



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Servei de Biblioteques, Publicacions i Arxius



Funded by
the European Union

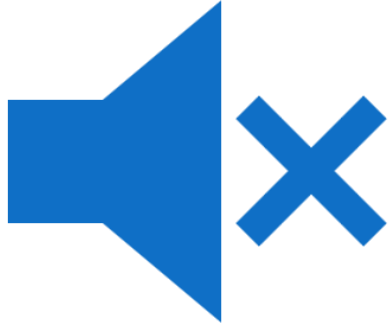
Training for doctoral students in Open Science and Research Data Management

Unite! Doctoral Network in Energy Storage

April 2025



- Recording, broadcasting, communicating or publishing this session on the internet or any other equivalent medium is forbidden.
- If you have any questions regarding how personal data are processed contact info.biblioteques@upc.edu
- This course will be at the Unite! Agora and the Aprèn platform



Please, turn off your microphone



Use the chat for any question

'Your doctoral thesis' training path



01

Get off on the right foot with your thesis



02

Information resources and services



03

Reference management softwares



04

Scientific publishing



05

Visibility and impact indicators



06

Writing and preparing your manuscript



07

Open Science



08

Research data management



09

DRAC for doctoral students





At the end of the workshop, attendees will identify practices for doing open science. They will:

- ✓ Get to know the changes that are taking place in scientific communication.
- ✓ Recognize tools and resources to practice open science.
- ✓ Discover the research infrastructures available to them.

1. What is Open Science
2. Publish in Open Access
3. Open research data and FAIR principles
4. Disseminate your data and raise your profile
5. Collaborate and release code
6. Open Research assessment
7. Citizen Science
8. Use infrastructure and resources

Welcome and introduction

The Open Science workshop aims to contribute to creating a culture of Open Science.

- ✓ Identify the changes taking place in the scientific communication of research.
- ✓ Recognize tools and resources to practice open science in your day-to-day work.
- ✓ Discover the benefits of open science and its impact on society.

The Research Data Management is divided in two parts: the second online session (Thursday, 10th April, 14:00 to 16:00 CET) and the presentation of your data management plan related to your thesis research workshop (Till April, 30th) At the end, you will be able to:

- ✓ Understand what it means to manage research data
- ✓ Know what to do when working with personal or sensitive data
- ✓ Manage research data collected, analyzed or produced during a research project or doctoral thesis
- ✓ Get to know research data repositories, such as CORA.RDR
- ✓ Draft a Data Management Plan with the help of CORA.eiNa DMP

Regarding your DMP:

- ✓ In case that you already have elaborated your DMP you will have to present the initial DMP and an update of it. During its preparation you will be able to contact the trainers for any doubt.

1. What is Open Science



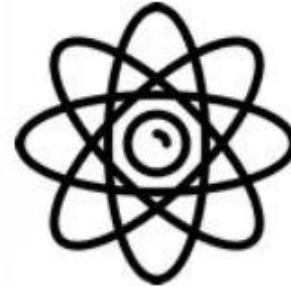
1. What is Open Science

- What is Open Science
- Open Science at the UPC: Roadmap 2023-2025
- Research Integrity
- RRI. Responsible Research and Innovation

1. What is Open Science



Much more than the availability of publications and data in open access



It is the openness of the scientific process, reinforcing scientific social responsibility



It is the transfer of scientific knowledge to society

<https://biblioteca.upc.edu/en/investigadors/ciencia-oberta-upc>



Ciència Oberta
UPC

Roadmap 2023-2025

1. What is Open Science

Research Integrity

Research integrity means doing research with trustworthy methodology or methodologies and complying with ethical and legal requirements.

It guarantees the quality of research results and scientific progress.

Use appropriately:

- Funding
- Research infrastructure

Recognise/mention:

- Collaborators
- Funding projects / bodies

UPC Code of Ethics



UPC Research Integrity Code



Regulations of the Ethics Committee of the UPC



European Code of Conduct for Research Integrity



1. What is Open Science

→ Principles of research integrity

FAIR

Reliability

Guarantee the reliability of the research

Transparency

It must be clear how the research is carried out and the process must be verifiable

Honesty

Results should not be presented in a way that makes them more favourable or unfavourable than they really are, and the authorship of any contribution should be respected

Responsibility

Research that is relevant scientifically, socially and environmentally and that complies with sustainability criteria

1. What is Open Science

Responsible Research and Innovation (RRI)

"RRI implies that social authors (researchers, citizens, policy makers, companies, third-sector organisations, etc.) collaborate throughout the entire research and innovation process to better adapt both the process and the results to the values, needs and expectations of society. "

Make sure your processes are:

- Diverse & Inclusive
- Anticipative & Reflective
- Open & Transparent
- Responsive & adaptive to change



