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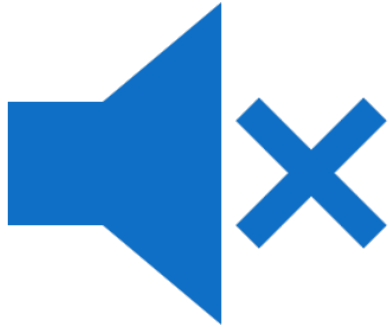
'Your doctoral thesis'

Data management plans

10 April 2025



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Please, turn off your microphone



Raise your hand or use the chat for any question

- To manage research data collected, analysed or produced in the course of a research project or doctoral thesis.
- To draft a data management plan with the help of CORA.eiNa DMP.
- To learn how to process personal and sensitive data.
- To get to know data repositories such as CORA.RDR.

0. Data management plans (DMPs)
 1. Research data management
 2. FAIR principles
 3. Ethics and data management
 4. Research data repositories (CORA.RDR)
 5. Sections of a data management plan
 6. Practice and example



0. Data management plans





a Data Management Plan (DMP) is...

A methodological document that **describes the life cycle of the data** collected, generated and processed **during a research project, a doctoral thesis, etc.**

DMPs are required by research funding agencies



Data Management Plan

Due date of deliverable: 31/07/2022
Actual submission date: 29/07/2022
Start date of project: 01/02/2022 Duration (36 Months)
Dissemination Level: Public ✓

Data Management Plan (DMP)

UPC Academic Regulations for Doctoral Studies

The Research Plan will include a **Data Management Plan**



- Requirement for PhD students who joined any programme from 2023/2024 and onwards
- It has to be delivered during the first academic year from the first registration

Is this your case?

**Do you know the specific
regulations in your
University?**



For PhD candidates and researchers a **DMP can be useful as...**



- a scheme to organize the data produced
- a way to document not only the data to be stored but a part of the research process
- a guide on how to reuse data in subsequent projects
- a way to prevent data loss

1. Research data management



1. Research data management

Research data

Any record in numerical or textual format used for scientific research and that is commonly accepted to validate the conclusions and results of a research by the scientific community.

Administrative records data	Compiled data	Laboratory notebook	Psychological test
Aggregate data	Encoded data	Machine-readable text	Recorded data
Census/enumeration data	Event/transaction data	Measurement and test data	Simulation data
Clinical data	Experimental Data	Observation data/ratings	Survey data
Coded documents	Genomic data	Process-produced	Textual data
Coded textual	Geospatial data	Program source code	Other

Research data management

A series of activities for planning, collecting, annotating, archiving and preserving data during a research project.

Effective research data management:

- Improves transparency.
- Avoids redundancy.
- Allows research to be replicated or reproduced.
- Enables research of a higher quality.
- Enables positive assessment by funding bodies.

A DMP contains information about...

- **What data** will be obtained to develop the research (text, numbers, image, audio, video, code, etc.)
- **How data will be...**
 - collected
 - organized
 - processed and analyzed
 - stored during the project
 - preserved when the project is over
 - shared and accessible
 - ready to be reused




1. Research data management

UPC links:

- UPC research data
- How to draft a data management plan at the UPC
- FAIR research data at the UPC

