FOSTER

Open Research Data in Horizon 2020

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NCP ACADEMY Training National Contact Points

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1

H2020 Open Research Data Requirements

Open Data in Horizon 2020

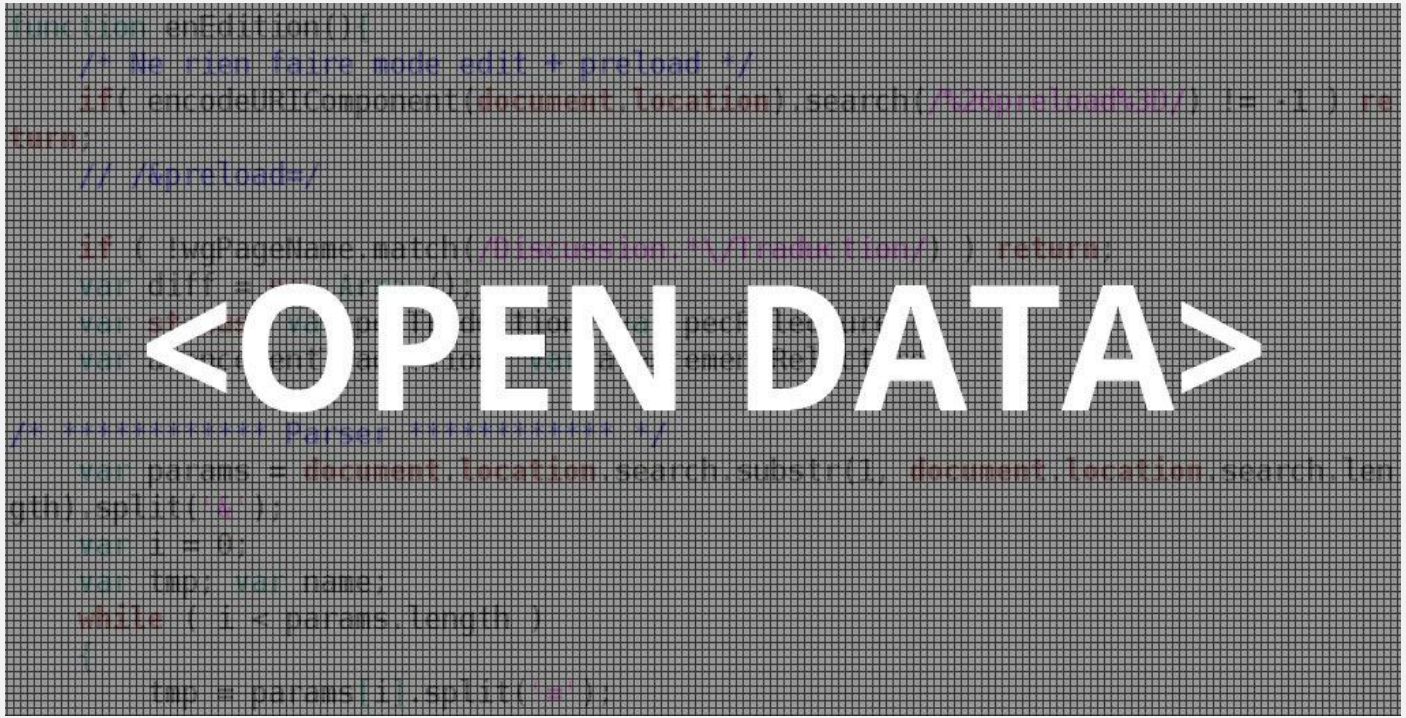


Image "Open Data" CC BY 2.0 by http://www.descrier.co.uk

How does research data relate to open science?

Vision of open data:

"science carried out and communicated in a manner which allows others to contribute, collaborate and add to the research effort, with all kinds of data, results and protocols made freely available at different stages of the research process."

Research Information Network, Open Science case studies
www.rin.ac.uk/our-work/data-management-and-curation/open-science-case-studies

Why manage data?

Because well-managed data opens up opportunities for re-use, sharing and makes for better science!

Make your research easier

Stop yourself drowning in irrelevant stuff

Save data for later

Avoid accusations of fraud or bad science

Share your data for re-use

Get credit for it

Meet funder/institution requirements

Data loss

Digital data are fragile and susceptible to loss for a wide variety of reasons

Natural disaster
Facilities infrastructure failure
Storage failure
Server hardware/software failure
Application software failure
Format obsolescence
Legal encumbrance
Human error
Malicious attack
Loss of staffing competencies
Loss of institutional commitment
Loss of financial stability
Changes in user expectations

Open data by default

Pilot → ***Default*** → **…**

European Commission

OPEN RESEARCH DATA
IN HORIZON 2020

Research and Innovation

CHALLENGE

Wider access to scientific facts and knowledge helps researchers, innovators and the public find and re-use data, and check research results:

offers better value for EU research funds

a public benefit

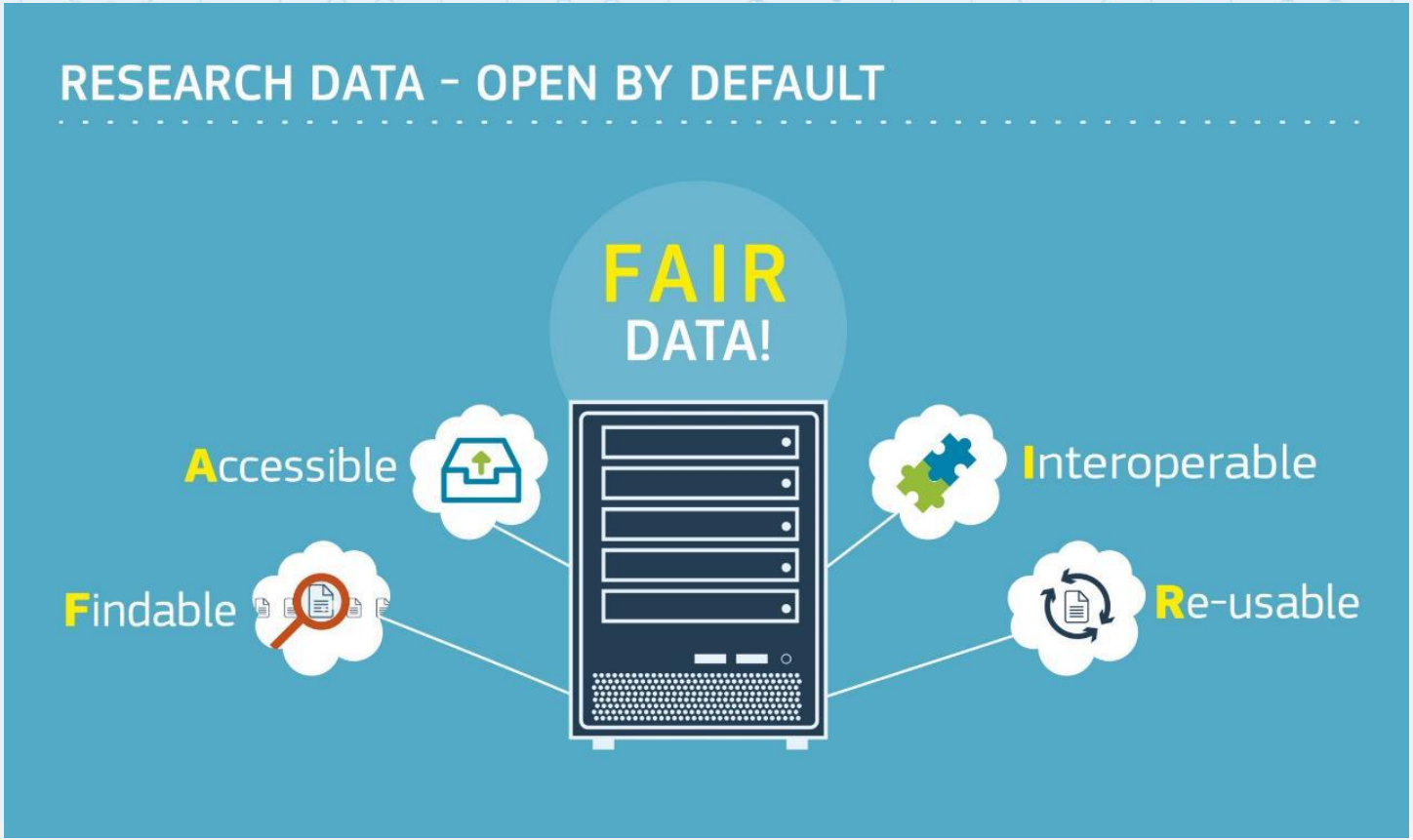
encourages research across scientific fields

essential for solving today's complex societal challenges

SOLUTION

Horizon 2020 already mandates open access to **all scientific publications**

From 2017,
research data is **open by default,**
with possibilities to **opt out**


