



Update on Open Science: Open Science @ UPM Spanish network on Open Science EOSC Interoperability Framework

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<http://www.oeg-upm.net/index.php/en/researchareas/3-semanticscience/index.html>

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📍 OEG Talks

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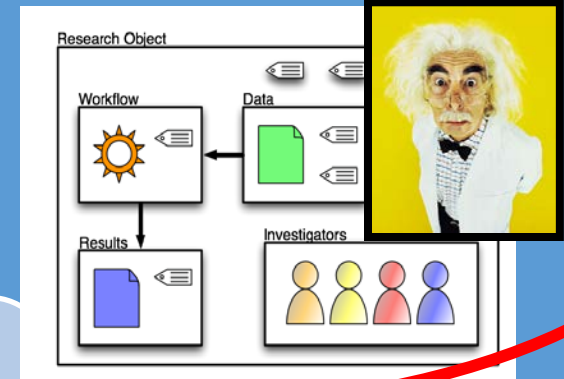


Ontology-based
Data Integration

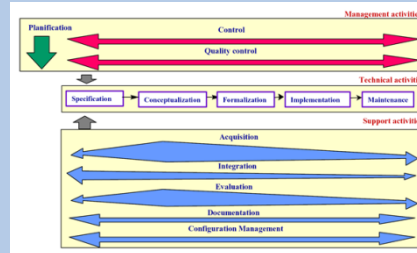
2004

Semantics
in Open
Science

2008



Ontological Engineering 1995



(Social)
Semantic
Web and
Linked Data

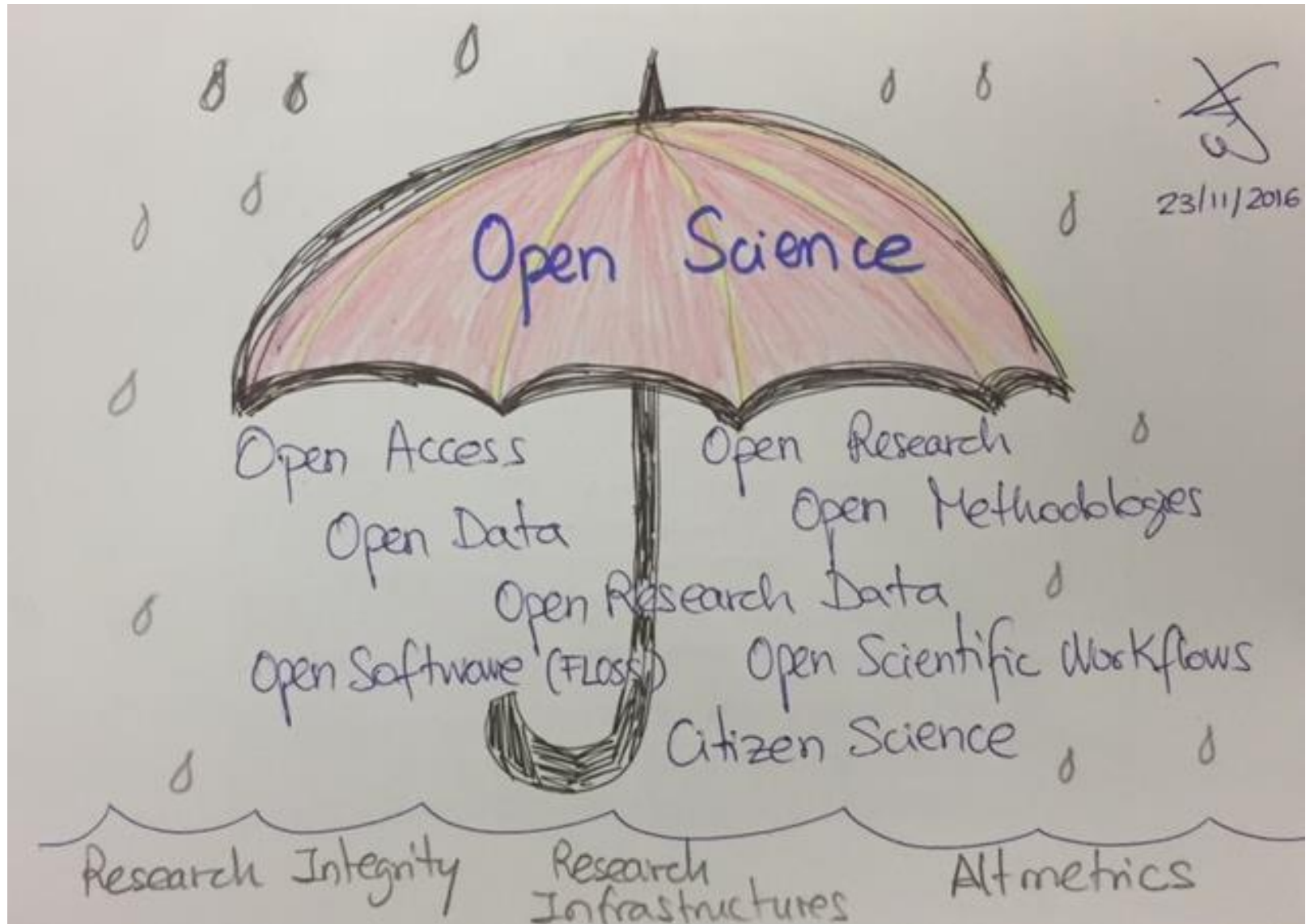
2000

Data-driven
language
technologies

1997

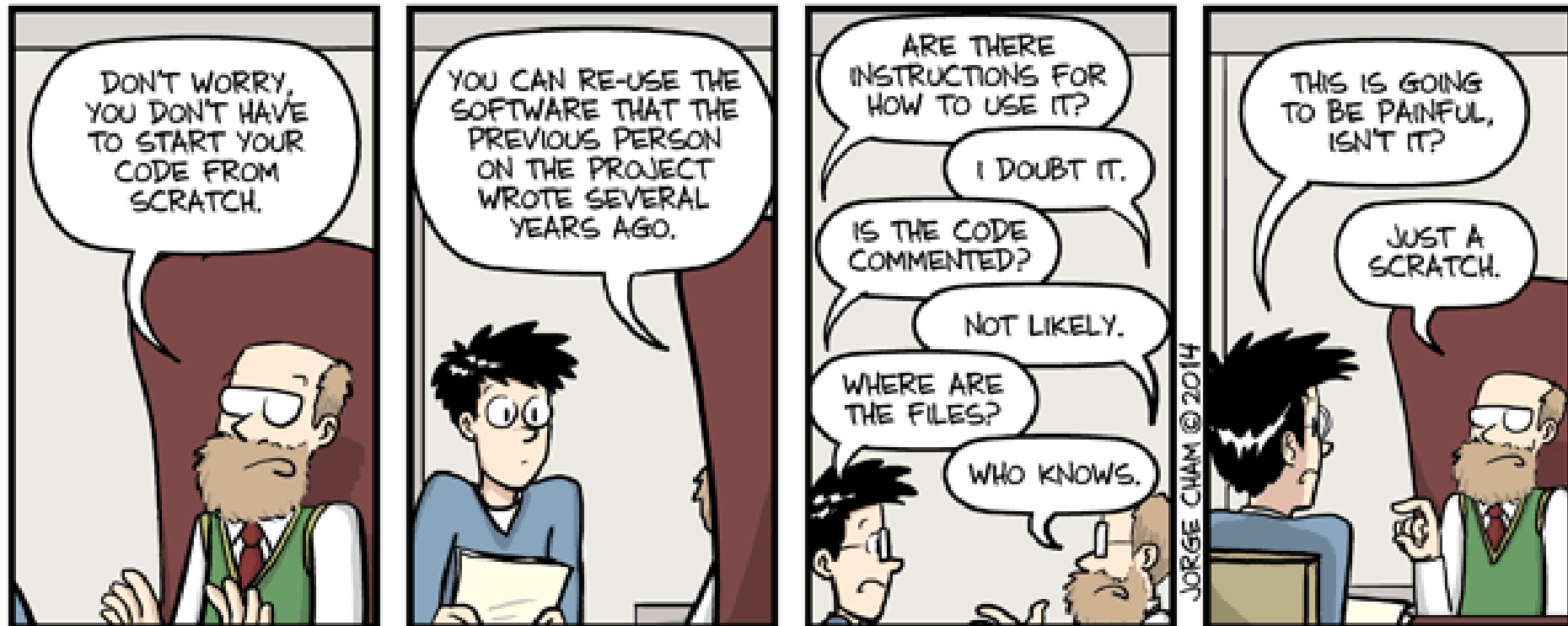


The Umbrella of Open Science



Professor Eva Méndez. UC3M, Madrid

Why talking about reproducibility?