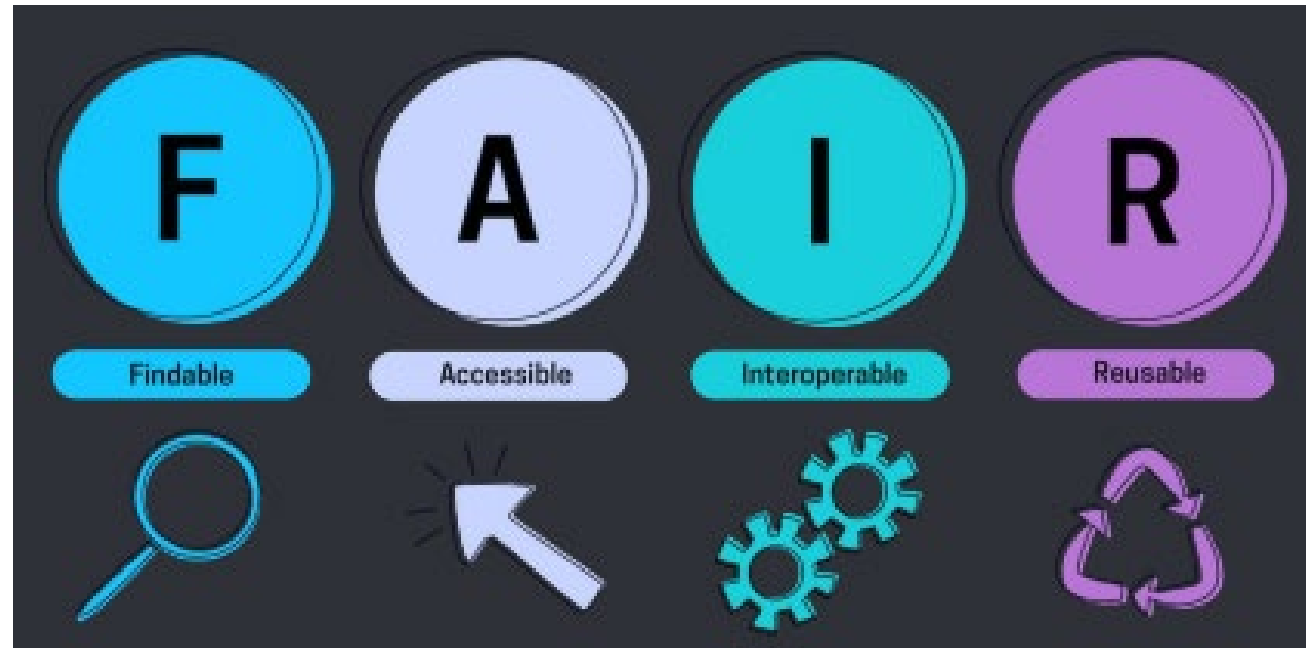


 **Ask for the regulations and procedures in your university**

2. FAIR principles

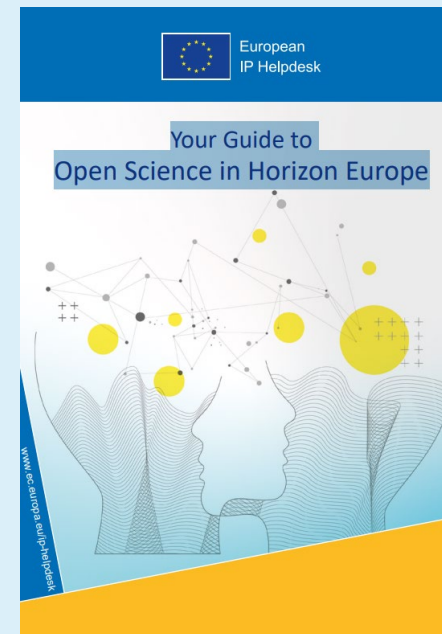



2. FAIR principles



FAIR data vs open data

2. FAIR principles



 To know more about FAIR data in European projects

2. FAIR principles

Ambient air ozone concentrations using metal-oxide low-cost sensors: Spain and Italy, summer 2017

Viana, Mar¹ ; Ripoll, Anna¹; Barceló-Ordinas, Jose María² ; García Vidal, Jorge² 

Show affiliations



Contact person: Viana, Mar¹ 

Show affiliations






Ozone concentrations in ambient air collected using low-cost sensor technologies, in the framework of EU project CAPTOR. Data collected during summer 2017 in NE Spain and N Italy. Sensors are metal-oxide. Data are calibrated using multiple linear regression, and validated against official reference data from each local air quality monitoring network. More details on the calibration and data validation may be found in A. Ripoll et al. / Science of the Total Environment 651 (2019) 1166–1179.