RESEARCH DATA - OPEN BY DEFAULT
FAIR
DATA!
Accessible
Findable
Interoperable
Re-usable

RESEARCH DATA - OPEN BY DEFAULT

Horizon 2020 grantees are required

take measures to ensure open access to the **data underlying their scientific publications**

provide open access to **any other research data of their choice**

Horizon 2020 grantees are **encouraged to also share datasets** beyond publication

RESEARCH DATA - OPEN BY DEFAULT

Projects must have

Provides information on:

the data the research will generate

how to ensure its curation, preservation and sustainability

what parts of that data will be open (and how)

RESEARCH DATA - OPEN BY DEFAULT

Data management costs are fully eligible for funding

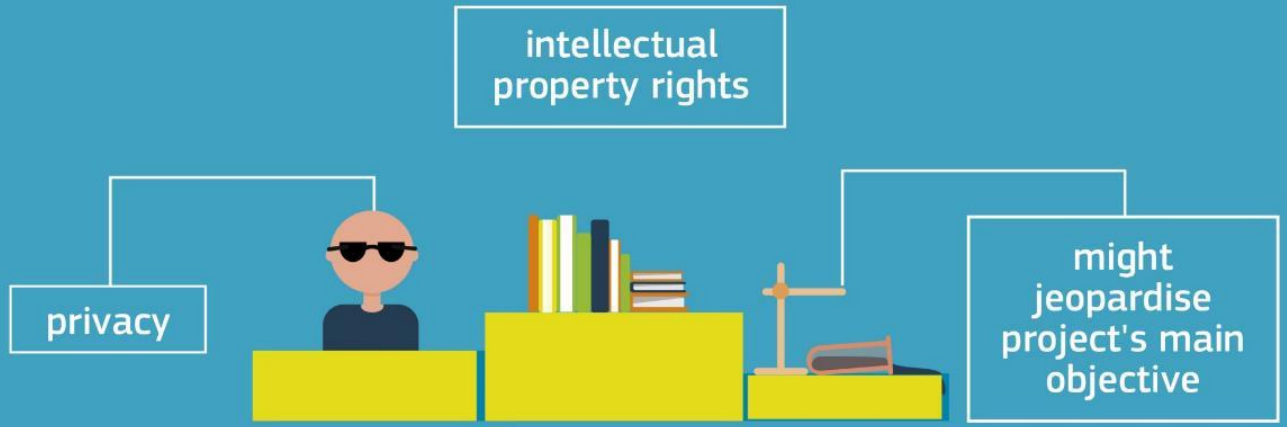
No repository imposed: deposit data where you want

AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

Grantees have the right to **opt-out**, but need to say **why**

AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

Top three reasons for **opt-out**:



AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

The approach has been tested during a Horizon 2020 pilot action

2015

of 431 signed projects

opted to share data

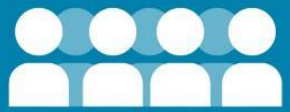
from 2017

the current
Open Research Data Pilot
expands to cover all areas
of Horizon 2020,
with the same rules

HOW IT WORKS


Get funding
Write DMP
Gather data during research
Finish research
Publish results
Choose repository and deposit data
Inform OpenAIRE the EU-funded Open Access portal

BE PART OF THE NEW ERA OF OPEN SCIENCE



reach more people, have greater impact

avoid duplication of efforts

preserve data for future researchers

simplify final Horizon 2020 reporting thanks to an up-to-date DMP

FAIR Data Management guidelines

- Notes the extension of the pilot
- Clarifies concept of FAIR data
- Explains what a DMP is and when they should be updated
- Notes what happens at proposal, submission and evaluation
- Explains costs are eligible
- Provides a DMP template

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

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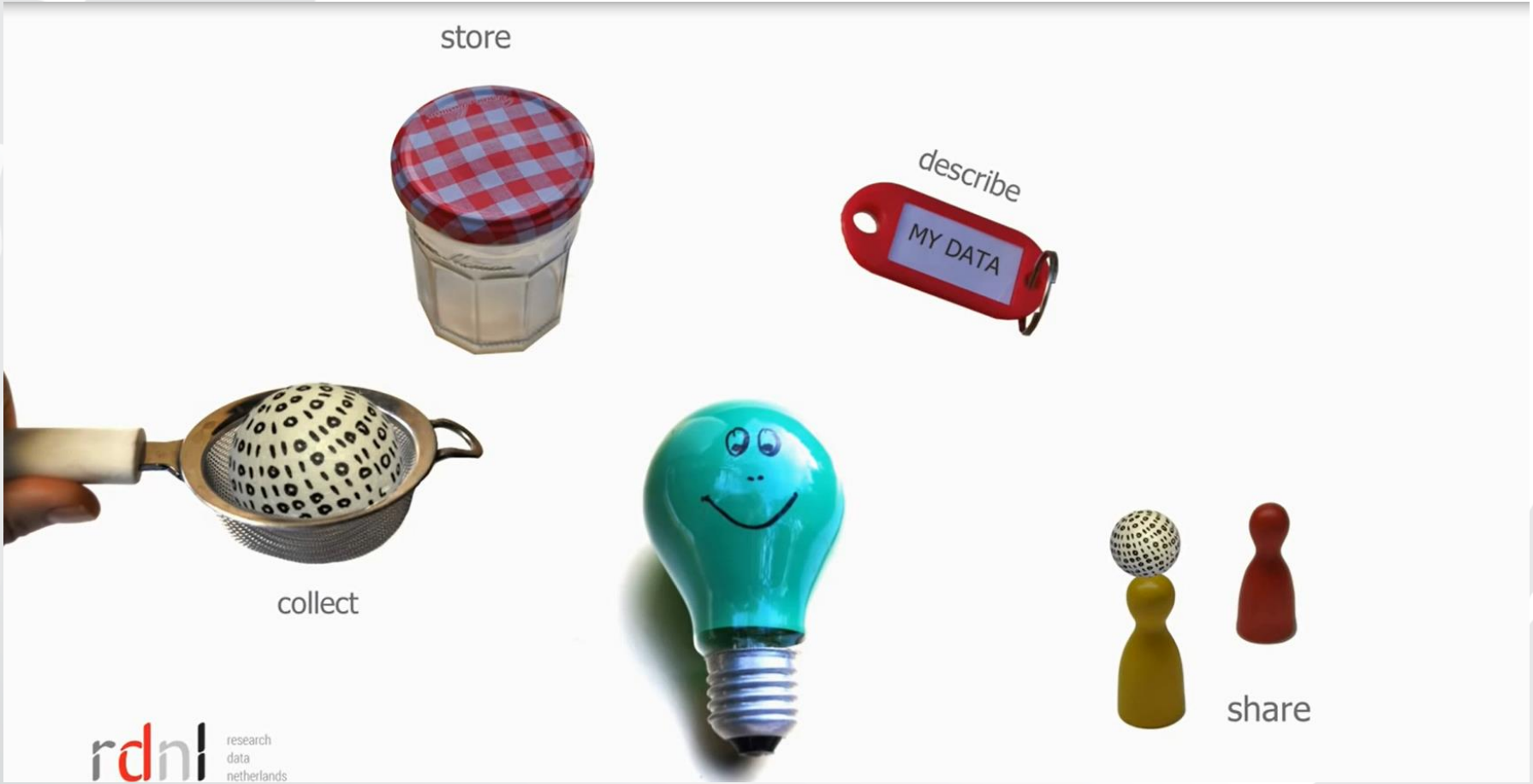
Practical implementation