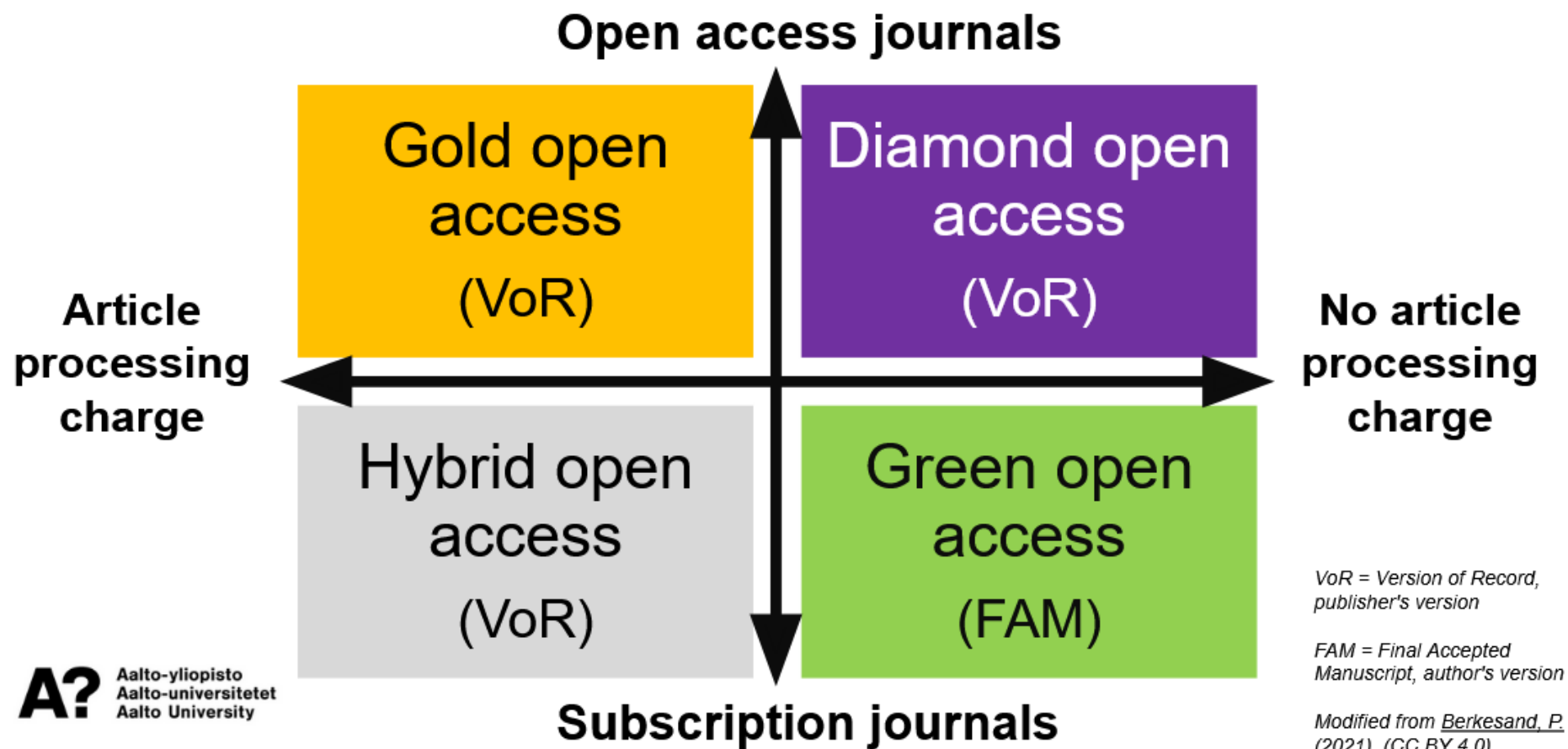
2. Publish in Open Access



2. Publish in Open Access

- Open Access publishing models
- Funding institutions' requirements
- Open Peer Review and Preprint Servers
- Transformative agreements with publishers and APCs

Different types of OA



Diamond Open Access

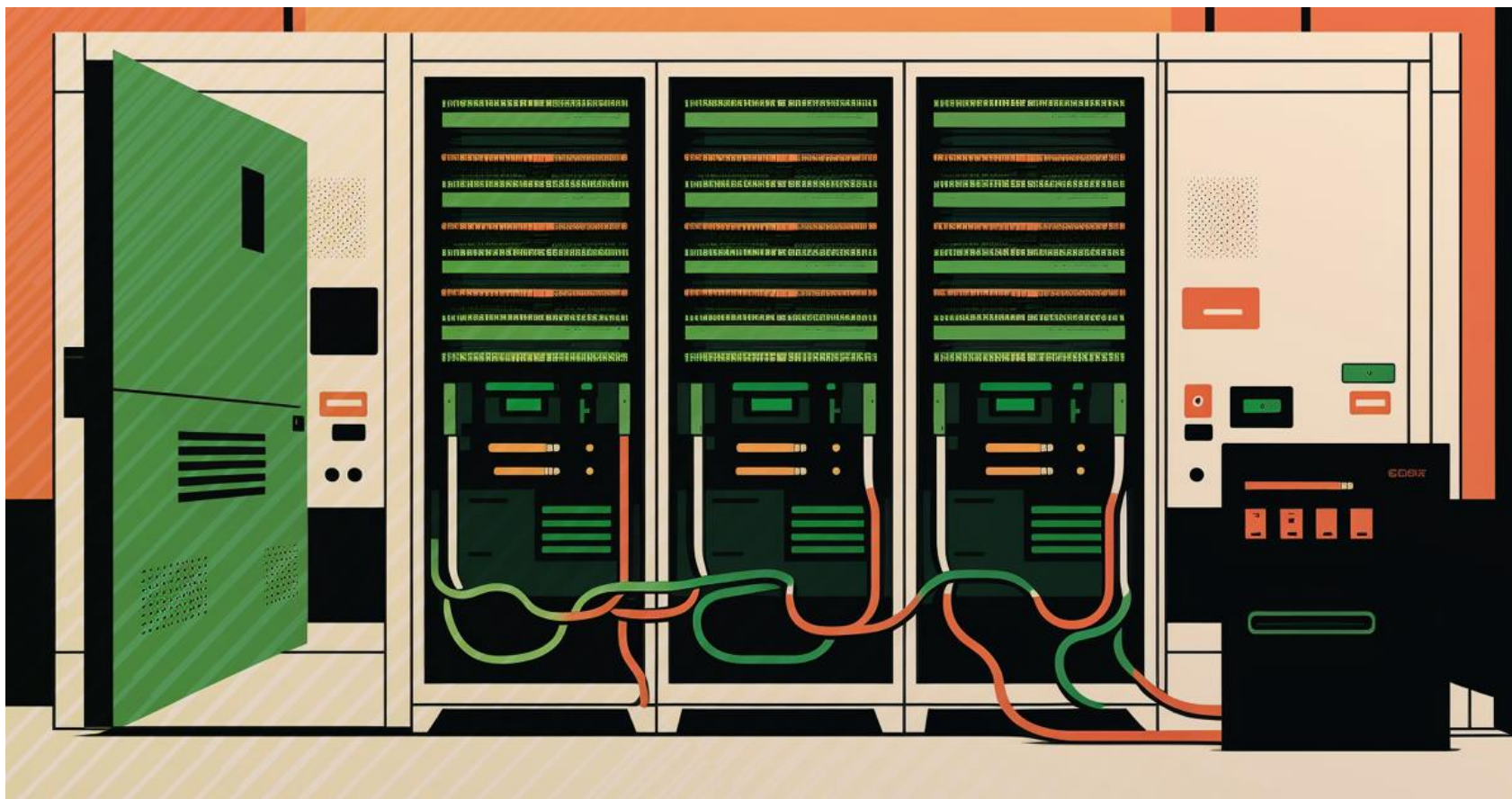
New Open Access Scholarly communication model