Files

Final data 2017.zip

 Final data 2017.zip 

2017

 Captors2017.xlsx	12.6 kB
 DataSet_Italy_EAD_Node-ID24_2017.csv	93.8 kB
 DataSet_Italy_EAD_Node-ID28_2017.csv	89.0 kB
 DataSet_Italy_EAD_Node-ID29_2017.csv	96.1 kB
 DataSet_Italy_EAD_Node-ID30_2017.csv	99.6 kB

Show more details

Versions

Version v1

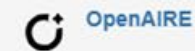
Feb 14, 2019

10.5281/zenodo.2564753

Cite all versions? You can cite all versions by using the DOI [10.5281/zenodo.2564752](https://doi.org/10.5281/zenodo.2564752). This DOI represents all versions, and will always resolve to the latest one. [Read more](#).

External resources

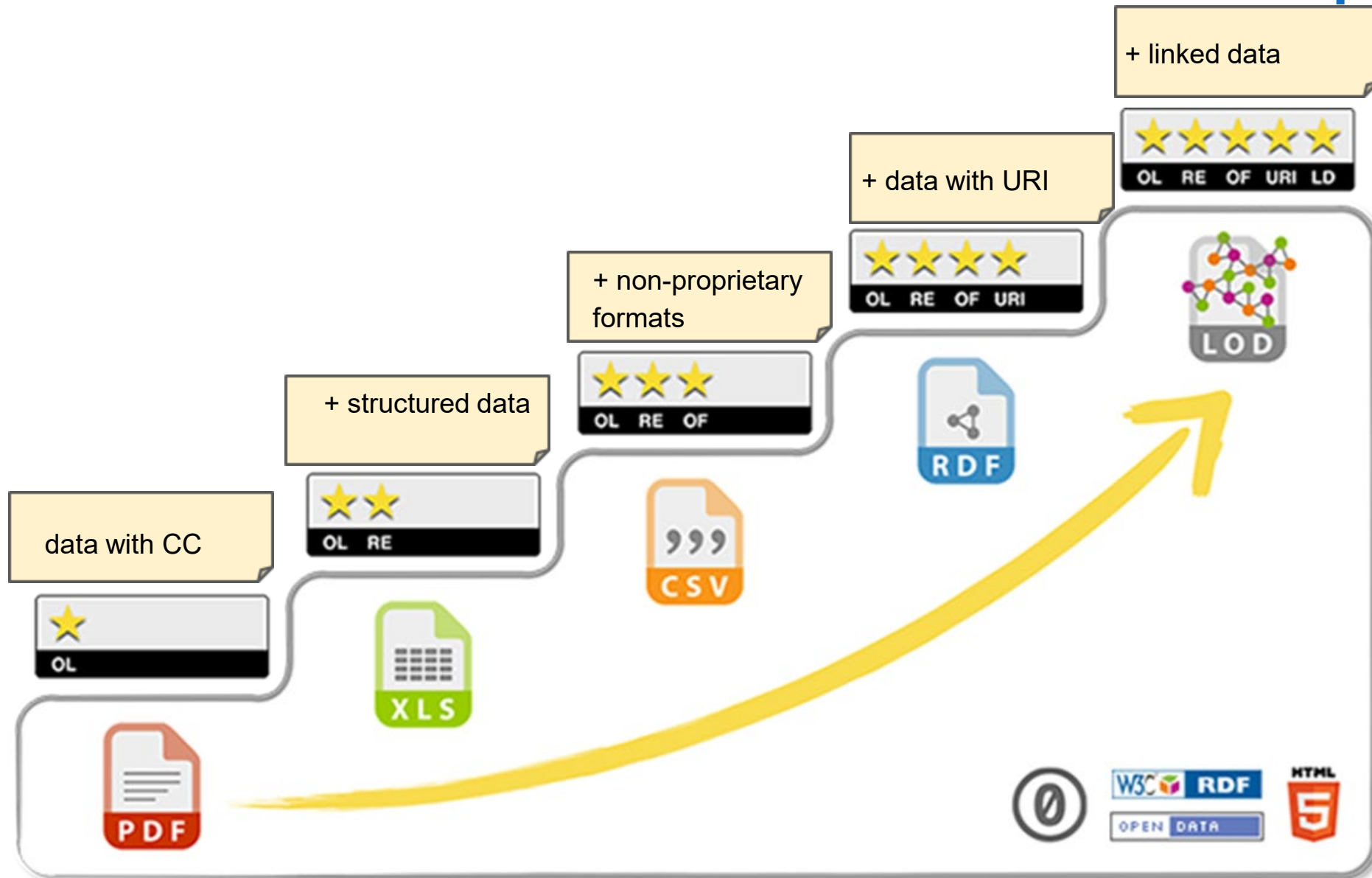
Indexed in



Keywords and subjects

Air quality sensors ozone ambient air pollution
 low-cost metal-oxide citizen science engagement
 awareness

2. FAIR principles



3. Ethics and data management



3. Ethics and data management

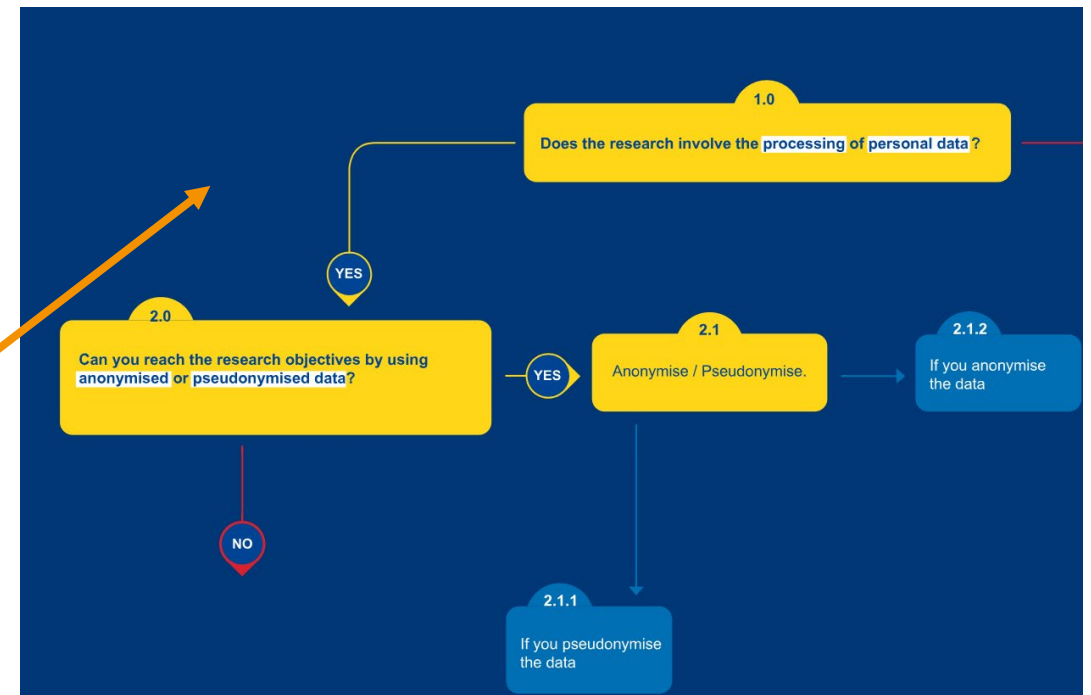
Ethics and data management

Managing research data involves specifically assessing ethical aspects.

- The **data management plan (DMP)** must consider the possible ethical implications of the processing of the data used.
- In some cases, a data protection impact assessment (DPIA) will be necessary.