Data Management Plan

The what, why and how of data management planning


store
describe
MY DATA
collect
share
rdnl
research
data
netherlands

Data Management Plans

A DMP is a brief plan to define:

- ✓ how the data will be created?
- ✓ how it will be documented?
- ✓ who will access it?
- ✓ where it will be stored?
- ✓ who will back it up?
- ✓ whether (and how) it will be shared & preserved?

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H2020 template

1. Data summary
2. FAIR data
   - 2.1 Making data findable, including provisions for metadata
   - 2.2 Making data openly accessible
   - 2.3 Making data interoperable
   - 2.4 Increase data re-use (through clarifying licences)
3. Allocation of resources
4. Data security
5. Ethical aspects
6. Other issues

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

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Reviewing DMPs in H2020

- DMPs are a deliverable, checked primarily by project officers and in some cases external reviewers too;
- Guidelines are being developed to give reviewers pointers on what to check. These are based on the template;
- The reviewer has access to the full project documentation;
- Process is only just evolving so feedback may be variable initially.

Example DMP plans

Example H2020 DMPs in Zenodo

- Helix Nebula – High Energy Physics example

https://zenodo.org/record/48171#.WATexnriF40

- Tweether – engineering (micro-electronics) example

https://zenodo.org/record/55791#.WATei3riF40

- AutoPost – ICT example

https://zenodo.org/record/56107#.WATefXriF40

- More listed at: www.dcc.ac.uk/resources/data-management-plans/guidance-examples

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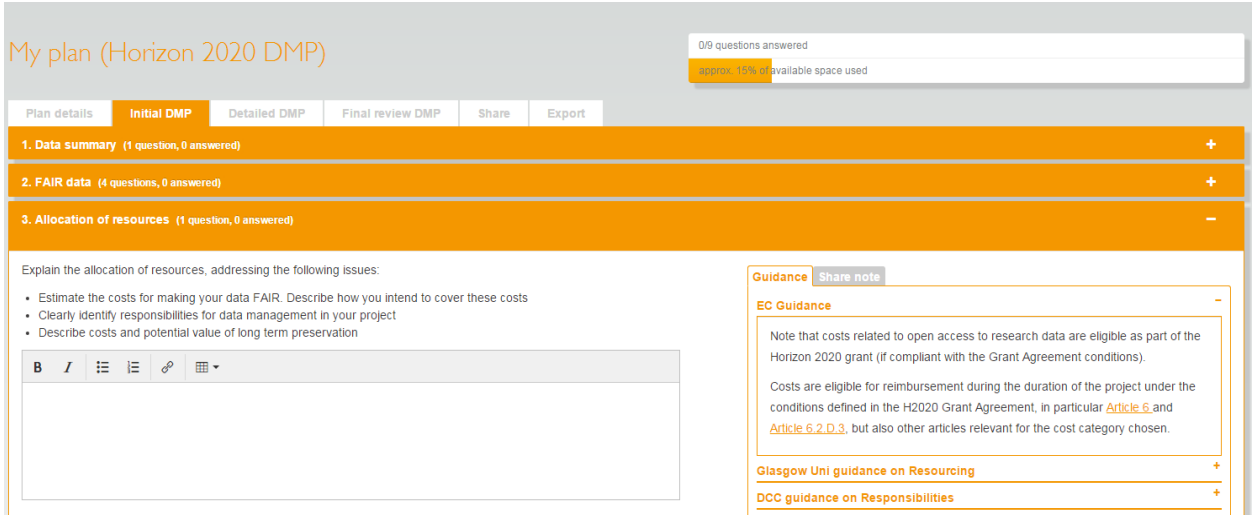
What is DMPonline?

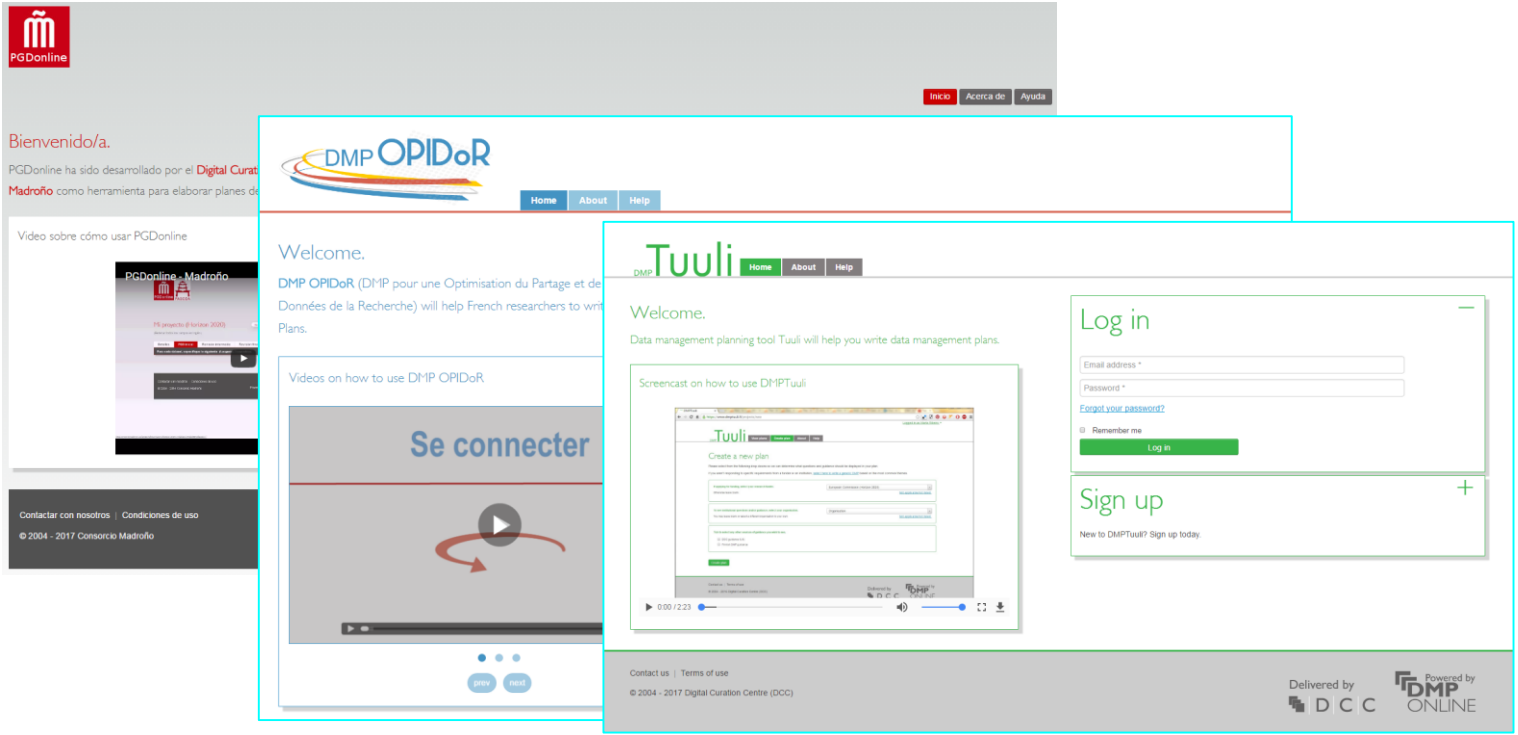
A web-based tool to help researchers write DMPs