- Journals and platforms do not charge fees to either authors or readers
 - There are no APC (Article Processing Charges)
 - There is no subscription fee
- The majority are published by universities (72%)
- Funded by research institutions and public sources
- Only $\frac{1}{3}$ of Diamond OA journals are indexed in DOAJ (<https://doaj.org/>) while 67% of the journals indexed in DOAJ are Diamond OA
- Becoming more important in the context of open science



2. Publish in Open Access

Preprints and Open Peer Review



Transformative agreements and APCs



What do I need to know about transformative agreements?

- They are contracts that transform traditional journal subscription agreements between publishers and universities or consortia.
- They allow authors at an institution to publish in immediate open access (gold route) without paying an APC (article processing charge).
- The UPC currently has transformative agreements with Wiley, Elsevier, Springer and the American Chemical Society.



<https://biblioteca.upc.edu/investigadors/acces-obert/acords-transformatius-ajuts-publicar-acces-obert-upc>

3. Open research data and FAIR principles





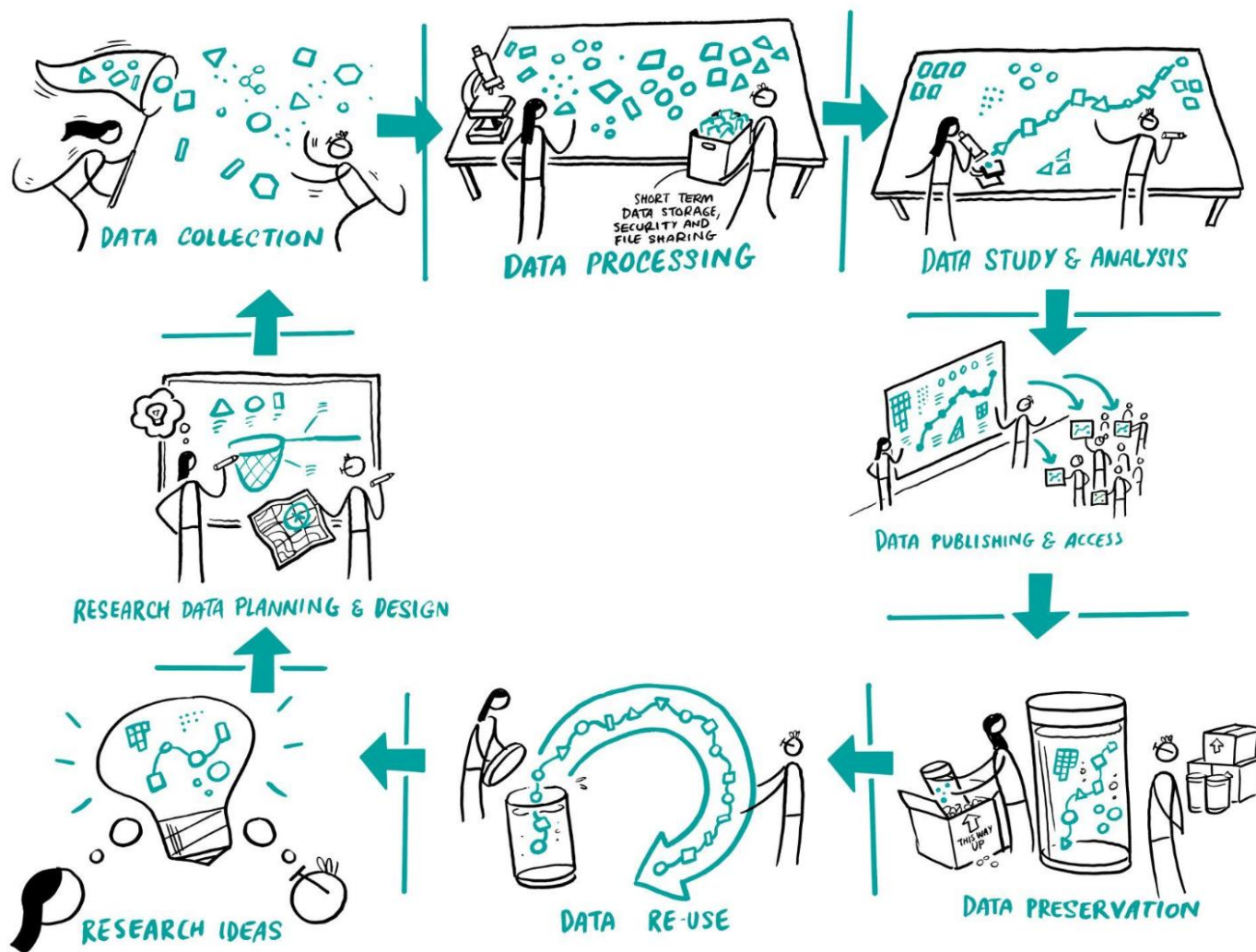
3. Open research data and FAIR principles

