Pedro Principe

University of Minho (OpenAIRE support & training manager)

Open Research Data in H2020

Open Data requirements and Data Management plans for H2020 projects

Laserlab Workshop on Data Handling and Open Data

7 Dec. 2018 - Instituto Superior Técnico, Lisbon, Portugal

CC BY

Topics

Open Science

Open Science policies in H2020 and the OpenAIRE infrastructure: Open Access to publications and Open Data.

OPEN DATA IN H2020

Requirements of the Open Research Data Pilot in H2020: how to comply & practical implementation.

DMPs

What we need to know about Data Management Plans: H2020 project DMP template, use cases and examples.

OpenAIRE

Open Access Infrastructure for Research in Europe: services to support Open Research & FAIR Data and projects.

Open Access is the

DEFAULT

for research results in H2020

ficiary General Model Grant Agreement

29.2 OPEN ACCESS TO SCIENTIFIC PUBLICATIONS

29.3 OPEN ACCESS TO RESEARCH DATA

http://ec.europa.eu/research/participants/data/ref/h2020/mga/gga/h2020-mga-gga-multi_en.pdf

Open Access to Publications

Researcher decides where to publish

Open Access Journals: doaj.org

Check for Article Processing Charges

Immediate OA

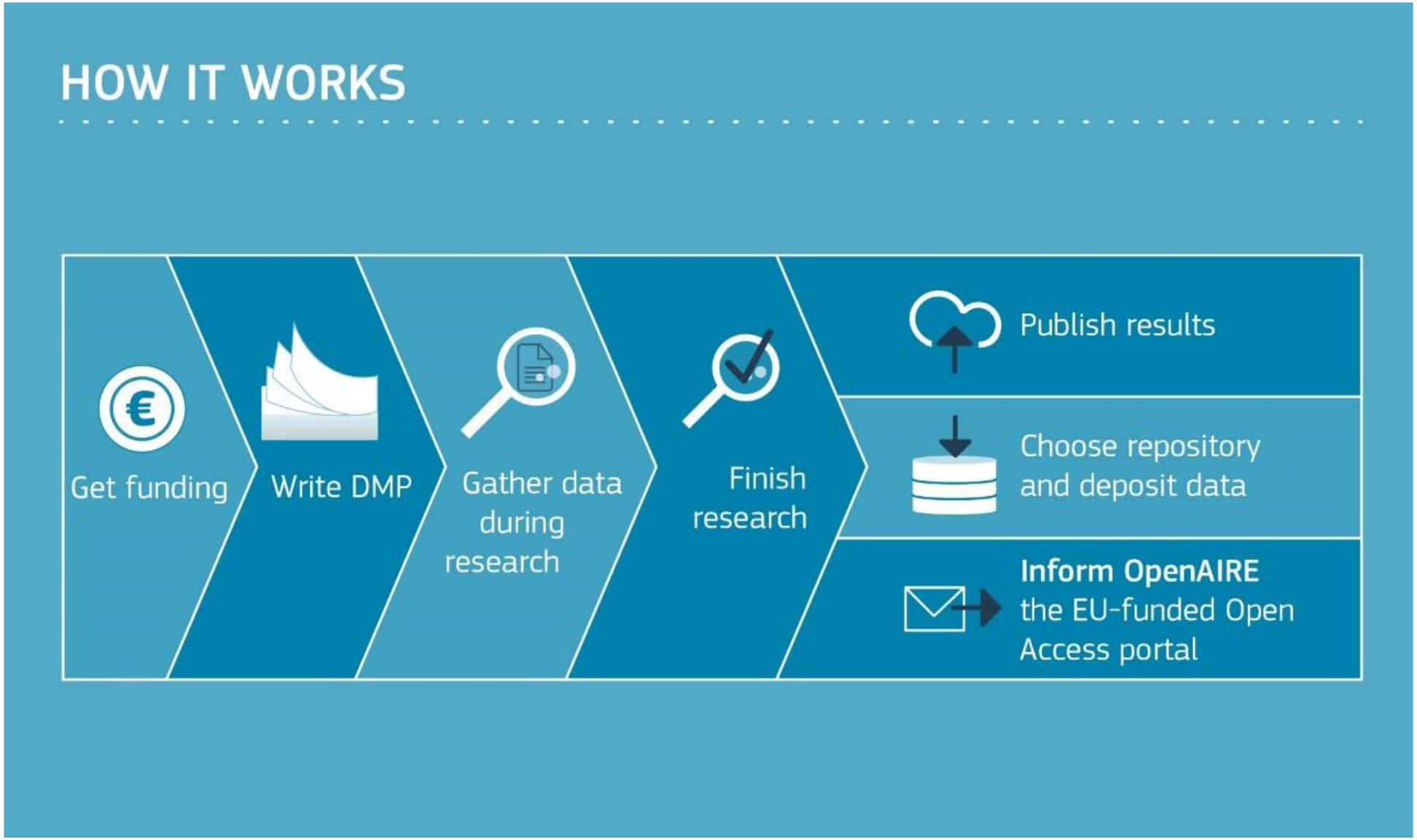
Subscription-based journal

Self-archive in repository

Immediate or delayed OA

Check publishers policies on www.sherpa.ac.uk/romeo

Open Access to Research Data



www.openaire.eu

WHO WE ARE

- In 24x7 operation since Dec 2010
- EC funding (2009-2020)
  - OpenAIRE (2009-2012)
  - OpenAIREplus (2012-2014)
  - OpenAIRE2020 (2015-2018)
  - OpenAIRE Advance (2018-2020)
- Consortium of 50+ partners
- A legal entity in 2018

WHAT WE DO

Support – Accelerate – Monitor Open Science

Train for Open Science

Implement and align Open Science policies across Europe and the world

Deploy services to embed Open Science into researcher daily workflows

Foster innovation for added value services based on open research

Build global common standards for linking and contextualizing all research

Monitor Open Science in Europe

OpenAIRE

Two faceted e-Infrastructure

Human Network

34 expert nodes all over Europe: Open Science training & support, OA policy alignment, Technical assistance…

Integrated Scientific Information System with access to: 24 mi publications, 666 K research data from 13 K content providers and 17 funders linked together.

Digital Network

OpenAIRE

Infrastructure for all science stakeholders

OpenAIRE Services

CONNECT
Research communities

EXPLORE
Researchers (All)

PROVIDE
Content providers

DEVELOP
Innovators

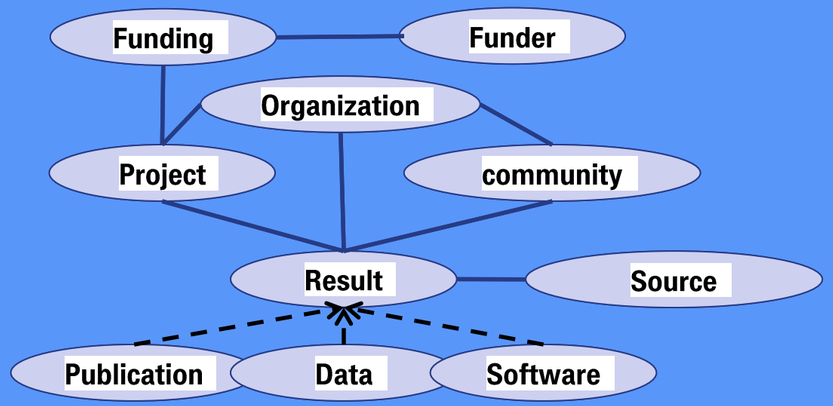
MONITOR
Research managers
Funders

Info Space Services

TERMS OF USE

Brokering
Cleaning
Validation
Harvesting

ScholeXplorer
De-duplication
Inference
Uploading



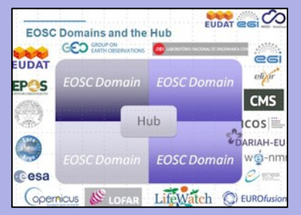
GUIDE LINES

Content Providers

Publications repositories
Data repositories
Registries
Software repositories
OA Journals
CRIS systems

zenodo
Research. Shared.
iD
crossref
DataCite

EOSC-Hub



Research Infras

PARTHENOS
EPOS
DARIAH-EU
elixir

2 / 4

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OpenAIRE

Open Research Data Pilot: aims

To make the research data generated by Horizon 2020 projects accessible with as few restrictions as possible, while at the same time protecting sensitive data from inappropriate access.

Information already paid for by the public should not be paid for again. Open data is data that is free to access and reuse

EC

European Commission

OPEN RESEARCH DATA IN HORIZON 2020

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
- encourages research across scientific fields

- a public benefit
- 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

HORIZON 2020 GRANTEES ARE REQUIRED

RESEARCH COUNCILS UK

Home | Funding | Research | Innovation | Skills | Public Engagement

RCUK Common Principles on Data Policy

Home > Research > RCUK Common Principles on Data Policy

Making research data available to users is a core part of the Research Councils' remit and is undertaken in a coherent approach across the research base. These RCUK common principles on data policy provide an ove data policy.

Principles

- Publicly funded research data are a public good, produced in the public interest, which should be made and responsible manner.
- Institutional and project specific data management policies and plans should be in accordance with rel acknowledged long-term value should be preserved and remain accessible and usable for future resea
- To enable research data to be discoverable and effectively re-used by others, sufficient metadata shou researchers to understand the research and re-use potential of the data. Published results should alwa
- RCUK recognises that there are legal, ethical and commercial constraints on release of research data. inappropriate release of data, research organisation policies and practices should ensure that these ar
- To ensure that research teams get appropriate recognition for the effort involved in collecting and analy may be entitled to a limited period of privileged use of the data they have collected to enable them to p varies by research discipline and, where appropriate, is discussed further in the p
- In order to recognise the intellectual contributions of researchers who generate, p acknowledge the sources of their data and abide by the terms and conditions und
- It is appropriate to use public funds to support the management and sharing of pu from limited budgets, the mechanisms for these activities should be both efficient

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THE ROYAL SOCIETY

Home | Fellows | Events | Grants, Schemes & Awards | Topics & policy | Journals | Collections

Data sharing and mining

Open data policy

To allow others to verify and build on the work published in Royal Society journals, it is a condition of publication that authors make available the data, code and research materials supporting the results in the article.

Datasets and code should be deposited in an appropriate, recognised, publicly available repository. Where no data-specific repository exists, authors should deposit their datasets in a general repository such as Dryad or Figshare.

To encourage best practice in data sharing, *Biology Letters*, *Proceedings B* and *Royal Society Open Science* have Dryad data deposition integrated into the journal submission system. For all its science journals, the Society will cover the cost of depositing up to 20GB of data with Dryad. In addition, we deposit all supplementary material into the Figshare repository on the author's behalf.

Exceptions to the sharing of data, code and materials may be granted at the discretion of the editor, especially for sensitive information such as human subject data or the location of endangered species. Authors must disclose upon submission of the manuscript any restrictions on the availability of data, code and research materials.

