

# Realising the European Open Science Cloud

First report and recommendations of the Commission High Level Expert Group on the European Open Science Cloud

http://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud



# seven capital sins of open science



keep reactionary reward systems alive



Ignore complexity and the crucial role for machines



Disrespect other disciplines



Publish data and correlations without narrative for people



Publish narrative without machine readable (meta)data



Refuse to fund infra or use research funding tradition for it



Pump data into the environment without the data stewardship plan



# **FAIR to IFDS**

## **Lorentz Center**



 Birth
 Infancy
 Adolescence
 Maturity

 2014
 2015
 2016
 2017
 2018...



**RESEARCH & INNOVATION** 

Open Science

Cloud

European

• Open

Science

Cloud







# What is FAIR ?

"Data and services that are Findable, Accessible, Interoperable, **Re-usable** both for machines and for people."

nature > scientific data > comment > article

#### SCIENTIFIC DATA

#### Comment OPEN Published: 15 March 2016

The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier [...] Barend Mons 🖾

Scientific Data 3, Article number: 160018 (2016) Download Citation

#### Abstract

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders-representing academia, industry, funding agencies, and scholarly publishers-have come together to design and jointly endorse a concise and measureable set of principles that we refer to as the FAIR Data Principles. The intent

The FAIR Guiding Principles for scientific data management and stewardship, Scientific Data (2016), https://www.nature.com/articles/sdata201618

# What FAIR is not ...

Cloudy, increasingly FAIR; revisiting the FAIR Data guiding principles for the European Open Science Cloud DOI: 10.3233/ISU-170824

## FAIR is not a standard

FAIR is not equal to 'Semantic Web' FAIR is not equal to 'Open' or 'Free' Data are often Open but not FAIR Data could be Closed yet perfectly FAIR Many data can never be Open

FAIR principles do not *directly* proscribe data quality, trustworthiness, ethics or responsibility.



# Governance recommendations of the HLEG EOSC

- G1: Aim at the **lightest possible**, internationally effective governance.
- G2: Guidance **only** where guidance is due.
- G3: Define **Rules of Engagement** for formal participation in the EOSC.
- G4: Federate the Gems across Member States.

GO FAIR will obviously also honour the P and I recommendations of the HLEG

## **Rules of Engagement**

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→ Implementation Networks 
→ How to become an Implementation Network 
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### Implementation Networks

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- > Application form
- > Current Implementation Networks
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- > C2CAMP
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- > Rare Disease (RD)
- > Biodiversity
- > Personal Health Train
- > Metabolomics

#### **Rules of Engagement**

(to be signed by all participants of implementation networks)

To join a GO FAIR Implementation Network, each partner should:

**Answer to the FAIR Data Principles:** The GO FAIR implementation plan for the IFDS as a whole will answer to the FAIR Guiding Principles. This means that data resources, services, and training materials will be developed according to these principles and will be adorned with rich, machine-readable metadata, and that they will thus be Findable, Accessible, Interoperable, and Reusable under well-defined conditions, by machines and humans.

**Abide by the Governance Principles**: A GO FAIR partner should formally acknowledge and endorse the General Governance Principles of the GO FAIR initiative.

**Accept to be stakeholder-governed:** The GO FAIR implementation approach for the IFDS is stakeholder-governed. A self-coordinating, board-governed organisation drawn from the stakeholder Implementation Network community creates trust that the organisation will take decisions driven by community consensus, considering different interests.

**Accept non-discriminatory membership**: When willing to sign the Rules of Engagement, any stakeholder may express an interest in and should be welcome to join GO FAIR.

**Conduct transparent operations:** Achieving trust in the selection of representatives in governance groups will be best achieved through transparent processes and operations in general (within the constraints of privacy laws).

Not abuse its trusted provider or GO FAIR status for undue lobbying for its own services, especially with the aim to monopolise critical components of the IFDS.