- FAIR principles
- Data Management Plan (DMP)
- Research data Repositories
- Copyright and Licences

3. Open research data and FAIR principles

Different data management tasks and tools during the research process:

- Compilation
- Processing
- Analysis
- Organization
- Emmagatzematge
- Documentation
- Preservation
- Communication
- Reuse



3. Open research data and FAIR principles



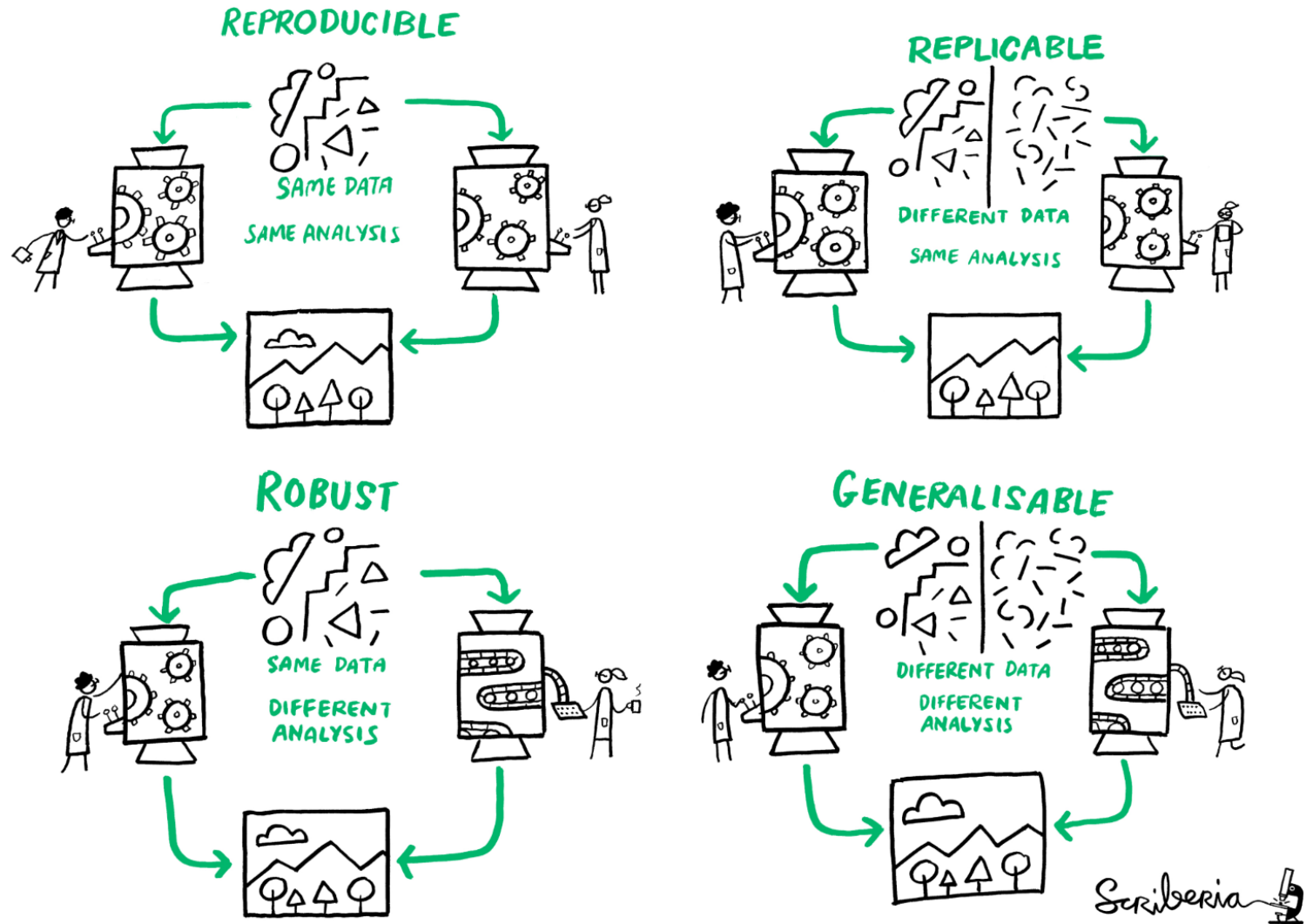
Melero, R. ¿FAIR o no FAIR? He ahí la gestión de datos.
 Presentación Semana del acceso abierto Rebiun 24-10-22.
<http://hdl.handle.net/20.500.11967/1154>

3. Open research data and FAIR principles

Research Reproducibility:

Data and code must be:

- Reproducibles
- Replicables
- Robust
- Generalizable



3. Open research data and FAIR principles

Research Data Management



The **Data Management Plan (DMP)** is a document that describes how you will manage and organize the data for your research project.

eiNa DMP will help you to design data management plans in accordance with the requirements of funding agencies and PhD.