Includes a template for Horizon 2020



https://dmponline.dcc.ac.uk

National / local DMP customizations



https://github.com/DMPRoadmap/roadmap/wiki/Local-installations-inventory

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OpenAIRE guidelines on writing DMPs

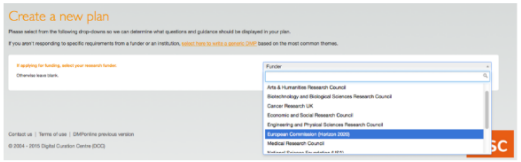
FIRST STEPS

It is recommended to refer the Principal Researcherto the Digital Curation Centre DMPonline tool, which offers DMP templates that match the demands and suggestions of the Guidelines on Data Management in Horizon 2020.

1. Sign up to DMPonline

2. Select *Create plan*

3. Select *European Commission (Horizon 2020)* from the list of research funders:



4. Optionally, select a relevant organisation from the list of organisations to see institutional questions and/or guidance. (Anyone can use DMPonline. If your organisation is not listed, just select *other organisation*.)

5. It is recommended to check the box for additional DCC guidance.

6. Select *Create plan*.

7. The first DMP to be written in a project participating in the Open Research Data Pilot would typically be based on the "Initial DMP" template.

A DMP in DMPonline can be saved anytime. It can also be shared and it can be downloaded in various formats. A screencast on how to use DMPonline is available via the home page.

https://www.openaire.eu/opendatapilot-dmp

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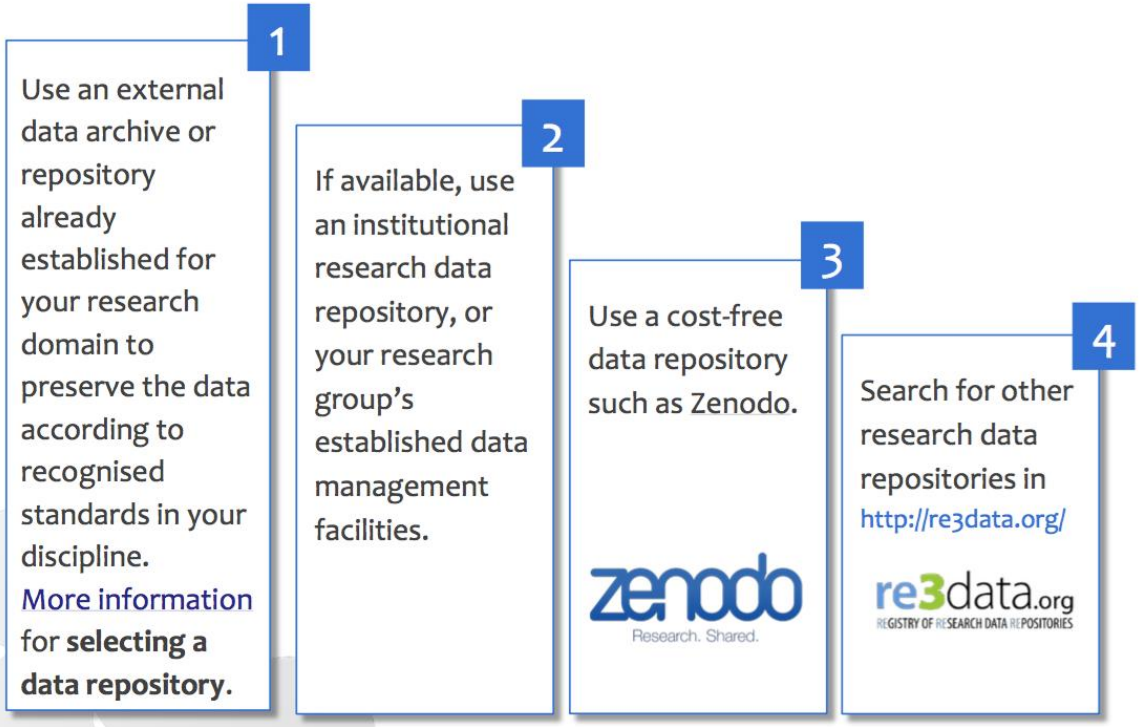
WHERE DO YOU STORE
YOUR RESEARCH DATA?
USB DRIVE
DROPBOX
RESEARCH DATA REPOSITORY
re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

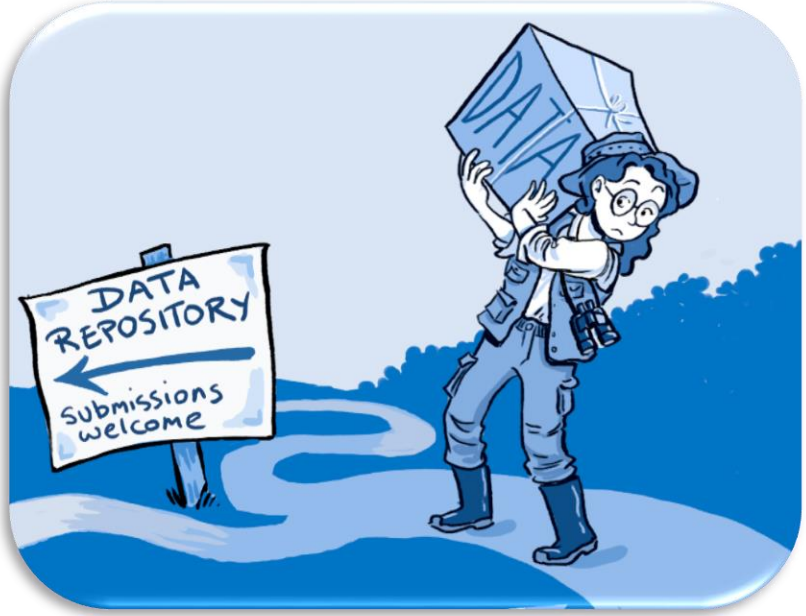
Where to find a repository?