Some useful links

- [General Data Protection Regulation \(GDPR\)](#)
- [Ethics and Data Protection Decision Tree](#)



3. Ethics and data management

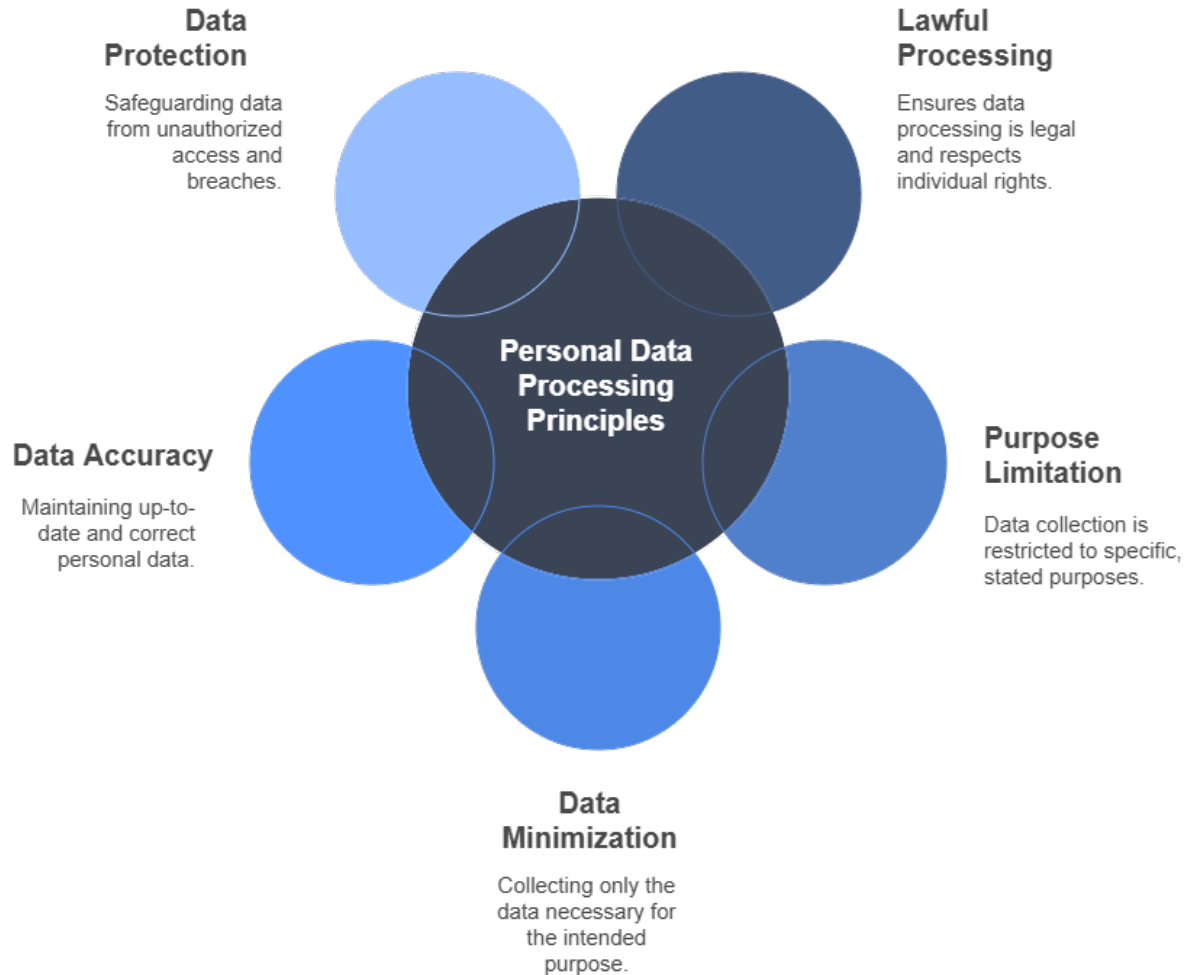
UPC Ethics Committee

A project's DMP must be submitted to the UPC Ethics Committee for review and approval when ethical issues are involved.



