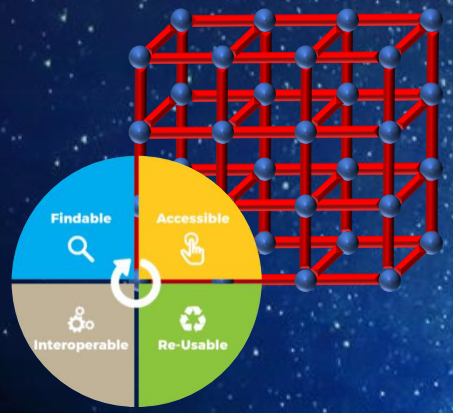
Open Science in Lattice Gauge Theory community



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NI4OS-Europe WP6 leader

In collaboration with Ed Bennett, Julian Lenz and Elli Papadopoulou

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https://doi.org/10.5281/zenodo.6980070

11th of August, 2022

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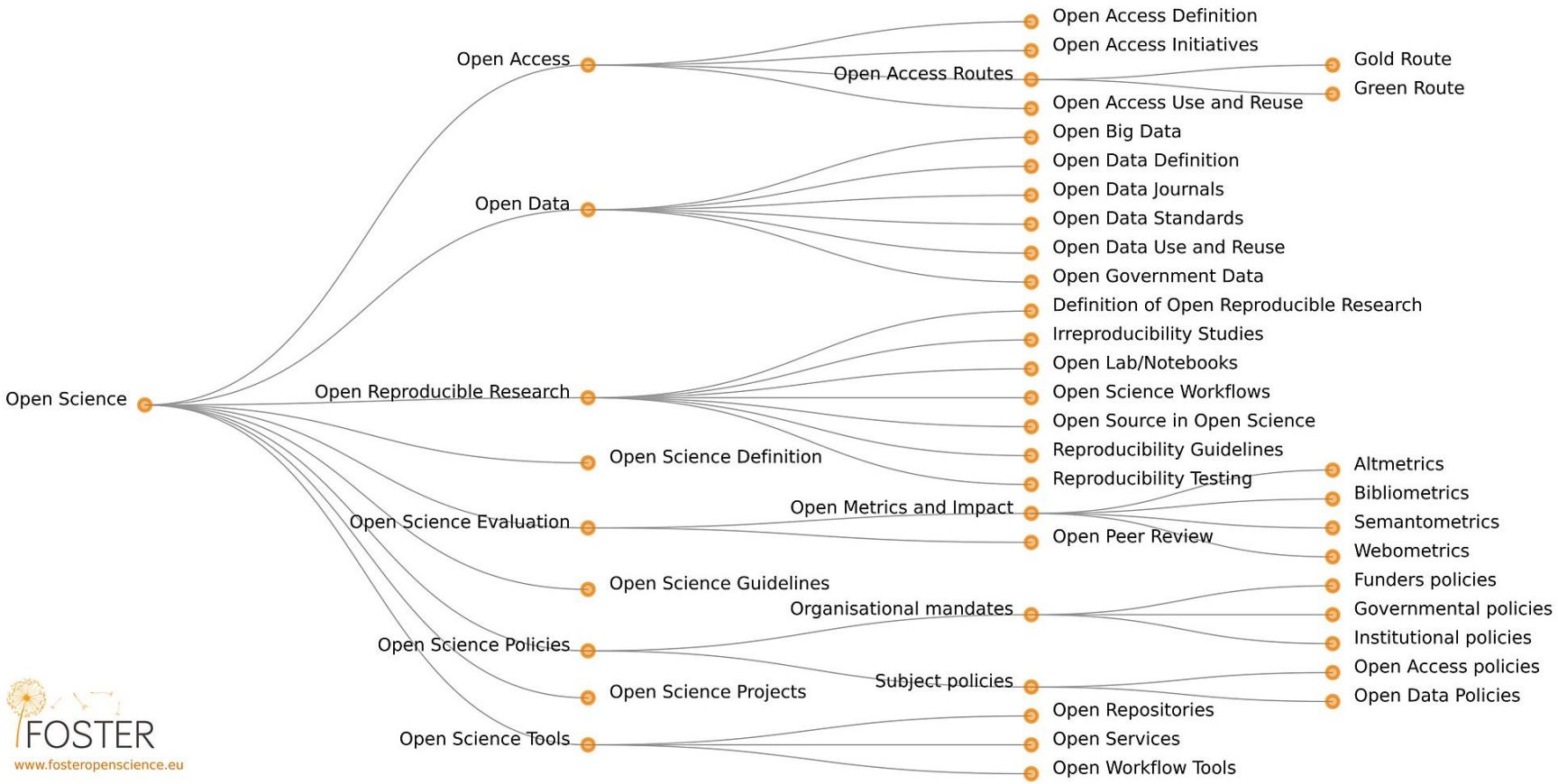
Open Science

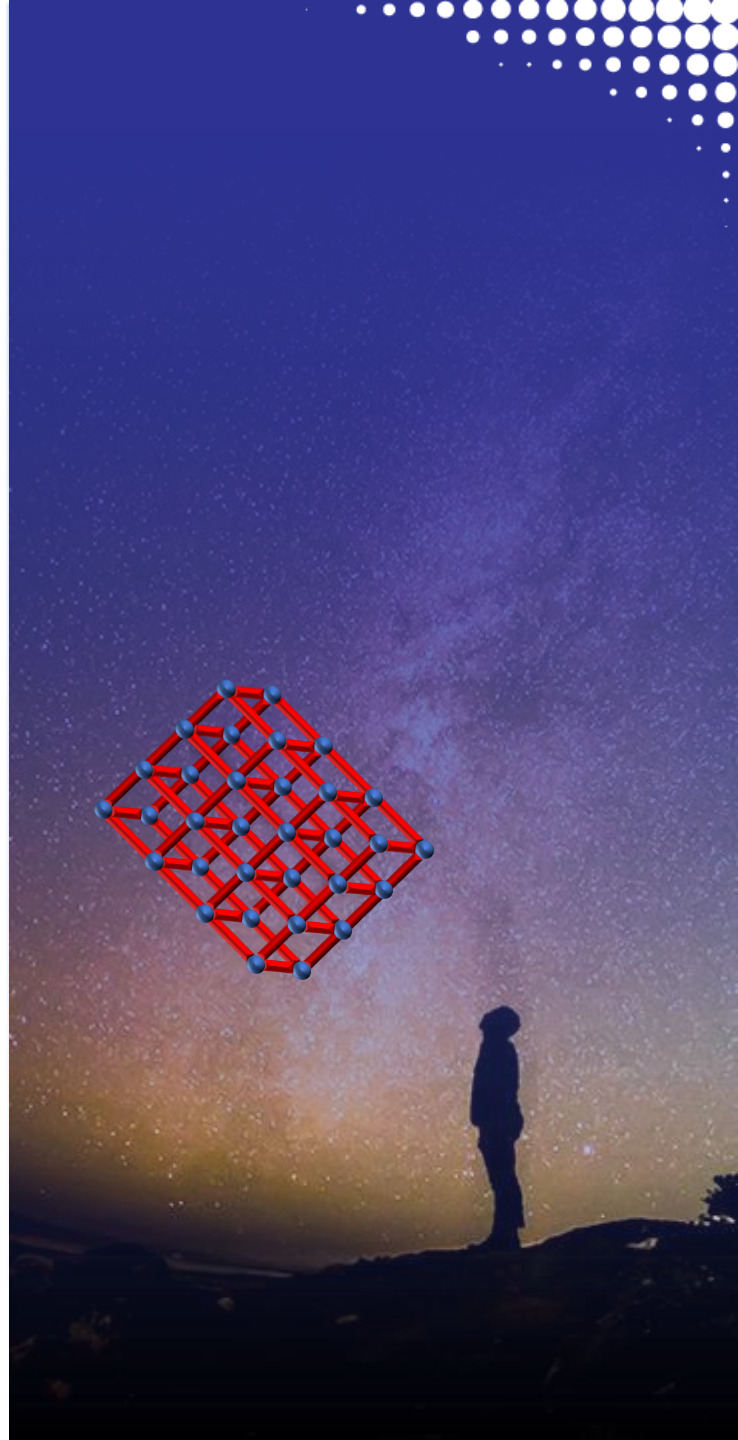
«The continuous evolution of the way science is being performed and managed»

Open science affects the way in which science is being practiced, it enhances the collaboration between researchers, knowledge is shared and science is being managed in a consistent way

In other words it affects the research cycle, from the birth of the idea to the publication of the results, and the way this cycle is being organised

Open Science taxonomy





Advantages of Open Science

Research

- Reach the general public
- Reusability of research results
- Validation of research
- Prevent loss of data and knowledge

Finance

- Stimulating innovation
- Strengthening the regional and national market
- New jobs

Researchers

- Promoting research integrity
- Enhance extrovertly
- Increase number of citations and references
- Recognition within EOSC

Society

- Strengthening trust – transparency
- Participation of all in the research process – citizen science
- Strengthening synergies, internally as well as within EOSC

Open Science Survey for Lattice Community

https://latticesurvey.hpcf.cyi.ac.cy/index.php/157898

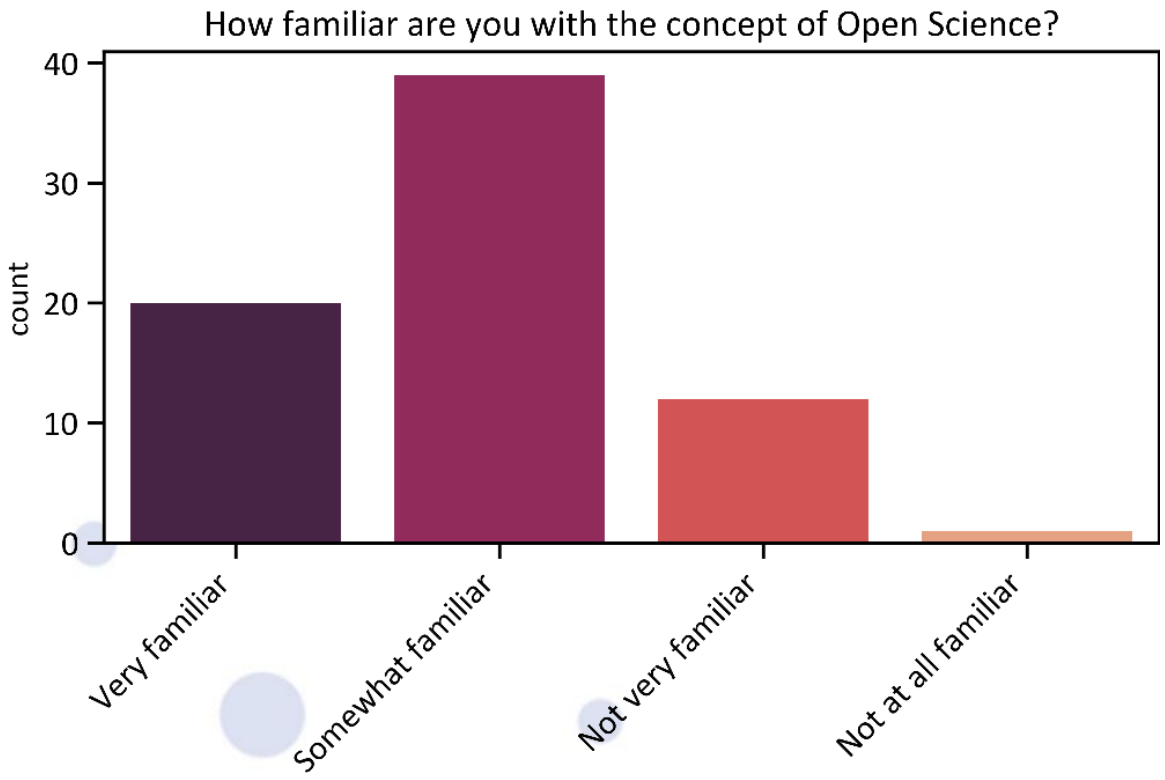
Scope: to perform a detailed landscape on the open science situation within the lattice community