More information: https://www.openaire.eu/opendatapilot-repository

Cross-disciplinary repositories

zenodo



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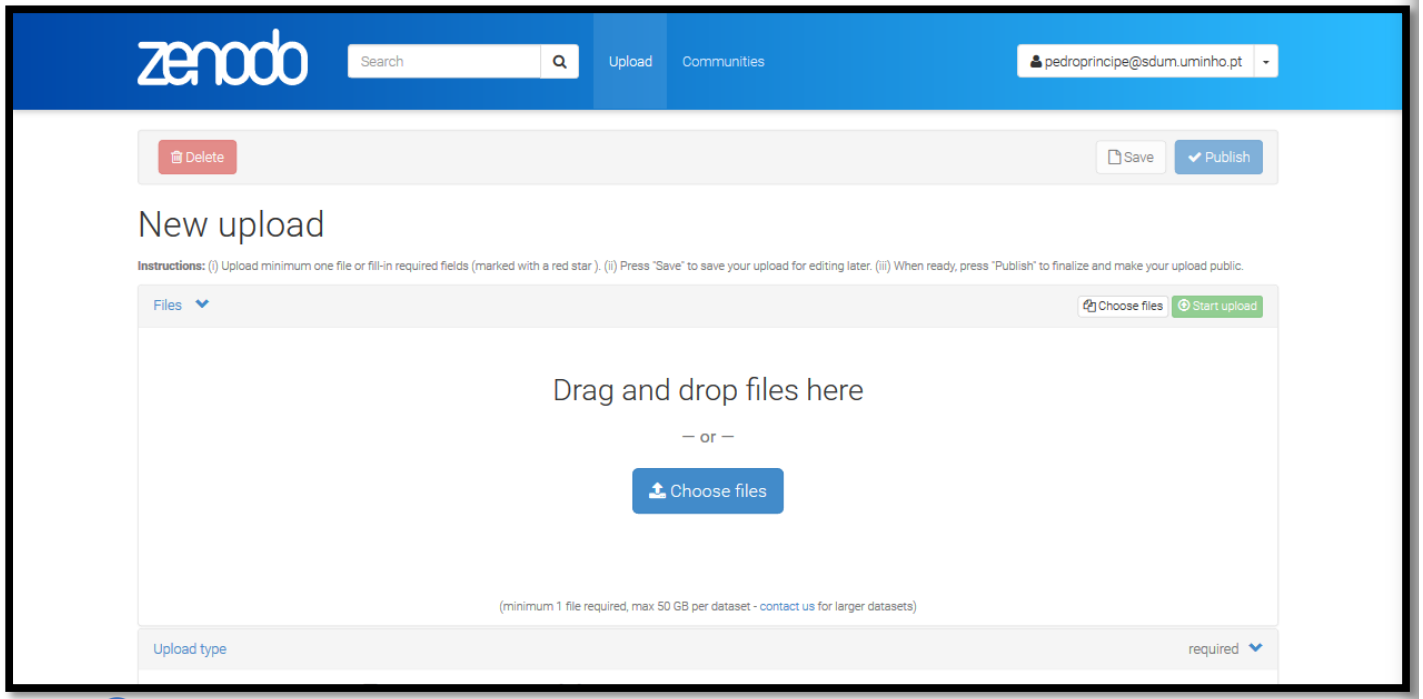
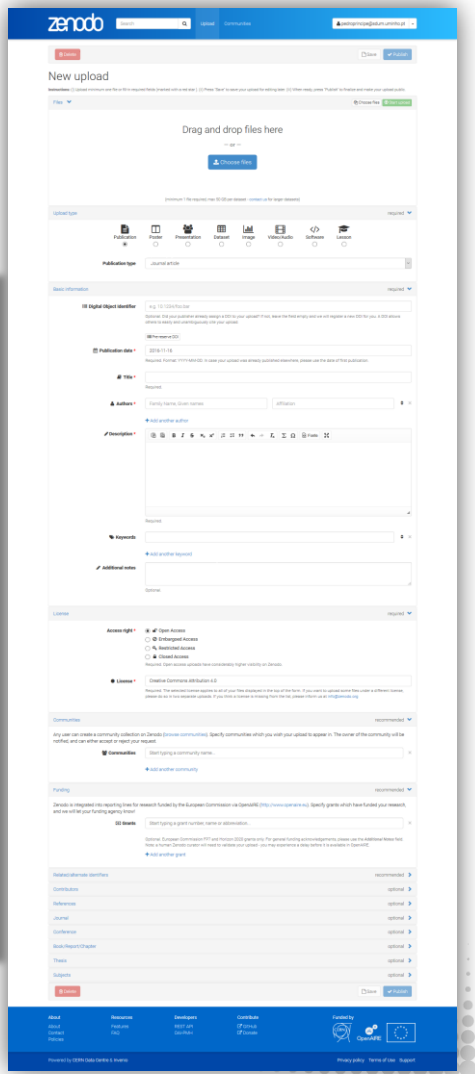
Short Facts about Zenodo

- Catch-all repository for EU funded research
- Up to 50 GB per upload
- Data stored in the CERN Data Center
- Persistent identifiers (DOIs) for every upload
- Includes article level metrics
- Free for the long tail of Science
- Open to all research outputs from all disciplines
- Easily add EC funding information and report via OpenAIRE

Upload





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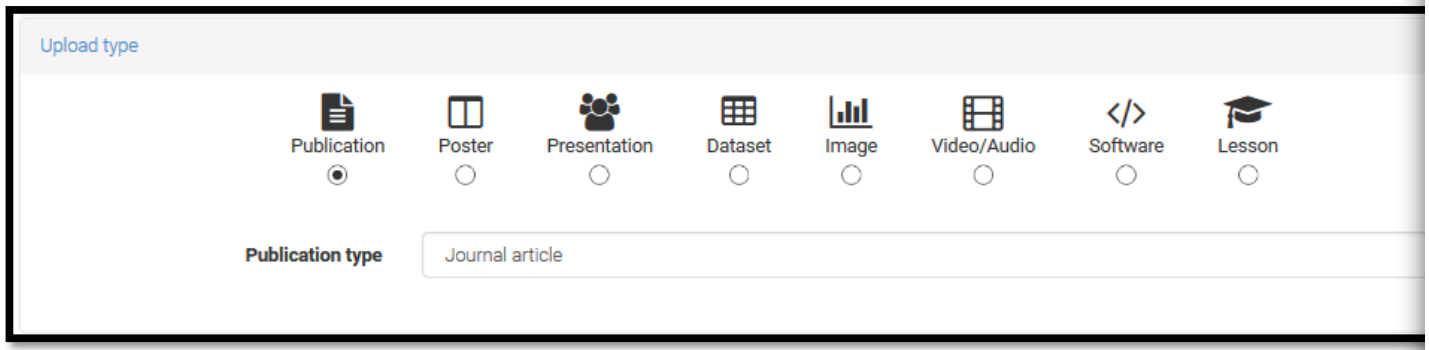
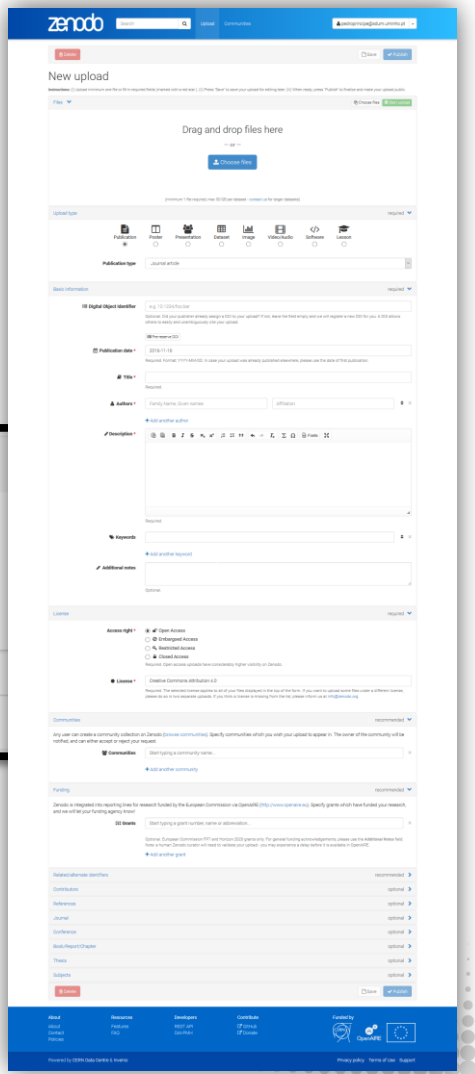
Describe





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Describe

License

Access right *

- Open Access
- Embargoed Access
- Restricted Access
- Closed Access

Required. Open access uploads have considerably higher visibility on Zenodo.

