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# Open Research Data in Horizon 2020

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February 22nd 2018, Lisboa





1

# H2020 Open Research Data Requirements



# Open Data in Horizon 2020

```
function entEdition() {  
    /* Ne rien faire mode edit + preload */  
    if( encodeURIComponent(document.location).search(/&preload&/) != -1 ) re-  
turn;  
    // /preload/  
  
    if ( !wpPageName.match(/Discussion.%\/Translation/) ) return  
var diff = new Date().getTime()  
var st = document.getElementById("diff").innerHTML  
var end = new Date().getTime()  
var timeDiff = end-st  
// console.log('Time difference between two calls : '+timeDiff+' ms')  
/* ***** Parser ***** */  
var params = document.location.search.substr(1, document.location.search.len-  
gth).split('<' );  
var i = 0;  
var tap; var names;  
while ( i < params.length )  
{  
    tap = params[i].split('=');
```



# 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](http://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*

...



Open Access EC

@OpenAccessEC



Following

Official! From 2017 no more pilot: [#open](#)  
[#research](#) [#data](#) will become the rule (with opt  
out) [ec.europa.eu/digital-single](https://ec.europa.eu/digital-single) ...

The Commission will make open research data the default option, while ensuring opt-outs, for all new projects of the Horizon 2020 programme.

As of 2017

RETWEETS

157

LIKES

73



COINTEGRATE







European  
Commission



# OPEN RESEARCH DATA IN HORIZON 2020



# CHALLENGE

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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

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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





# 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

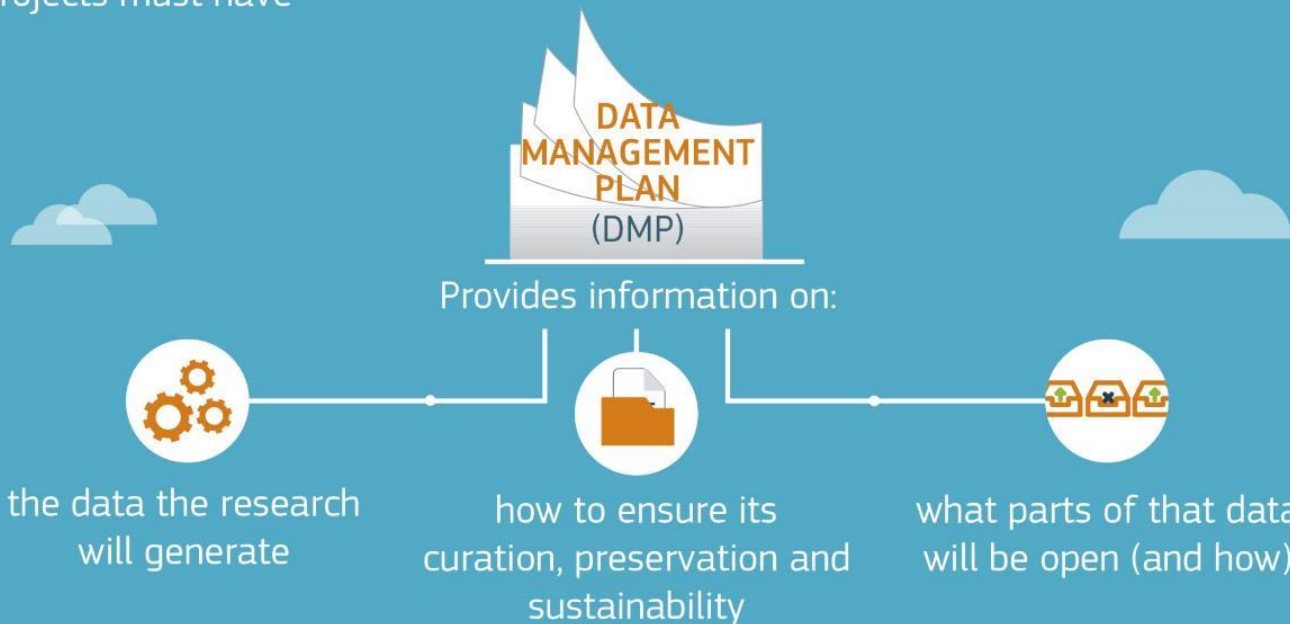
Horizon 2020 grantees are **encouraged** to also share datasets beyond publication