User guide <https://confluence.csuc.cat/display/RDM/CORAs.eiNa+DMP>

It helps to create a plan, share it, download it, link other project outputs to it, and apply persistent identifiers.

3. Open research data and FAIR principles

Research data Repositories




3. Open research data and FAIR principles

Copyright and Licenses

<https://biblioteca.upc.edu/en/investigadors/dades-recerca-fair#llicencies>

When using works by other authors you must always cite and acknowledge the original authors, as well as provide a link to the original license in case you reuse or disseminate the work.

"as far as possible, projects must then take measures to enable for third parties to access, mine, exploit, reproduce and disseminate (free of charge for any user) this research data. One straightforward and effective way of doing this is to attach Creative Commons Licence (**CC-BY** or **CC0 tool**) to the data deposited (<http://creativecommons.org/licenses/> .



[Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020:](#)

Ball, A. (2014). 'How to License Research Data'. DCC How-to Guides. Edinburgh: Digital Curation Centre. Available online: [/resources/how-guides](#)



4. Disseminate your data and raise your profile

- Preregistration of research plans
- Lab notebooks
- Data paper or software paper
- Data linked to articles
- Research data citation

4. Disseminate your data and raise your profile

Preregistration is the practice of depositing a research question in a register or journal before conducting scientific research.

It allows:

- Credibility and reproducibility to be increased
- The project to be evaluated from the start
- More transparency and avoidance of bias



Where can I Preregister?

- General: <https://osf.io/registries>
- European projects: <https://open-research-europe.ec.europa.eu/>

4. Disseminate your data and raise your profile

Data paper or software paper

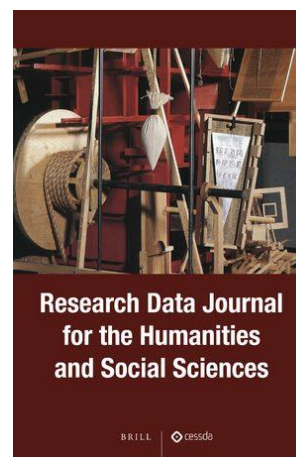
This is a peer-reviewed article published in an academic journal that describes a dataset or software that is of interest in and of itself.

It is a good means of disseminating research and is an identifiable and citable document. The data or code is usually freely accessible under the terms of a license.

Journals where to publish data/software

Balsa-Sanchez, C., & Loureiro, V. (2022). Data articles in journals (Versió 4) [Data set]. Zenodo.

<https://doi.org/10.5281/zenodo.7458466>



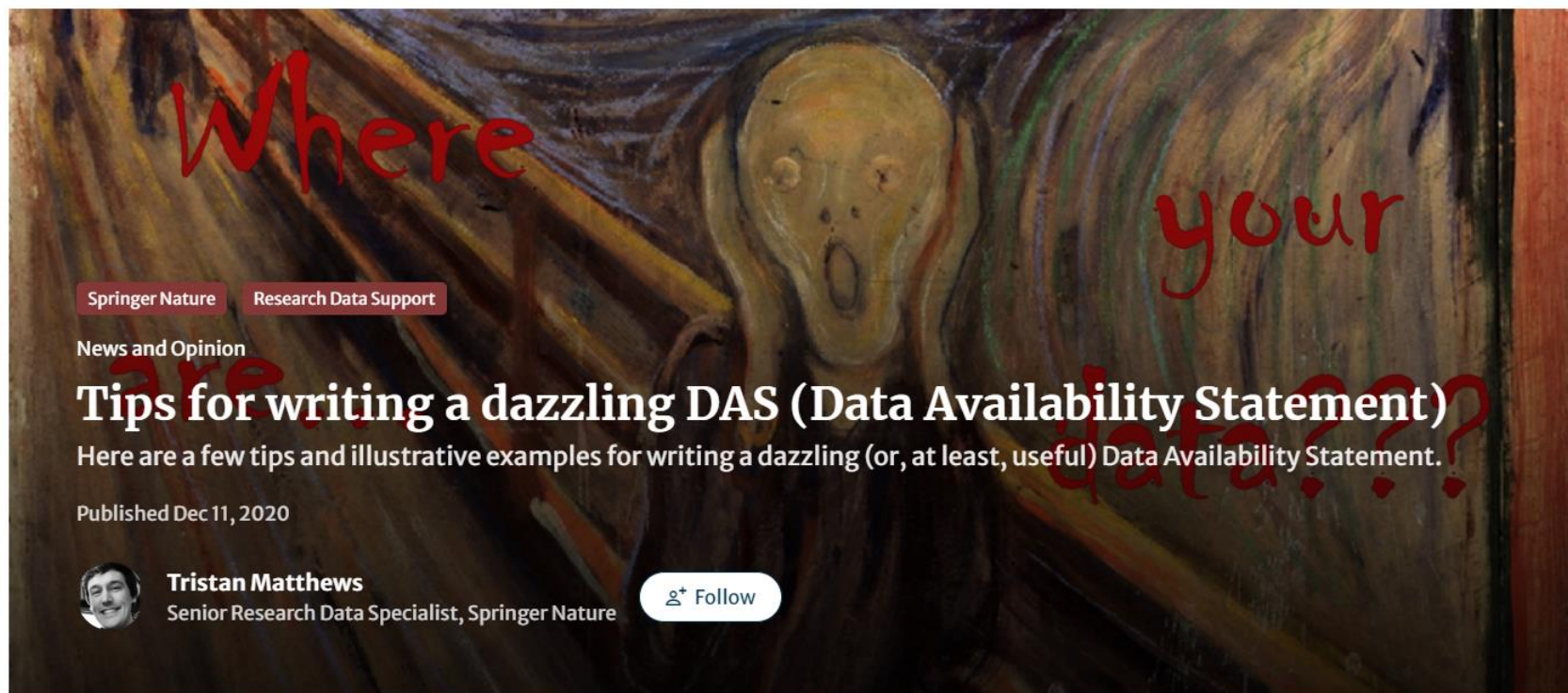
This is a different option than publishing an article attaching the data as a complement to the publication.