WWW.PHDCOMICS.COM

IN VIVO/VITRO

IN SILICO

DATA



SCIENTIFIC PROCEDURE



EQUIPMENT



DATA

SCIENTIFIC PROCEDURE

EQUIPMENT

IN VIVO/VITRO

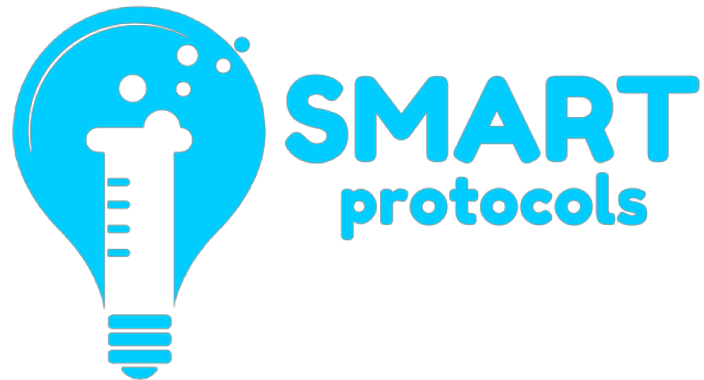


IN SILICO



This has attracted most of the attention so far





Olga Giraldo



Alexander Garcia

Explore alternative ways for documenting and retrieving information from experimental protocols

Semantic Representation for Protocols (SMART Protocols). Giraldo O (2019) PhD thesis Using Semantics and Natural Language Processing in Experimental Protocols. Giraldo O, García-Castro A, Figueredo J, Corcho O - J Biomedical Semantics
Giraldo, O., García, A., & Corcho, O. (2018), A guideline for reporting experimental protocols in life sciences. PeerJ 6:e4795; DOI 10.7717/peerj.4795.
Giraldo, O., García, A., López, F., & Corcho, O. (2017). Using semantics for representing experimental protocols. Journal of biomedical semantics, 8(1), 52



Idafen Santana

Is it possible to describe the main properties of the Execution Environment of a Computational Scientific Experiment and, based on this description, derive a reproduction process for generating an equivalent environment using virtualization techniques?

Conservation of Computational Scientific Execution Environments for Workflow-based Experiments Using Ontologies. Santana-Pérez I. PhD thesis, 2016.