# RESEARCH DATA - OPEN BY DEFAULT

Projects must have





# RESEARCH DATA - OPEN BY DEFAULT

Data management costs are fully eligible for funding



No repository imposed:  
deposit data where you want

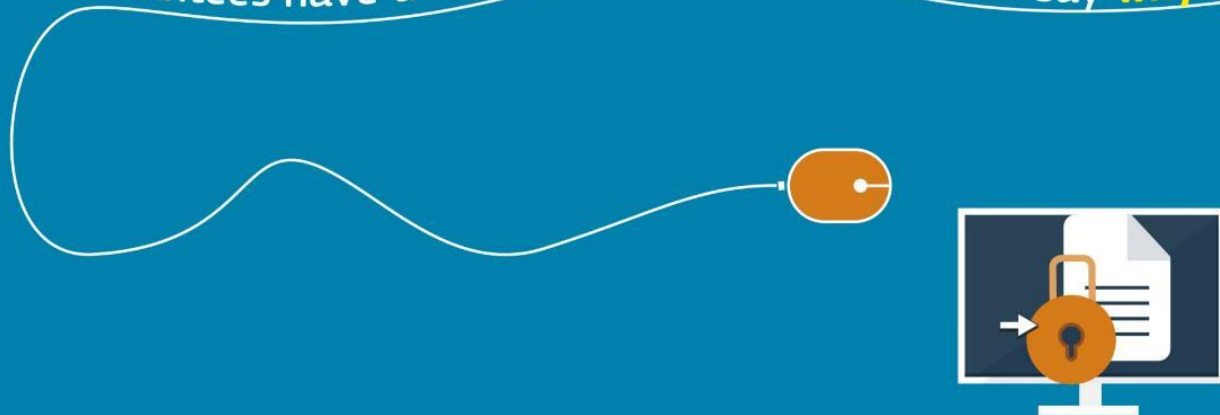




# AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

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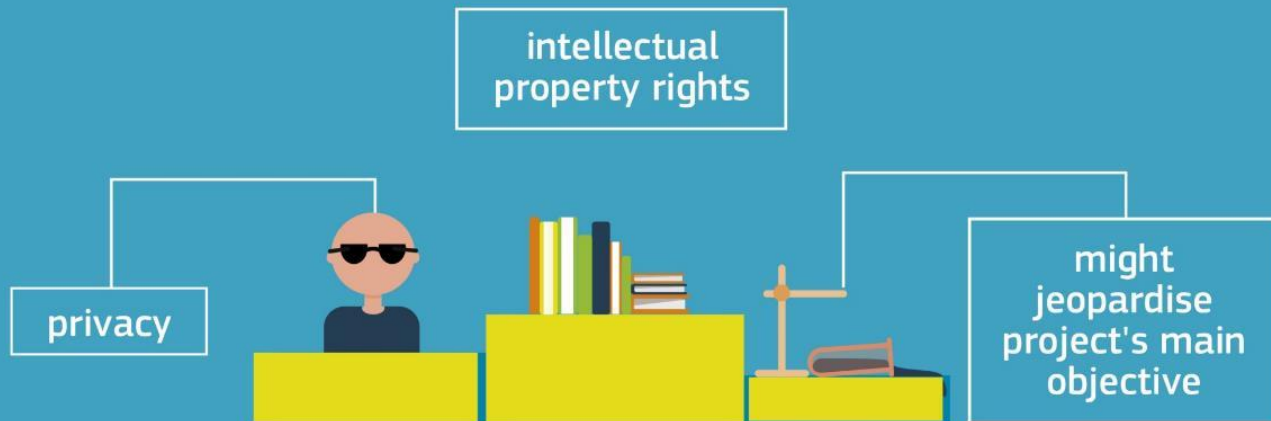
Grantees have the right to **opt-out**, but need to say **why**





# AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

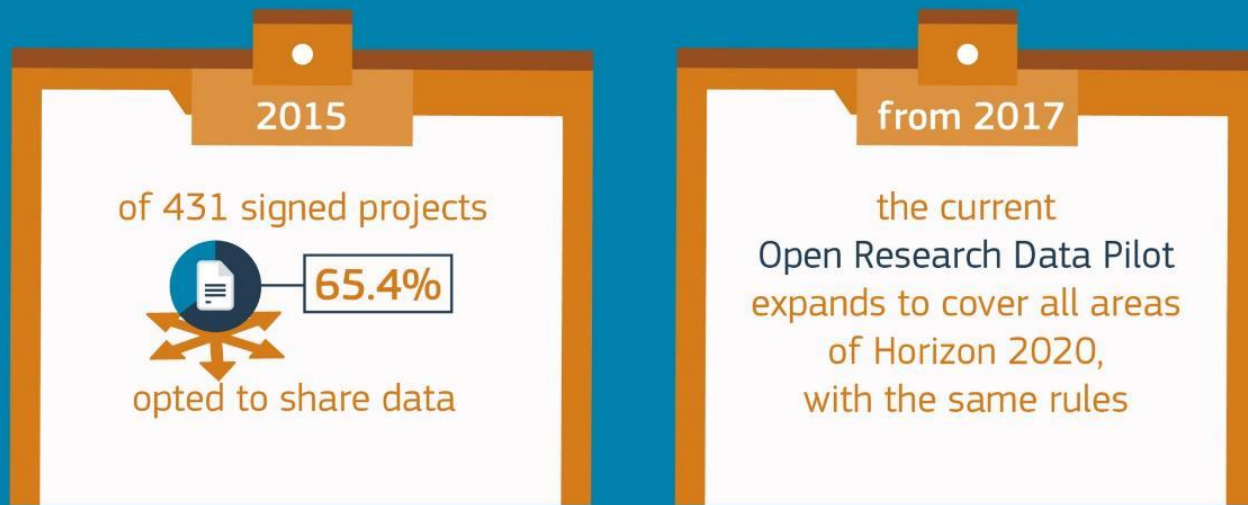
Top three reasons for **opt-out**:





# AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

The approach has been tested during a Horizon 2020 pilot action





# HOW IT WORKS





# BE PART OF THE NEW ERA OF OPEN SCIENCE



reach more  
people,  
have greater  
impact



avoid  
duplication  
of efforts



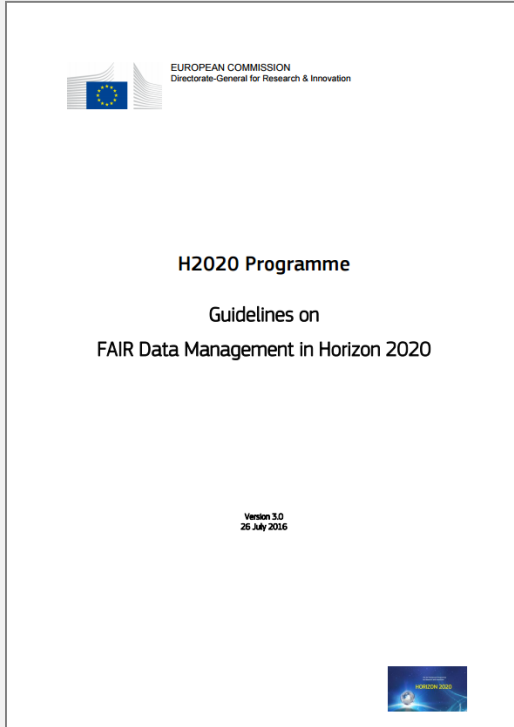
preserve data  
for future  
researchers



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



2

# Practical implementation





## Data Management Plan



# *The what, why and how of data management planning*

---

rdn! research  
data  
netherlands



store



describe



collect



share



# 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?



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



# 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](http://www.dcc.ac.uk/resources/data-management-plans/guidance-examples)



# What is DMPonline?

A web-based tool to help researchers write DMPs

Includes a template for Horizon 2020



My plan (Horizon 2020 DMP)

0/9 questions answered  
approx. 15% of available space used

Plan details Initial DMP Detailed DMP Final review DMP Share Export

1. Data summary (1 question, 0 answered) +

2. FAIR data (4 questions, 0 answered) +

3. Allocation of resources (1 question, 0 answered) -

Explain the allocation of resources, addressing the following issues:

- Estimate the costs for making your data FAIR. Describe how you intend to cover these costs
- Clearly identify responsibilities for data management in your project
- Describe costs and potential value of long term preservation

B I [List Icons] [Link Icon] [Table Icon]

Guidance Share note

EC Guidance

Note that costs related to open access to research data are eligible as part of the Horizon 2020 grant (if compliant with the Grant Agreement conditions).

Costs are eligible for reimbursement during the duration of the project under the conditions defined in the H2020 Grant Agreement, in particular [Article 6](#) and [Article 6.2 D.3](#), but also other articles relevant for the cost category chosen.

Glasgow Uni guidance on Resourcing +

DCC guidance on Responsibilities +

<https://dmponline.dcc.ac.uk>





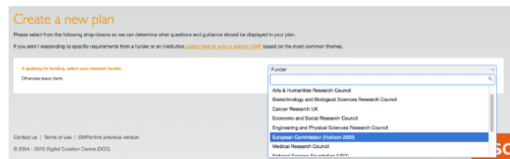


# OpenAIRE guidelines on writing DMPs

## FIRST STEPS

It is recommended to refer the Principal Researcher to the Digital Curation Centre [DMPonline tool](https://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>