Where possible, deposit should be made prior to publication under embargo until publication of the article.

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wellcome

Funding | What we do | About us | News

Scheme finder | Managing a grant

Policy on data, software and materials management and sharing

As a charity, Wellcome works to ensure that the results of the research we fund are applied for the public good. This includes creating an environment that enables and incentivises researchers to maximise the value of their research outputs, including data, software and materials.

We expect our researchers to manage research outputs in a way that will achieve the greatest health benefit. This may involve making outputs widely available or using intellectual property (IP) as a tool to help protect and commercialise an original idea, product or technology.

There is international consensus on the need to share and preserve research datasets in a way that maximises their long-term value. Key documents such as the UK concordat on open research data (2016) articulate this.

NIH National Institutes of Health | Office of Extramural Research

Grants & Funding | NIH's Central Resource for Grants and Funding Information

Entire Site | Search this S

eRA | Glossary &

HOME | ABOUT GRANTS | FUNDING | POLICY & COMPLIANCE | NEWS & EVENTS

Home » Policy & Compliance » Policy & Guidance » NIH Data Sharing Policy and Implementation Guidance

Policy & Compliance

- NIH Grants Policy Statement
- Notices of Policy Changes
- Compliance & Oversight
- Select Policy Topics +

NIH Data Sharing Policy and Implementation Guidance

(Updated: March 5, 2003)

This guidance provides the National Institutes of Health (NIH) policy statement on data sharing and additional information or this policy.

- Goals of Data Sharing
- Applicability
- Implementation
  - Timeliness of Data Sharing
  - Human Subjects and Privacy Issues
  - Proprietary Data
  - Methods for Data Sharing
  - Data Documentation
  - Funds for Data Sharing
  - Review Considerations

Responsible data management is part of good research.

NWO - Introduction to the pilot Data Management

Data management is a part of good research practice.

RCUK Policy and Code of Conduct on the Governance of Good Research Conduct

Image: https://www.flickr.com/photos/dmh650/4031607067/in/gallery-wlef70-72157633022909105/

Some funders that require Data Management Plans

- Description of data to be collected / created (i.e. content, type, format, volume…)
- Standards / methodologies for data collection & management
- Ethics and Intellectual Property (highlight restrictions on data sharing e.g. embargoes, confidentiality)
- Plans for data sharing and access (i.e. how, when, to whom)
- Strategy for long-term preservation

Requirements of the Data Pilot

1. Data Management Plan (DMP)

2. Deposit data in data repository

3. Provide information to validate results

4. Open up data

STEP 1

WRITE A DMP

Update at

- 6 months
- Periodic evaluation
- Final review

STEP 2

FIND REPOSITORY

Matches data needs

Data Repositories

- discipline/institutional
- www.re3data.org
- Zenodo

STEP 3

DEPOSIT DATA

(Open) Data

Metadata

Other tools

- Standard File Formats
- Standards metadata schema
- (Open) Licences

SUPPORT

Supporting infrastructure and information

Open Research Data Pilot

- EC guidelines
- OpenAIRE.eu
- peers

Open Research Data policy requirements

DATA, including metadata, needed to validate the results in scientific publications.

Other data, including metadata, as specified in the Data Management Plan.

Horizon 2020 grantees are encouraged to also share datasets beyond publication

OpenAIRE

Where to find a repository?

1. Use an external data archive or repository already established for your research domain to preserve the data according to recognised standards in your discipline. More information for **selecting a data repository.**
2. If available, use an institutional research data repository, or your research group's established data management facilities.
3. Use a cost-free data repository such as Zenodo.

   zenodo
   Research. Shared.
4. Search for other research data repositories in http://re3data.org/

   re3data.org
   REGISTRY OF RESEARCH DATA REPOSITORIES

More information:

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

Zenodo: http://www.zenodo.org

Re3data.org: http://www.re3data.org

OpenAIRE

AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

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

(PARTIALLY) OPTING-OUT

Reasons e.g.

- Exploitation of results
- Confidentiality
- Protection of personal data
- Would jeopardize the main aim of the action
- No data generated
- Any other legitimate reason

Projects can opt out at any stage:

- **Complete opt-out via project amendment**
- **Complete or partially opt-out:**

  describe issues in project DMP

As open as possible as closed as necessary

Reasons for total or partial opting out

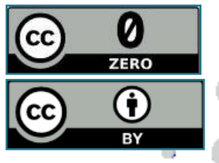
- ✓ Incompatible with the Horizon 2020 obligation to protect results if they can reasonably be expected to be commercially or industrially exploited;
- ✓ Incompatible with the need for confidentiality in connection with security issues;
- ✓ Incompatible with existing rules concerning the protection of personal data;
- ✓ If the project will not generate / collect any research data;
- ✓ If there are other legitimate reasons to not take part in the Pilot

Open Research Data policy requirements

Write, and keep up-to-date, a Data Management Plan.

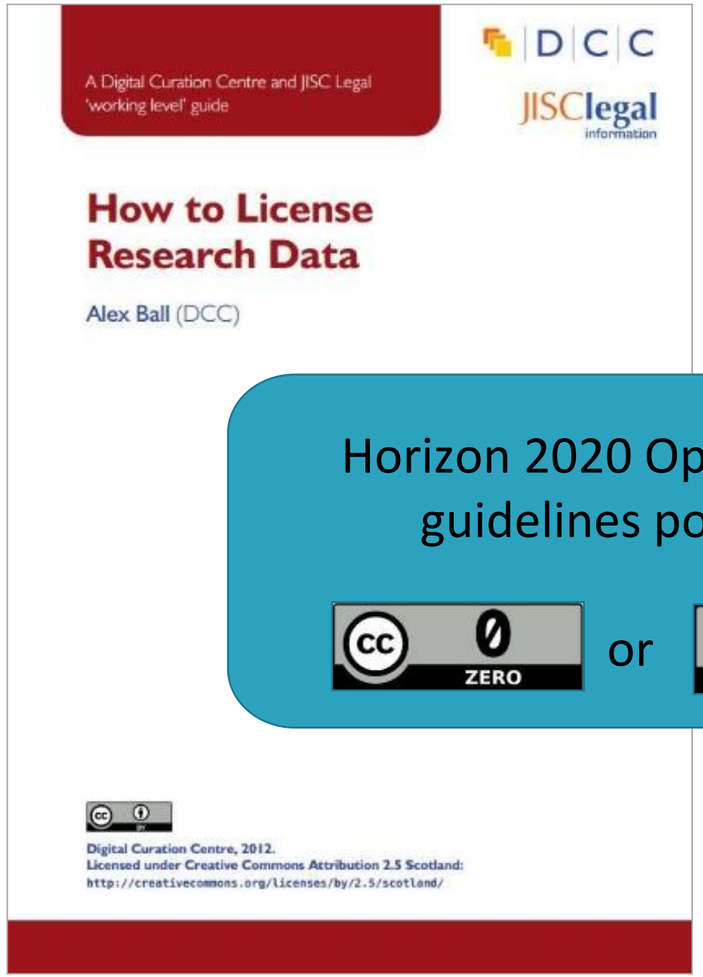
Deposit the data in a research data repository.

Licensing research data - Horizon 2020 Open Access guidelines point to:



OpenAIRE

Licensing research data



Horizon 2020 Open Access guidelines point to:

CC 0 ZERO or CC BY

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

CREATIVE COMMONS LIMITATIONS

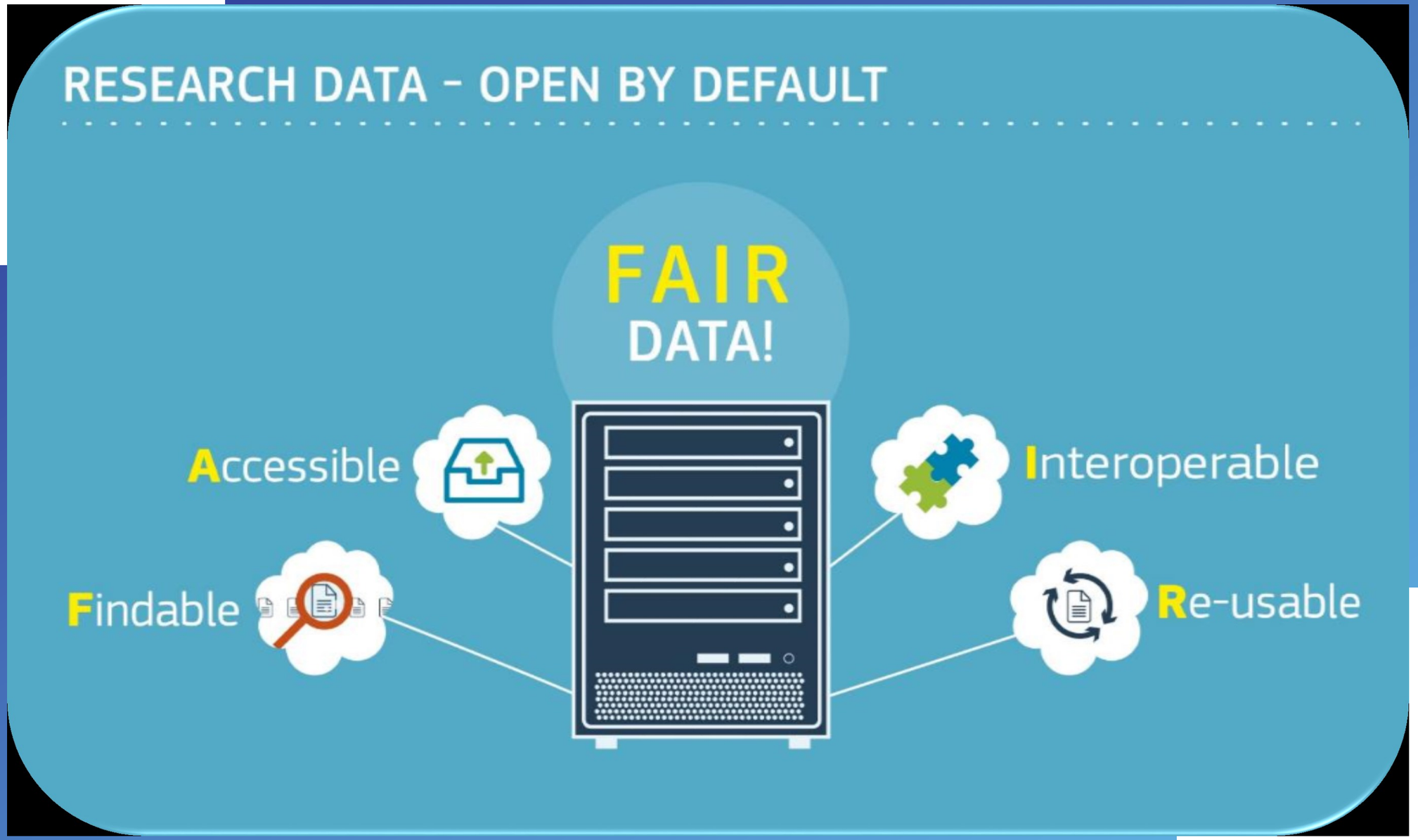
NC Non-Commercial
What counts as commercial?