<http://oa.upm.es/39520/>

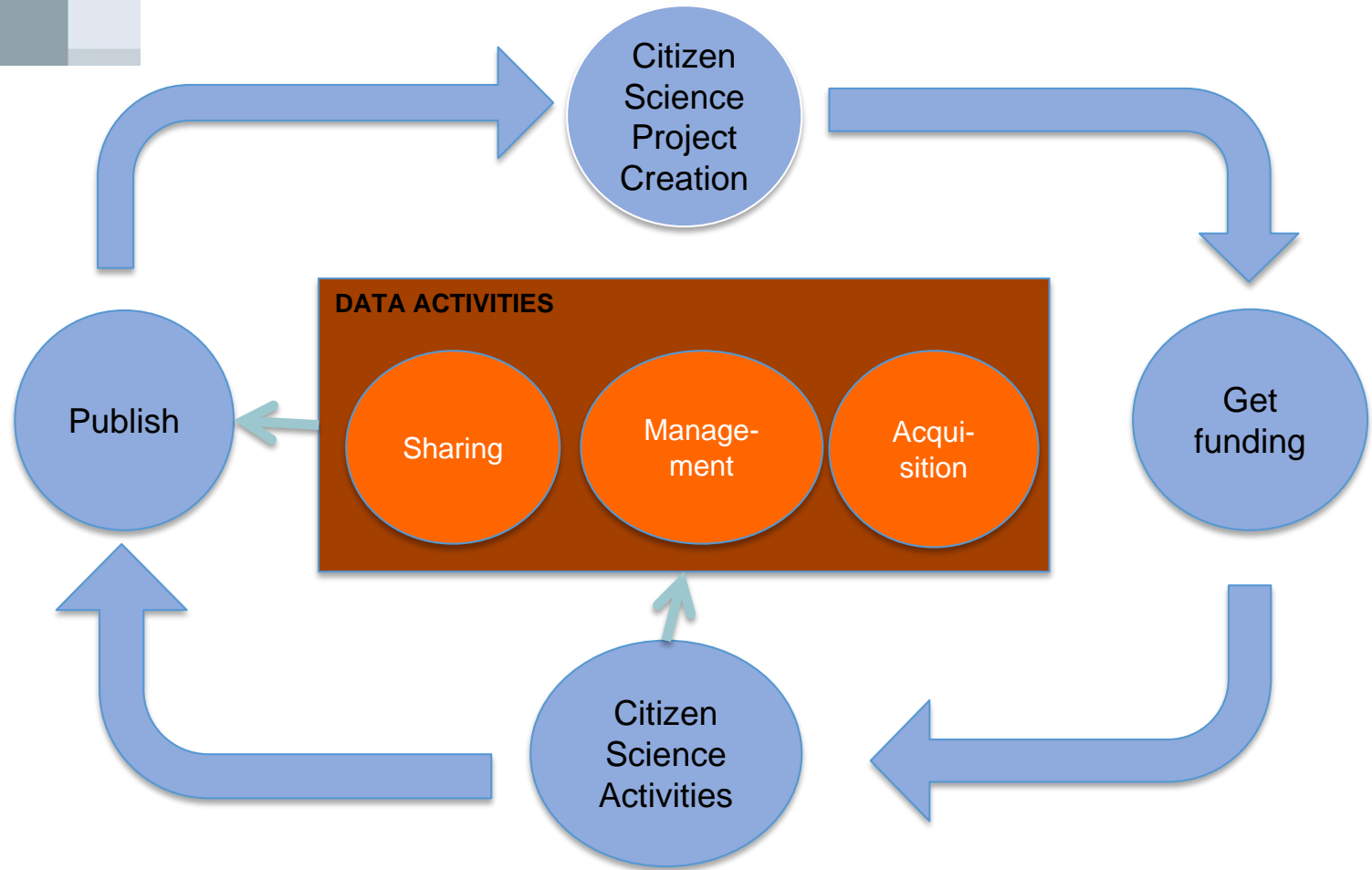
- José Manuel Gómez Pérez
 - Problem-solving methods for understanding process executions. <http://oa.upm.es/2649/>
- Dani Garijo
 - Mining abstractions in Scientific Workflows. <http://oa.upm.es/39062/>
- And some ongoing work...

Light pollution (www.stars4all.eu)