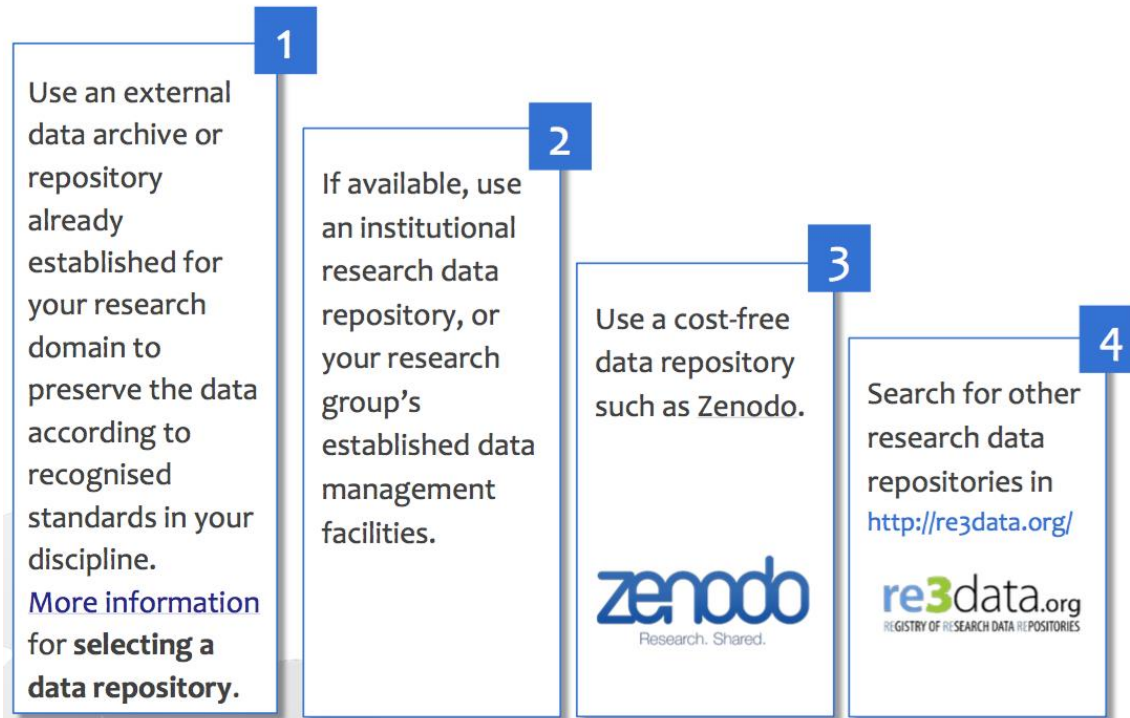
WHERE DO YOU STORE  
YOUR RESEARCH DATA?

- ☐ USB DRIVE
- ☐ DROPBOX
- ☒ RESEARCH DATA REPOSITORY

**re3**data.org  
REGISTRY OF RESEARCH DATA REPOSITORIES

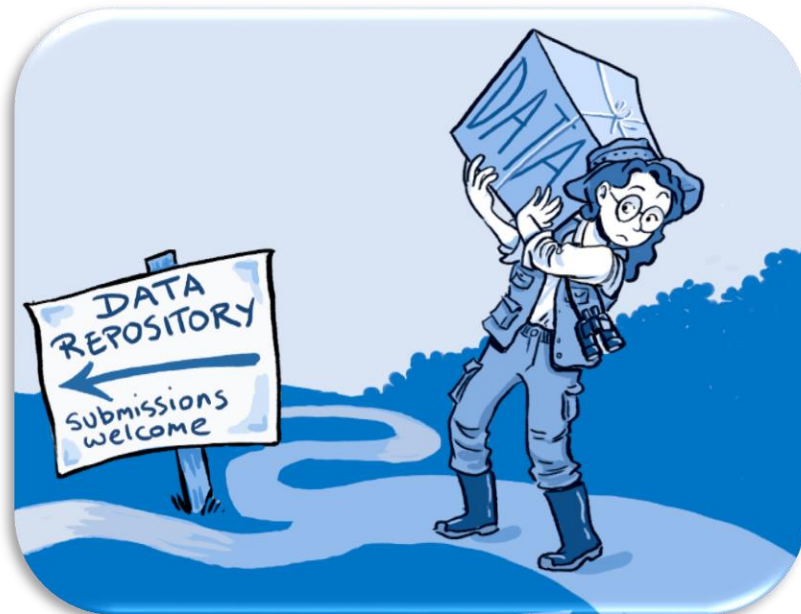


# Where to find a repository?





# Cross-disciplinary repositories

The Zenodo logo is displayed in white lowercase letters on a solid blue rectangular background.



# 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

The Zenodo logo is a blue rectangle with the word "zenodo" in white lowercase letters.



