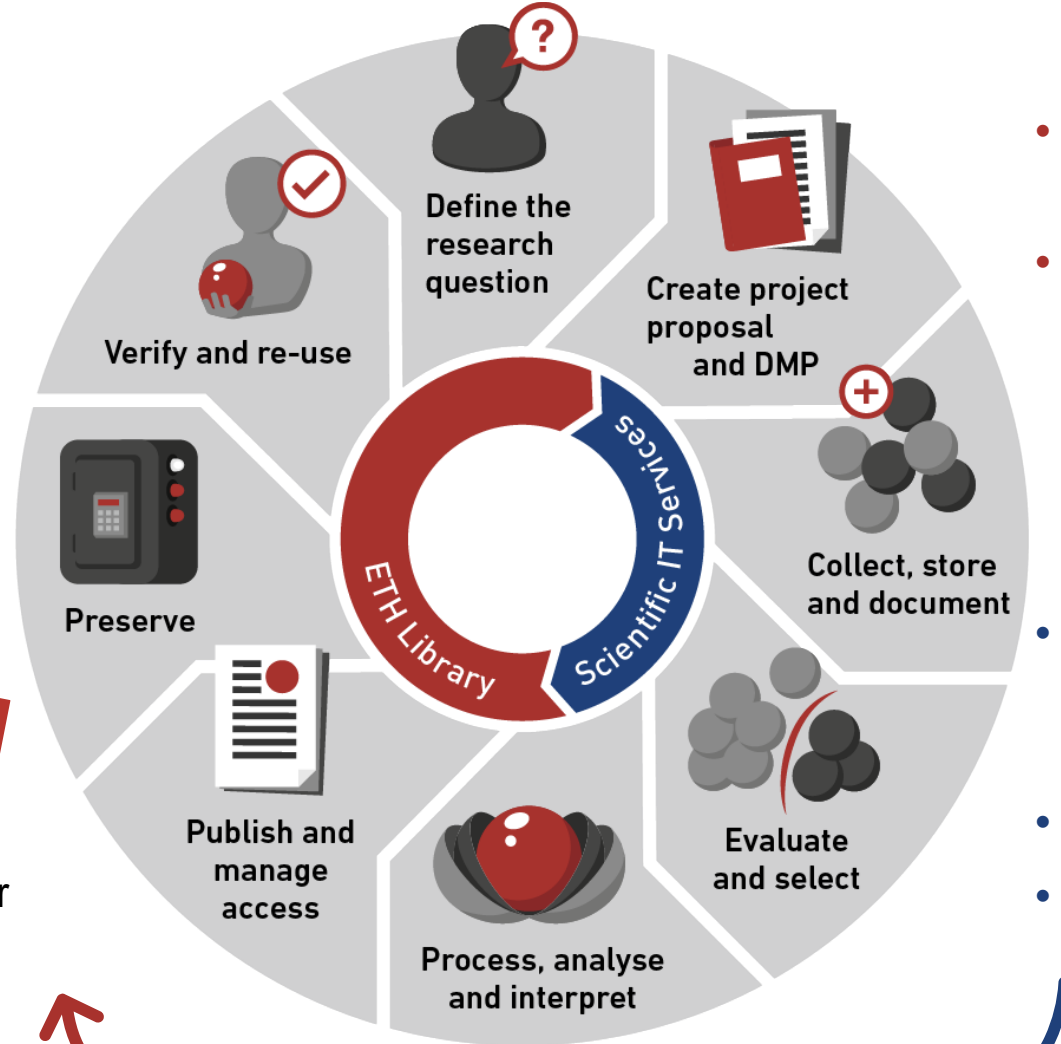
- Preservation and Archiving Services

- ETH University Archives
- ETH Web Archives
- Preservation planning
- Metadata preparation

- ETH Research Collection

More information in the 6<sup>th</sup> workshop on 8 November

- DOI registration
- Indexing in Google Scholar



- Reference management software: licences and courses
- DMP guidance, templates, and review:

- <http://www.snf.ch>  
→ DMP Guidelines
- <https://unlimited.ethz.ch/x/aiiSC>  
[w](#)