License *

Creative Commons Attribution 4.0

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please do so in two separate uploads. If you think a license is missing from the list, please inform us at info@zenodo.org

Funding

recomme

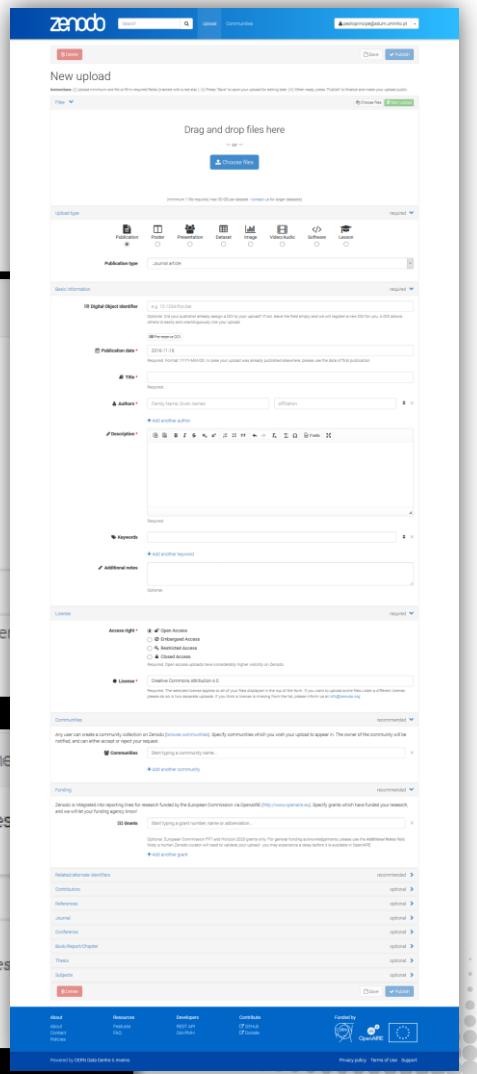
Zenodo is integrated into reporting lines for research funded by the European Commission via OpenAIRE (http://www.openaire.eu). Specify grants which have funded your res
and we will let your funding agency know!

Grants

Start typing a grant number, name or abbreviation...

Optional. European Commission FP7 and Horizon 2020 grants only. For general funding acknowledgements, please use the *Additional Notes*
Note: a human Zenodo curator will need to validate your upload - you may experience a delay before it is available in OpenAIRE.

+ Add another grant



Publish

DOI:

DOI 10.5281/zenodo.165760

http://www.datacite.org

Grants:

European Commission:

- QULIMA - Ensemble based advanced quantum light matter interfaces (279967)
- ICFONEST - ICFONest International Postdoctoral Program (267229)
- EPICA - Exploring Photon-photon Interactions with Cold Rydberg Atoms (658258)

www.openaire.eu

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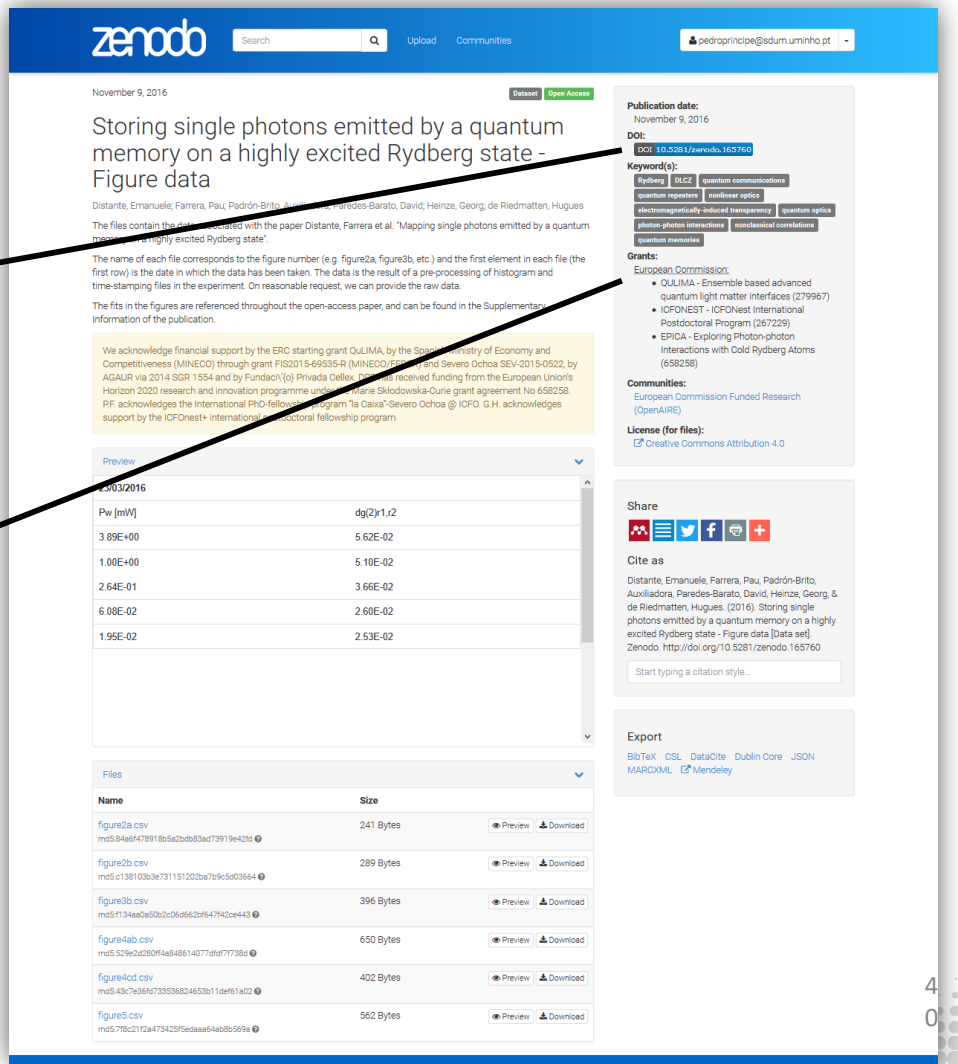

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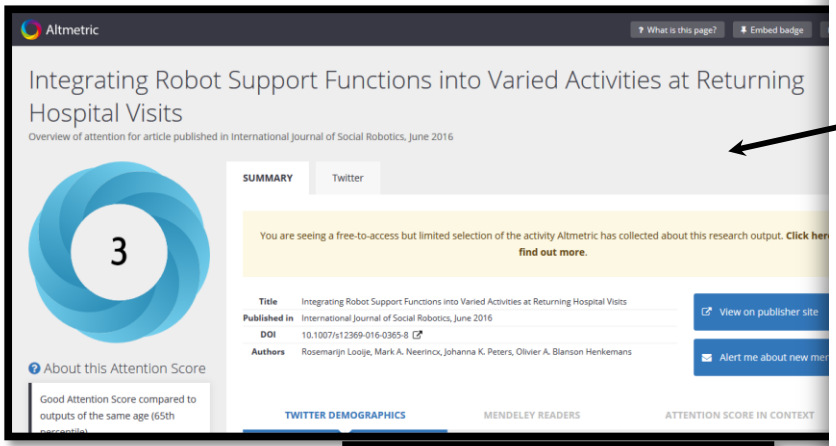