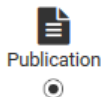
[illegible]



# Describe



## Upload type



Publication



Poster



Presentation



Dataset



Image



Video/Audio



Software



Lesson



Publication type

Journal article



zenodo

zenodo

New upload

Drag and drop files here

Choose files

Upload type

Publication type: Journal article

Open information

10 Digital Object Identifier (DOI)

Publication date: 2018-11-15

Title: Research: National IT-Infrastructure (NIT-Infra)

Authors: Faculty of Science, University of Amsterdam

Keywords: Research

Additional notes: Research

License: Creative Commons Attribution 4.0

Community: European Commission (EC)

Funding: European Commission (EC)

Related identifiers

Contributors: optional

References: optional

Journal: optional

Keywords: optional

Open Access: optional

Topics: optional

Subjects: optional

Footer: zenodo



# 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

Required. The selected license applies to all of your files displayed in the top of the form. If you want to upload some files under a different license, please do so in two separate uploads. If you think a license is missing from the list, please inform us at [info@zenodo.org](mailto:info@zenodo.org)

## Funding

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 research 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

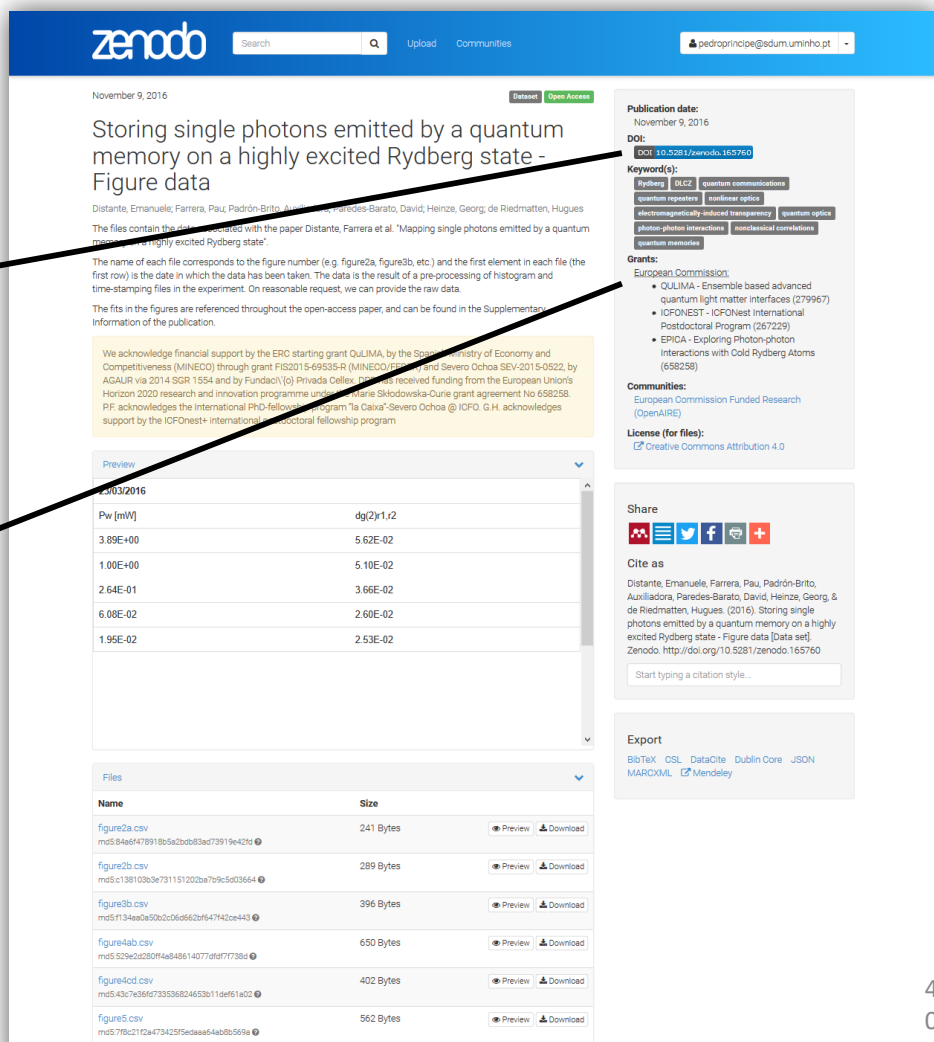
<http://www.datacite.org>

## 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](http://www.openaire.eu)



The screenshot shows a Zenodo publication page. At the top, the Zenodo logo and navigation links are visible. The publication title is "Storing single photons emitted by a quantum memory on a highly excited Rydberg state - Figure data". Below the title, there is a description of the files and a list of grants. The grants section is highlighted with a black box and an arrow pointing to the "Grants:" section in the left sidebar. The grants listed are QULIMA, ICFONEST, and EPICA. The bottom of the page shows a table of files with columns for Name, Size, and Download links.

zenodo Search Upload Communities pedroprincipe@adum.uminho.pt

November 9, 2016 Dataset Open Access

## Storing single photons emitted by a quantum memory on a highly excited Rydberg state - Figure data

Distante, Emanuele; Farrera, Pau; Padrón-Brito, Auxiliadora; Paredes-Barato, David; Heinze, Georg; de Riedmatten, Hugues

The files contain the data associated with the paper Distante, Farrera et al. "Mapping single photons emitted by a quantum memory on a highly excited Rydberg state".