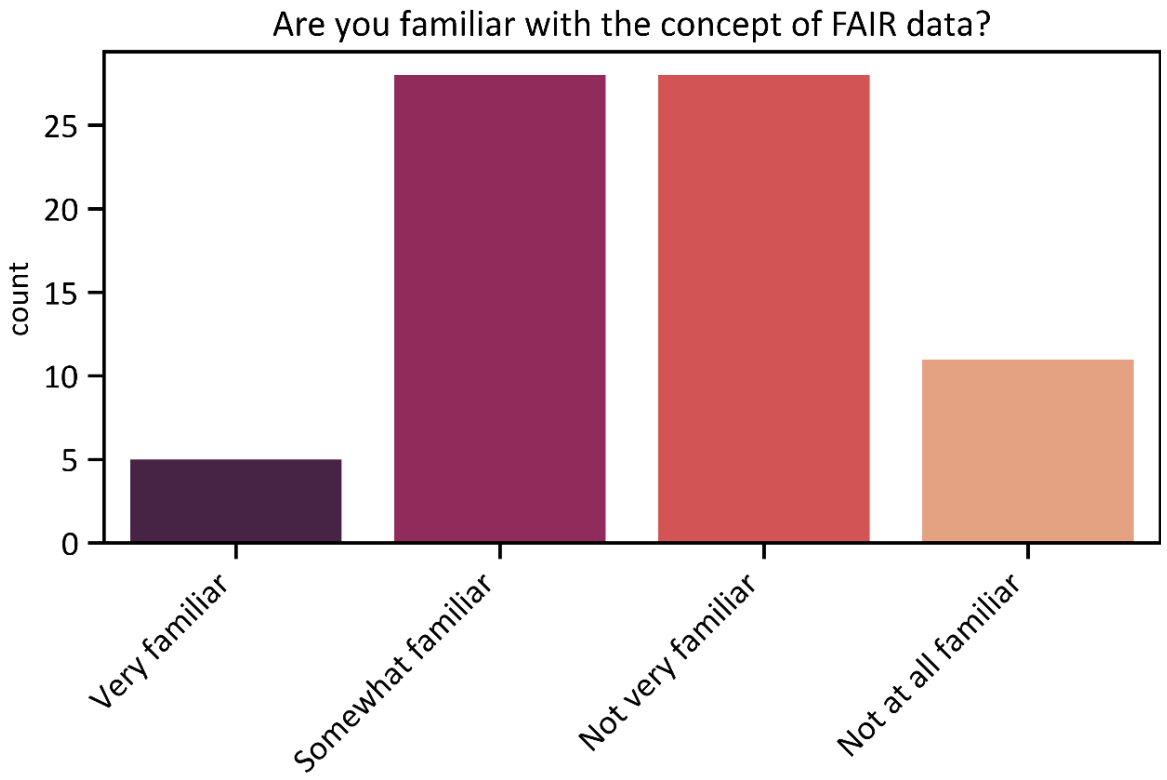
Participation: 39 fully filled
67 partially filled

Please provide your feedback!

Closes **End** of **September**…

Familiarity with Open Science and FAIR





Research Data in Lattice Community

- What is research data?

what has been used or generated (including software) during research process and support/validate its findings

- Why manage research data?
  - ✓ Data are understandable, re-usable and reproducible
  - ✓ Avoid data loss
  - ✓ Get credit
  - ✓ Avoid fraudulent/ bad science

- Type of data in LGT
  - Articles
  - Codes
  - Plots
  - Pipelines
  - Workflows
  - Correlators
  - Gauge configurations
  - Raw data…

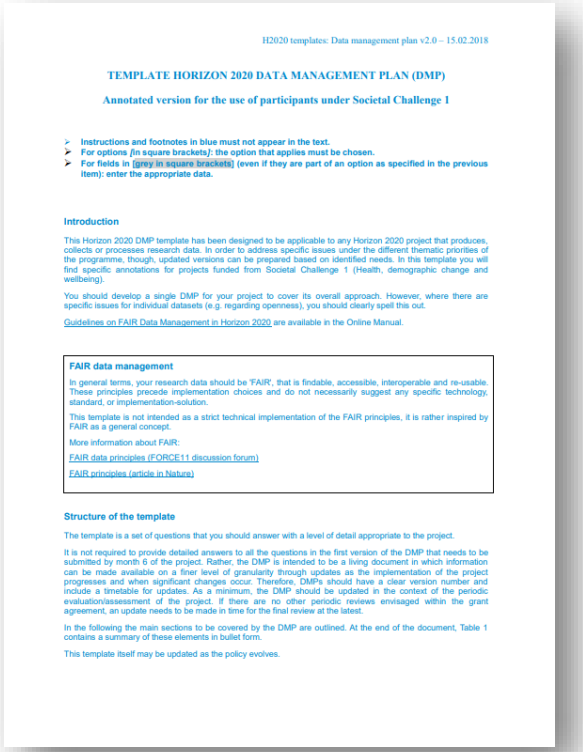
Data Management Plan - DMPs

What is a DMP? Deliverable and “living” document

What is not a DMP? A research assessment method

The H2020 DMP template

https://ec.europa.eu/research/participants/data/ref/h2020/other/gm/reporting/h2020-tpl-oa-data-mgt-plan-annotated_en.pdf



H2020 templates: Data management plan v2.0 – 15.02.2018

TEMPLATE HORIZON 2020 DATA MANAGEMENT PLAN (DMP)

Annotated version for the use of participants under Societal Challenge 1

- **Instructions and footnotes in blue must not appear in the text.**
- **For options *[in square brackets]*: the option that applies must be chosen.**
- **For fields in [grey in square brackets] (even if they are part of an option as specified in the previous item): enter the appropriate data.**

Introduction

This Horizon 2020 DMP template has been designed to be applicable to any Horizon 2020 project that produces, collects or processes research data. In order to address specific issues under the different thematic priorities of the programme, though, updated versions can be prepared based on identified needs. In this template you will find specific annotations for projects funded from Societal Challenge 1 (Health, demographic change and wellbeing).

You should develop a single DMP for your project to cover its overall approach. However, where there are specific issues for individual datasets (e.g. regarding openness), you should clearly spell this out.

Guidelines on FAIR Data Management in Horizon 2020 are available in the Online Manual.

FAIR data management

In general terms, your research data should be 'FAIR', that is findable, accessible, interoperable and re-usable. These principles precede implementation choices and do not necessarily suggest any specific technology, standard, or implementation-solution.

This template is not intended as a strict technical implementation of the FAIR principles, it is rather inspired by FAIR as a general concept.

More information about FAIR:

FAIR data principles (FORCE11 discussion forum)

FAIR principles (article in Nature)

Structure of the template

The template is a set of questions that you should answer with a level of detail appropriate to the project.

It is not required to provide detailed answers to all the questions in the first version of the DMP that needs to be submitted by month 6 of the project. Rather, the DMP is intended to be a living document in which information can be made available on a finer level of granularity through updates as the implementation of the project progresses and when significant changes occur. Therefore, DMPs should have a clear version number and include a timetable for updates. As a minimum, the DMP should be updated in the context of the periodic evaluation/assessment of the project. If there are no other periodic reviews envisaged within the grant agreement, an update needs to be made in time for the final review at the latest.

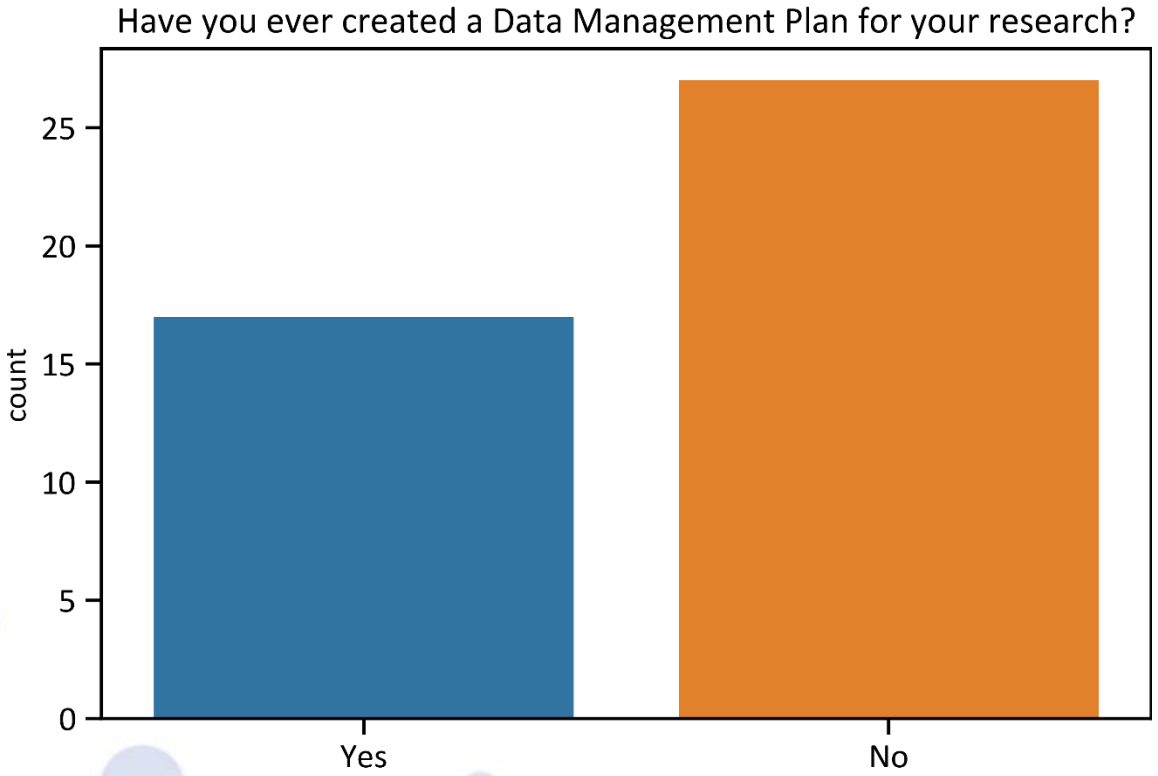
In the following the main sections to be covered by the DMP are outlined. At the end of the document, Table 1 contains a summary of these elements in bullet form.