4. Disseminate your data and raise your profile

Share data **linked to published articles**

The Open Science movement encourages researchers to share research data beyond the content of a published academic article.

Publishers also require authors to facilitate access to the data supporting the articles.




Springer Nature Research Data Support


News and Opinion

Tips for writing a dazzling DAS (Data Availability Statement)

Here are a few tips and illustrative examples for writing a dazzling (or, at least, useful) Data Availability Statement.

Published Dec 11, 2020

 **Tristan Matthews**
Senior Research Data Specialist, Springer Nature

 Follow

4. Disseminate your data and raise your profile

How to cite datasets?

- Citations allow researchers to recognize the contributions of others.
- We must cite newly created data and data from secondary sources.
- Citing our datasets will give greater visibility to our articles and projects in general.

Datos de investigación

Las citas de los datos utilizados deben aparecer en la bibliografía de la publicación resultante. Cada conjunto y subconjunto de datos (dataset) debe citarse de forma independiente. La Norma ISO-690 no contempla la citación de datos de investigación, pero REBIUN (RED de Bibliotecas UNiversitarias) propone la siguiente:

Elementos básicos

Autor/ao autores/as. *Título del conjunto de datos* [dataset]. Versión (indicando día, mes y año en el que el conjunto de datos fue publicado o distribuido). Entidad que produce/publica/distribuye/archiva el conjunto de datos. Localizador o identificador del conjunto de datos.

Ejemplos

Corominas Dulcet, J.; Lantada, N.; Núñez Andrés, MA *Inventario de desprendimientos de rocas en España desde 1800 a 2021* [dataset]. Versión 3.1 de 18 de enero de 2023. Consorcio de Servicios Universitarios de Cataluña. <https://doi.org/10.34810/data238>.

Grossmann, F.; Hurther, D.; van der Zanden, J.; Cáceres, I.; Sánchez-Arcilla, A.; Alsina Torrent, J. *Fecha related to "Near-bed sediment transport during offshore bar migration in large-scale experiments"* [dataset]. Versión 2 del 25 de noviembre de 2021. Zenodo. <https://doi.org/10.5281/zenodo.5727127>.

Denhard, M. *dphase_mpeps: MicroPEPS LAF-Ensemble run by DWD para el proyecto MAP D-PHASE* [dataset]. Versión del 20 de julio de 2007. World Data Center for Climate. http://dx.doi.org/10.1594/WDCC/dphase_mpeps.

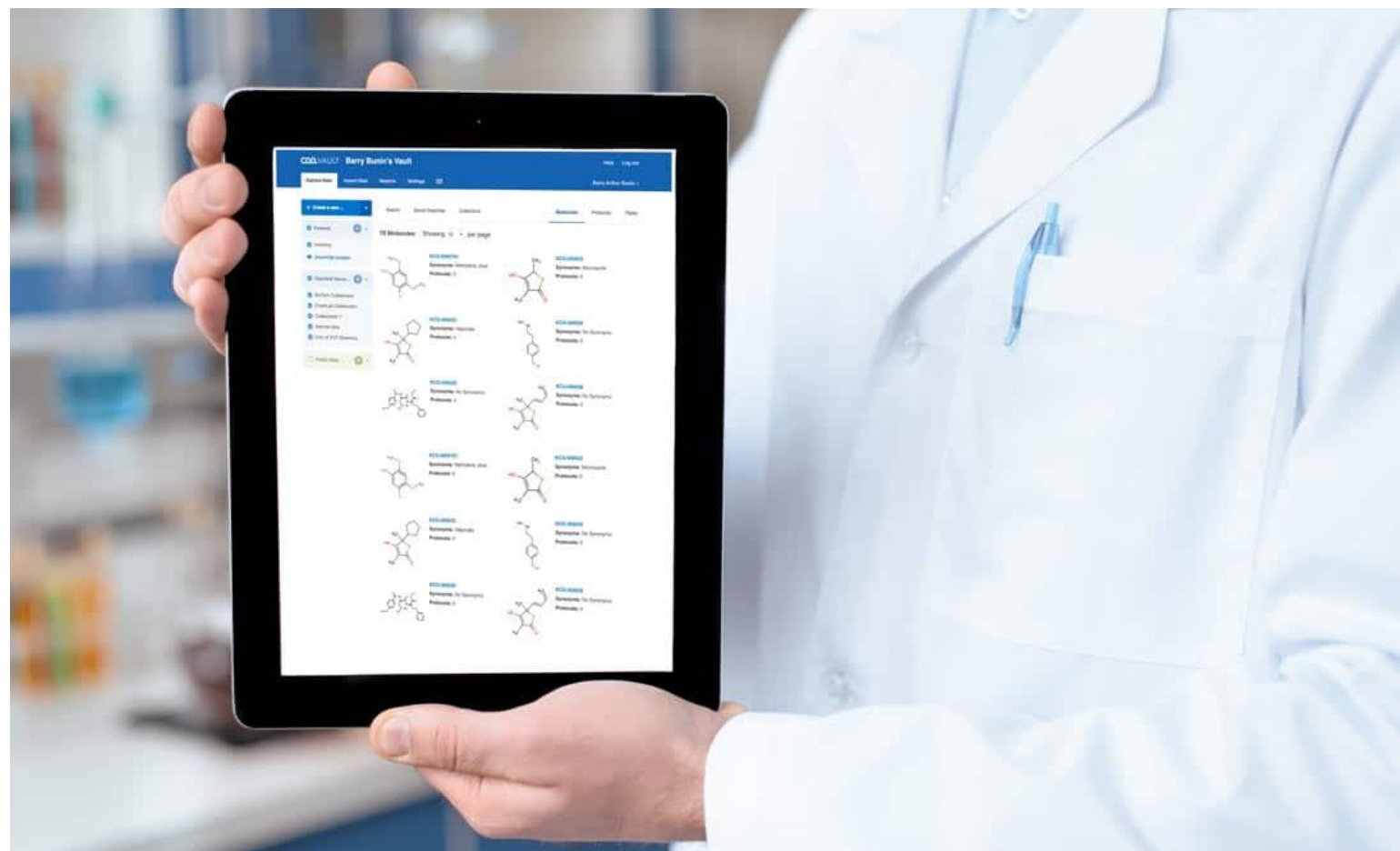
4. Disseminate your data and raise your profile