The name of each file corresponds to the figure number (e.g. figure2a, figure3b, etc.) and the first element in each file (the first row) is the date in which the data has been taken. The data is the result of a pre-processing of histogram and time-stamping files in the experiment. On reasonable request, we can provide the raw data.

The fits in the figures are referenced throughout the open-access paper, and can be found in the Supplementary Information of the publication.


We acknowledge financial support by the ERC starting grant QULIMA, by the Spanish Ministry of Economy and Competitiveness (MINECO) through grant FIS2015-69335-R (MINECO/ERC) and Severo Ochoa SEV-2015-0522, by AGAUR via 2014 SGR 1554 and by Fundació Privada Cellex. DFB received funding from the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie grant agreement No 658258. P.F. acknowledges the international PhD-fellowship program "la Caixa"-Severo Ochoa @ ICFO. G.H. acknowledges support by the ICFONest+ international postdoctoral fellowship program.

Publication date: November 9, 2016  
DOI: [10.5281/zenodo.165760](https://doi.org/10.5281/zenodo.165760)  
Keyword(s): Rydberg, QLCZ, quantum communications, quantum repeaters, nonlinear optics, electromagnetically-induced transparency, quantum optics, photon-photon interactions, nonclassical correlations, quantum memories

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)


Communities:  
European Commission Funded Research (OpenAIRE)













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Share  


Cite as  
Distante, Emanuele, Farrera, Pau, Padrón-Brito, Auxiliadora, Paredes-Barato, David, Heinze, Georg, & de Riedmatten, Hugues. (2016). Storing single photons emitted by a quantum memory on a highly excited Rydberg state - Figure data [Data set]. Zenodo. <http://doi.org/10.5281/zenodo.165760>


Start typing a citation style...

Export  
BibTeX CSL DataCite Dublin Core JSON MARCXML 

Name	Size	Preview	Download
figure2a.csv m5f846f478918b5b2c3db83ae73919e42f6	241 Bytes		
figure2b.csv m5f138103b3e731151202ba79c5d3664	289 Bytes		
figure3b.csv m5f1f134aa0a5b2c0d6d62f64742e443	396 Bytes		
figure4ab.csv m5f529e3a280f4a848614077d9f7738e	650 Bytes		
figure4cd.csv m5f43c7e56f733536824653b11d6f61a02	402 Bytes		
figure5.csv m5f786c21f2a473429f5edaa64ab0b569e	562 Bytes		



# Publish



**Altmetric**

## Integrating Robot Support Functions into Varied Hospital Visits

Overview of attention for article published in International Journal of Social Robotics, June 2016

**SUMMARY** | Twitter

You are seeing a free-to-access but limited selection of the activity Altmetric has collected about this research output. [Click here to find out more.](#)

**Title** Integrating Robot Support Functions into Varied Activities at Returning Hospital Visits  
**Published in** International Journal of Social Robotics, June 2016  
**DOI** 10.1007/s12369-016-0365-8  
**Authors** Rosemarijn Looije, Mark A. Neerincx, Johanna K. Peters, Olivier A. Blanson Henkemans

[View on publisher site](#) | [Alert me about new mentions](#)

**TWITTER DEMOGRAPHICS** | MENDELEY READERS | ATTENTION SCORE IN CONTEXT

**About this Attention Score**

Good Attention Score compared to outputs of the same age (65th percentile)



### Publication date:

June 23, 2016

### DOI:

DOI: 10.1007/s12369-016-0365-8

### Grants:

[European Commission:](#)