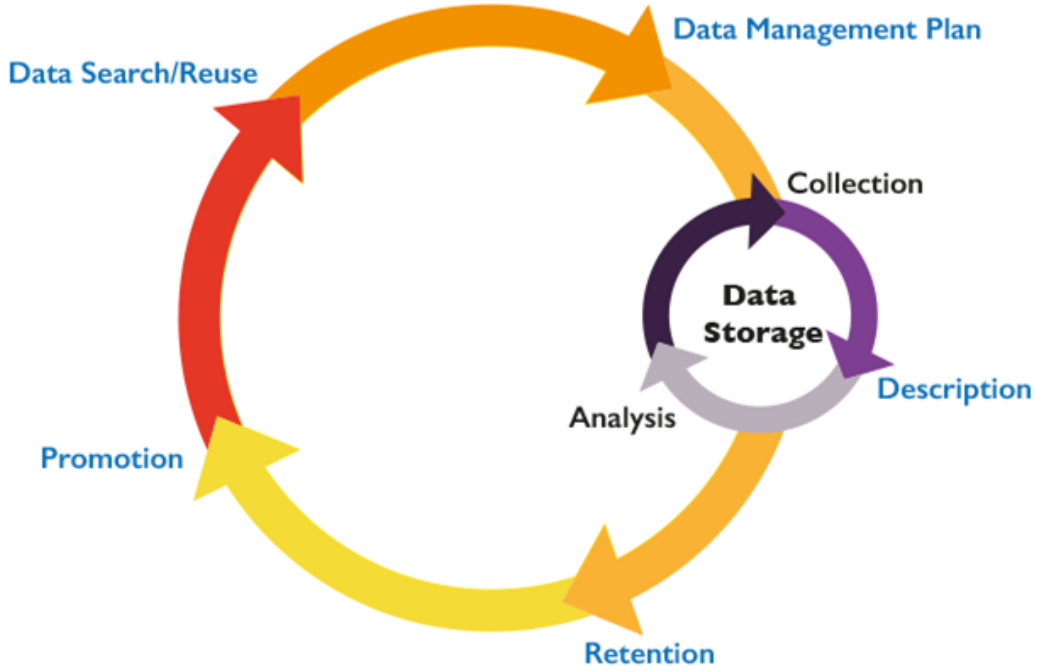
This template itself may be updated as the policy evolves.

Use ARGOS to create a DMP

Use ARGOS to create a DMP
https://argos.openaire.eu/splash/

Experience with DMPs





What are FAIR data?

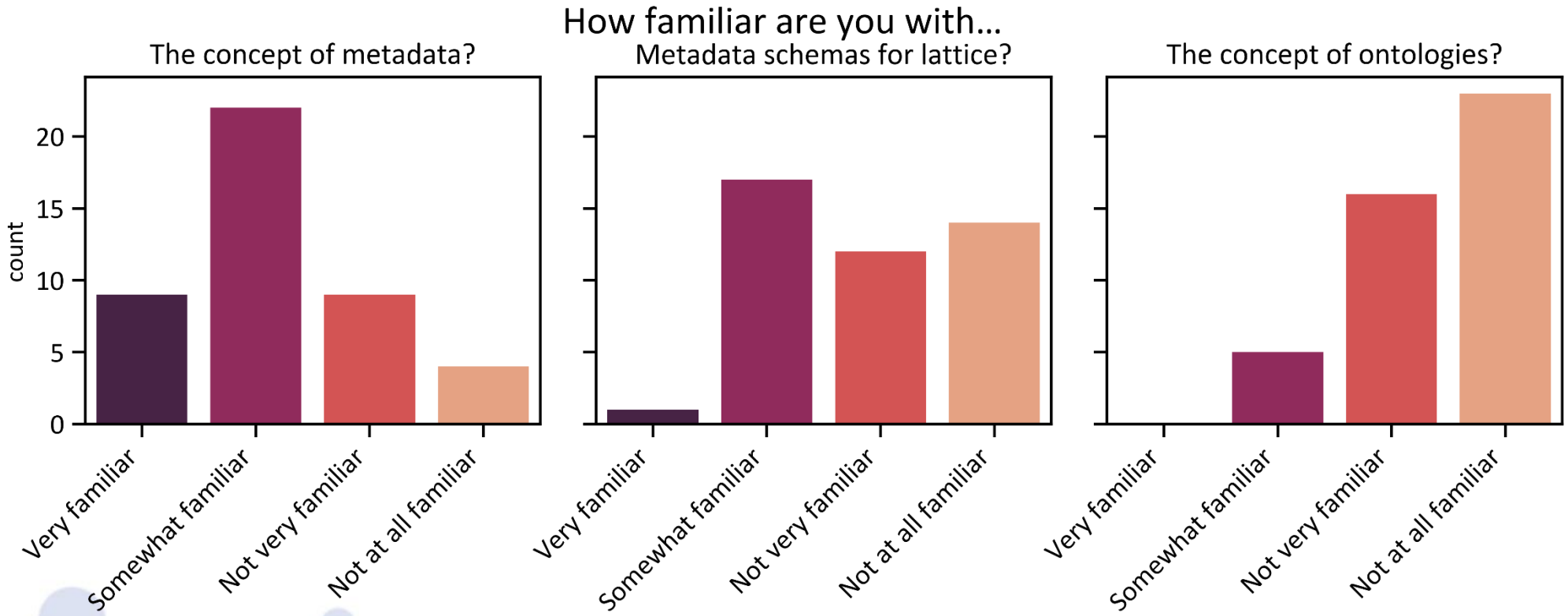
FAIR is a list of principles according to which data is

- **Findable**
  - Metadata, PIDs, naming, keywords, versioning
- **Accessible**
  - Which data are made available, where, methods
- **Interoperable**
  - Metadata, Ontologies
- **Reusable**
  - Licence, when made available, embargo, quality assurance

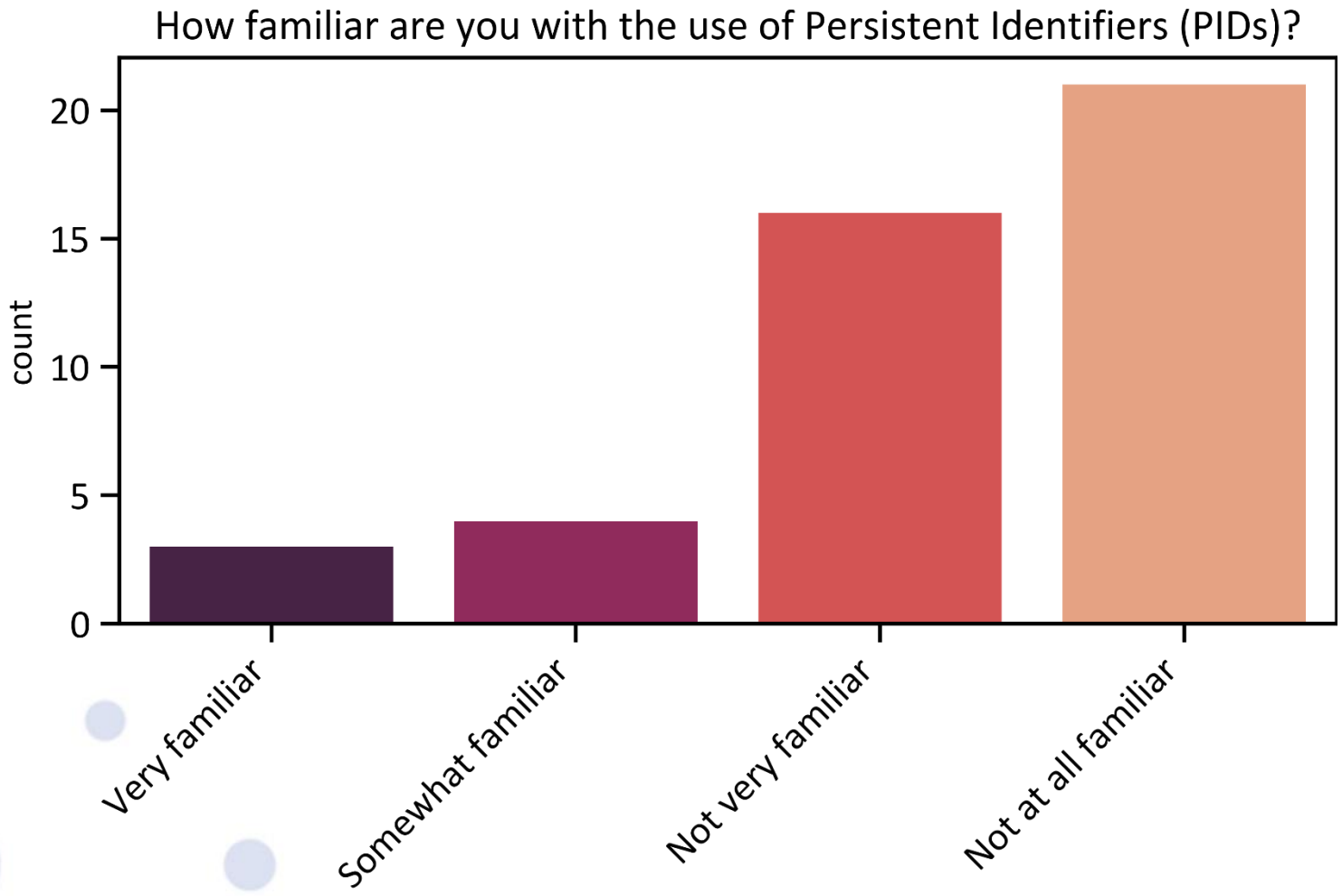
Frithjof Karsch' plenary

https://www.nature.com/articles/sdata201618.pdf
https://force11.org/info/the-fair-data-principles/
https://www.go-fair.org/wp-content/uploads/2022/01/FAIRPrinciples_overview.pdf