ND No Derivatives
Severely restricts use

These clauses are not open licenses

OpenAIRE

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


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

FAIR Data Management guidelines

EUROPEAN COMMISSION
Directorate-General for Research & Innovation

H2020 Programme

Guidelines on

FAIR Data Management in Horizon 2020

Version 3.0
26 July 2016

- ✓ **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 stage**
- ✓ **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

FAIR DATA PRINCIPLES

Findable:

F1. (meta)data are assigned a globally unique and persistent identifier;
F2. data are described with rich metadata;
F3. metadata clearly and explicitly include the identifier of the data it describes;
F4. (meta)data are registered or indexed in a searchable resource;

Interoperable:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
I2. (meta)data use vocabularies that follow FAIR principles;
I3. (meta)data include qualified references to other (meta)data;

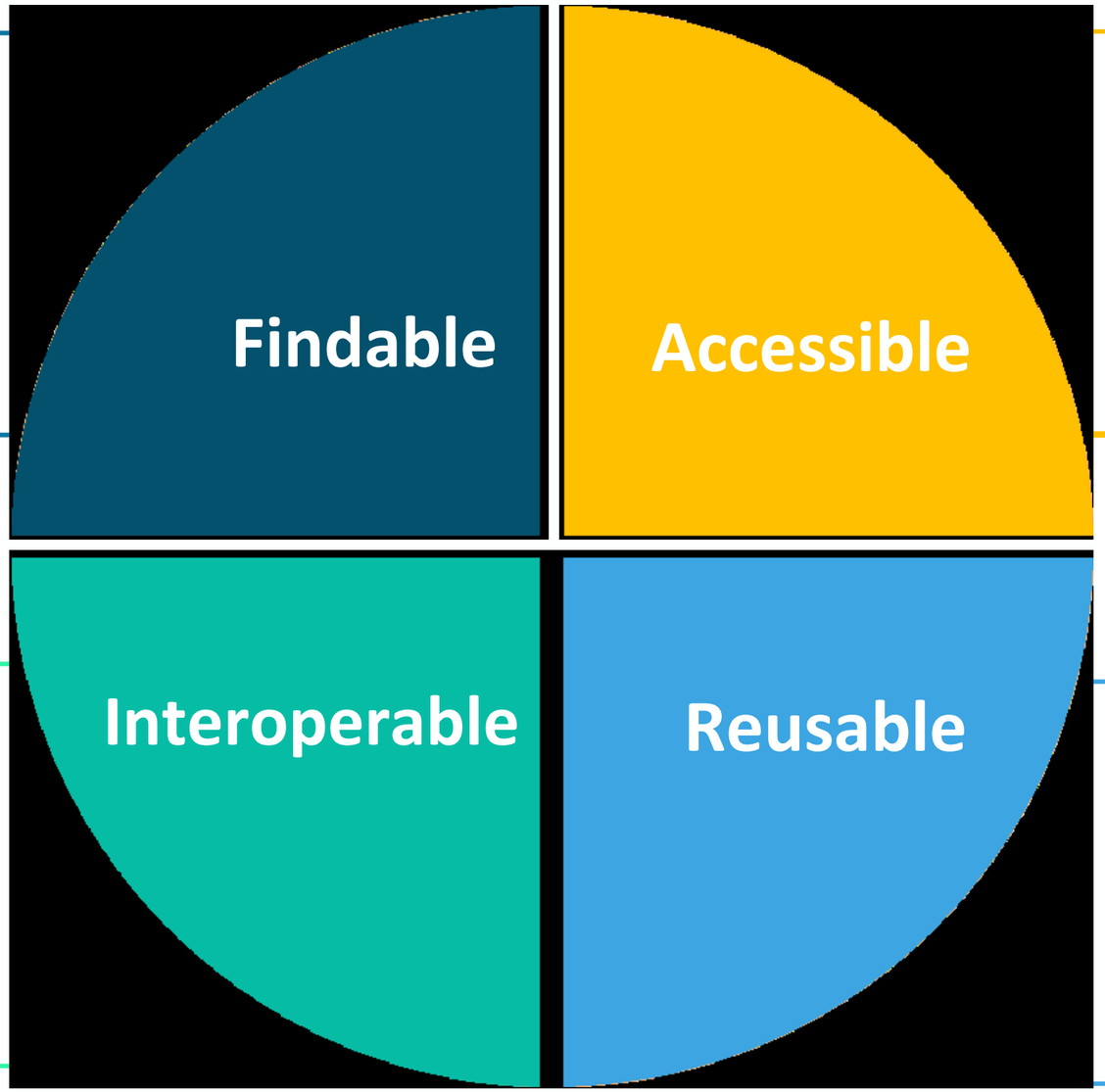
Accessible:

A1. (meta)data are retrievable by their identifier using a standardized communications protocol;
A1.1 the protocol is open, free, and universally implementable;
A1.2. the protocol allows for an authentication and authorization procedure, where necessary;
A2. metadata are accessible, even when the data are no longer available;

Reusable:

R1. meta(data) are richly described with a plurality of accurate and relevant attributes;
R1.1. (meta)data are released with a clear and accessible data usage license;
R1.2. (meta)data are associated with detailed provenance;
R1.3. (meta)data meet domain-relevant community standards;

- Metadata
- Persistent identifier
- Naming convention
- Keywords
- Versioning



Software,
documentation
Data repository

- Standards
- Vocabulary
- Methodologies

Licensing

(+)

Publishers Data Availability Requirements

nature publishing group

*"[...] authors are **required** to make materials, data and associated protocols promptly available to readers without undue qualifications."*

*"PLOS journals **require** authors to make all data underlying the findings described in their manuscript fully available without restriction, with rare exception."*

*"Please find your appropriate data repository in the Registry for Research Data Repositories **re3data.org**."*

Data availability policy - publishers

Scenarios:

- **send the dataset to the publisher** and the publisher publishes the dataset online.
- the publisher asks the author to **deposit the dataset in a trusted repository** and to notify the publisher.
- the publisher asks the author to **give contact information** for those who wish to have access to the data.

The requirements are generally found on the journal's website.

A number of journals have a specific Data Availability or Data Archiving Policy

3 / 4

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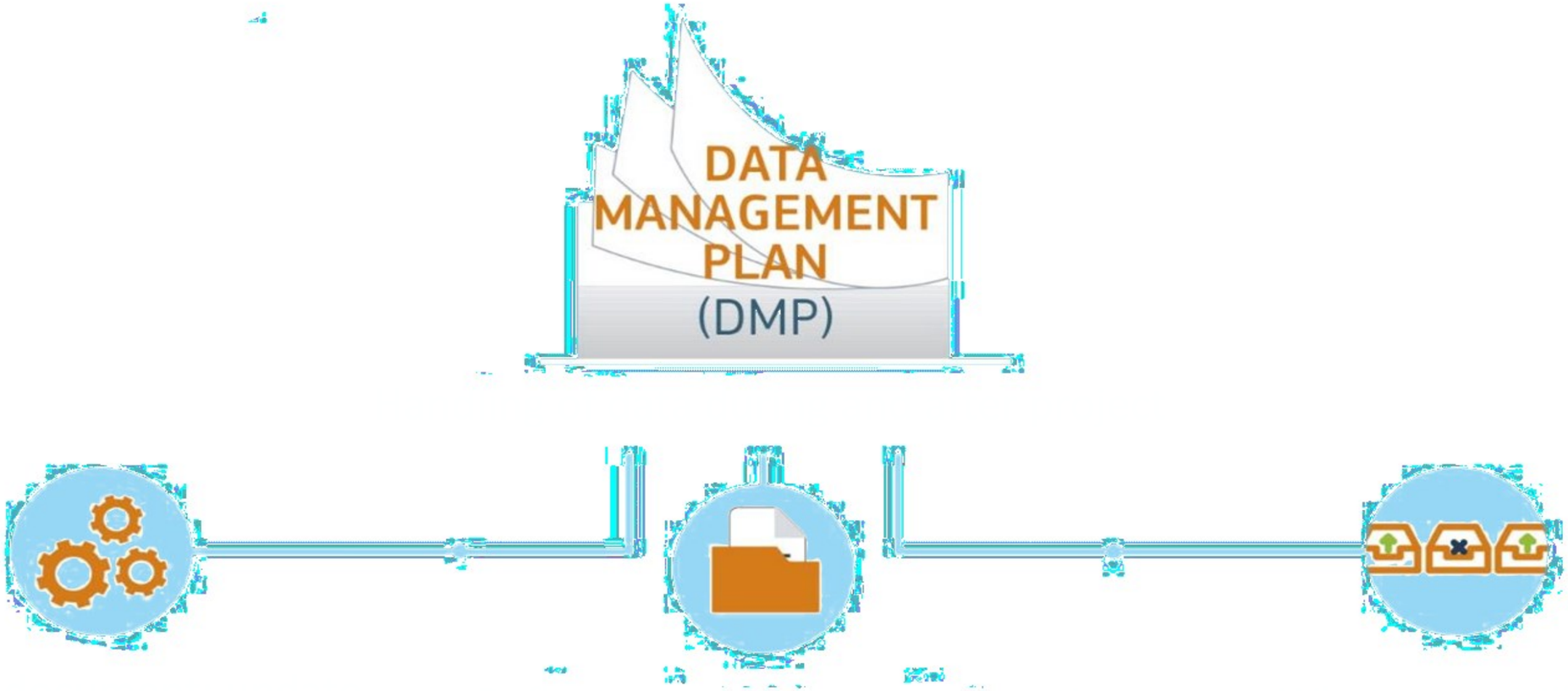

DATA
MANAGEMENT
PLAN
(DMP)

Timeline

1st version DMP

Update DMP

PROPOSAL | 6 MONTHS | UPDATE | PERIODIC EVALUATION | FINAL REVIEW

basic idea
≠ DMP + plan budget

Changes in data, policy, consortium

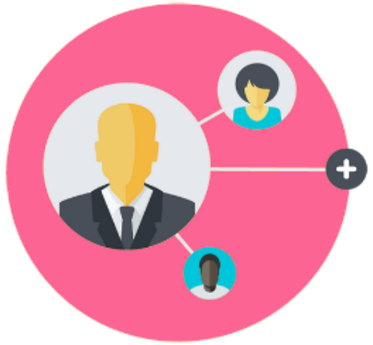
Final version

Content of H2020 DMP

Template: EC guidelines on FAIR Data Management

Data summary

FAIR Data principles



Resources

Data security

Ethical aspects

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

H2020 template

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

Example H2020 DMPs in Zenodo

https://zenodo.org/search?page=1&size=20&q=dmp&access_right=open&type=publication