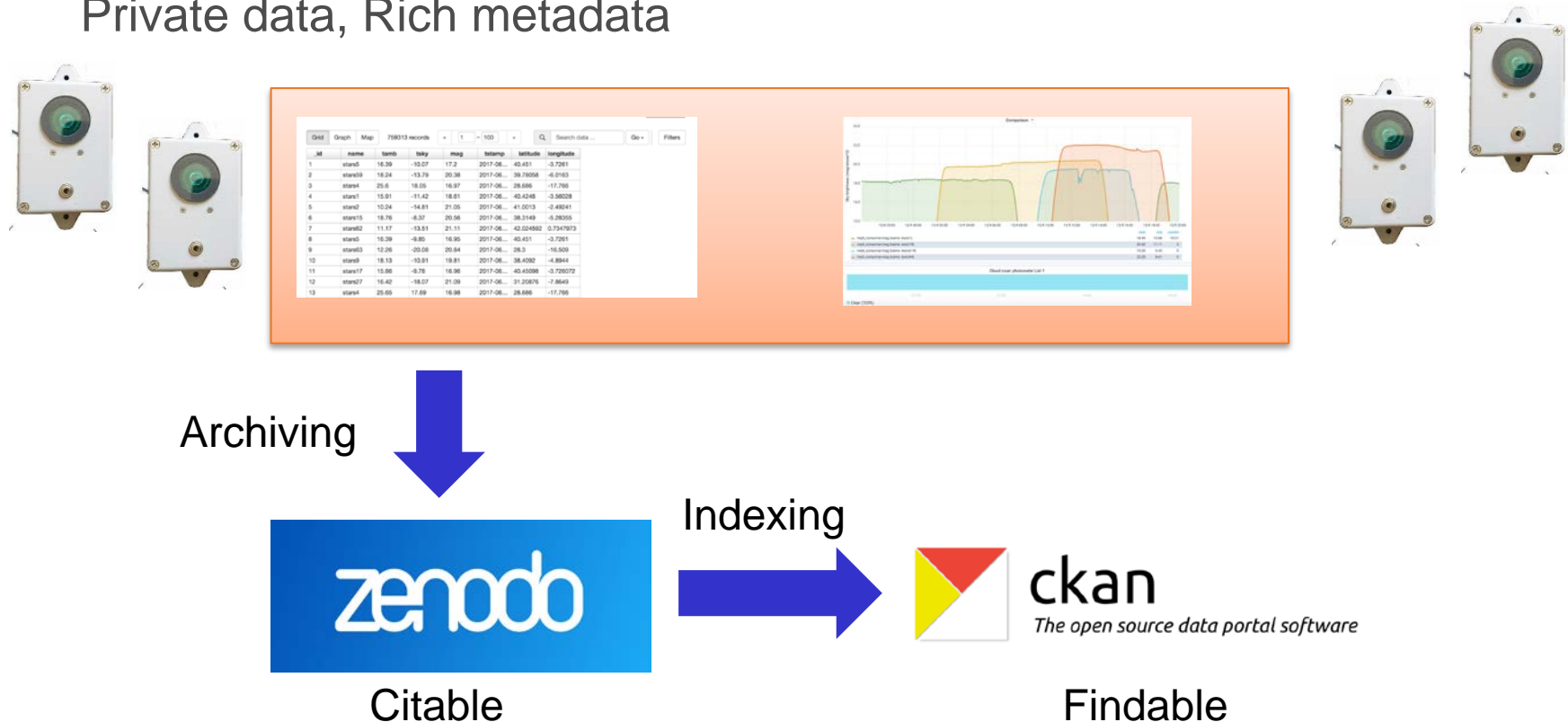


STARS⁴ALL

Lifecycle for Citizen Science Data



- A few options to be based on
 - CSIC-INIA: <http://data.inia.es/> : Research Data, CrossRef, DCAT-AP
 - STARS4ALL: <http://data.stars4all.eu/> : Zenodo
 - TransformingTransport: <https://data.transformingtransport.eu/> : Private data, Rich metadata

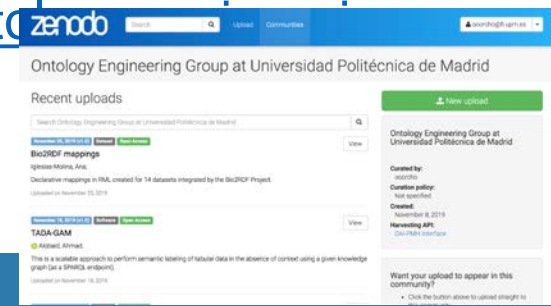


How do we eat our own dog food at OEG-UPM?

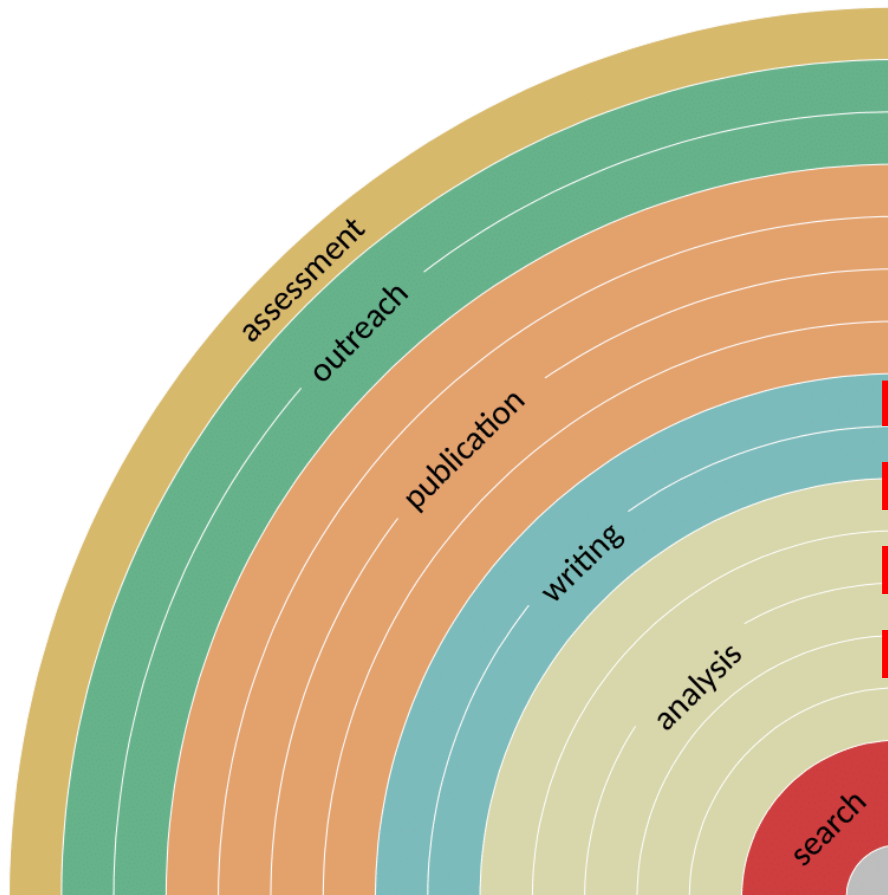
- Which research artefacts do we handle at OEG-UPM?
 - Papers (sure, check them at <http://oa.upm.es/>)
 - Data Management Plans (using DMPOnline)
 - Datasets
 - Normally in GitHub, e.g. <https://github.com/oeg-upm/btn100>
 - Software source code
 - Normally in GitHub: <http://www.github.com/oeg-upm>
 - Docker images, models and APIs
 - Normally in DockerHub: <https://hub.docker.com/u/oegupm/>
 - Ontologies, thesauri, etc.
 - Normally in GitHub, e.g., <https://github.com/CiudadesAbiertas/vocab-sector-publico-agenda-municipal>
 - And published online, e.g., <http://vocab.ciudadesabiertas.es/def/sector-publico/agenda-municipal/>
 - ...