3. Ethics and data management

Ensuring Responsible and Secure Personal Data Management



Anonymisation and pseudonymisation

The anonymisation process generates a unique new dataset, while the pseudonymisation process generates two new datasets:

- Pseudonymised information
- Additional information that allows the anonymisation to be reversed.
- AMNESIA: tool for anonymising groups of data

4. Research data repositories

Research data: How to make them useful → Metadata and persistent Id

DOI

Persistent Identifier [?](#) doi:10.34810/data1950

Autor Id

Author [?](#)
 Vidal, Josep (Universitat Politècnica de Catalunya [ROR](#)) ORCID: 0000-0002-1985-2065
 Villares, Javier [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Cabrera-Bean, Margarita [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Muñoz, Olga [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Comellas, Jaume [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Agraz, Fernando [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Spadaro, Salvatore [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Careglio, Davide [ID](#) (Universitat Politècnica de Catalunya [ROR](#))
 Ruiz, Marc (Universitat Politècnica de Catalunya [ROR](#)) ORCID: 0000-0001-6429-6347
 Velasco, Luis (Universitat Politècnica de Catalunya [ROR](#)) ORCID: 0000-0002-7345-296X

Institutional Id

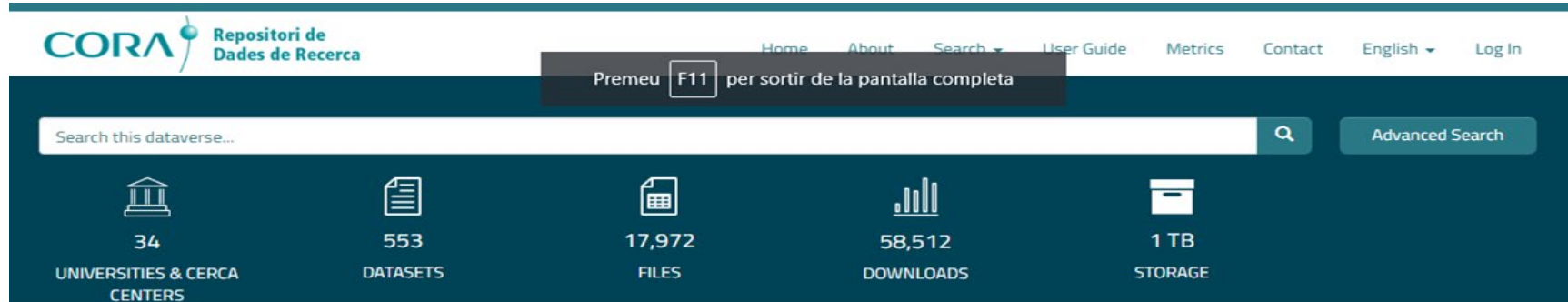
Vocabularies

Contact [?](#)
 Use "Contact Owner" button above to contact.
 Ruiz, Marc (Universitat Politècnica de Catalunya)
 Description [?](#)
 This data set complies datasets generated with simulated data generated in the framework of UNICO 5G TIMING project.
 Subject [?](#)
 Engineering
 Keyword [?](#)
 Time-sensitive networking http://dbpedia.org/resource/Time-Sensitive_Networking (DBpedia) https://dbpedia.org/fct/Automated_guided_vehicles (DBpedia) https://dbpedia.org/fct/Automated_guided_vehicles
 Topic Classification [?](#)
 Automated guided vehicle systems (LCSH) <http://id.loc.gov/authorities/subjects/sh85010080>
 Related Publication [?](#)
 Is Supplement To: D.1.1 Year 1 report on experimental validation and demonstration
 Language [?](#)
 English
 Producer [?](#)
 Universitat Politècnica de Catalunya (UPC) <https://www.upc.edu>
 Contributor [?](#)
 Data Curator : 160(RI)
 Grant Information [?](#)
 NextGenerationEU: TSI-063000-2021-149

Related articles

4. Research data repositories


Research data repository (CORA-RDR)



CORA-RDR is the data repository of Catalan universities and CERCA centres. It is a trusted repository specifically for data.

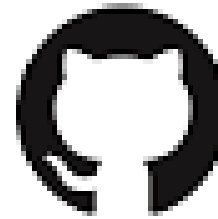
Before publishing the first dataset in CORA-RDR you must register and inform info.biblioteques@upc.edu. Publication is not immediate. Data curators at UPC libraries revise the metadata before the dataset is published.

[CORA-RDR user guide](#)

 Do you know the data repository of your university?