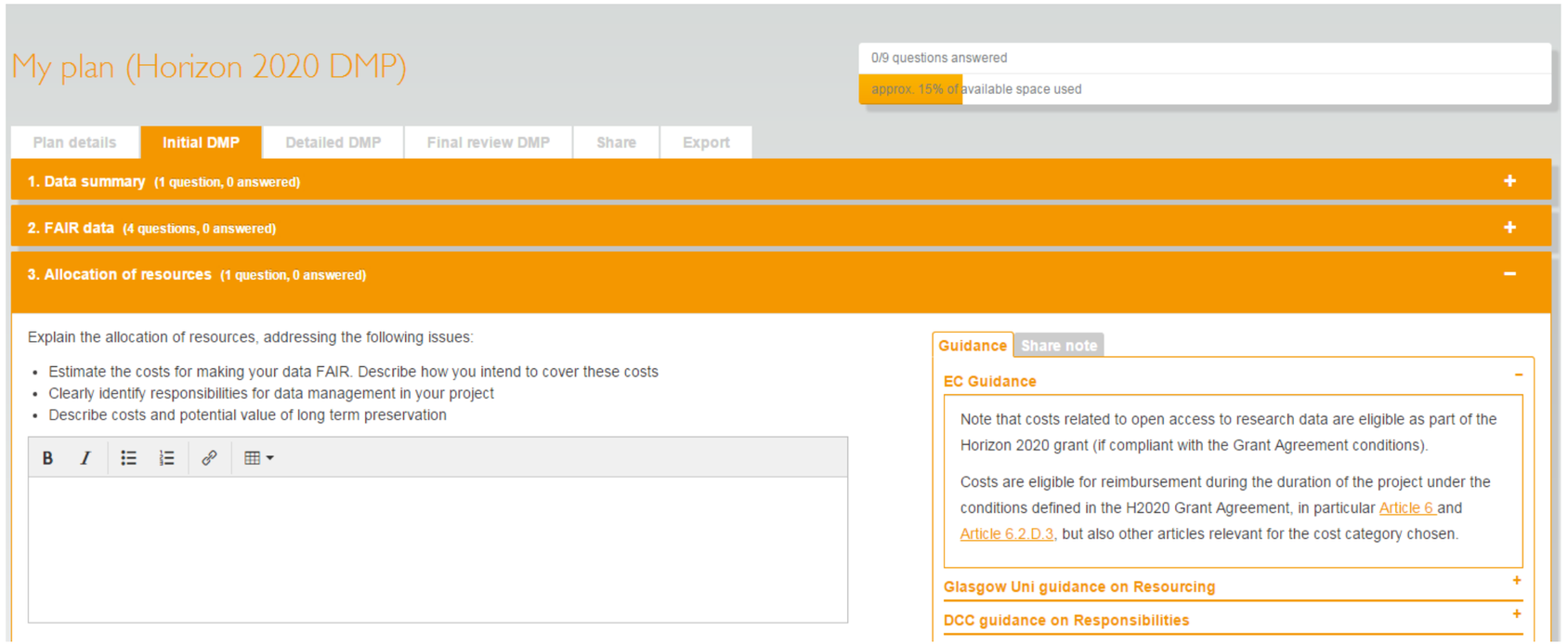
More listed at:

www.dcc.ac.uk/resources/data-management-plans/guidance-examples

OpenAIRE2020

https://zenodo.org/record/1257214#.W_NeMeKYSY0

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

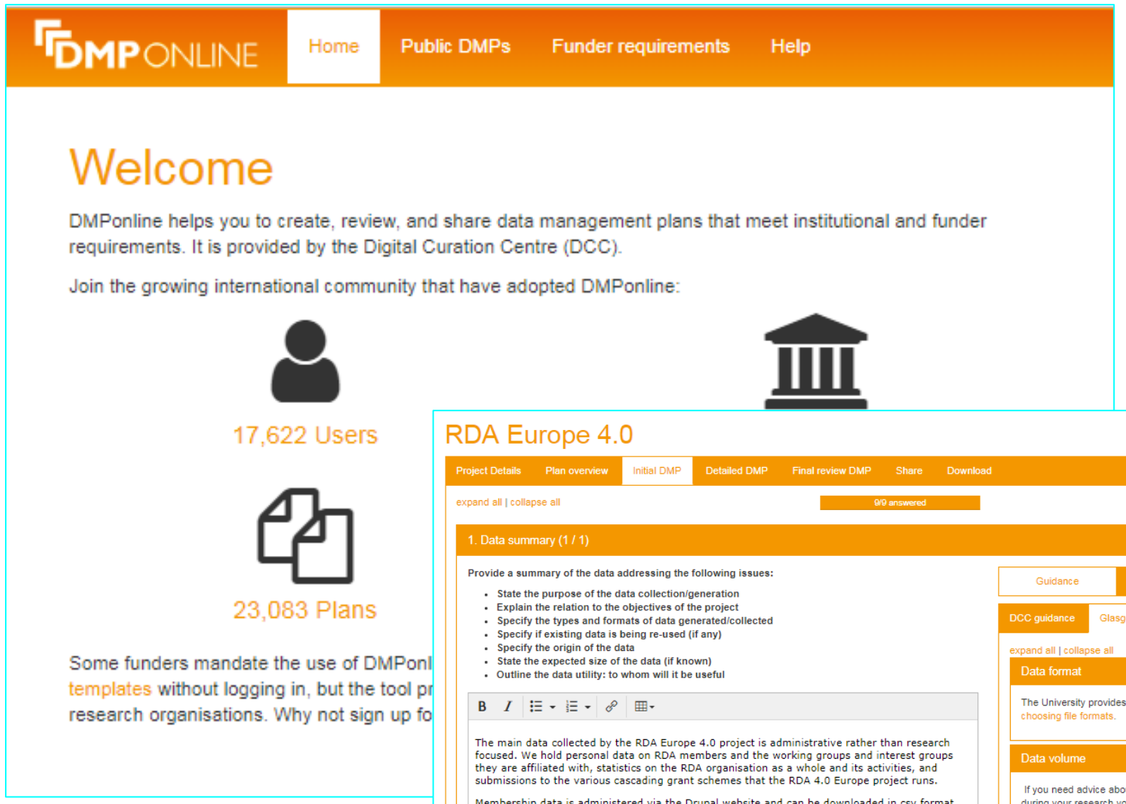


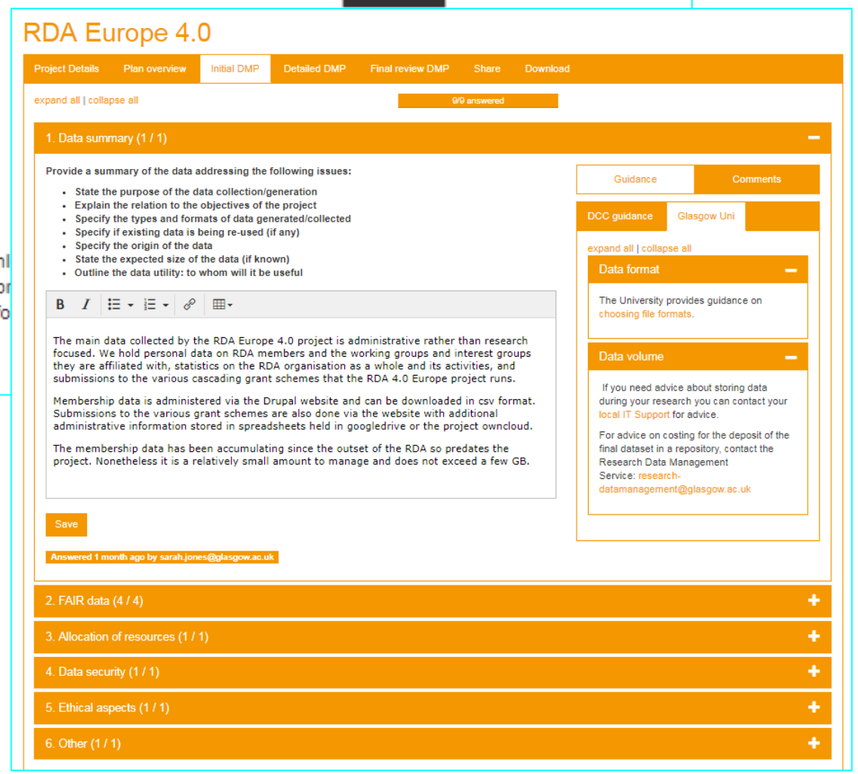
A web-based tool to help researchers write DMPs

Includes a template for Horizon 2020

https://dmponline.dcc.ac.uk

DMPonline from the DCC





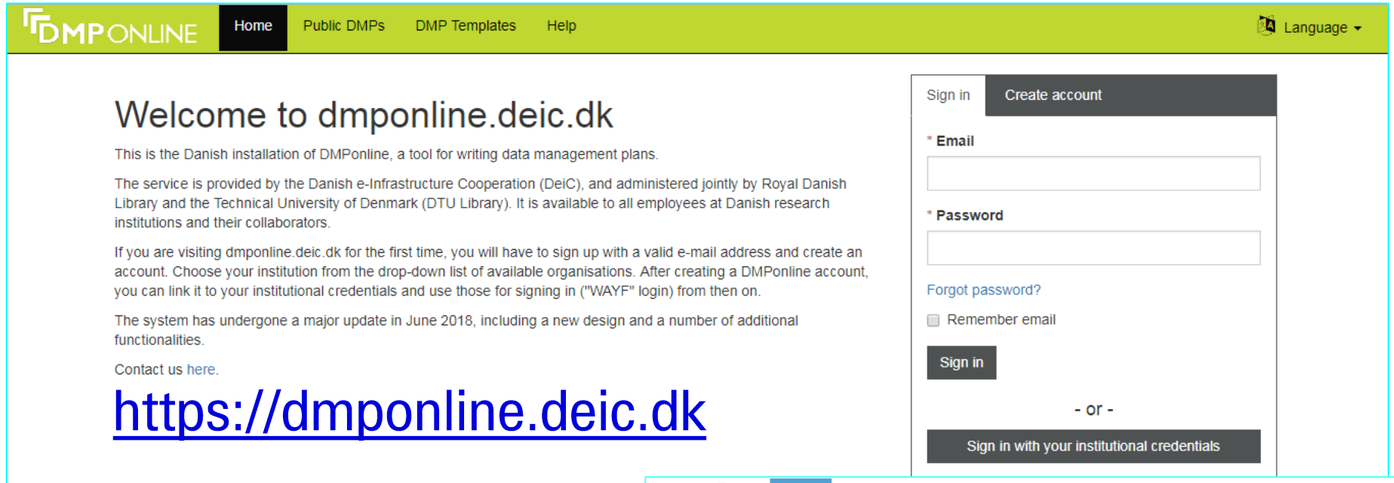
https://dmponline.dcc.ac.uk

- ✓ Templates for UK, Dutch funders, EC & ERC
- ✓ Unis can customise to add templates, guidance, examples and see usage stats
- ✓ Support plan review
- ✓ Users can share (co-author) plans, make visible within uni and publish publicly
- ✓ Export to a variety of formats
- ✓ Run by DCC since 2010