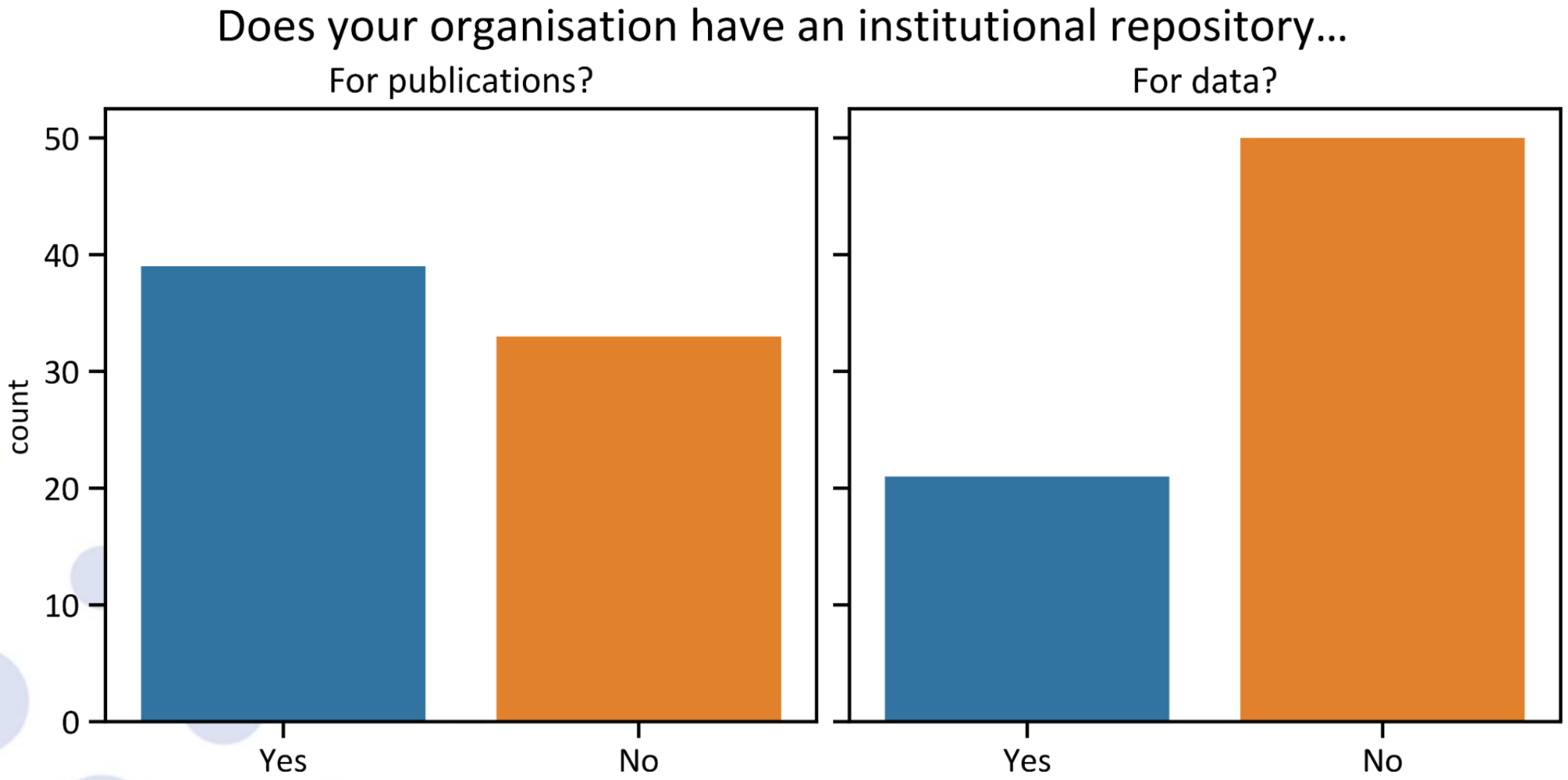
Familiarity with semantics



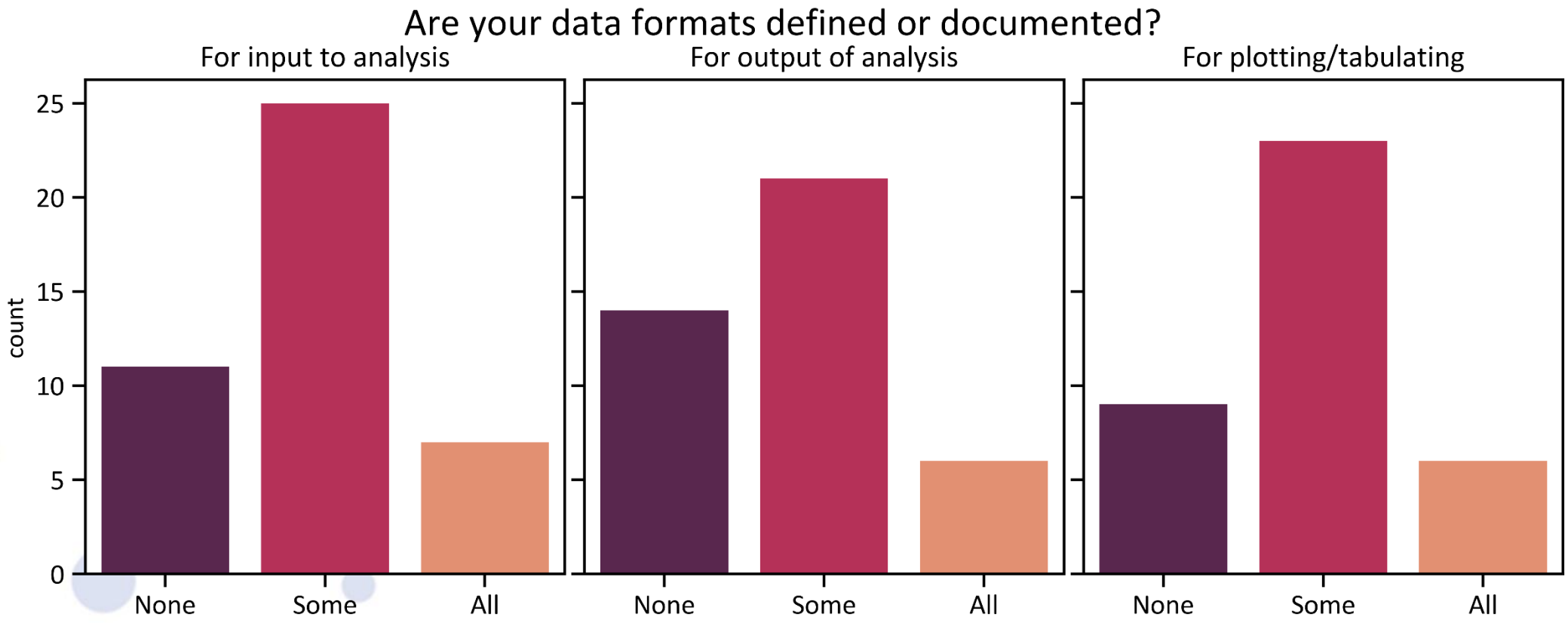
Familiarity with PIDs



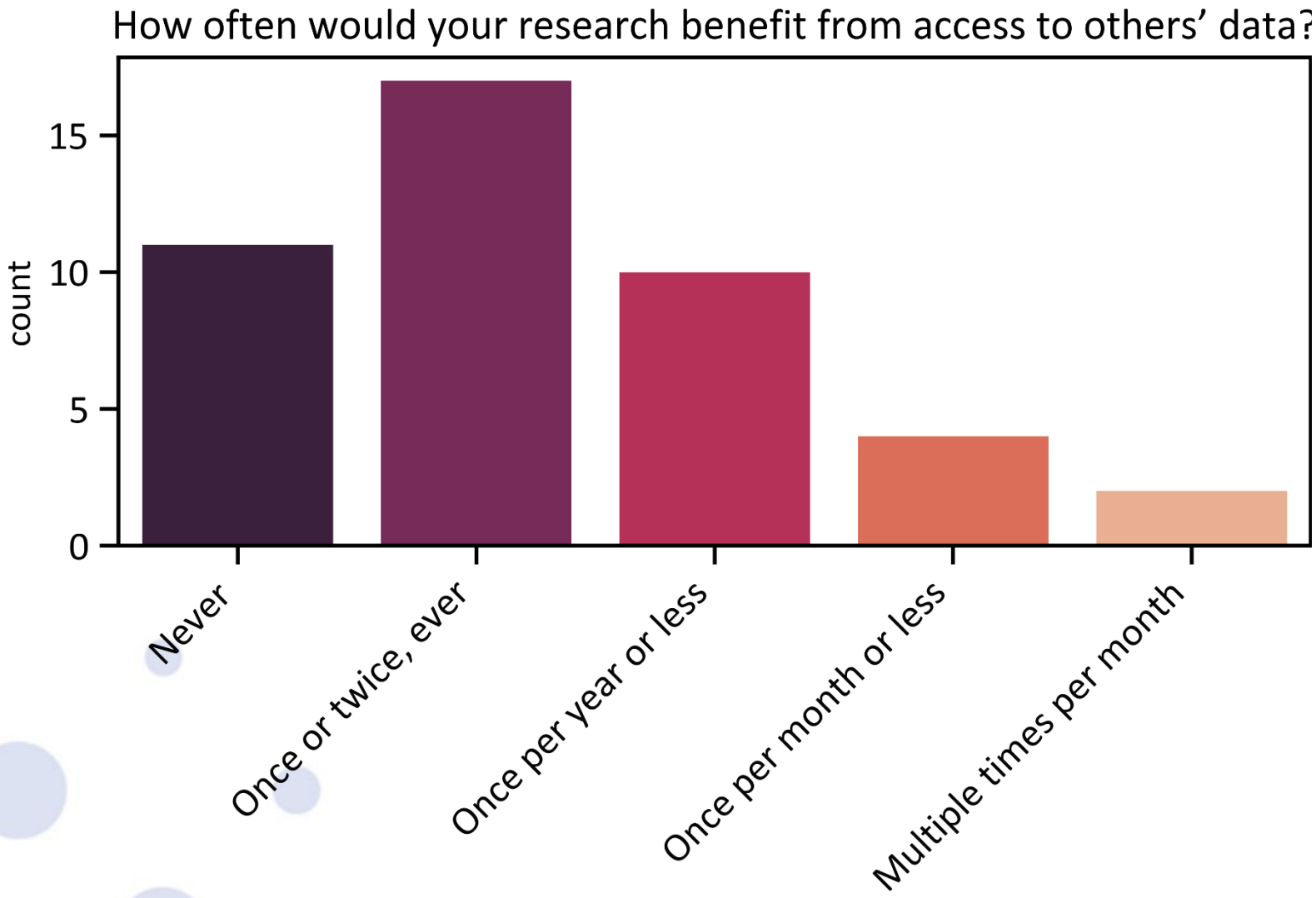
Institutional efforts



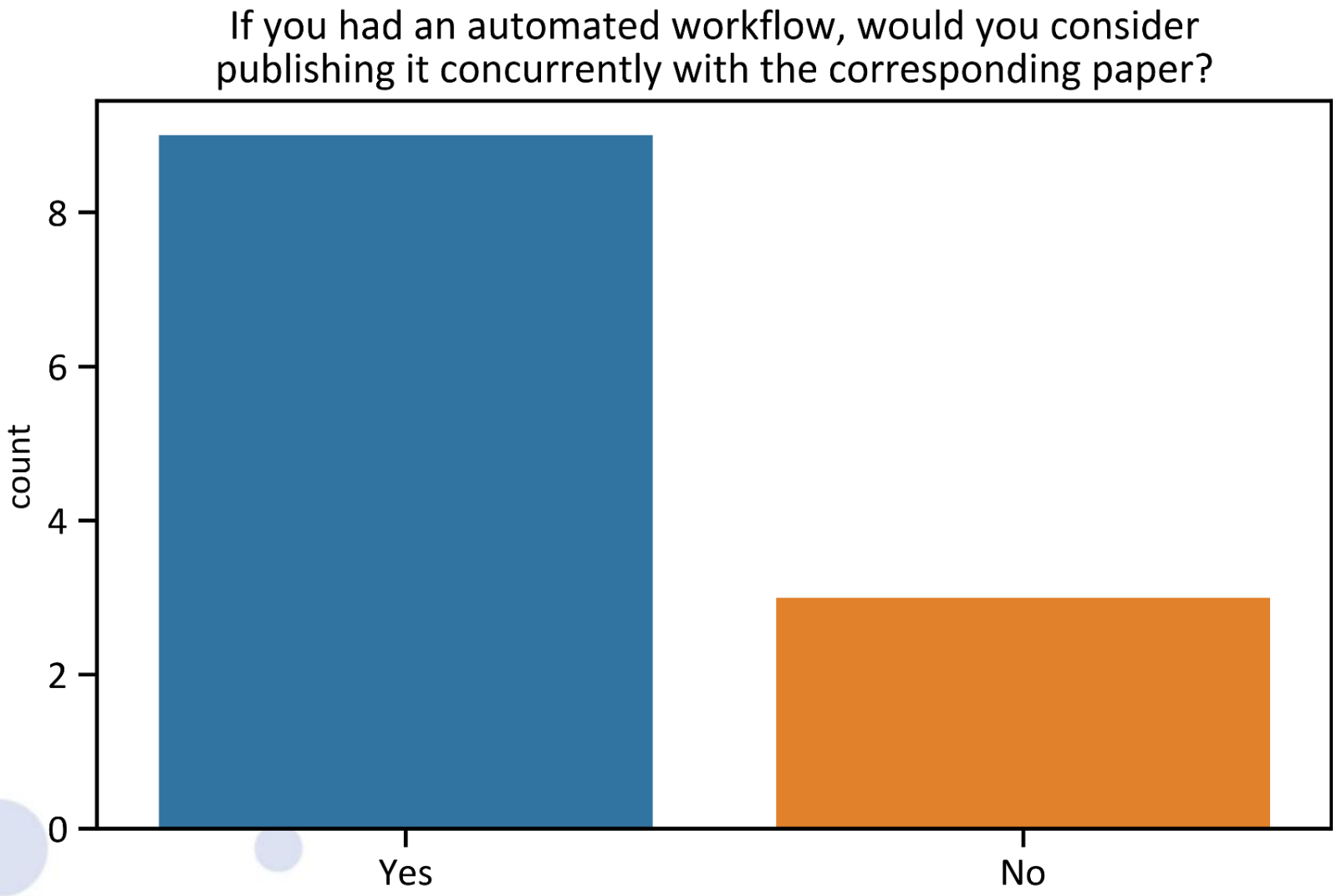
Data format documentation