#### Motivation ¥

Safeguarding The General Governance Principles 💙

## Guidelines for GO FAIR involvement on a country level

Home > Countries > Guidelines for GO FAIR involvement on a country level

#### Countries

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- > Strategy
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- > Map
- Guidelines for GO FAIR
   involvement on a country level
- > Governance
- > Steering Committee
- > Executive Board
- > Stakeholder Forum
- > International Support and Coordination Office
- > National Support and Coordination Offices

The following guidelines describe the actions expected to have been implemented by interested member states (MS) or associated countries (AC) before joining the GO FAIR initiative:

**1.** The MS/AC is expected to acknowledge and support the principles that form the basis for the GO FAIR initiative of independent, yet coordinating implementation networks:

- GO FAIR is a community-led and self-governed initiative.
- GO FAIR is a bottom-up initiative.
- An open and inclusive ecosystem of GO FAIR implementation networks will evolve, as the number of scientific institutions committing to the principles of GO FAIR increases.

**2**. In order to ensure a smooth and swift involvement of the interested communities in the respective MS/AC, the following steps should be taken on the national level:

- Reaching an overview of which research communities and e-infrastructures in the respective country would want to participate in the GO FAIR initiative.
- Encouraging the community in getting organised, in preparing them for connection to the GO FAIR initiative. This means to engage all relevant parties such as research communities, e-infrastructures, Research Funding Organizations (RFO's), Research Performing Organizations (RPO's) and the ministerial level as a facilitator. This will facilitate coordinating the interactions with the GO FAIR initiative.
- Encouraging and stimulating this group of interested parties in the respective MS/AC to discuss and explore how the different communities could grow into a "GO FAIR implementation network" (i.e. practically implementing one part of the Internet of FAIR data and services, for example setting standards, developing templates, FAIRifying data for one scientific domain).
- Appointing a contact person for interaction with the ISCO that provides information on the previously described process to the ISCO. Ideally, the contact person will team up with a national support office in the medium term.

MS/AC that have the intention to implement these guidelines are invited to **contact the ISCO**, which can support them in the process to join. In due time, MS/AC who have taken the steps set out above can send to the ISCO a letter expressing their intent to join the GO FAIR initiative and providing the information required to assess the implementation of the guidelines. On this basis, **the Steering Committee** of the GO FAIR initiative will decide if the MS/AC can join and is offered to nominate members to the Steering Committee.

### **Common Patterns in Revolutionary Infrastructures and Data**

Peter Wittenburg, Max Planck Computing and Data Facility, George Strawn, US National Academy of Sciences, February 2018 <u>https://www.rd-alliance.org/sites/default/files/Common Patterns in Revolutionising Infrastructures-final.pdf</u>







Lessons from the Internet for People:
1. Minimal standards only
2. Rough consensus/Running code
3. Don't tell anyone else what to do
4. Critical mass of lead-players

Now, for the Internet for Machines



- Critical mass
- Rough consensus and running code

### ....and to other major international players....?









## EXAMPLES OF ORGNIZATIONS IN THE PROCESS OF GOING FAIR





European Commission

EOSC Counci Conclusions	l Implementation Roadmap	EOSC Declaration	European Cloud Initiative	Policy context	
<ul> <li>Foster FAIR data</li> <li>Make optimal use of existing initiatives</li> </ul>	f FAIR related actions, milestones and resources	<ul> <li>Commitments to change towards FAIR</li> <li>Data culture and skills</li> <li>Rewards &amp; incentives</li> <li>Data tools and services</li> </ul>	<ul> <li>Make open research data the default option</li> <li>FAIR DMPs</li> </ul>	金 🌢 🕈 💷 👾	
2018	financial case		Support implementation		
Policy implementation	<ul> <li>Cost of not having FAIR data</li> <li>Cost-benefit analysis</li> <li>Recommendations for sustainability</li> </ul>	- - -	Turning FAIR data into realitymFAIR data action planmff	<ul> <li>○ ■■ ⇔</li> <li>○ ■■ ⇔</li> </ul>	
Provide guidanc	e et	Maximize fficiencies	Ensure governance	2019	
- European Rese Interoperability Framework	arch 🕈 🖬 🛱 - Annu 7 Plan	ual FAIR data W 🏦 🍏 📑 讲	- FAIR data Working Group	â š 🖬 🛱	
2020	Measure readiness		Promote certification		<b>Target group</b> Image: Target group         Image: Policy maker         Image: State S
	<ul> <li>Core assessment criteria</li> <li>FAIR data maturity model</li> </ul>		Accreditation /		Researchers Researchers Infrastructur Coordination



#### Welcome!

Austria Belgium Brazil China Czech Republic Denmark Greece Hungary Italy Ireland Kenya Norway Portugal Slovenia Spain Sweden Switzerland UK USA Zimbabwe