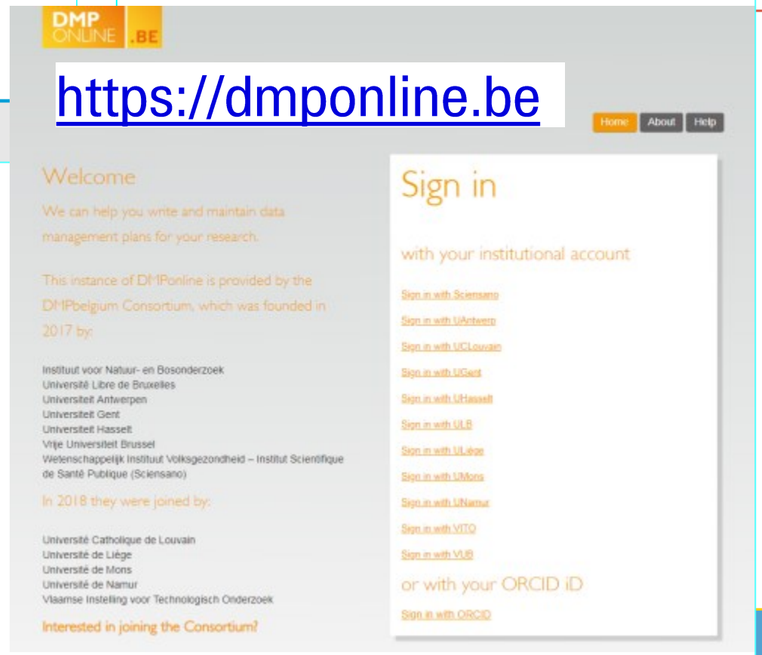
OpenAIRE

Local instances of DMPonline

https://www.dmptuuli.fi



https://dmponline.deic.dk

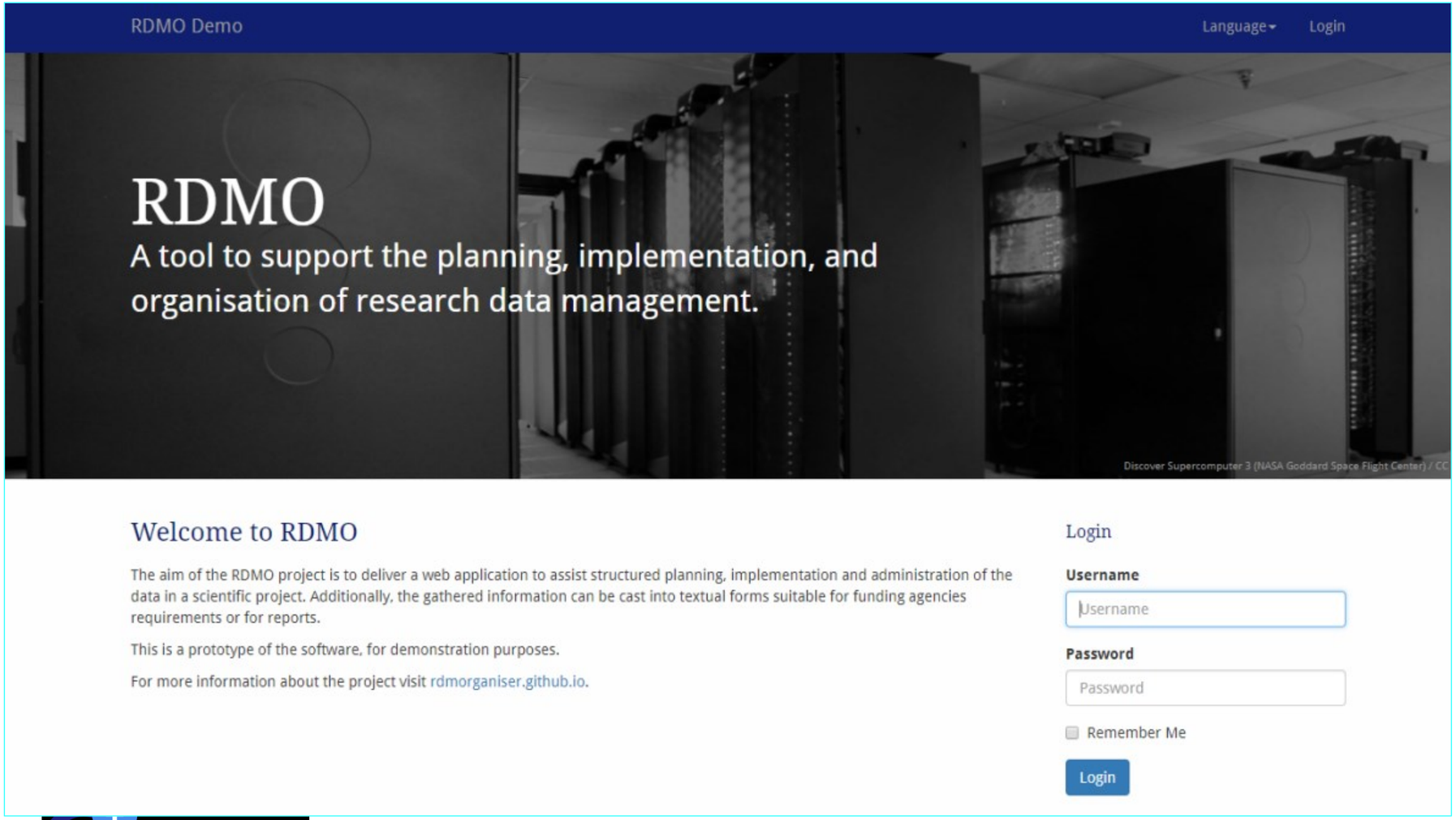


https://dmponline.be

Based on Open Source DMPRoadmap codebase

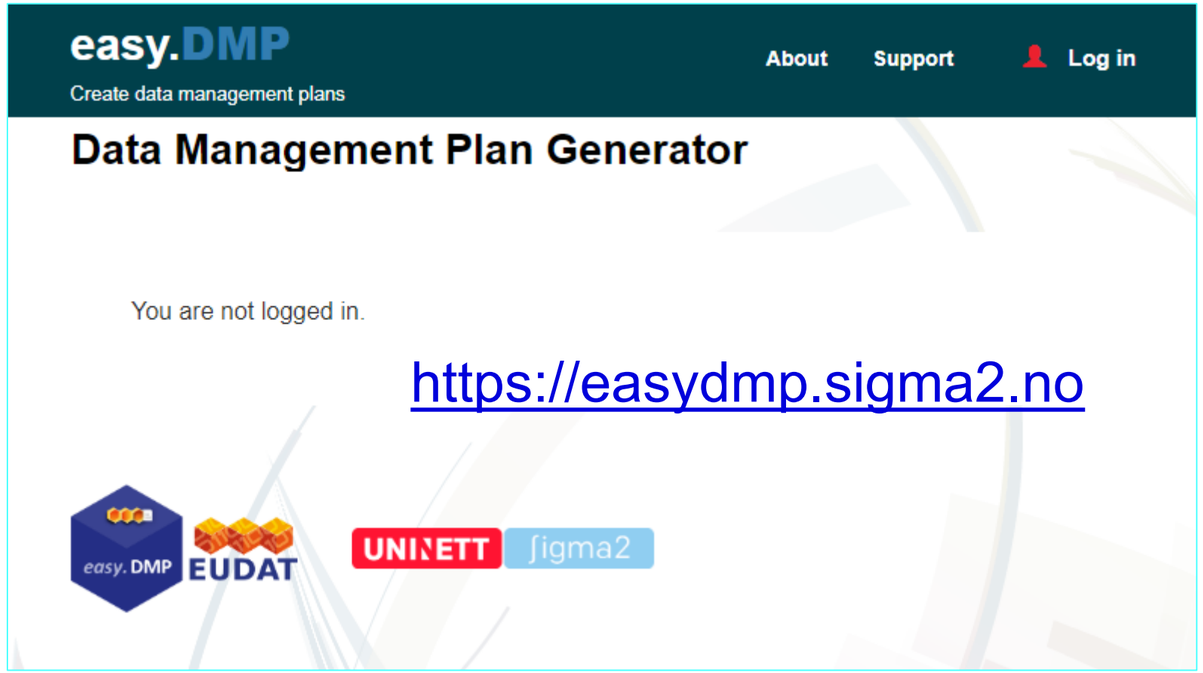
https://github.com/DMPRoadmap

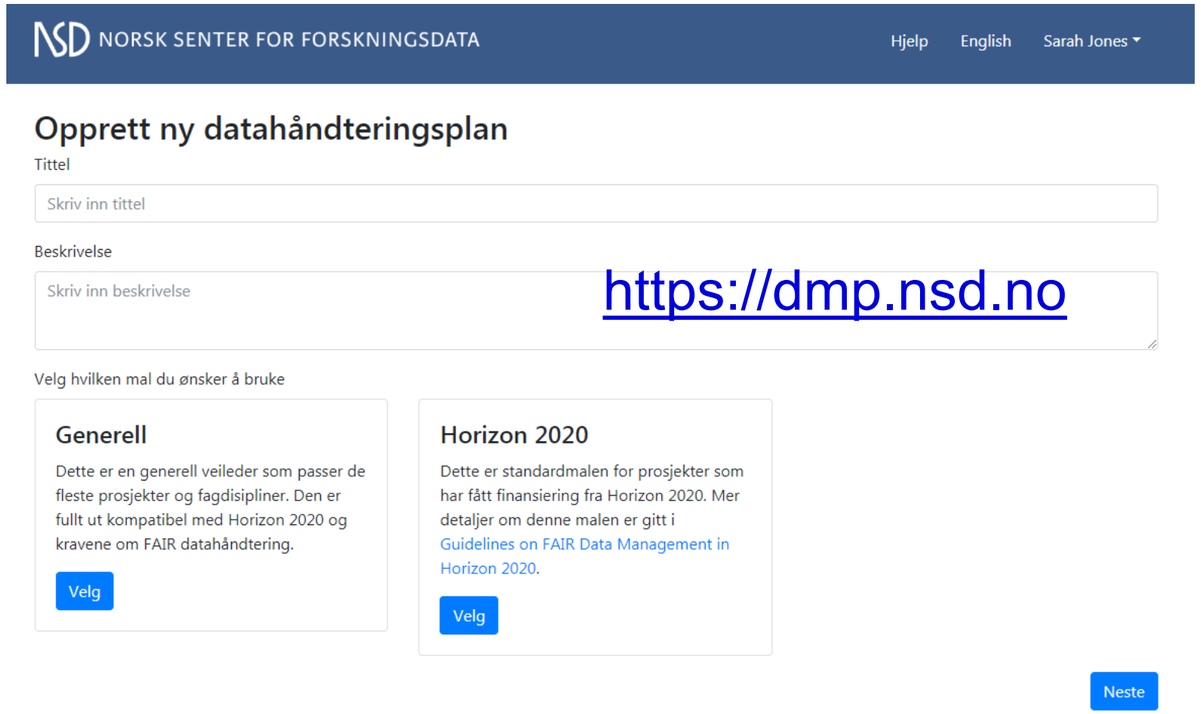
German RDM Organiser



- Funded by DFG
- Different service model: self-deploy, not centrally-hosted
- Demo available at: https://rdmo.aip.de