4. Research data repositories

- [Find more information about how to publish in other repositories](#)



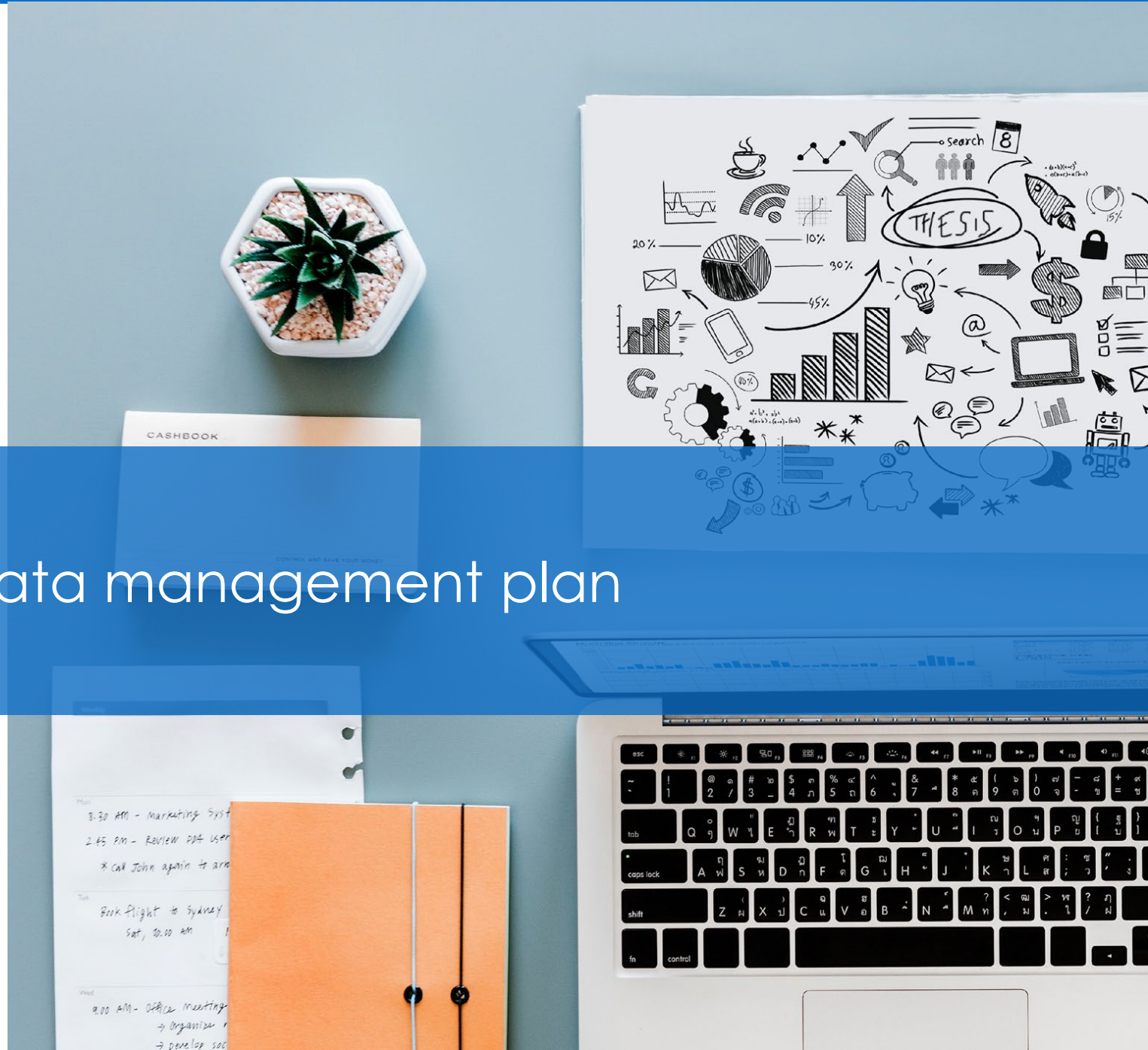
4. Research data repositories



Publishing datasets in open access **is not a requirement** for doctoral students at UPC