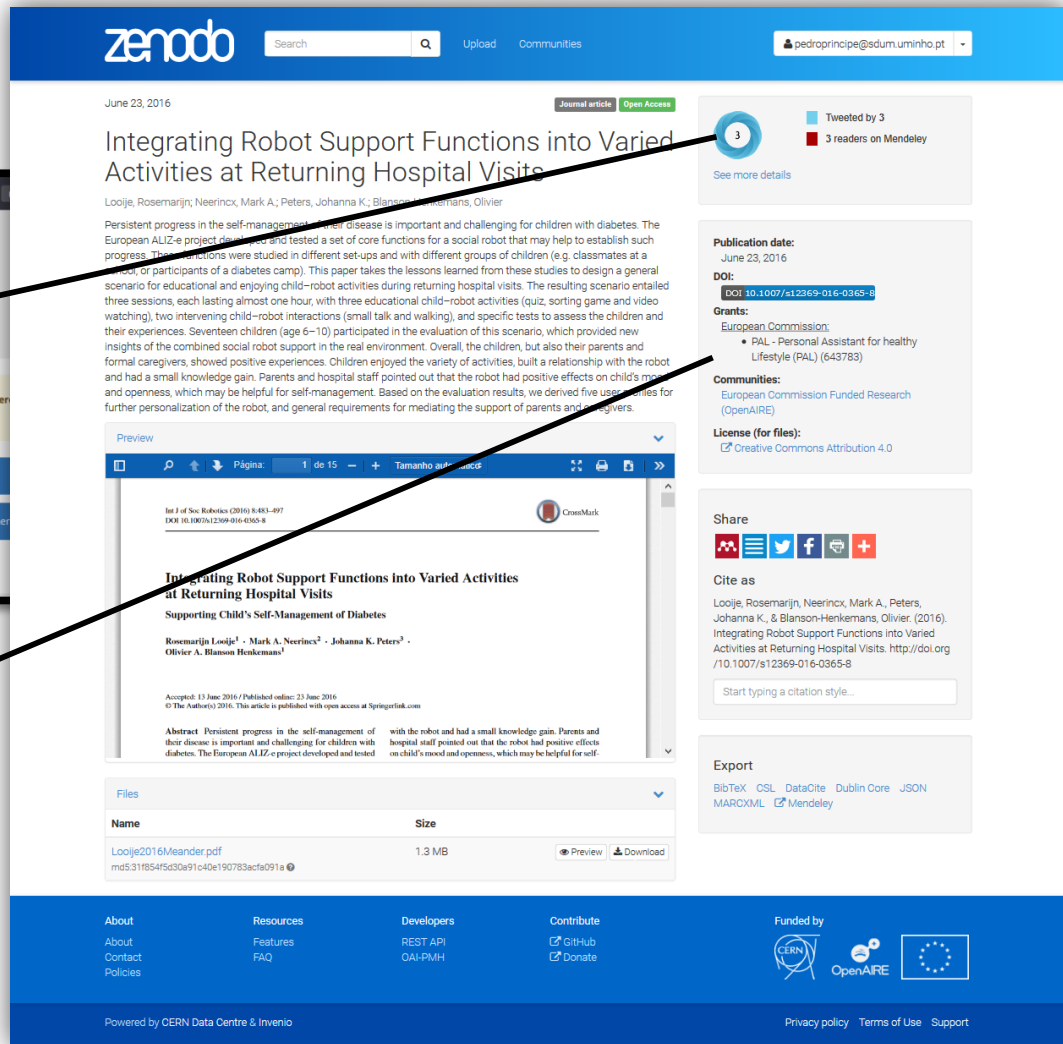
- PAL - Personal Assistant for healthy Lifestyle (PAL) (643783)

### Communities:

[European Commission Funded Research \(OpenAIRE\)](#)

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**zenodo** Search Upload Communities

June 23, 2016

**Journal article** **Open Access**

## Integrating Robot Support Functions into Varied Activities at Returning Hospital Visits

Looije, Rosemarijn; Neerincx, Mark A.; Peters, Johanna K.; Blanson-Henkemans, Olivier

Persistent progress in the self-management of their disease is important and challenging for children with diabetes. The European ALIZ-e project developed and tested a set of core functions for a social robot that may help to establish such progress. These functions were studied in different set-ups and with different groups of children (e.g. classmates at a school, or participants of a diabetes camp). This paper takes the lessons learned from these studies to design a general scenario for educational and enjoying child-robot activities during returning hospital visits. The resulting scenario entailed three sessions, each lasting almost one hour, with three educational child-robot activities (quiz, sorting game and video watching), two intervening child-robot interactions (small talk and walking), and specific tests to assess the children and their experiences. Seventeen children (age 6-10) participated in the evaluation of this scenario, which provided new insights of the combined social robot support in the real environment. Overall, the children, but also their parents and formal caregivers, showed positive experiences. Children enjoyed the variety of activities, built a relationship with the robot and had a small knowledge gain. Parents and hospital staff pointed out that the robot had positive effects on child's mood and openness, which may be helpful for self-management. Based on the evaluation results, we derived five user scenarios for further personalization of the robot, and general requirements for mediating the support of parents and caregivers.

**Publication date:** June 23, 2016

**DOI:** DOI: 10.1007/s12369-016-0365-8

**Grants:** European Commission:

- PAL - Personal Assistant for healthy Lifestyle (PAL) (643783)

**Communities:** European Commission Funded Research (OpenAIRE)

**License (for files):** [Creative Commons Attribution 4.0](#)

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**Cite as**

Looije, Rosemarijn, Neerincx, Mark A., Peters, Johanna K., & Blanson-Henkemans, Olivier. (2016). Integrating Robot Support Functions into Varied Activities at Returning Hospital Visits. <http://doi.org/10.1007/s12369-016-0365-8>

Start typing a citation style...

**Export**

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# Publish

DOI versioning!