Frequency of benefitting from others' data

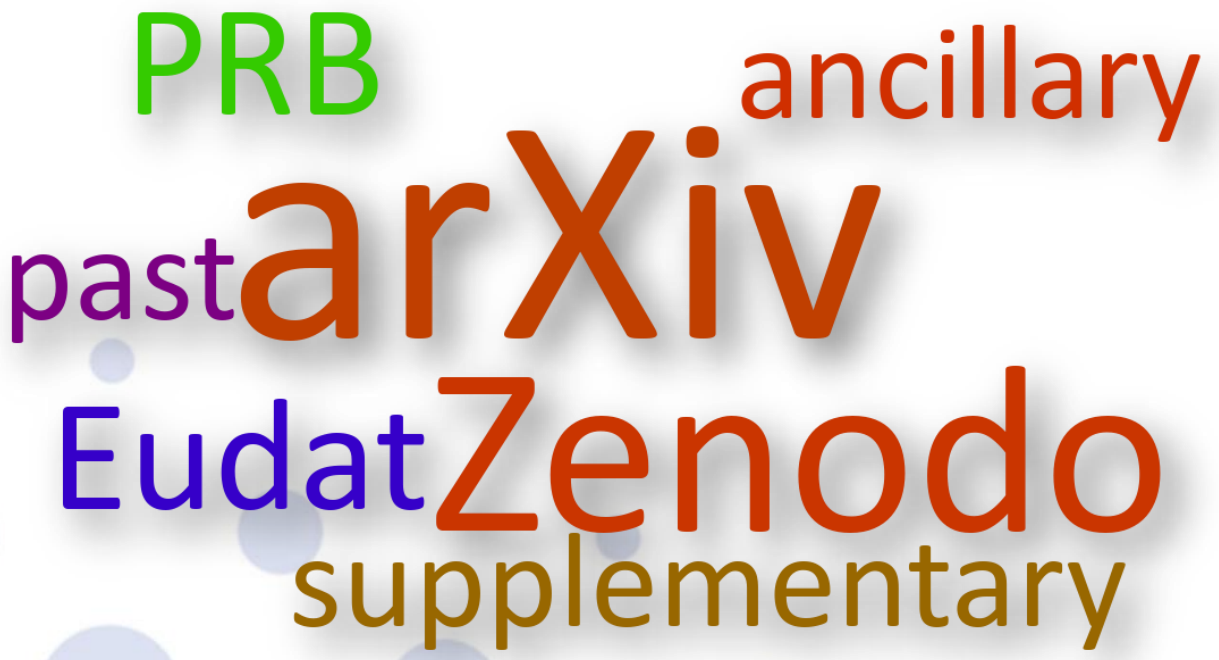


Publishing workflows



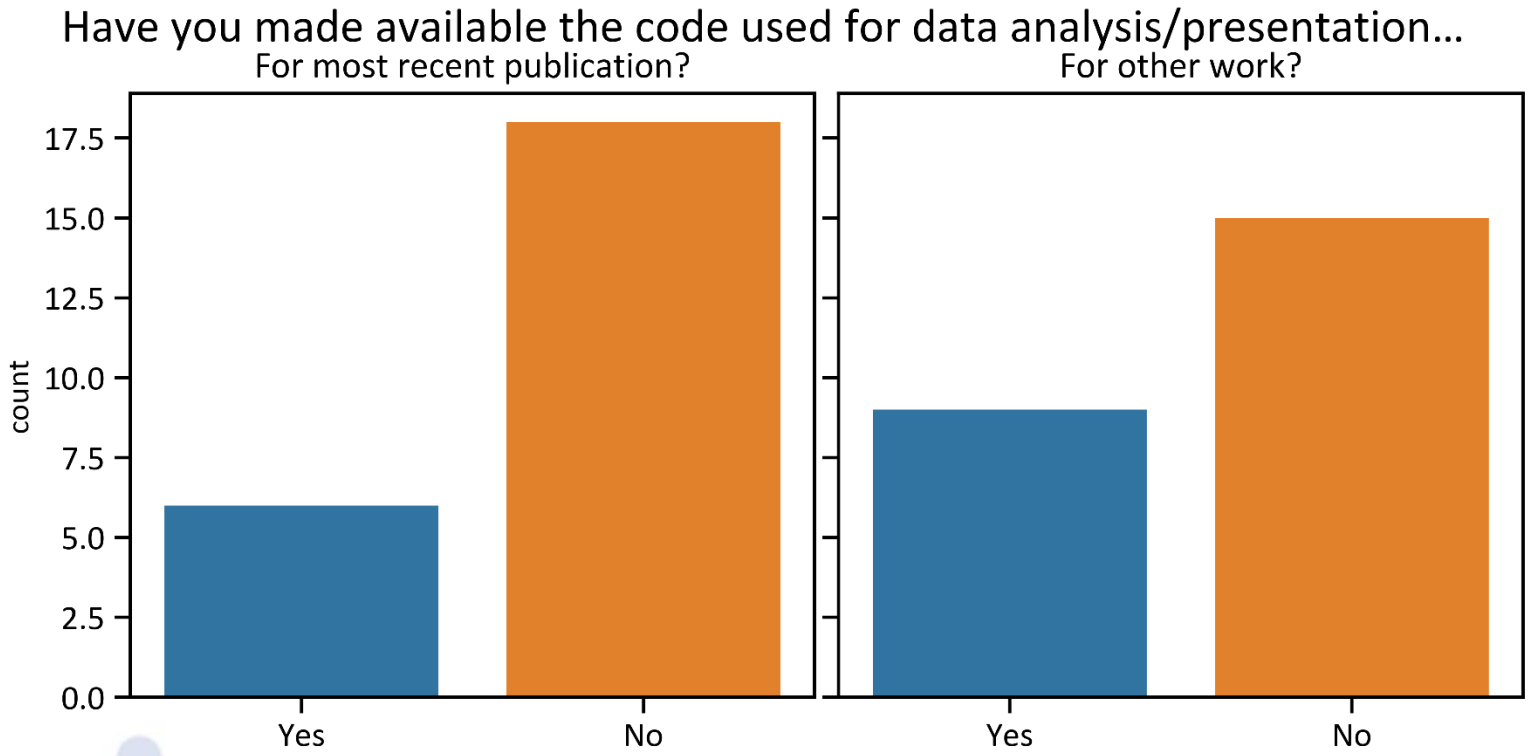
What service do you use to publish data/code?

Data

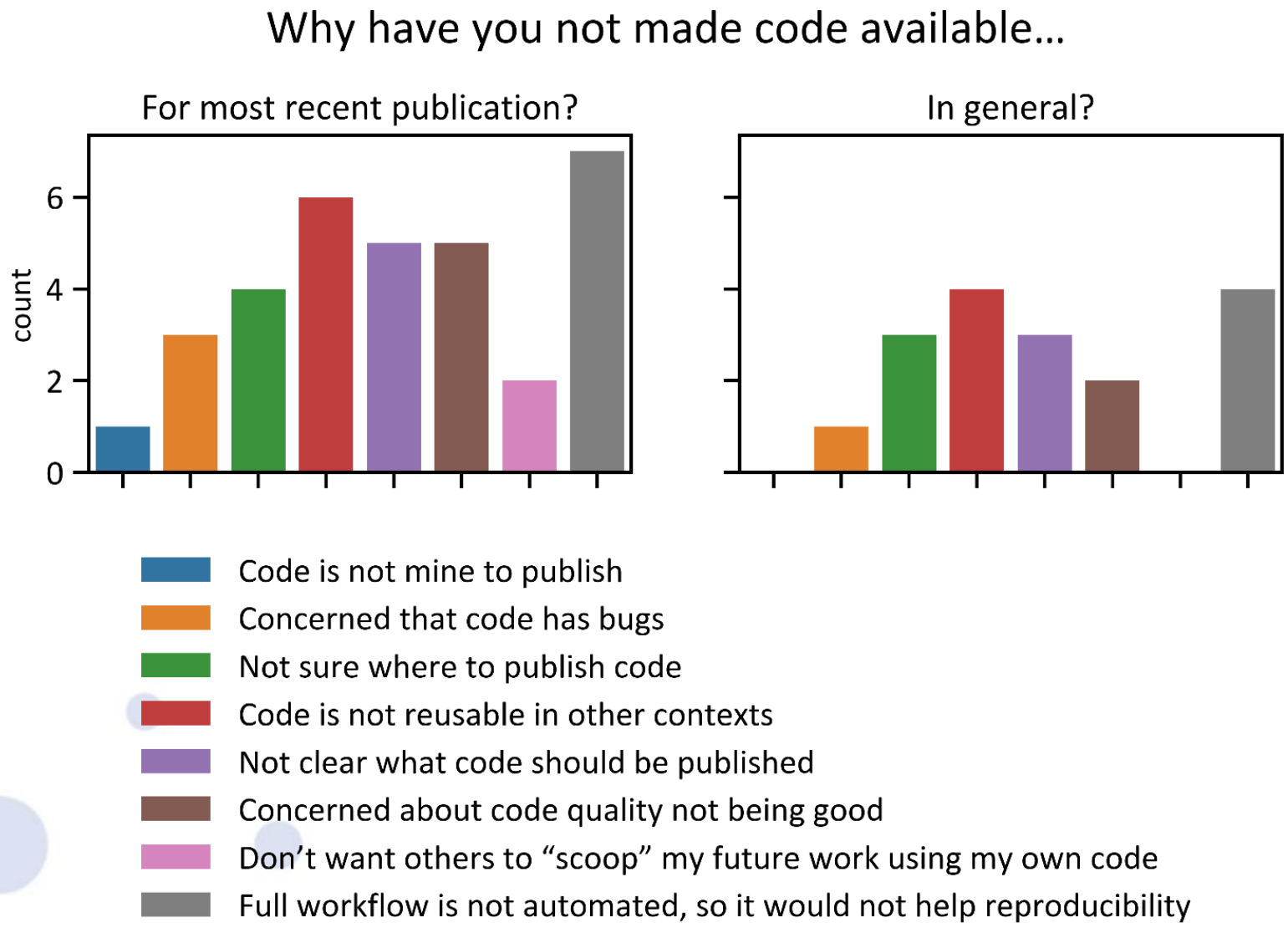


Code

Have you ever made your code available?