And which are our (good) practices?

- Still missing many, but...
 - When a research or experiment starts, a new GitHub repository is created
 - The repository is connected to Zenodo, so as to get DOIs and ensure archival
 - Automated archival process after every release
 - DOIs also added to the GitHub repository
 - Our papers cite those DOIs
 - **Bit.ly, dropbox, GDrive links, etc.**, are strictly prohibited in our papers
 - We tweet about them:
<https://twitter.com/ocorcho/status/1106989518941548544>
 - Zenodo community
 - <https://zenodo.org/communities/ontology/>



Things that we do (another perspective)



https://figshare.com/articles/NPOS_Workflow-perspective-Bosman-Kramer_pptx/5065534/1

- Now getting in to the meat for today....
 - Open Science project at UPM (2020-2023)
 - Spanish Open Science network
 - EOSC Interoperability Framework

- Funded under “Programa Propio UPM 2020”. 80K€
- Promoters:
 - Oscar Corcho (EOSC FAIR WG, Open software/data)
 - Mark Wilkinson (FAIR data)
 - Carlos del Cañizo (Responsible Research and Innovation)
 - Ana Laverón (ESA Scientific Data)
 - Raquel Cedazo (Citizen Science)
 - Alberto Brunete (Open hardware)
- Open to the UPM community:
 - Central library, school libraries and CESVIMA
 - Strategic actions at UPM
 - Open Science ambassadors and support team
- Whom?
 - Esteban González: 31 months part-time (50%)
 - Paco Yedro: 12 months part-time (40%)

- Obj1 – Task 1. Análisis de necesidades de los investigadores de distintas áreas de conocimientos y disciplinas de la UPM, y creación de un informe estratégico y guías prácticas (M1-M36)
 - M12: Informe estratégico para la aplicación de políticas de Ciencia Abierta en la UPM (v1)
 - M24: Colección de guías prácticas para la aplicación de políticas de Ciencia Abierta en la UPM
 - M36: Informe estratégico para la aplicación de políticas de Ciencia Abierta en la UPM (v2)

- Obj2 – Task 2. Identificación, adaptación y despliegue de software relacionado con Ciencia Abierta (M1-M36)
 - M6: Catalogación inicial de sistemas que pueden ser utilizados para el almacenamiento de artefactos de investigación.
 - M15: Dashboards para la presentación de indicadores sobre Ciencia Abierta en la UPM.
 - M24: Despliegue de sistemas de depósito de datos u otros objetos de investigación en los casos que se consideren necesarios.
 - M36: Catálogo final y dashboards