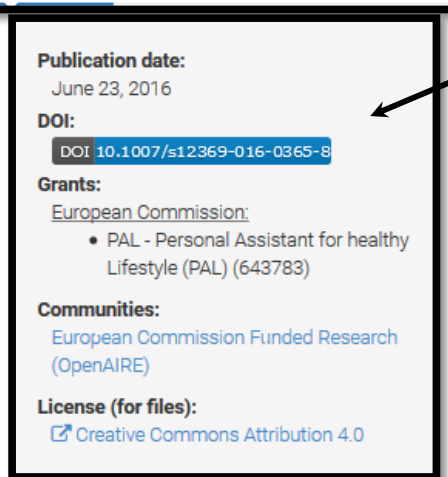

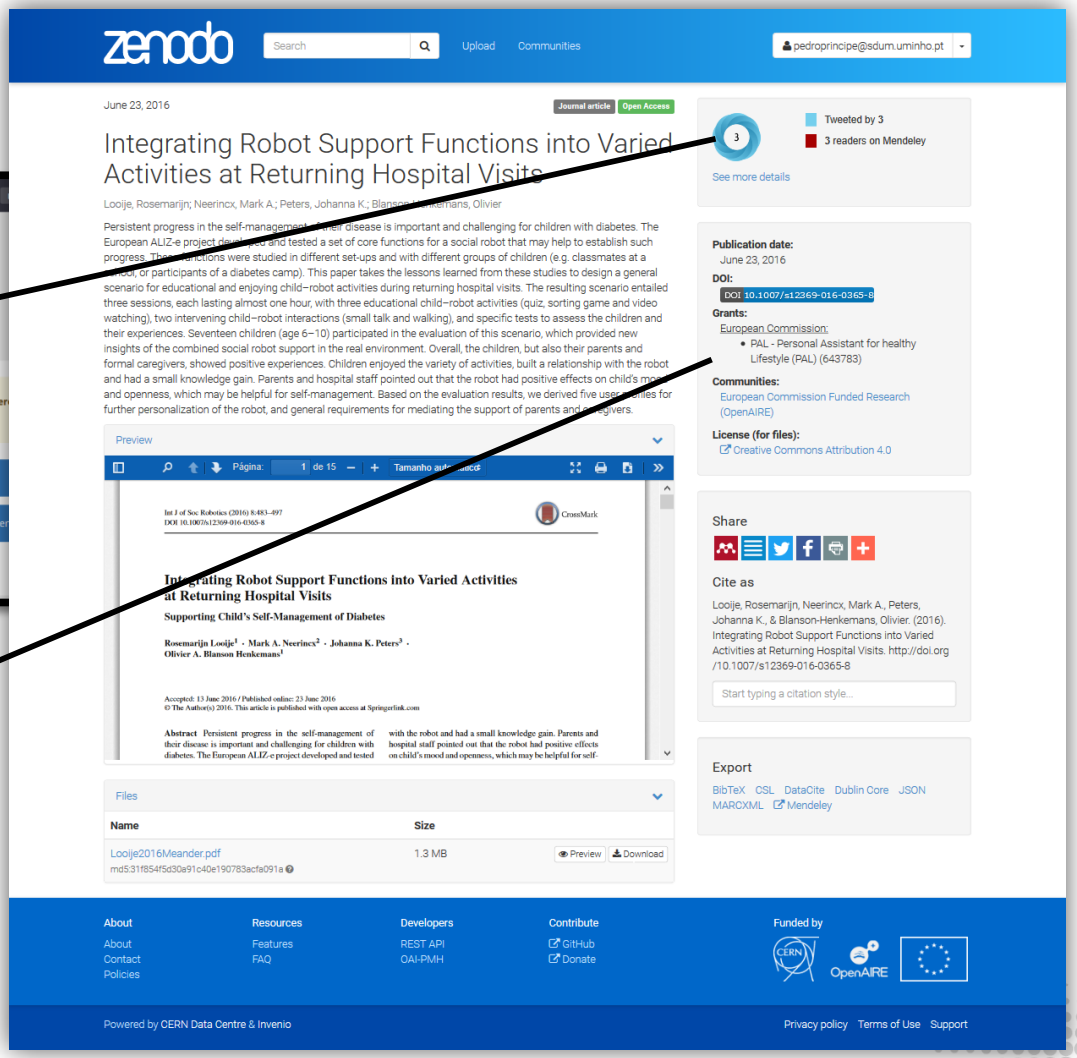

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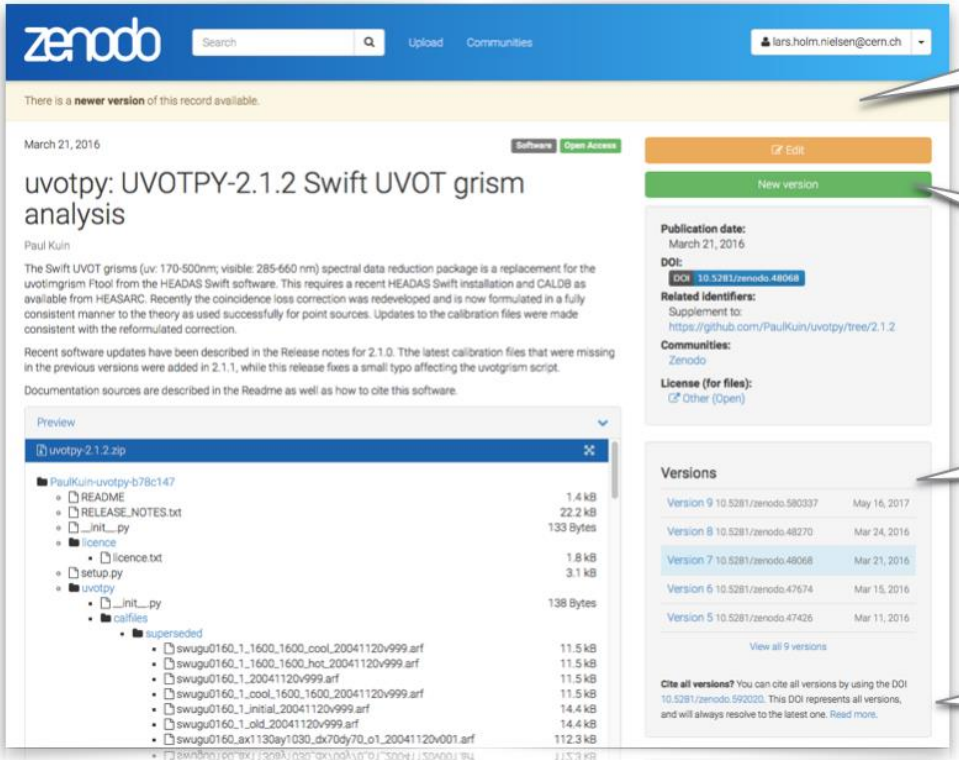
Publish

DOI versioning!