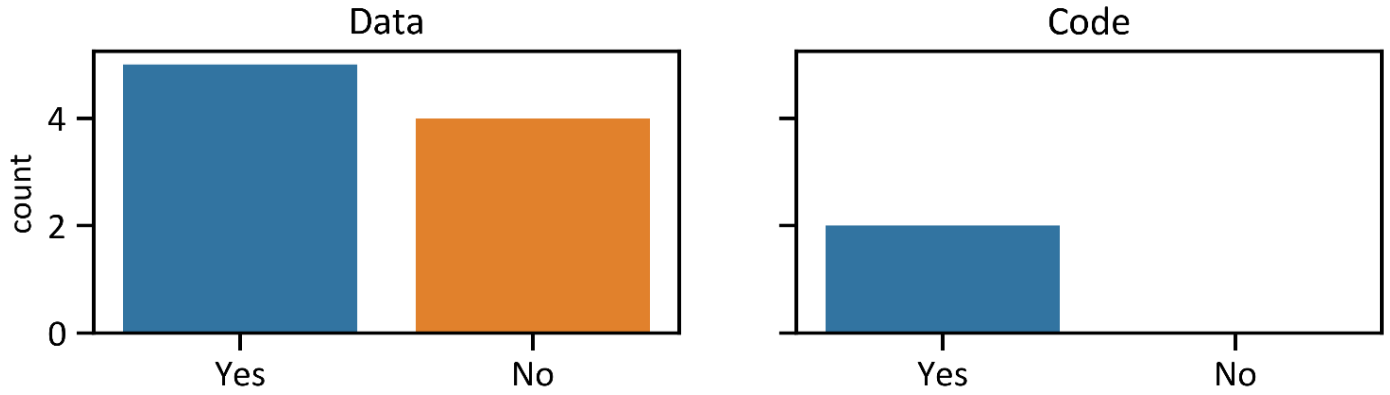


Why have you not made your code available?

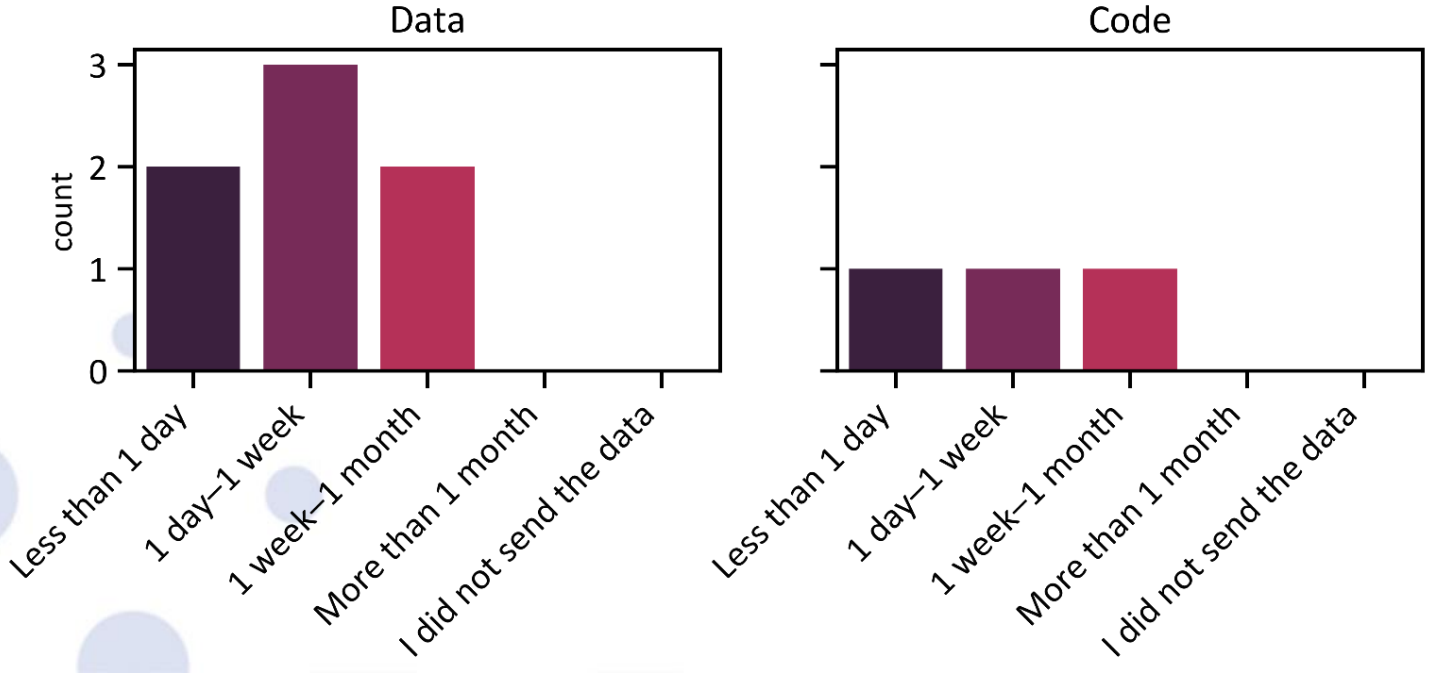


Requests for made codes available

You have made data/code available "on request". Have you had requests?



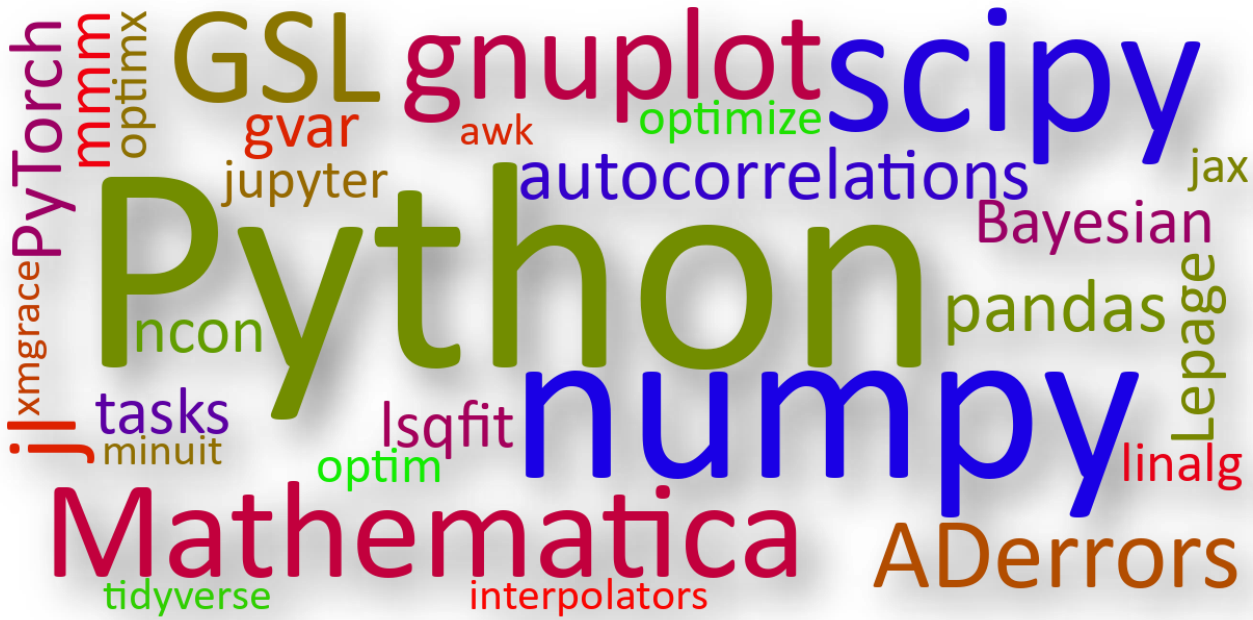
How long did it take you to respond to these requests?