Lab notebooks (ELN)

Laboratory notebook web application.

They allow:

- Include text, images, graphics, widgets, videos.
- The text is written in markdown and embedded in LaTeX
- Support many types of programming languages, including: Ju = Julia; Pyt = Python (default); Er = R
- Shared work amongst researchers. Some can be shared via GitHub



5. Collaborate and release code



GitHub / GitLab

- Use Git to manage file versions
- Use GitHub or GitLab to manage and write code, especially collaboratively

5. Collaborate and release code

GitHub / GitLab

- Automatic integration of GitHub repositories into Zenodo is possible
- The static version of the GitHub code can be updated in CORA.RDR



6. Open Research assessment

- How is research assessed?
- Assessment metrics and indicators
- Prepare and explain your CV
- How can Impact be measured?

6. Open Research assessment



Journal metrics

Discovering the new JCR

Let's contextualize the figures. Metrics like the JCR, created in 1955, provide only part of the story about a journal's usefulness and reputation.



Article metrics

Beyond citations

We incorporate new data into citations to present a richer picture of how an article is discussed, shared and used.



Author metrics

Your profile says a lot about you

We are more than a number like the h-index. We value what we do, whom we do it with and the effects it has in the academic and scientific world and in society.



6. Open Research assessment



DORA

<https://sfdora.org/>

DORA recognizes the need to improve the ways in which researchers and the outputs of scholarly research are evaluated.

UPC CoARA Action Plan

CoARA's vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research.



CoARA

<https://coara.eu/>



This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

6. Open Research assessment

Dimensions of metrics for research evaluation

Contribution	Media/Chanel	Open Access
Contextualized citation	Impact	Repositories
Use (downloads, lectures, ...)	Quality (seals, awards,...)	Sharing (datasets, FAIR, software)
Social influence (patents, news, ...)		Citizen participation
Social visibility (social & sci networks)		