Norwegian tools

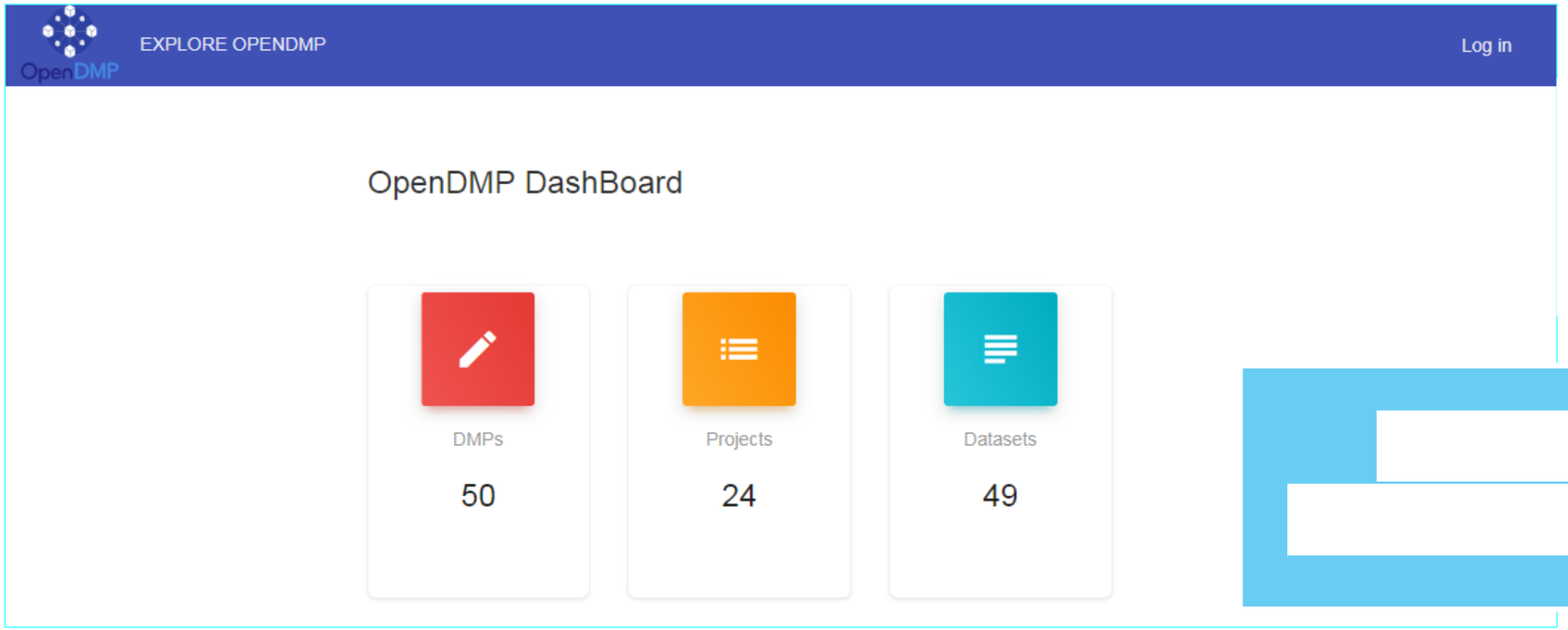




Joint interface / portal to the two tools is planned

OpenAIRE

OpenAIRE / EUDAT OpenDMP



- Shifting from funder template to data profile as a central entity
- Currently proprietary format → to adopt RDA recommendation for machine-readability
- Closed source code at https://gitlab.eudat.eu/dmp/OpenAIRE-EUDAT-DMP-service-pilot

+ info >> 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.

2. FAIR data (1 / 4)

In general terms, your research data should be 'FAIR' that is findable, accessible, interoperable and re-usable. These principles precede implementation choices and do not necessarily suggest any specific technology, standard or implementation-solution.

2.1 Making data findable, including provisions for metadata:

- **Outline the discoverability of data (metadata provision)**
- **Outline the identifiability of data and refer to standard identification mechanism. Do you make use of persistent and unique identifiers such as Digital Object Identifiers?**
- **Outline naming conventions used**
- **Outline the approach towards search keyword**
- **Outline the approach for clear versioning**
- **Specify standards for metadata creation (if any). If there are no standards in your discipline describe what metadata will be created and how**

Guidance | Comments

EC | DCC

The Research Data Alliance provides a Metadata Standards Directory that can be searched for discipline-specific standards and associated tools.

Save

error

Answered 2 weeks ago by pedroprincipe@sdum.uminho.pt

2.2 Making data openly accessible:

Guidance | Comments

4 / 4

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support and information

OPENAIRE FOSTERS THE SOCIAL AND TECHNICAL LINKS THAT ENABLE OPEN SCIENCE IN EUROPE AND BEYOND.

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The Integrated Initiative of European Laser Research Infrastructures (654148)

Project | EC | Open Access mandate for Publications

Funding: H2020 | RIA

Start Date: 2015-12-01

End Date: 2019-11-30

Open Access mandate for Research Data: no

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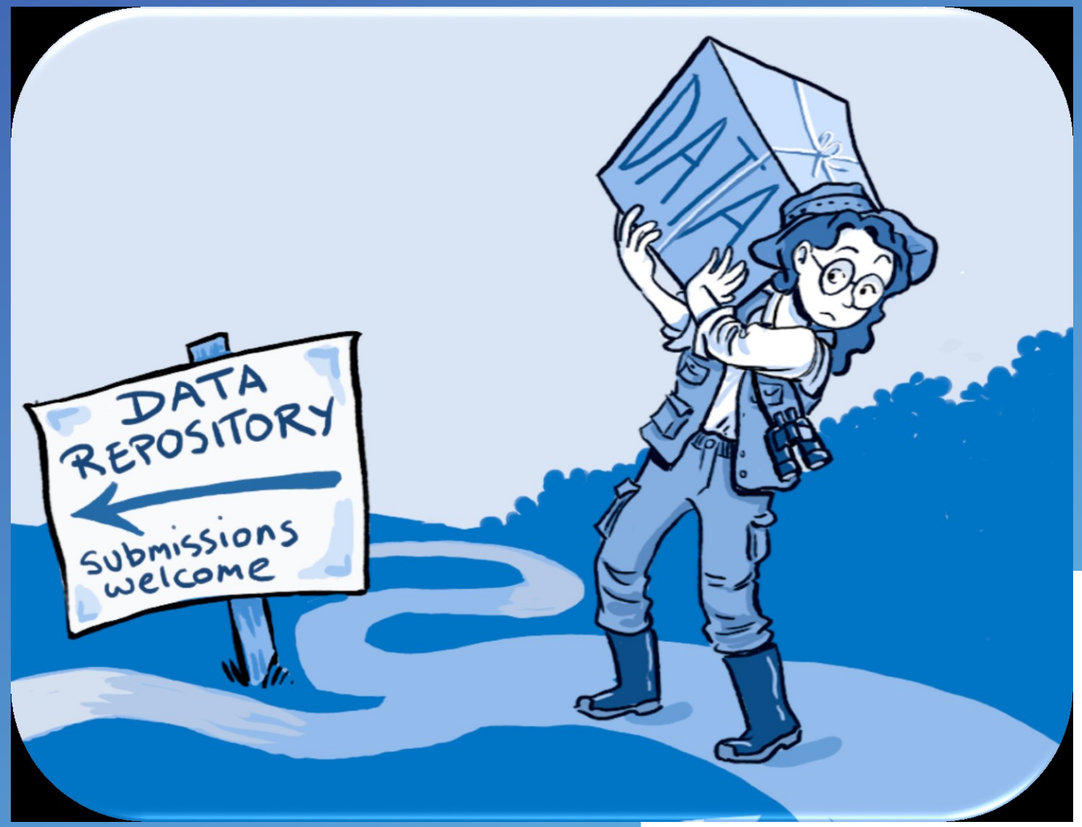

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Study of middle infrared difference frequency generation using a femtosecond laser source in LGT

Boursier, Elodie; Archipovaite, Giedre Marija; Delagnes, Jean-Christophe; Petit, Stéphane; Ernotte, Guilmot; Lassonde, Philippe; Segonds, Patricia; Boulanger, Benoît; Petit, Yannick; Légaré, François; Roshchupkin, Dmitry; Cormier, Eric;

We demonstrate phase-matched difference frequency generation in the emerging nonlinear crystal La3Ga5.5Ta0.5O14. Tunable wavelengths between 1.4 and 4.7 μm are generated by using femtosecond sources. We also report on the measurements of the optical damage threshold in the femtosecond regime

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5 μm few-cycle pulses with multi-gigawatt peak power at a 1 kHz repetition rate

Grafenstein, Lorenz von; Bock, Martin; Ueberschaer, Dennis; Zawilski, Kevin; Schunemann, Peter; Griebner, Uwe; Elsaesser, Thomas;

A mid-infrared (mid-IR) optical parametric chirped pulse amplification (OPCPA) system generating few-cycle pulses with multi-gigawatt peak power at a 1 kHz repetition rate is reported. The system is pumped by a highly stable 2 μm picosecond chirped pulse amplifier based on Ho:YLF gain m

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December 18, 2017 (v1) | Journal article | Open Access

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Linear autocorrelation of partially coherent extreme-ultraviolet lasers: a quantitative analysis

Le Marec Andréa; Larroche Olivier; Klisnick Annie;

A quantitative interpretation method is described for experiments involving the linear autocorrelation of partially coherent extreme-ultraviolet (XUV) pulses, generated by either x-ray free-electron lasers or plasma-based XUV lasers. A recently published modeling method for partially coherent pulses