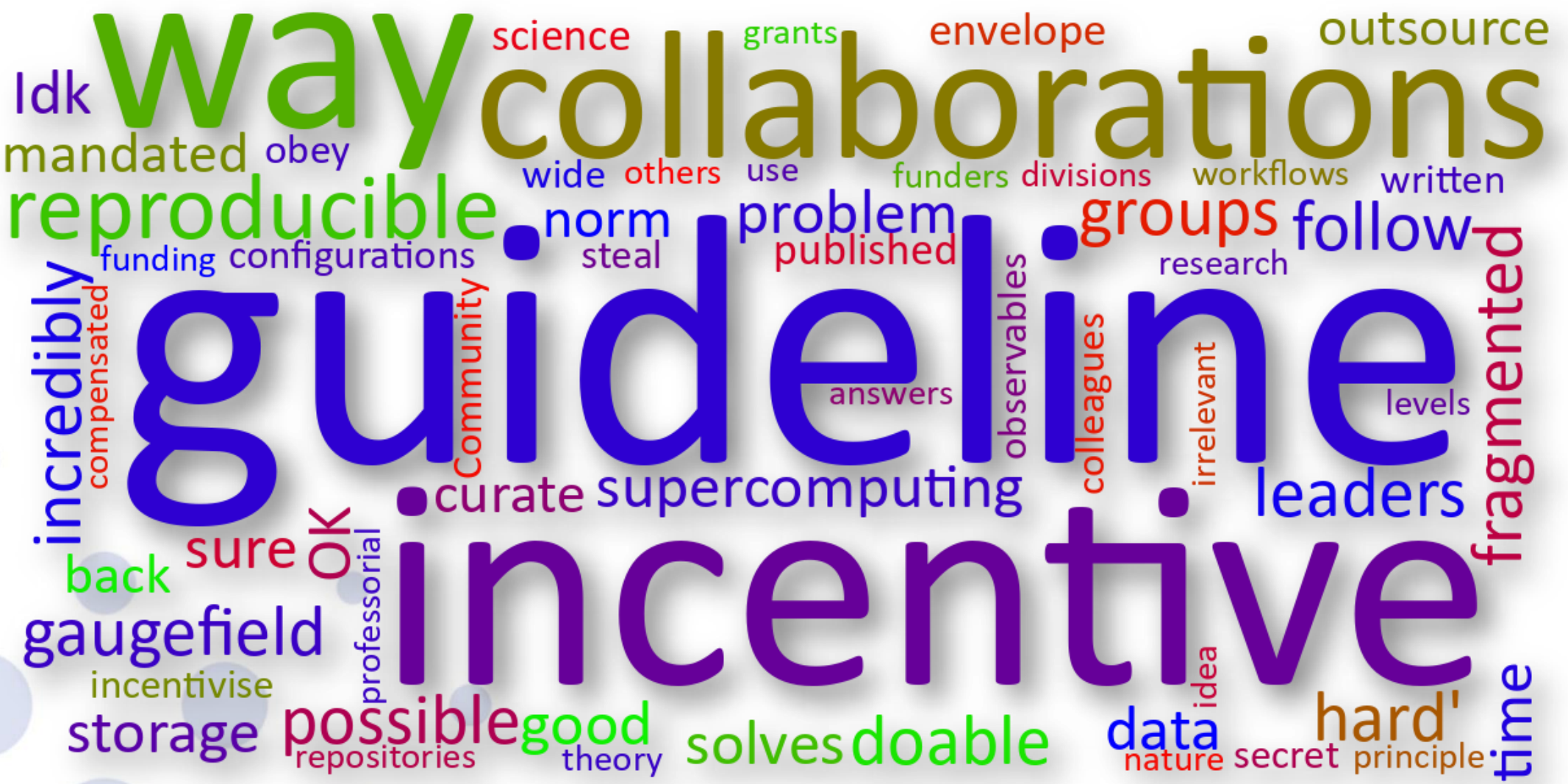
Lattice/non-Lattice tools used

Lattice

Non-Lattice



Incentives for adopting Open Science practices



Guidelines…

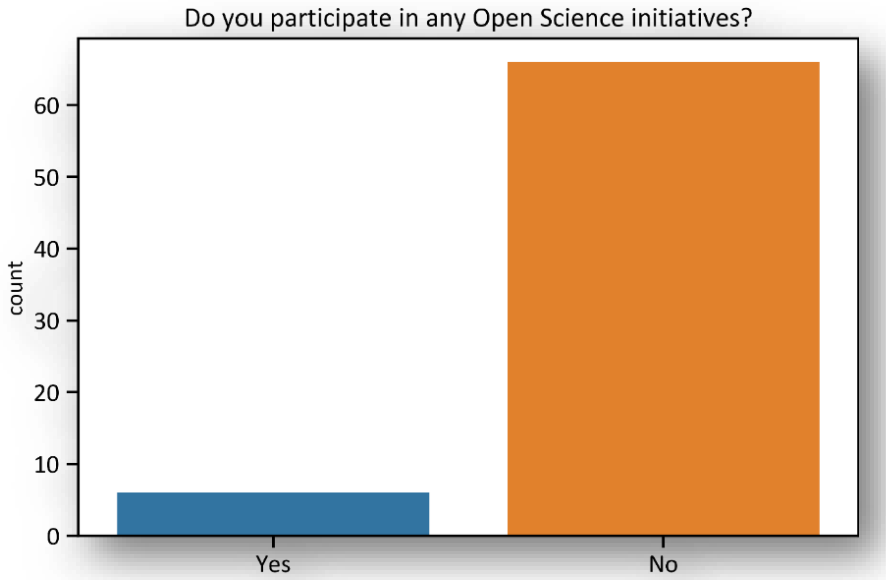
https://www.openaire.eu/

https://www.fairsfair.eu/

https://ni4os.eu/

https://www.eosc-nordic.eu/

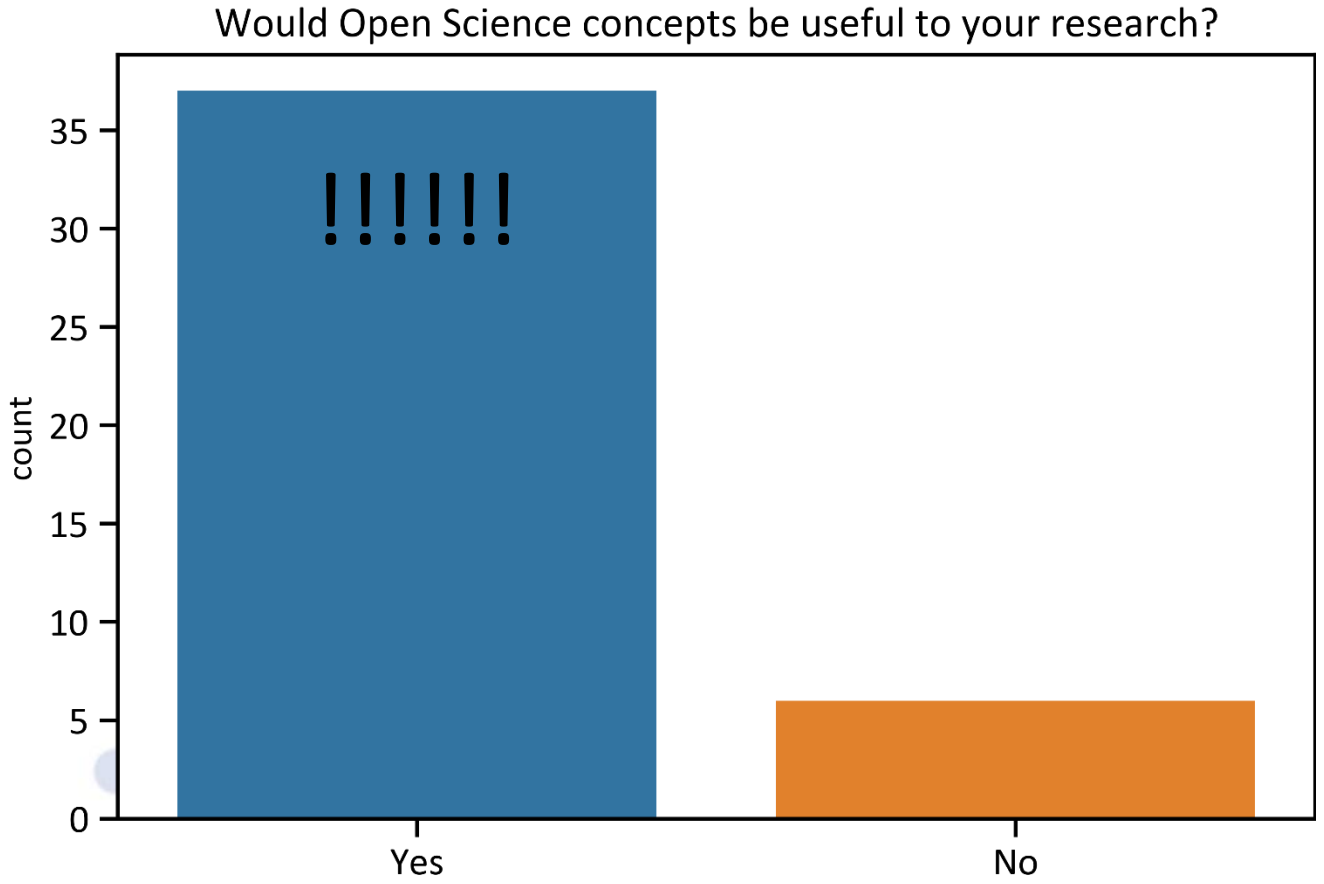
https://www.eosc-pillar.eu/



https://www.go-fair.org/

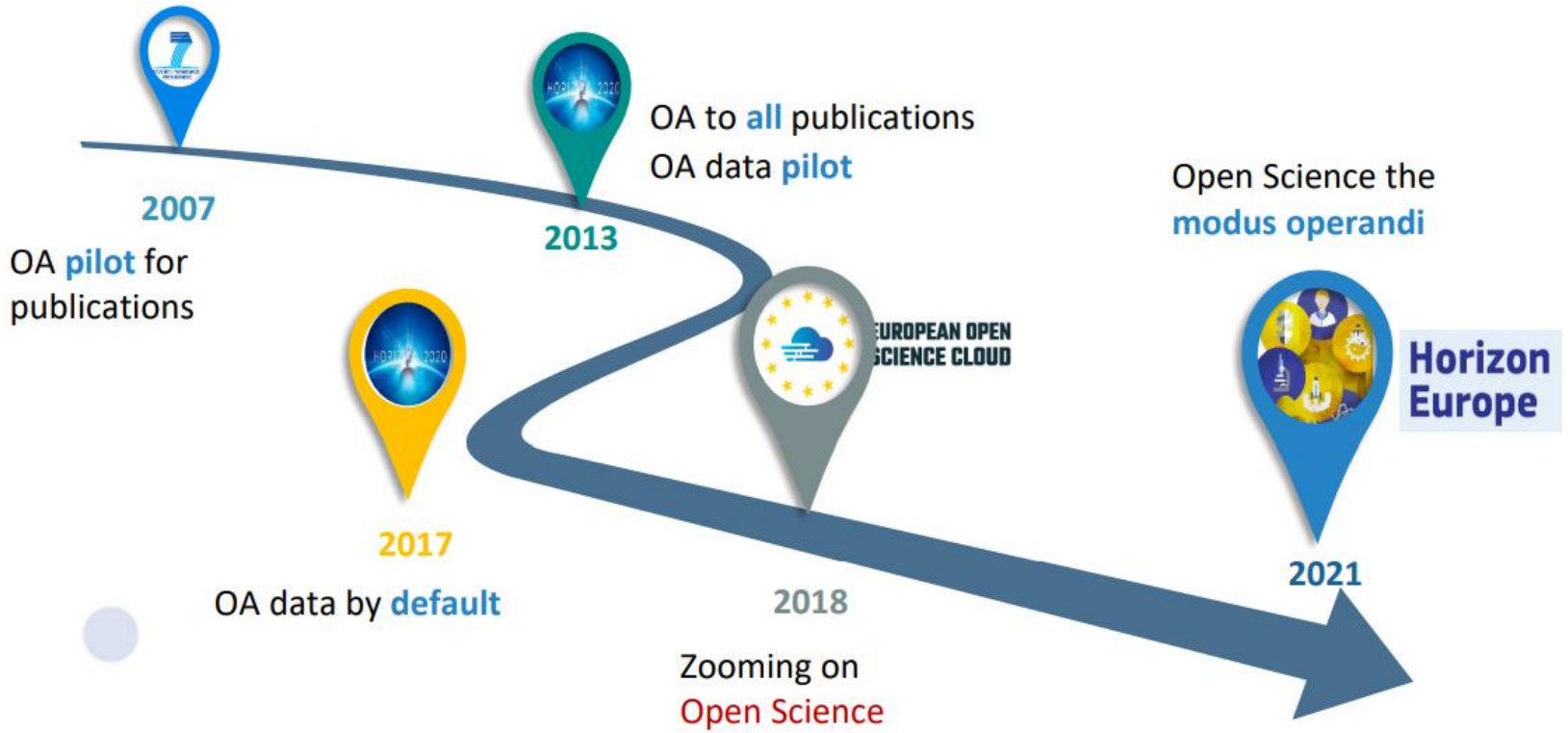
H2020 DMP template: https://ec.europa.eu/research/participants/data/ref/h2020/other/gm/reporting/h2020-tpl-oa-data-mgt-plan-annotated_en.pdf

Does the concept of Open Science help you?