- Obj3-4. Task 3. Preparación y presentaciones en sesiones de formación y concienciación sobre el concepto de Ciencia Abierta y las oportunidades que brinda la Ciencia Abierta en una institución como la UPM (M1-M36)
 - M1: Reunión de lanzamiento para dar a conocer la iniciativa a la comunidad UPM
 - M7: Reunión de presentación del catálogo de iniciativas Open Science en UPM
 - M9: Materiales de formación para investigadores predoctorales
 - M13: MOOC sobre Ciencia Abierta en español, basado en materiales usados por MOOCs existentes generados por los proyectos FOSTER y FOSTER+.
 - M16: Reunión de presentación del informe estratégico y de los dashboards.
 - M25: Reunión de presentación de los sistemas puestos a disposición de la comunidad UPM y de las guías prácticas.
 - M36: Reunión de presentación de resultados finales

- We will create the UPM portal for COVID-19 and SARS-COV-2
- Similar (with less resources) to
 - <https://www.covid19dataportal.org/>
- Reusing ideas from ACTION data portal
 - Create a UPM community in Zenodo
 - Associate Research Artefacts with the UPM community and with the COVID-19 community from Zenodo
 - Show it in a dedicated portal

- Led by Universidad Politécnica de Valencia (Nacho Blanquer)

Network Proposal



Proposal funded in the call 2018 *Acciones de Dinamización - Redes de Investigación* built on top of the results of a set of National and European Projects on Open e-Science that focuses on coordinating, sharing and reinforcing such results in an international context.



Recording



European Open Science Cloud

*A policy initiative from the European Commission
supported by the Member States*

The role of the EOSC is to ensure that European scientists reap the full benefits of data-driven science, by offering:

“1.7 million European researchers and 70 million professionals in science and technology a virtual environment with free at the point of use, open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines”