You can do it optionally

5. Sections of a data management plan



Data Management Plan (DMP): Contents

0. General information

General description	<ul style="list-style-type: none">● Of the expected data to manage
Funding	<ul style="list-style-type: none">● If the thesis is related to a research project● If the author is receiving an individual grant● Agency and grant code (grant number)
Sensitive /personal data	<ul style="list-style-type: none">● The DMP of a project must be submitted to the <u>UPC Ethics Committee</u>, for review and approval, when it involves certain ethical issues (for example):<ul style="list-style-type: none">○ Fundamental systems or techniques in artificial intelligence (AI)○ Special categories of personal data (ethnic or racial origin, genetic data, biometric data, data related to health, political)○ Groups of vulnerable people (minors, people with disabilities...) etc.

Data Management Plan (DMP): Contents

1. Data Collection

Origin and description of data	<ul style="list-style-type: none">● Own data?● From a third party? (specify licenses)
Data type and formats	<ul style="list-style-type: none">● Experimental; simulation, code; etc.● Spreadsheets, text, images, audio, video, etc.● Preferably open formats: csv; txt; ods; etc. to facilitate preservation and re-use (see info on FAIR data)
Data volume expected (at the end of the research)	<ul style="list-style-type: none">● Approximately● Datasets higher than 100 GB are sometimes considered large size

Data Management Plan (DMP): Contents

2. Data storage and security

Restrictions that may affect data storage and security	<ul style="list-style-type: none">● Contractual (agreements with third parts)● Ethical (personal data)● Commercial (patents)● Are special security measures needed?
Major data security risks	<ul style="list-style-type: none">● Accidental deletion of data● Loss / theft● Consequences?
Storage of data during the research project	<ul style="list-style-type: none">● Physical storage?; university infrastructure?, commercial cloud?

Data Management Plan (DMP): Contents

3. Data documentation

Name and structure of the files and the folders	<ul style="list-style-type: none">● File and folders naming● Example:<ul style="list-style-type: none">○ 2020_NTI_Results_v1.doc○ 2020_NTI_Results_v2.doc
Version control	<ul style="list-style-type: none">● Versions management● What versions to keep?
Metadata standards	<ul style="list-style-type: none">● To describe the datasets, if deposited<ul style="list-style-type: none">○ Geospatial; Astronomical; Biological; etc.○ Dublin Core (in institutional repositories)

Data Management Plan (DMP): Contents

4. Access, share and reuse the data

Restrictions on data sharing	<ul style="list-style-type: none">● General Data Protection Regulations (GDPR)● Ethics● Intellectual property or copyright● Commercial● Security
The potential users of data	<ul style="list-style-type: none">● You and/or other researchers in your RG / Department● Other researchers worldwide?● Industry?
Licenses that you will apply to the data to enable reuse	<ul style="list-style-type: none">● CC: CC-BY, CC-0● Code licenses: GNU, MIT, etc.

Data Management Plan (DMP): Contents

5. Deposit and conservation of the data

Selection for long term conservation. What criteria to select files?	<ul style="list-style-type: none">● Relevance● Data linked to publications● Reusability
For how long the data would have to be preserved?	<ul style="list-style-type: none">● International standards recommend a minimum of 10 years
In which repository?	<ul style="list-style-type: none">● Consider volume of data, format; subject, etc.● Type: Institutional; Multidisciplinary; Specialized; Commercial

6. Practice and example



6. Practice and example

Practice: How to create a DMP for PhD students with eiNa DMP



1. Create an account eiNa DMP
2. Create a plan (template UPC Doctorate Students)
3. Write the plan → **click on “Request Feedback”**
4. We will review your draft

(send me an email before 30th April—→
ruth.inigo@upc.edu)

6. Practice and example



Doctor "Doc" Emmet Brown



Hill Valley University

Flux capacitor development for vehicular temporal displacement

Author: Emmet L. Brown

Director: Robert Zemeckis

A thesis submitted for the degree of
Doctor of Philosophy

Hill Valley, CA , February 1985



Thank you!

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roser.alonso@upc.edu
anna.rovira@upc.edu



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