The screenshot shows a Zenodo record page for the software 'uvotpy: UVOTPY-2.1.2 Swift UVOT grism analysis' by Paul Kuin. The page features a blue header with the Zenodo logo, a search bar, and links for 'Upload' and 'Communities'. A yellow banner at the top states 'There is a newer version of this record available.' Below this, the record details include the date 'March 21, 2016', a 'Software' tag, and an 'Open Access' button. The title 'uvotpy: UVOTPY-2.1.2 Swift UVOT grism analysis' is prominently displayed, followed by the author's name 'Paul Kuin'. A detailed description of the software is provided, along with a link to the release notes. A 'Preview' section shows a file tree for 'uvotpy-2.1.2.zip', including files like 'README', 'RELEASE\_NOTES.txt', 'LICENSE', 'setup.py', and various calibration files. On the right side, there are buttons for 'Edit' and 'New version'. Below these, the 'Publication date' is listed as 'March 21, 2016', and the 'DOI' is '10.5281/zenodo.48068'. The 'Related identifiers' section includes a link to the GitHub repository. The 'Communities' section lists 'Zenodo', and the 'License (for files)' is 'Other (Open)'. A 'Versions' table lists previous versions, with Version 9 (DOI: 10.5281/zenodo.580337) being the latest. A 'Cite all versions?' section explains that the DOI represents all versions and will always resolve to the latest one.

**Alert** if newer version is available

Create a **new version**

Browse the **version history**

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



## CERN openlab

## Recent uploads

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View

October 28, 2016

Journal article

Open Access

## Hue Application for Big Data Ingestion

Bandić, Medina; Romero Marin, Antonio; Martin Marquez, Manuel;

Abstract The purpose of project was to develop a web application for the HLoader - a data ingestion framework developed at CERN. This framework automates data streaming/ingestion from a wide range of data sources into a Hadoop Big Data analytics cluster. The web application uses the HLoader.

Uploaded on October 28, 2016

October 25, 2016

Report

Open Access

## Explorer of Grid Load

Sharma, Mayank; Antunes Pequeno, Joao;

Introduction Big data is a reality scientists face every day. Especially now that CERN projects are becoming Global. The Worldwide LHC Computing Grid processes petabytes of data connecting more than 42 countries. It forms the backbone for the data analytic



Communities created and curated by users

Search communities

## MOVING H2020 Project

## Recent uploads

Search MOVING H2020 Project

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View

October 17, 2016

Conference paper

Open Access

## Deep Multi-task Learning with Label Correlation Constraint for Video Concept Detection

Markatopoulou, Foteini; Mezaris, Vasileios; Patras, Ioannis;

In this work we propose a method that integrates multi-task learning (MTL) and deep learning. Our method appends a MTL-like loss to a deep convolutional neural network, in order to learn the relations between tasks together at the same time, and also incorporates the label correlations between pairs

Uploaded on October 21, 2016

September 25, 2016

Poster

Open Access

## VIDEO AESTHETIC QUALITY ASSESSMENT USING KERNEL SUPPORT VECTOR MACHINE WITH ISOTROPIC GAUSSIAN SAMPLE UNCERTAINTY (KSVM-IGSU)

Christos Tzelepis; Efthimia Mavridaki; Vasileios Mezaris; Ioannis Patras;

In this paper we propose a video aesthetic quality assessment method that combines the representation of each video according to a set of photographic and cinematographic rules, with the use of a learning method that takes the video

Community



## MOVING H2020 Project

This is the collection of materials created within the "MOVING: Training towards a society of data-savvy information professionals to enable open leadership innovation", H2020 Research and Innovation Action (Grant Agreement 693092).

Read more

Curated by:  
bmezarisCuration policy:  
Not specified



## SAFURE

## Recent uploads

Search SAFURE



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

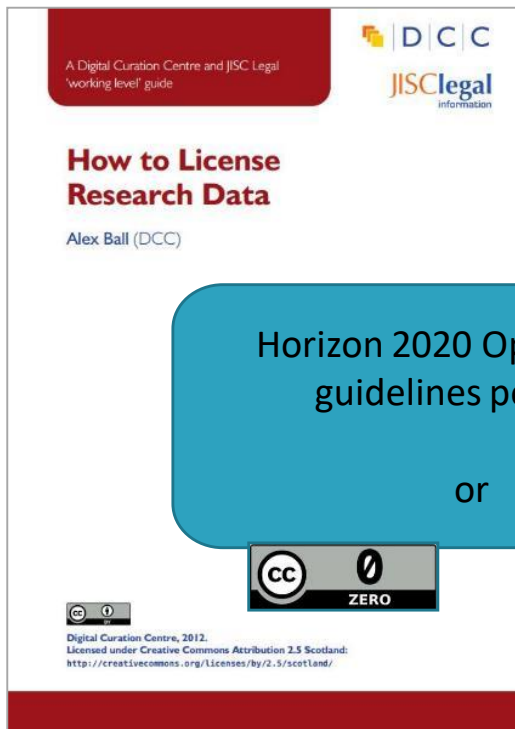
SAFURE

## 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.



# 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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