2016 Communication on the “European Cloud Initiative

www.egi.eu

@EGI_einfra

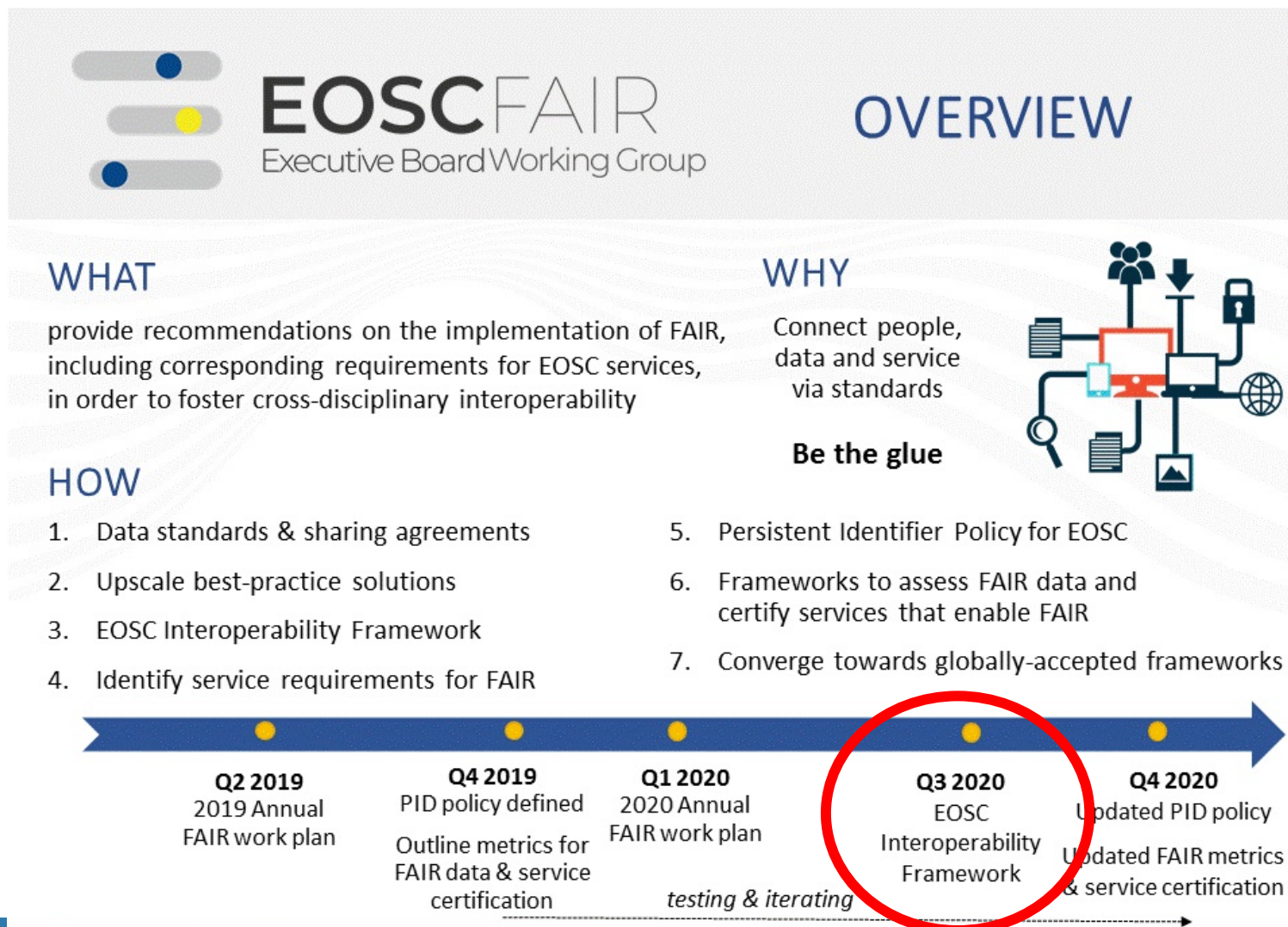
22/04/2020



EOSC landscape in 2020

- EOSC Portal: <https://www.eosc-portal.eu/>
 - Marketplace portal for users
 - Onboarding portal for providers
 - Information page for all
- 47 H2020 projects: <https://www.eosc-portal.eu/about/eosc-projects>
- Governance board: Country delegates
- Executive board: Research and e-infrastructure representatives
- Stakeholder forum: Open group
- 6 Working Groups: Landscape, FAIR, Architecture, Rules of Participation, Skills & Training, Sustainability
- Emerging EOSC Legal entity (to be established in 2020)
- Emerging national entities
- Next set of projects (7) to start in 2021 (INFRAEOSC-03, 07a1-6)

- <https://www.eoscsecretariat.eu/working-groups/fair-working-group>



- Objective:
 - Identify the general principles that should drive the creation of the EOSC Interoperability Framework
- Current version at:
<https://docs.google.com/document/d/1QDLJhwvyHspHnkly4A1kgEi7oJ8BX4IHpHmBctwBmgM/edit>
 - Will open for public comments in 2 weeks
 - Workshop with European Interoperability Framework

EOSC Interoperability Framework (v0.9)

31 March 2020

Draft for internal FAIR WG consultation

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Mark van de Sanden, SURFsara

Krzysztof Kurowski, Poznań Supercomputing and Networking Center IBCH PAS

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1. Introduction

1.1 Context and definitions

1.1.1 The European Open Science Cloud (EOSC)

1.1.2 FAIR principles and the role of Interoperability

1.1.3 The European Interoperability Framework as a Starting Point for the EOSC Interoperability Framework

1.1.4 Other definitions

1.2 Purpose and scope

1.3 How to read this document

2 Interoperability layers

2.1 Technical interoperability

2.2 Semantic interoperability

2.3 Organisational interoperability

2.4 Legal interoperability (not in v1)

[3. Minimum Requirements and Recommendations for the EOSC Interoperability Framework](#)

[3.1 Technical Interoperability](#)

[3.1.1 Problems and needs](#)

[3.2 Semantic Interoperability](#)

[3.2.1 Problems and needs](#)

[3.3 Organisational interoperability](#)

[3.3.1 Problems and needs](#)

[3.4 Legal interoperability \(not in v1\)](#)

[3.5 Some general recommendations from the European Interoperability Framework](#)

[4. Towards an EOSC Interoperability Framework: Model and Components](#)

[4.1 Model overview](#)

[4.1.1 The FAIR digital object](#)

[4.1.2 The European Interoperability Framework and the EOSC IF](#)

[4.1.3 Interlinking digital objects](#)

[4.2 Basic components](#)

[4.2.1 Common semantic artefacts](#)

[4.2.2 Metadata frameworks and elements](#)

[4.2.2.1 The metadata framework core as a part of the foundation for semantic interoperability](#)

[4.2.3 Common resources for semantic artefacts, including examples](#)

[4.2.3.1 Common Semantic artefacts](#)

[4.2.3.2 Conceptual metadata standards & Data type registry models](#)

- Let's now check the document: <https://docs.google.com/document/d/1QDLJhwvyHspHnkly4A1kgEi7oJ8BX4IHpHmBctwBmgM/edit>



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