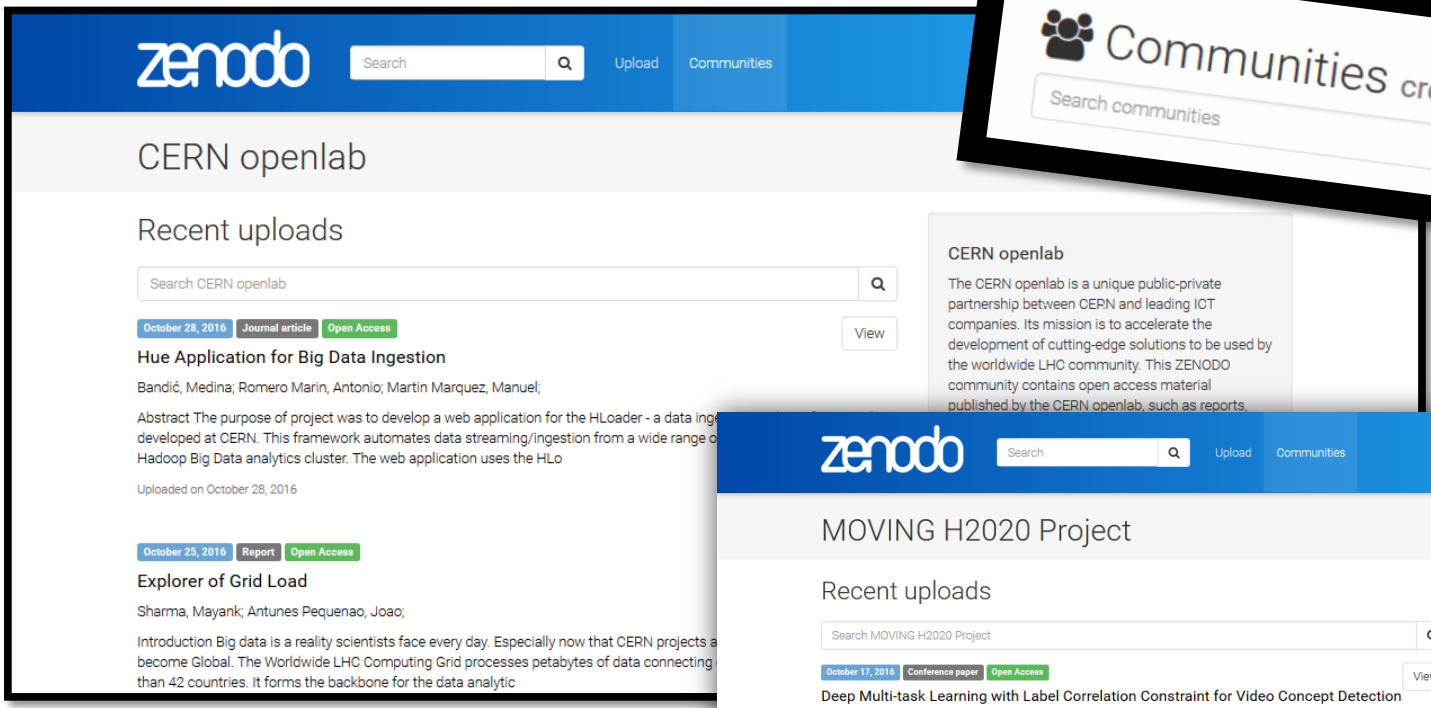


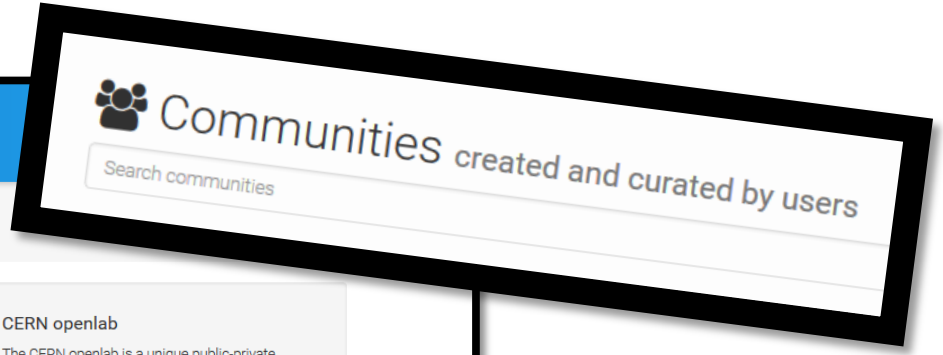
Alert if newer version is available

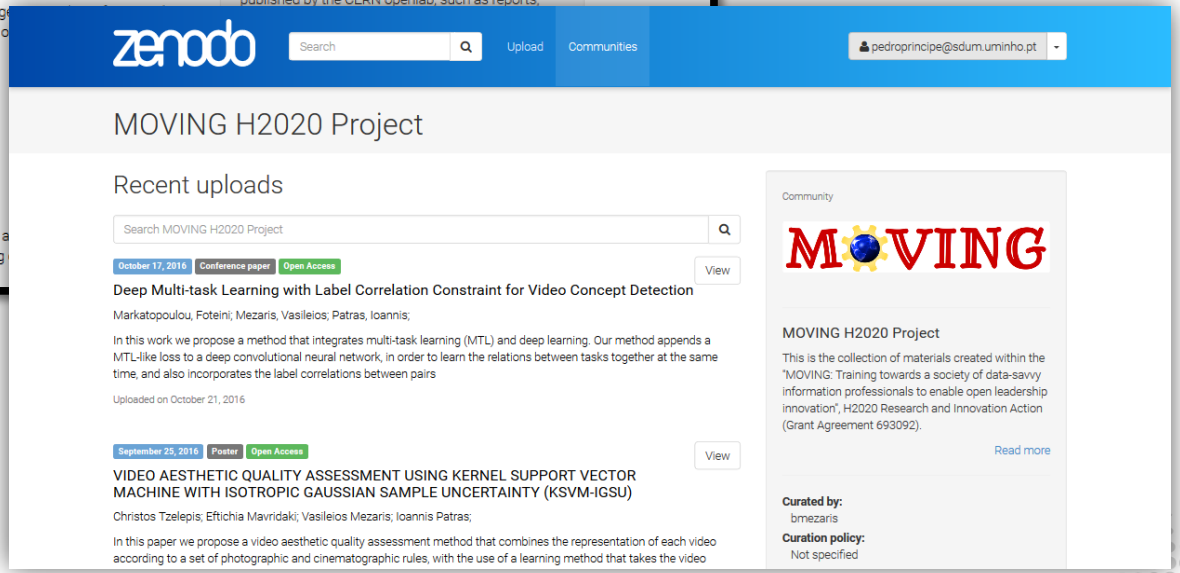
Create a **new version**

Browse the **version history**

Cite **specific version** or **the concept** representing all versions







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September 6, 2016 | Conference paper | Open Access

View

Formal Worst-Case Performance Analysis of Time-Sensitive Ethernet with Frame Preemption

Thiele, Daniel; Ernst, Rolf;

One of the key challenges in future Ethernet-based automotive and industrial networks is the low-latency transport of time-critical data. To date, Ethernet frames are sent non-preemptively. This introduces a major source of delay, as, in the worst-case, a latency-critical frame might be blocked by a

Uploaded on January 30, 2017

October 11, 2016 | Dataset | Open Access

View

Computing Safe Contention Bounds for Multicore Resources with Round-Robin and FIFO Arbitration

Community

SAFURE

SAFURE

The H2020 project SAFURE targets the design of cyber-physical systems by implementing a methodology that ensures safety and security "by construction". This methodology is enabled by a framework developed to extend system capabilities so as to control the concurrent effects of security threats on the system behaviour.

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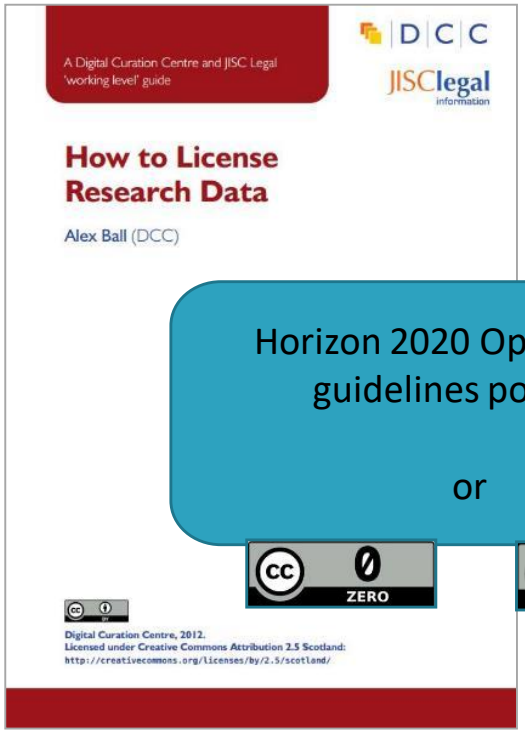
Licensing research data



This DCC guide outlines the pros and cons of each approach and gives practical advice on how to implement your licence

CREATIVE COMMONS LIMITATIONS

NC Non-Commercial
What counts as commercial?

ND No Derivatives
Severely restricts use

These clauses are not open licenses

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www.dcc.ac.uk/resources/how-guides/license-research-data

www.fosteropenscience.eu

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