The (European) route to Open Science

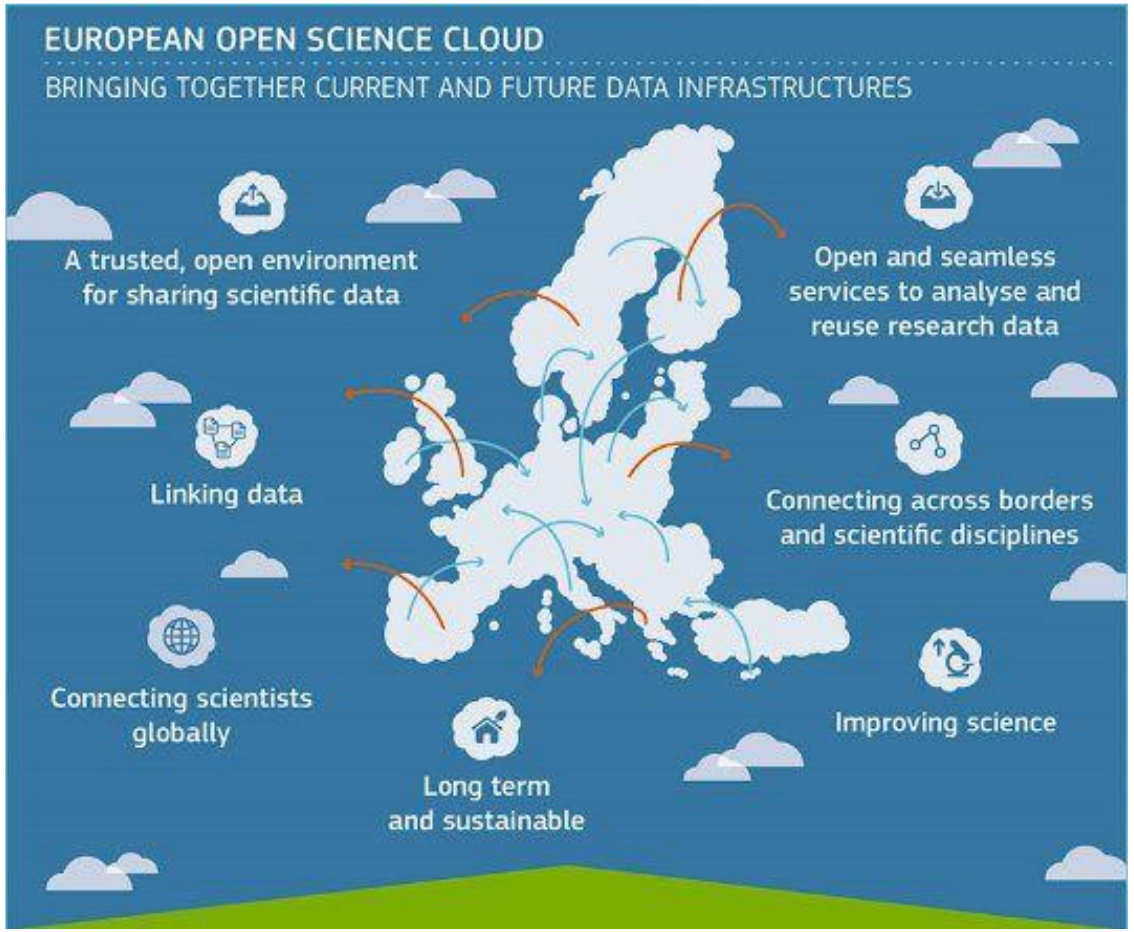
"As open as possible, as closed as necessary", following the FAIR principles and well-documented processes of data handling and re-use



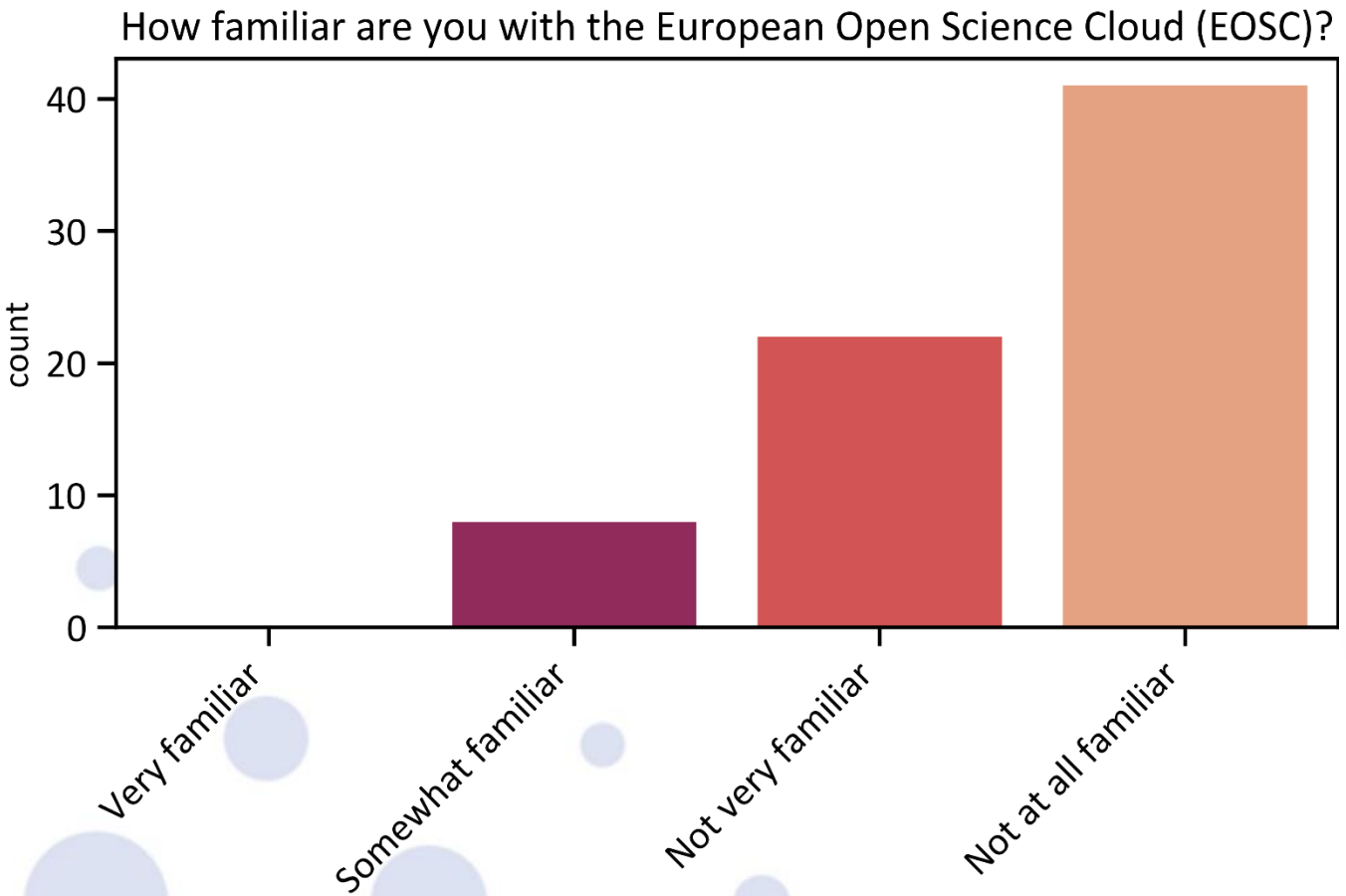
European Open Science Cloud

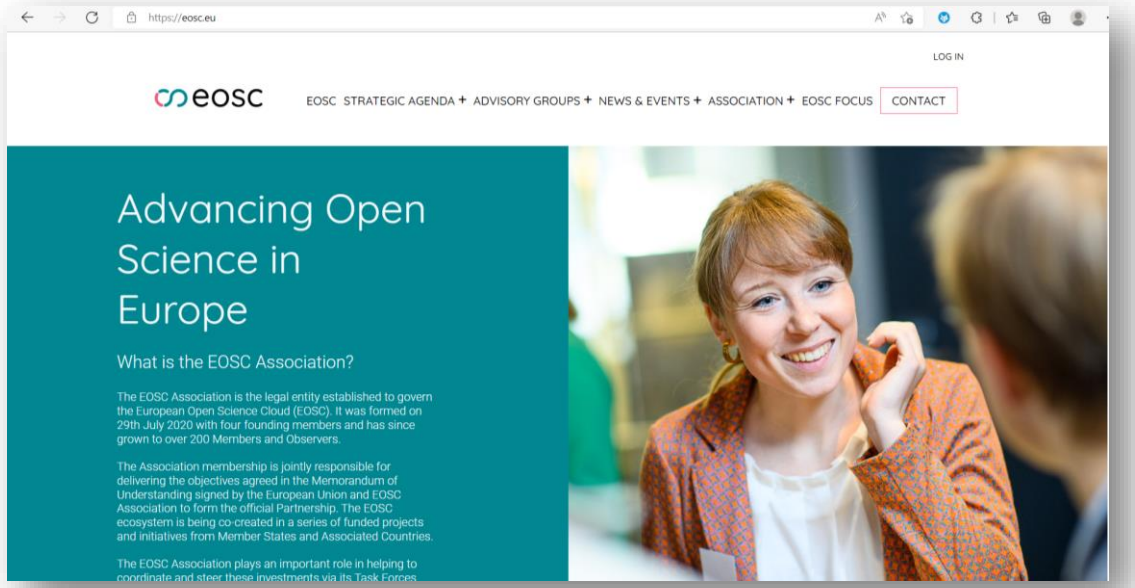
EOSC - ensures that European scientists enjoy the full benefits of data-driven science, by offering “1.7 million European researchers and 70 million professionals in science and technology a virtual environment with free at the point of use, open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines”

2016 Communication on the “European Cloud Initiative”



Familiarity with eosc





Conclusions

- Open Science – *modus operandi*
- Lattice Gauge Theorists need to adopt Open Science best practices
- The majority of the community are willing to be more open
- The majority of the community foresee benefits from Open Science
- We will provide tailored guidelines for Lattice Community
- The survey provides a good starting point to seek for funding within EC
  - Please provide more feedback!
- Initiatives for creating tools to make the hard bits easier

Thanks for your attention

@NI4OS

@NI4OS_eu

@NI4OS.eu

Join NI4OS-Europe Community:

https://ni4os.eu/contact-us

a.athenodorou@cyi.ac.cy

0000-0003-4600-4245

National Initiatives for Open Science in Europe – H2020 Research and Innovation action – contract no. 857645