Prepare your CV



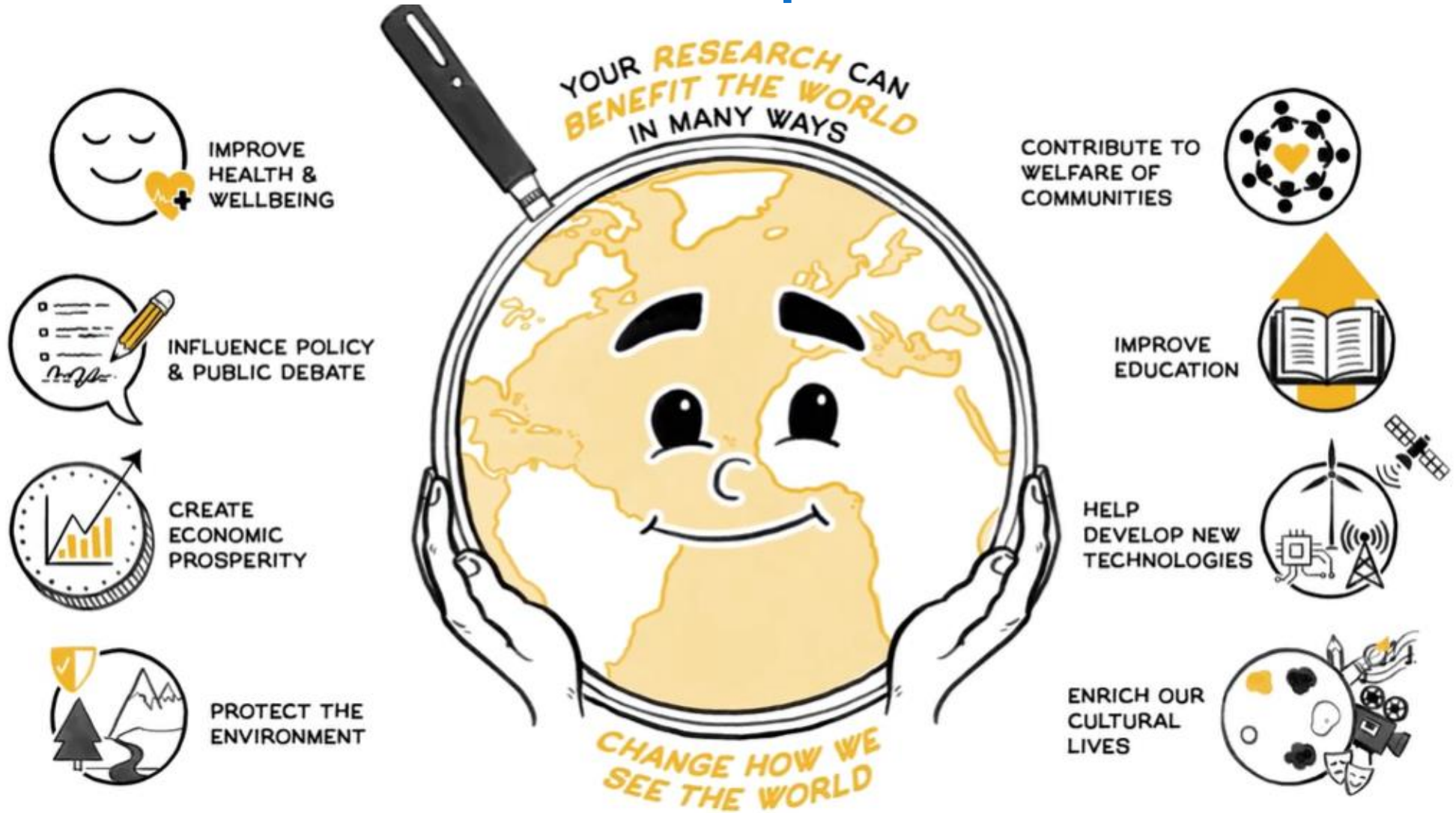
6. Open Research assessment

- ✓ Don't reduce your activity to a list of figures, explain its significance in different fields and give examples.
- ✓ Do not use the impact factor to measure the quality of articles or authors (DORA)
- ✓ Do not combine bibliometric indicators from different sources (WoS, Scopus, Google Scholar)
- ✓ Introduce quantitative and qualitative data
- ✓ Choose the best examples of publications, datasets, organisation of conferences, software, patents, official documents, works tutored and supervised, creation and supervision of research groups, etc
- ✓ Explain how they have contributed to generating new ideas, new tools, new knowledge and new talent



Ready to try a narrative CV?

6. Open Research assessment



7. Citizen Science



Portal de Ciència Ciutadana de la UPC



Comparteix les teves dades de mobilitat urbana

Amb l'app Mobilitapp desenvolupada per investigadors de la UPC, ho faràs de forma anònima i ajudaràs en la recerca de millores més còmodes per als desplaçaments en la ciutat.

Participa-hi



Identifica millores per a l'accessibilitat

Cada 3 de desembre, per al dia internacional de les persones amb discapacitat, en realitzem diverses Màgiques als campus de la UPC per detectar conjuntament possibles millores a aplicar.

Participa-hi



Navega entre dades oceanogràfiques

A través dels sensors col·locats en un petit catell tradicional que recorre el litoral de Barcelona.

Participa-hi



Descobreix els ODS tot explorant el bosc

Participa en les activitats per a alumnes de secundària del projecte SOGC i Sostenibilitat.

Participa-hi



Monitora els teus paràmetres fisiològics

A través del prototip de bitàcula electrònica multiparamètrica que han elaborat al Grup d'Instrumentació, Sensors i Interfícies.

Participa-hi



Mesura la salut del teu sistema cardiovascular

A través del Dispositiu no invasiu per valorar ràpidament l'estat cardiovascular (NICVA) dirigit a persones amb risc cardiovascular.

Participa-hi



Dona el teu mòbil a la ciència

El mòbil recollit, s'utilitzarà en el projecte de recerca Biomaterials de la UPC per millorar-ne el reciclatge.

Participa-hi



Dissena el tomàquet ideal

Responem aquesta enquesta dels investigadors de l'ICITA d'Enginyeria Agroalimentària i de Bioproductes de Barcelona i la Fundació Miquel Agustí.

Participa-hi



Notifica si veus neu a la carretera

A través de la companyia Carretera Nevada del projecte ANWH4CC.

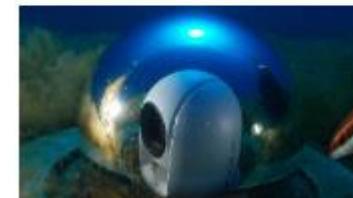
Participa-hi



Notifica si veus una esllavissada

A través de Twitter, utilitzant el hashtag #esllavissada.

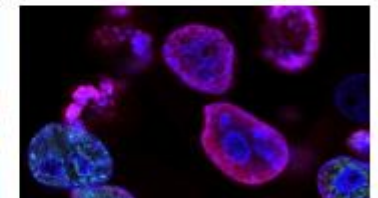
Participa-hi



Identifica animals del fons marí

A través de la entitat en direcció de la càmera submarina que ha instal·lat a la zona del Garraf i Chavarranç OBSEA.

Participa-hi



Connecta amb pacients i familiars de malalties minoritàries

A través de la xarxa creada pel projecte SHARDASSE.

Participa-hi

8. Use infrastructures and resources



European / International

UPC

open research europe
opencitations
opendoar doaj arxiv
sherpa romeo
eosc re3data
doab
openaire

- UPCommons
- Futur
- dadesrecerca.upc.edu
- Portal de Ciència Ciutadana
- CORA EinaDMP
- CORA RDR
- CORA Portal de Recerca de Catalunya
- Aprèn
- Zonavídeo



Thank you!

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

bibliotecnica.upc.edu



UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Servei de Biblioteques, Publicacions i Arxius