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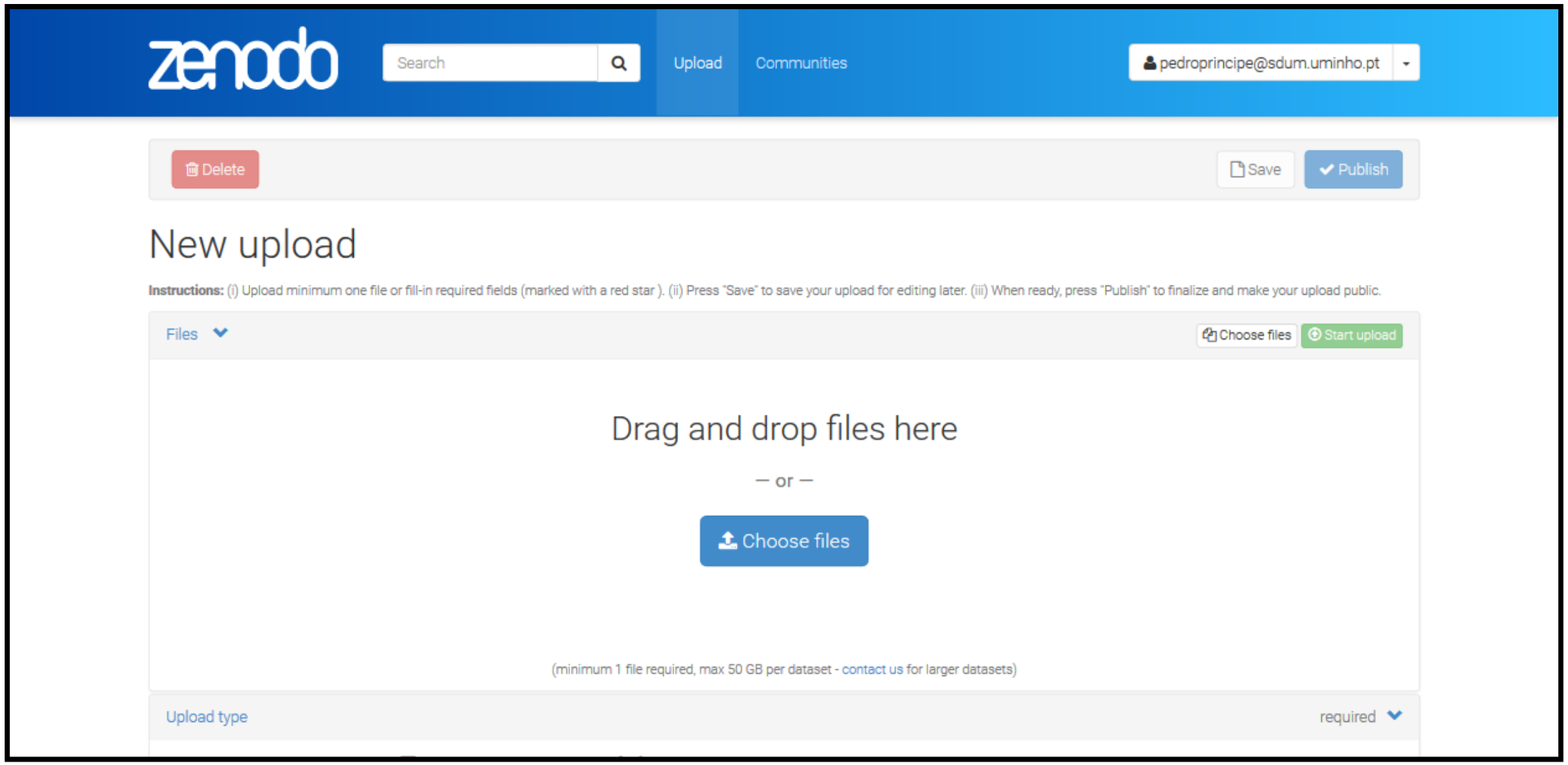
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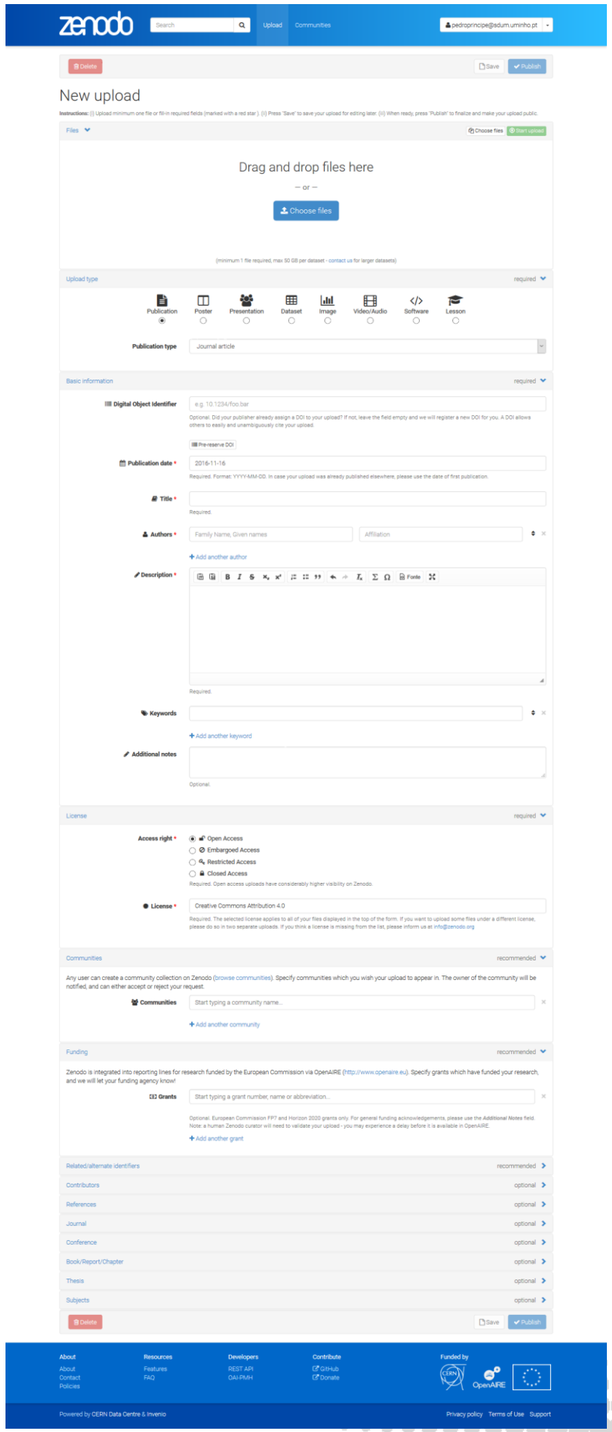
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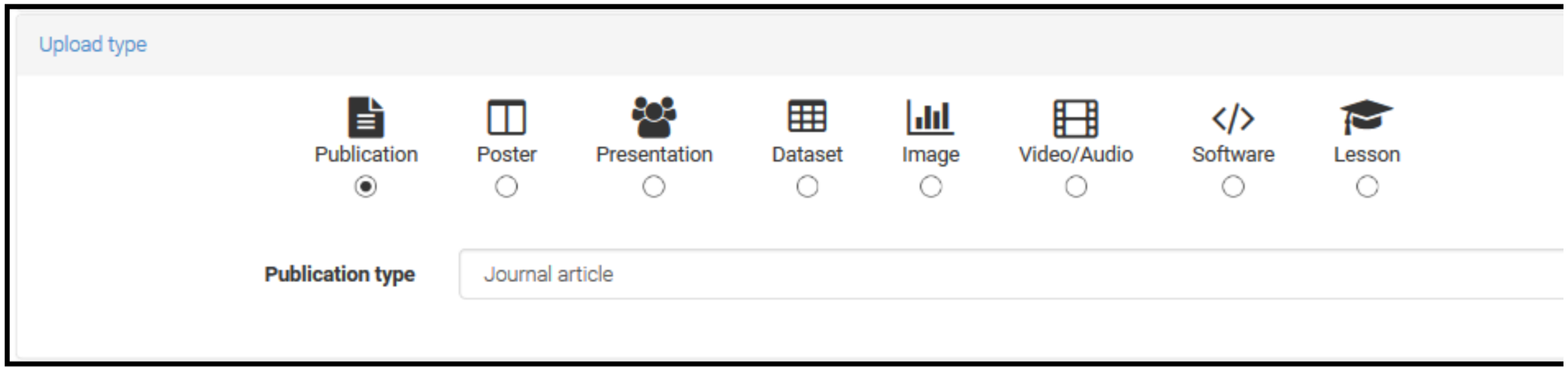
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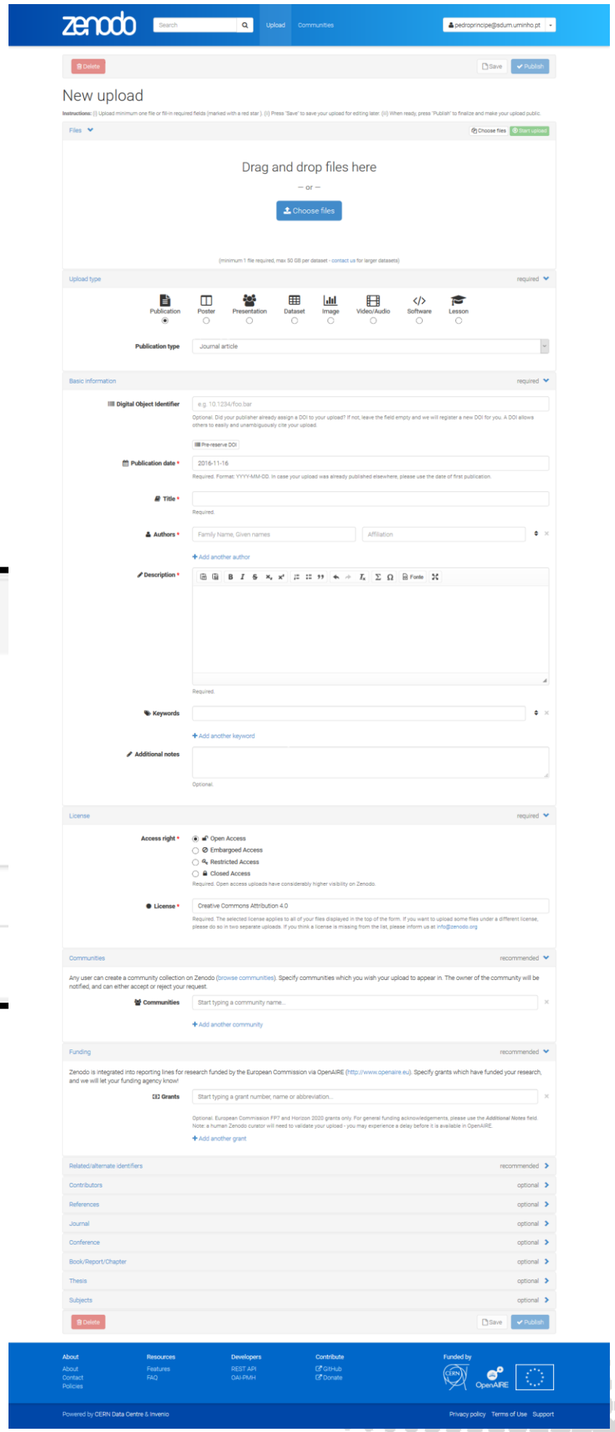
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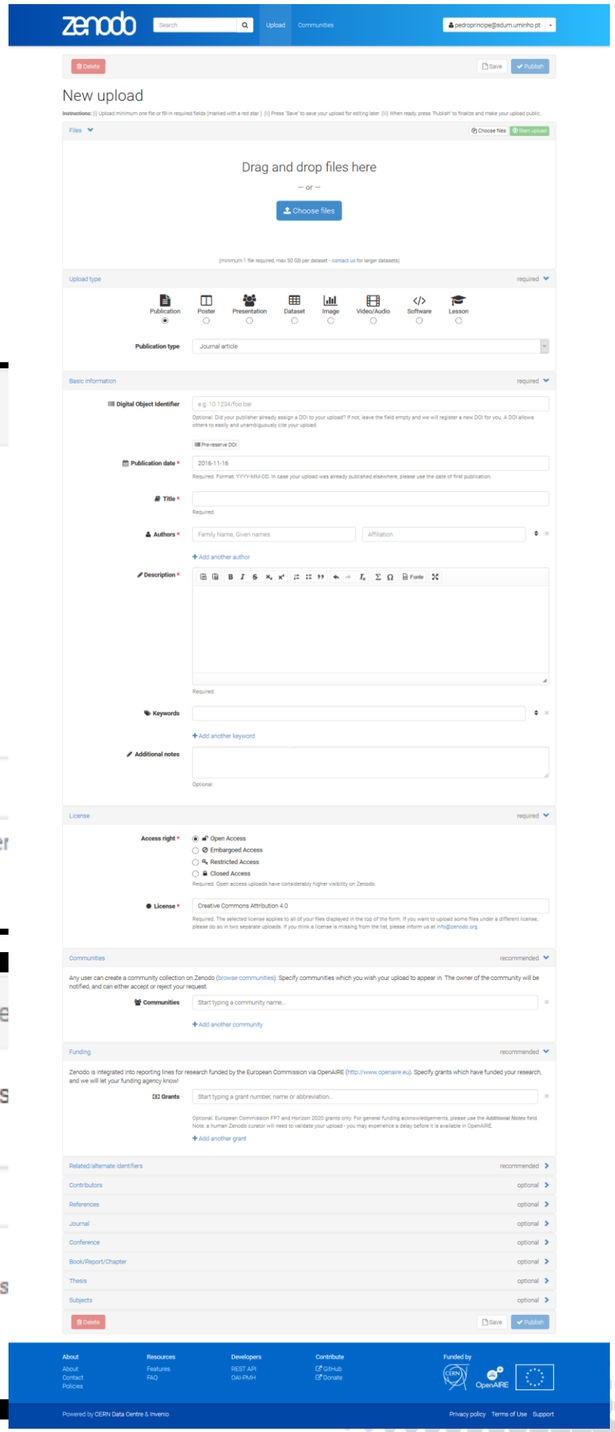