- Academic data management

More information in the next three workshops on 18, 25 October and 2 November

- Research with open data



ETH library:  
<https://library.ethz.ch>

Advice / Training / Infrastructure

Scientific IT Services:  
<https://sis.id.ethz.ch/>

# Research Support Services @ ETH Library

## Scientific information

### Publications



- (E-) Journals
- (E-) Books
- Handbooks

### Data



- Data Bases
- Object collections
- Archives

## Research

### Information retrieval



- Online Access / Loan
- Media/Data purchase on demand

### Consulting and training



- Research data management / plans
- Copyright
- Reference Management

## Publication and preservation

### Publication services



- Open Access publishing
- DOI registration
- Indexing in Google Scholar

### Preservation services



- Metadata preparation
- Preservation planning

### Research Collection



- Publication platform
- Open Access
- Research Data

### Archiving services

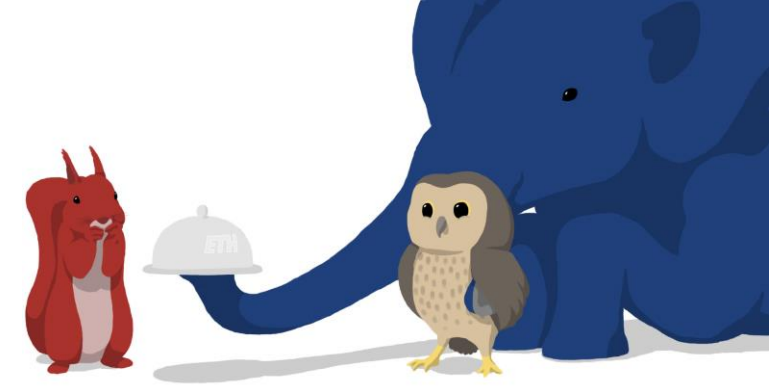


- ETH University Archives
- ETH Web Archives



# What we offer

- **General information** about RDM at ETH Zurich
  - <https://library.ethz.ch/rdm>
  - <http://www.library.ethz.ch/digital-curation>
  - <https://ethz.ch/services/en/service/a-to-z/research-data.html> (together with SIS)
- **Wiki-page** with [instructions and downloads](#)
  - DMP: [list of guides and templates](#), [guidance for the SNSF DMP](#), [instructions for a DMP at ETH Zurich](#)
  - Data publishing: [publishing and preservation steps](#), [workflow for data publication at ETH](#), [suggestions for data availability statements](#)
  - Data formats: [file formats for archiving](#), [recommendations for TIFF](#)
  - [Suggestions for drafting a data management strategy](#)
- **Consulting** on questions related to RDM  
[data-management@library.ethz.ch](mailto:data-management@library.ethz.ch) or [researchdata@ethz.ch](mailto:researchdata@ethz.ch)
- **Individual trainings** on RDM (upon request for five and more people)





# IT services and ETH transfer

## IT Services

- Storage provisioning (usually via your IT Support Group)
- ARDM services based on openBIS: <https://sis.id.ethz.ch/services/index.html#research-data-management>
- SIS bioinformatic co-analysis service for -omics data (contact: [sis.helpdesk@ethz.ch](mailto:sis.helpdesk@ethz.ch))

**ETH transfer:** <https://ethz.ch/en/industry/transfer.html>

- Open software disclosure workflow with ETH Data Archive
- Advice on intellectual property, patents, licensing of software etc.

Learn more in the 3<sup>rd</sup> and 4<sup>th</sup> workshop on 18 and 25 October



## Further training

- [ETH Library](#): Training courses on **information research, reference management, data management, scientific writing and open access and more**
- **6th ETH Research Data Management Summer School, 10-14 June 2024, *registration opens in January 2024***
- [SIS](#): Trainings on **coding best practices, Python, Python for NGS, git, openBIS and more**
- Courses offered by the [ETH Information Center for Chemistry/Biology/Pharmacy](#)



Training  
services

# ETH Compliance

## e-Learning Modules

- <https://ethz-compliance.ch/en>

### Business Expenses



Duration: 20 minutes

### Procurement



Duration: 20 minutes

### Export Control



Duration: 15 minutes

### Integrity in research



Duration: 20 minutes

### Information security



Duration: 20 minutes

### Safety, Security, Health and environment at ETH Zurich



Duration: 30 minutes

### Conflicts of interest



### Teaching



Dr. Julian Dederke, Dr. Fabian Schmid  
Research Data Management and Digital Curation  
[julian.dederke@library.ethz.ch](mailto:julian.dederke@library.ethz.ch) / [fabian.schmid@library.ethz.ch](mailto:fabian.schmid@library.ethz.ch)

ETH Library  
Research Support Services  
Weinbergstrasse 74  
8092 Zurich  
<http://www.library.ethz.ch/rdm>  
[data-management@library.ethz.ch](mailto:data-management@library.ethz.ch)

ETH Library and Scientific IT Services  
[researchdata@ethz.ch](mailto:researchdata@ethz.ch)