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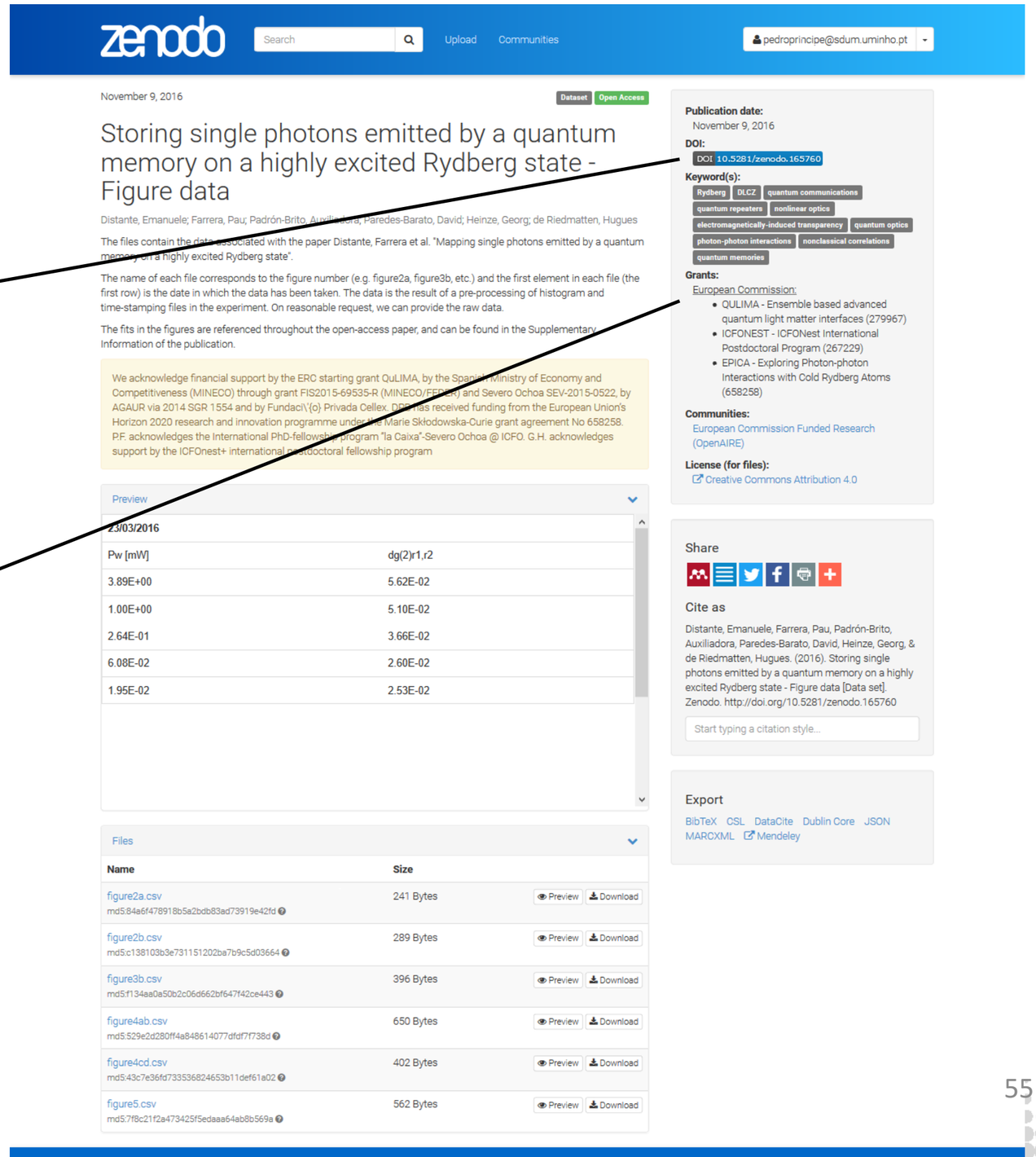

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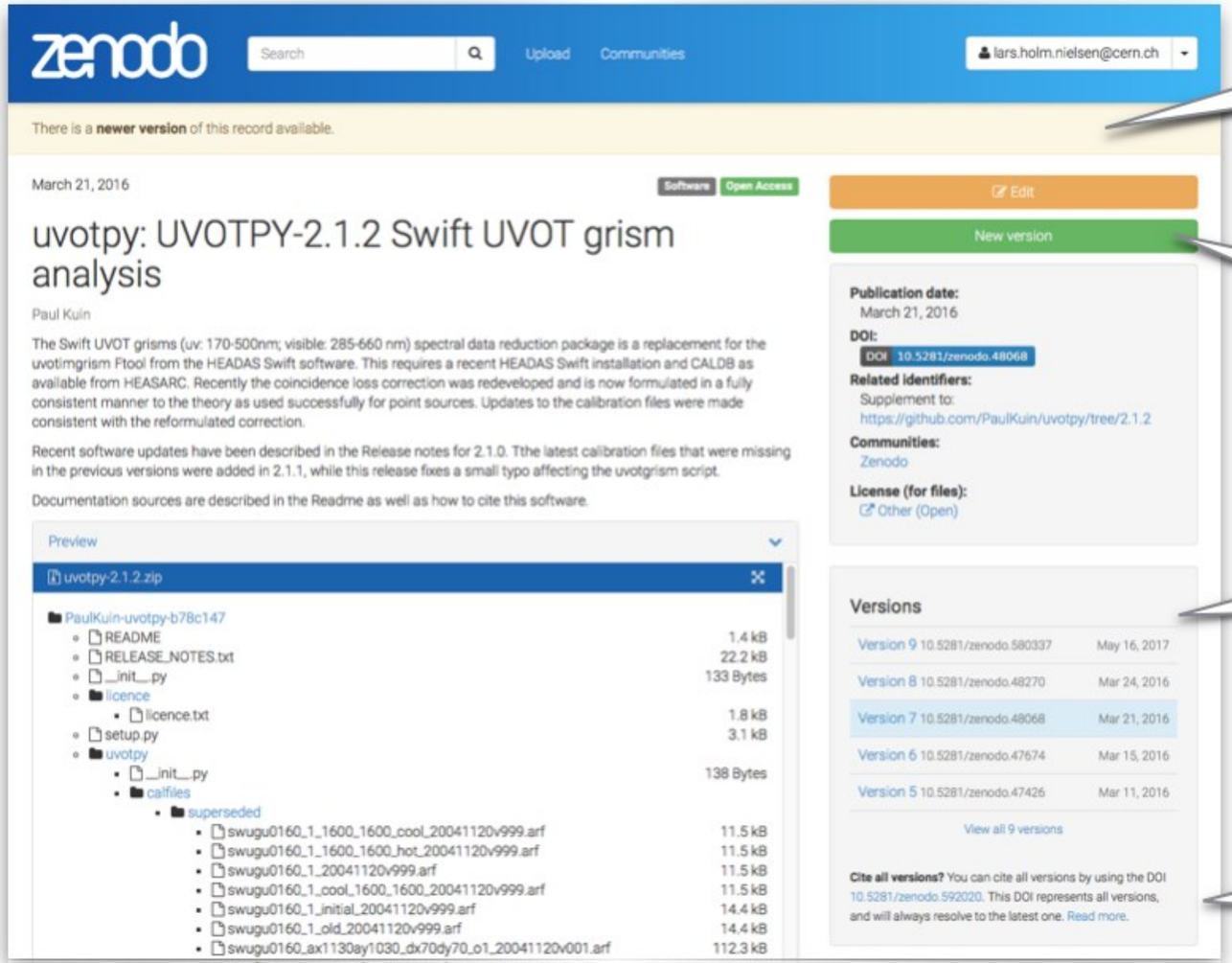

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